

# FLORA NEOMEXICANA

## IIIa : FIELD KEYS

SECOND EDITION



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## INTRODUCTION

**THIS IS A HIGHLY ABBREVIATED VERSION OF FLORA NEOMEXICANA III : AN ILLUSTRATED IDENTIFICATION MANUAL**, meant to provide an easily portable identification key and checklist for field use. To that end, this version contains only identification keys to families, genera, and species, and brief statements on species distribution incorporated into the keys themselves. Bibliography, separate family, genus, and species descriptions, keys to infraspecific taxa, etymology, synonymy, distribution maps, and illustrations have all been omitted. Full and complete information can be found in the regular versions of the FLORA NEOMEXICANA series.

Group	Families	Genera	Species	Infraspecific Taxa	Total Taxa
<b>Lycophytes</b>	<b>3</b>	<b>4</b>	<b>15</b>	<b>1</b>	<b>16</b>
<b>Ferns</b>	<b>12</b>	<b>27</b>	<b>75</b>	<b>3</b>	<b>78</b>
<b>Gymnosperms</b>	<b>3</b>	<b>7</b>	<b>29</b>	<b>1</b>	<b>30</b>
<b>Monocotyledonous Plants</b>	<b>26</b>	<b>206</b>	<b>766</b>	<b>62</b>	<b>828</b>
<b>Dicotyledonous Plants</b>	<b>115</b>	<b>830</b>	<b>2932</b>	<b>295</b>	<b>3232</b>
Totals	159	1074	3817	362	4184



## IDENTIFICATION KEYS TO THE FLORA OF NEW MEXICO

## Keys to the Groups and Families

- 1 Stems thick and succulent; leaves reduced to spines and barbs and grouped in definite clusters on the stem; plants cactus-like.....(Dicots) CACTACEAE
- 1 Stems and/or leaves other than above; plants not cactus-like
- 2 Plants truly aquatic, at least most of the plant submerged or floating on the water ..... GROUP I
- 2 Plants not truly aquatic, growing on dry land, or if growing in mud or shallow water then most of the plant extending up out of the water
- 3 Plants parasitic or epiphytic on stems, branches, or roots of other plants, generally without chlorophyll and not green, or if green then clearly growing on and attached to a host plant..... GROUP II
- 3 Plants not obviously parasitic on other plants, but producing chlorophyll and greenish in color
- 4 Spore Plants: Lycophytes (quillworts, clubmosses, spikemosses) and Monilophytes (ferns): plants reproducing by spores, which are borne on the underside of the leaves, in the axils of the leaves, or in cones; seeds not produced; plants moss-like, fern-like, or horsetail-like ..... SPORE PLANTS, p. 7
- 4 Seed Plants: plants reproducing by seeds, which are borne in cones or in flowers; spores not produced; plants grasses, forbs, or woody plants of various habits
- 5 Conifers or Gymnosperms: leaves needle- or scale-like; plants evergreen trees or shrubs; seeds borne in woody or fleshy (berry-like) cones, never borne in true flowers ..GYMNOSPERMS, p. 17
- 5 Flowering Plants or Angiosperms: leaves various, generally not needle- or scale-like; plants often not evergreen; seeds borne in true flowers
- 6 Monocotyledonous Plants: Leaves simple, often sheathing the stem, usually parallel-veined and mostly alternate (rarely opposite or whorled), lacking stipules; flower parts in multiples of 3; vascular bundles scattered throughout the stem, lacking a cambium ring; root system adventitious and fibrous ..... MONOCOTYLEDONOUS PLANTS, p. 21
- 6 True dicots (eudicots) and other non-monocots: Leaves simple or compound, generally not sheathing the stem, usually net veined, alternate, opposite, or whorled, with or without stipules; flower parts in multiples of 2 or 5 (rarely 3); vascular bundles usually joined in a cambium ring; root system various ..... DICOTYLEDONOUS PLANTS, p. 107
- GROUP I: Plants Aquatic**
- 1 Plants floating on the water or completely submersed, not rooted in the soil, the entire plant generally less than 6 cm long
- 2 Plant body disc-shaped, not differentiated into stems and leaves..... (Monocots) ARACEAE
- 2 Plant body differentiated into stems and leaves ..... (Spore Plants) SALVINIACEAE
- 1 Plants floating or rooted in the soil, the entire plant body generally much longer than 6 cm
- 3 Plants not differentiated into stems and leaves ..... various algae, not treated further here
- 3 Plants clearly differentiated into stems and leaves
- 4 Leaves all scale-like or narrowly linear, generally very thin (one or two cells thick) and entire, alternate, often densely overlapping; roots absent ..... various mosses, not treated further here
- 4 Leaves various, but in some or all ways different from above; roots generally present
- 5 Leaves compound or very deeply divided into several segments
- 6 Leaflets 3-4, palmately arranged
- 7 Leaflets 3, acutish at the tips (*Menyanthes*)..... (Dicots) MENYANTHACEAE
- 7 Leaflets 4, rounded at the tips, resembling 4-leaf clover (*Marsilea*)..... (Spore Plants) MARSILIACEAE
- 6 Leaflets more numerous, pinnately arranged
- 8 Leaf segments lanceolate or wider, mostly ascendant into the air (*Rorippa*)..... (Dicots) BRASSICACEAE
- 8 Leaf segments linear, at least on submersed leaves
- 9 Plants free-floating; roots absent or rarely produced
- 10 Leaves alternate with numerous small bladders borne on the leaf segments..... (Dicots) LENTIBULARIACEAE
- 10 Leaves mostly whorled, without bladders ..... (Dicots) CERATOPHYLLACEAE
- 9 Plants rooted in the soil
- 11 Primary leaf divisions pinnate (*Myriophyllum*) ..... (Dicots) HALORAGACEAE
- 11 Primary leaf divisions palmate (*Ranunculus*)..... (Dicots) RANUNCULACEAE
- 5 Leaves simple, the margins entire to shallowly lobed, toothed, or notched, but leaflets or segments not produced
- 12 Leaves peltate, sagittate, or deeply notched, but remaining simple
- 13 Leaves to 6 cm across/long, peltate, the petiole attached near the middle of the blade rather than at the margin or in the sinus (*Hydrocotyle*)..... (Dicots) APIACEAE
- 13 Leaves commonly more than 10 cm across/long, sagittate or deeply notched, the petiole attached in the sinus of the notch

- 14 Leaves pinnately veined, floating flat on the water or slightly submersed.....  
..... (Dicots) NYMPHAEACEAE
- 14 Leaves reticulate veined, generally ascendant out of the water.....  
..... (Monocots) ALISMATACEAE
- 12 Leaves not peltate, sagittate, or deeply notched
- 15 Leaves in whorls
- 16 Flowers numerous on the stem, whorled, sessile, and emergent in the axils of nearly all  
the upper (aerial) leaves; leaves branched pinnate-veined, thick and opaque (*Hippuris*)  
..... (Dicots) PLANTAGINACEAE
- 16 Flowers few, found only in a few of the leaf axils and mostly submersed, sessile  
(pistillate) or on long stalks (staminate); leaves single-veined, thin and nearly  
translucent..... (Monocots) HYDROCHARITACEAE
- 15 Leaves not whorled, clearly either alternate, opposite, or basal
- 17 Leaves floating or emergent out of the water
- 18 Leaves opposite
- 19 Flowers showy, usually more than 5 mm long, often yellowish
- 20 Petals free from each other; ovary inferior; flowers actinomorphic; leaves  
mostly entire (*Ludwigia*)..... (Dicots) ONAGRACEAE
- 20 Petals united, ovary superior; flowers zygomorphic; leaves entire or toothed
- 21 Sepals free, a calyx tube not developed (*Bacopa*).....  
..... (Dicots) PLANTAGINACEAE
- 21 Sepals connate into a well-developed tube (*Erythranthe*).....  
..... (Dicots) PHRYMACEAE
- 19 Flowers not showy, often minute, less than 4 mm long, white or clear-colored
- 22 Stipules absent; blades linear to narrowly spatulate (*Callitriche*).....  
..... (Dicots) PLANTAGINACEAE
- 22 Stipules present; blades lanceolate to elliptic ..... (Dicots) ELATINACEAE
- 18 Leaves alternate or basal
- 23 Small annuals 3-10 cm tall; leaves all basal (*Limosella*).....  
..... (Dicots) SCROPHULARIACEAE
- 23 Perennial plants other than above
- 24 Leaves with pinnate venation (*Polygonum*) ..... (Dicots) POLYGONACEAE
- 24 Leaves with parallel or reticulate venation
- 25 Plants usually a meter or more tall, the shoots and flowering stems  
stiffly erect; cattails ..... (Monocots) TYPHACEAE
- 25 Plants less than a meter tall, the shoots and flowering stems often lax or  
limp
- 26 Mid-vein not at all evident..... (Monocots) PONTEDERIACEAE
- 26 Mid-vein distinct and prominent
- 27 Flowers in axillary or terminal spikes, perfect .....  
..... (Monocots) POTAMOGETONACEAE
- 27 Flowers in unisexual globose heads arranged laterally along a  
zig-zag rachis (*Sparganium*) ..... (Monocots) TYPHACEAE
- 17 Leaves all or mostly submersed under water
- 28 Leaves alternate or basal (occasionally opposite toward the tips of the stems)
- 29 Leaves all basal, the stems not elongate..... (Monocots) ALISMATACEAE
- 29 Leaves borne on elongate stems
- 30 Leaves extremely filiform, about 0.5 mm wide; mature fruits in umbels on  
long coiling peduncles ..... (Monocots) RUPPIACEAE
- 30 Leaves mostly wider than 2 mm; mature fruits in spikes, the peduncles stout  
and stiff..... (Monocots) POTAMOGETONACEAE
- 28 Leaves opposite
- 31 Leaves prominently arranged in right-angle pairs one above the other  
(decussate); flowers on long thread-like stalks extending to the water's surface  
(*Elodea bifoliata*)..... (Monocots) HYDROCHARITACEAE
- 31 Leaves not prominently decussate; flowers completely contained in the leaf axils
- 32 Leaf blades abruptly broadened at the base to sheath the stems (*Najas*)  
..... (Monocots) HYDROCHARITACEAE
- 32 Leaf blades of about equal width throughout, only weakly clasping the stem  
if at all
- 33 Fruits mostly 2-4 per node, crescent-shaped, with a persistent style;  
leaves 1-6 cm long (*Zannichellia*) .....  
..... (Monocots) POTAMOGETONACEAE

- 33 Fruits mostly 1-2 per node, globe-shaped, the style deciduous; leaves mostly less than 2 cm long (*Callitriche*) .....  
 ..... (Dicots) PLANTAGINACEAE

**GROUP II: Plants Parasitic or Epiphytic on Host Plants**

- 1 Plants tiny, no more than 5 mm tall or wide, the vegetative parts embedded within the host plant with only small reddish-brown flowers and a few scale-like leaves evident on the surface of the host; parasitic on *Dalea* ..... (Dicots) APODANTHACEAE
- 1 Plants larger and not as above
- 2 Stems vine-like, not stiffly erect but elongate and twining over the host plant (*Cuscuta*) ..... (Dicots) CONVOLVULACEAE
- 2 Stems not at all vine-like, mostly stiffly erect or woody, never twining
- 3 Plants stem parasites or epiphytes, growing on the aerial portions of a host plant, not growing in the soil
- 4 Plants growing in tight grayish balls about the size of a softball; leaves filiform, 3-15 cm long and about 2 mm wide; true epiphytes, growing on the stems of the host plant but not penetrating its tissues.....(Monocots) BROMELIACEAE
- 4 Plants in bushy yellowish or greenish growths much larger than above; leaves scale-like to broadly ovate, but not filiform as above; parasites, penetrating the tissues of the host plant (mistletoes) ..... (Dicots) VISCACEAE
- 3 Plants root parasites, growing in the soil and attached to the roots or decaying matter of a host plant
- 5 Flowers zygomorphic
- 6 Petals united into a tube; ovary superior ..... (Dicots) OROBANCHACEAE
- 6 Petals separate; ovary inferior..... (Monocots) ORCHIDACEAE
- 5 Flowers actinomorphic
- 7 Plants with chlorophyll, green, not obviously parasitic .....(Dicots) COMANDRACEAE
- 7 Plants lacking chlorophyll, not green (Monotropoideae) ..... (Dicots) ERICACEAE





**SPORE PLANTS: LYCOPHYTES and MONILOPHYTES**

[quillworts, clubmosses, spikemosses, ferns, horsetails]

**Key to the Families**

- 1 Entire plant body floating in or on the surface of water, not rooted in the soil..... SALVINIACEAE
- 1 Plants rooted in soil or rock crevices, though sometimes growing in the water or parts of the plants floating on the water's surface
  - 2 Stems green, hollow and tubular, jointed, prominently ridged longitudinally; leaves brownish and scale-like, forming a circular sheath around the node..... EQUISETACEAE
  - 2 Stems and leaves not as above
    - 3 Plants moss- or grass-like; leaves scale-like or linear, less than 3 mm wide (Lycophytes)
      - 4 Plants grass-like; leaves long and linear; spore-bearing structures embedded in the leaf bases at the base of the plant..... ISOETACEAE
      - 4 Plants moss-like; leaves short and scale-like; spore-bearing structures in the leaf axils or at the branch tips
        - 5 Leaves 1-5 mm long; fertile leaves 4-ranked, the cluster appearing square when viewed from above; spore-bearing sacks (sporangia) of two kinds, some with 4 large spores (female megaspores) and some with numerous smaller spores (male microspores) .. SELAGINELLACEAE
        - 5 Leaves 5-11 mm long; fertile leaves not in well-defined ranks, the cluster appearing round when viewed from above; spore-bearing sacks (sporangia) all of one kind, producing only one kind of spore..... LYCOPODIACEAE
    - 3 Plants fern- or clover-like; leaves not scale-like or linear, more than 3 mm wide
      - 6 Blades resembling 4-leaf clovers, divided into 4 palmate, deltoid, entire segments ..MARSILEACEAE
      - 6 Blades not resembling 4-leaf clovers and not so divided
        - 7 Plants with a single leaf borne on an erect, above-ground stem ..... OPHIOGLOSSACEAE
        - 7 Plants with several leaves from below-ground stems (rhizomes)
          - 8 Clusters of sporangia borne along the margins of the leaves
            - 9 Rhizomes and petiole bases covered with hairs only one cell wide; petioles strongly grooved (*Pteridium*)..... DENNSTAEDTIACEAE
            - 9 Rhizomes and petiole bases bearing linear to ovate scales several cells wide; petioles round or nearly so ..... PTERIDACEAE
          - 8 Clusters of sporangia borne away from the margins of the leaves on the undersurface of the blades
            - 10 Sporangia scattered along the veins and not grouped into distinct clusters; indusia absent..... PTERIDACEAE
            - 10 Sporangia grouped into distinct clusters (sori); indusia absent or present
              - 11 Indusia absent
                - 12 Blades only once pinnately lobed or divided, the primary lobes not lobed themselves ..... POLYPODIACEAE
                - 12 Blades two or more times pinnately lobed or divided, or at least some of the primary lobes with lobes themselves ..... CYSTOPTERIDACEAE
              - 11 Indusia present
                - 13 Sori elongate, straight or horseshoe-shaped
                  - 14 Blades simple or once pinnate ..... ASPLENIACEAE
                  - 14 Blades two or more times pinnate-pinnatifid ..... ATHYRIACEAE
                - 13 Sori round
                  - 15 Indusia round or round-reniform, attached from within the sori ..... DRYOPTERIDACEAE
                  - 15 Indusia otherwise
                    - 16 Indusia of filaments or scale-like segments arranged in a cup-like fashion from underneath the sorus ..... WOODSIACEAE
                    - 16 Indusia hood-like (sometimes inconspicuous in mature leaves), basally attached under one side of sorus..... CYSTOPTERIDACEAE

**ASPLENIACEAE SPLEENWORT FAMILY****Asplenium**

- 1 Fronds simple, broadly ribbon- to grass-like
  - 2 Fronds less than 3 mm wide, linear, frequently forking with 1-3 small narrow projections .. *A. septentrionale* (Linnaeus) Hoffman ●Cliff crevices, cracks of boulders; scattered locations, mostly northern.
  - 2 Fronds more than 10 mm wide, linear-lanceolate to lanceolate ..... *A. scolopendrium* Linnaeus ●On calcareous rocks in sinkholes, at cave entrances, always in deep shade.
- 1 Fronds pinnate with definite leaflets
  - 3 Apex of the blade gradually reduced to a whip-like rooting tip with a terminal bud.....*A. palmeri*

## Spore Plants - Athyriaceae

Maxon ●Shaded rocky slopes, crevices of cliffs; reported for New Mexico, but no valid specimens have been located.

### 3 Apex of the blade not whip-like nor rooting

4 Pinnae alternate..... *A. platyneuron*  
(Linnaeus) Britton, Stearns & Poggenburg ●Forest floor and among rocks, often on poor and sandy soil; northeast corner of the state.

### 4 Pinnae appearing mostly opposite (often alternate distally)

5 Pinnae mostly 10-20 mm long, bases notably asymmetric, with a lobe pointing toward frond tip.....  
..... *A. resiliens*  
Kunze ●Terrestrial or in rock crevices, often on limestone, pine-oak forests; mostly southern.

5 Pinnae mostly 3-8 mm long, asymmetrically cuneate at the base ..... *A. trichomanes*  
Linnaeus ●Cliff crevices and ledges, talus slopes; scattered areas in mountains.

## ATHYRIACEAE LADY-FERN FAMILY

### Athyrium

*A. filix-femina* (Linnaeus) Roth ex Mertens ●Moist woods, meadows, stream banks in mountain areas.

## CYSTOPTERIDACEAE BLADDER-FERN FAMILY

1 Indusia laterally attached..... *Cystopteris*  
1 Indusia absent ..... *Gymnocarpium*

### Cystopteris

1 Rachises densely covered with gland-tipped hairs; bulblets frequently borne along the rachis ..... *C. bulbifera*  
(Linnaeus) Bernhardt ●Forming streamer-like, hanging clumps on moist limestone cliffs and ledges; known only from Los Alamos County.

### 1 Rachises mostly without gland-tipped hairs; bulblets absent

2 Fronds 2- to 3-pinnate; stems usually long-creeping..... *C. reevesiana*  
Lellinger ●Commonly in soil or in a thin soil layer of rocks; widespread in the state.

### 2 Fronds mostly once pinnate or pinnatifid; stems short-creeping

3 Pinnae at acute angle to the rachis, often curving toward the blade apex, the margins crenulate or with rounded teeth..... *C. tenuis*  
(Michaux) Desvoux ●Shaded rock, cliff faces, and also the forest floor; barely entering New Mexico in the Four Corners region.

3 Pinnae perpendicular to the rachis, not curving toward the apex, the margins with sharp teeth ... *C. fragilis*  
(Linnaeus) Bernhardt ●Mostly on cliff faces in the northern mountains; easily confused with *C. reevesiana* which prefers boulders or soil over cliffs.

### Gymnocarpium

*G. dryopteris* (Linnaeus) Newman ●Cool, shady forests in montane areas; northern mountains.

## DENNSTAEDTIACEAE BRACKEN FAMILY

### Pteridium

*P. aquilinum* (Linnaeus) Kuhn ●Mesic, montane forests; widespread.

## DRYOPTERIDACEAE SHIELD-FERN FAMILY

1 Blades pinnate-pinnatifid to twice-pinnate, the pinnae pinnatifid-lobed nearly throughout; indusia attached laterally at the sinus..... *Dryopteris*

1 Blades primarily once-pinnate, the pinnae toothed or pinnatifid only basally; indusia attached at the center (peltate)

2 Pinnae 1-3 cm long; sori scattered in ± single row on both sides of midvein..... *Polystichum*

2 Pinnae 2-9 cm long; sori in ± 2 longitudinal rows on both sides of midvein ..... *Phanerophlebia*

### Dryopteris

*D. filix-mas* (Linnaeus) Schott ●Moist, shady sites in mountain to subalpine forests, widespread.

### Phanerophlebia

*P. auriculata* Underwood ●In soil or rock crevices in canyons and ravines; southwestern to south central areas.

### Polystichum

*P. scopulinum* (D.C. Eaton) Maxon ●Bases of boulders and in rocky crevices; known from a single collection in Cibola County.

## EQUISETACEAE HORSETAIL FAMILY

### Equisetum

1 Stems of two kinds, sterile and fertile, the sterile highly branched and bushy, the sterile unbranched.. *E. arvense*  
Linnaeus ●Riverbanks, stream sides, marshes; widespread in mountain areas except for eastern plains and southern border counties.

1 Stems all alike, unbranched

- 2 Spores white, misshapen  
 3 Sheaths green; teeth prominent ..... *E. ×nelsonii*  
 (A. A. Eaton) J.H.Schaffner •Riverbanks, lakeshores; known from Bandelier National Monument,  
 Sandoval County.  
 3 Sheaths dark-girdled; teeth usually deciduous ..... *E. ×ferrissii*  
 Clute. •Riverbanks, stream banks, lake shores; scattered locations.
- 2 Spores green, spherical  
 4 Sheaths dark-girdled at most of the nodes; teeth usually deciduous, articulation line visible ..... *E. hyemale*  
 Linnaeus •Riverbanks, lakeshores, woodlands; widespread.  
 4 Sheaths green or obscurely girdled at the nodes; teeth deciduous or persistent, articulation line lacking  
 5 Cone apex rounded, aerial stems annual ..... *E. laevigatum*  
 A. Braun •Riverbanks, along streams, moist prairies; very widespread.  
 5 Cone apex pointed or rounded, aerial stems perennial  
 6 Sheath teeth usually shed; cone apex rounded to apiculate with blunt tip; stem ridges flattened or ±  
 convex (see lead 5) ..... *E. laevigatum*  
 6 Sheath teeth usually persistent; cone apex sharply apiculate; stem ridges minutely grooved .....  
 ..... *E. variegatum*  
 Schleicher ex F. Weber & D. Mohr •Wet woods, riverbanks, lakeshores; known only along the  
 San Juan River in San Juan County.

## ISOËTACEAE QUILLWORT FAMILY

## Isoëtes

*I. bolanderi* Engelman •High altitude persistent lakes or ponds, uncommon; known only from McKinley and Rio Arriba Counties.

## LYCOPODIACEAE CLUB-MOSS FAMILY

- 1 Horizontal stems present, creeping, the aerial branches not bunched but arising singly; spores borne in cones  
 ..... *Lycopodium*  
 1 Horizontal stems absent, the aerial branches bunched together; spores borne in axils of unmodified leaves, not  
 in cones ..... *Huperzia*

## Huperzia

*H. lucidula* (Michaux) Trevisan •Mountains, foothills; known only from a single collection from a piñon-juniper woodland in Santa Fe County.

## Lycopodium

- 1 Cones single and sessile at the stem tips; leaves rarely ascending ..... *L. annotinum*  
 Linnaeus •Moist mountain forests, exposed grassy or rocky areas; north central mountains.  
 1 Cones 2-3 at the end of a peduncle extended beyond the stem tips; leaves ascending ..... *L. clavatum*  
 Linnaeus •Moist fields and forests, bogs, north central mountains; Sandoval County; uncommon.

## MARSILEACEAE PEPPERWORT FAMILY

## Marsilea

*M. vestita* Hooker & Greville •In ponds, wet depressions; numerous scattered locations.

## OPHIOGLOSSACEAE ADDER'S TONGUE FAMILY

[Key adapted from Farrar & Popovich 2010]

- 1 Trophophore simple, entire; veins reticulate; sporophore with sporangia clearly sunken in axis... *Ophioglossum*  
 1 Trophophore compound (rarely simple and entire in *Botrychium simplex*); veins forked; sporangia not sunken  
 in axis, exposed as sessile to short-stalked clusters  
 2 Trophophore no more than twice divided, usually less than 4.5 cm wide, mostly ternate to pinnate (rarely  
 simple) ..... *Botrychium*  
 2 Trophophore ternate, 3- to 4-times divided (less in very small plants), generally more than 6 cm wide  
 3 Leaf persistent and evergreen for one year; trophophore and sporophore joined ± at ground level;  
 trophophore stalked; pinnae thick and leathery ..... *Sceptridium*  
 3 Leaf withering away in the fall, not persistent nor evergreen; trophophore and sporophore joined well  
 above ground level; trophophore sessile; pinnae thin and delicate ..... *Botrypus*
- Botrychium** [Key adapted from Farrar & Popovich 2010, 2012].  
 1 Trophophore blade width (at the base) greater than or approximately equal to the blade length  
 2 Sporophore absent or tiny (mostly less than 2 mm) and undeveloped  
 3 Pinnae apices cuneate to narrowly acute, acute, forming an angle of ± 45-60°, sharply pointed; pinnae  
 thin and delicate ..... go to *Botrypus*  
 3 Pinnae apices broadly acute to obtuse, forming an angle of ± 75-100°, rounded or bluntly pointed; pinnae  
 thick and leathery ..... go to *Sceptridium*  
 2 Sporophore present and conspicuous  
 4 Trophophore sessile or short-stalked, joined to the sporophore well above the ground at the top of the

common stalk

- 5 Pinnae thin and delicate; plants lustrous when fresh; sporophore pinnately branched; sporophore stalk length longer than the total trophophore length ..... go to *Botryopus*
- 5 Pinnae firm, not delicate; sporophore usually ternately branched; sporophore stalk length shorter than to nearly equal to total trophophore length
  - 6 Lobes of basal pinnae elongate and pointed; all but the uppermost pinnae acutely lobed; plants never glaucous ..... *B. lanceolatum*  
(S.G. Gmelin) Angström •High elevations in the northern mountains.
  - 6 Lobes of basal pinnae elongate or not; pinnae above the basal pair often undissected; plants usually glaucous when fresh ..... go to 14
- 4 Trophophore long-stalked, joined to the sporophore near or below ground level
  - 7 Pinnae above the basal pair mostly pinnately compound or lobed ..... go to *Sceptridium*
  - 7 Pinnae pairs above the basal pair absent or mostly simple and fan-shaped, sometimes palmately lobed ..... *B. simplex*  
E. Hitchcock •Dry fields, marshes, moist to dry meadows, roadside ditches; northern mountains.
- 1 Trophophore blade longer than wide
  - 8 Basal pinnae entire or palmately dissected (trophophore undivided in small *B. simplex*), broadly to narrowly fan-shaped, wedge-shaped, or linear in outline, clearly broadest at the outer margin
  - 9 Trophophore and sporophore joined near ground level; sporophore stalk at maturity usually much longer than the total trophophore length, stalk lax, often arcuate; plants of wet areas ..... *B. simplex*  
E. Hitchcock •Dry fields, marshes, moist to dry meadows, roadside ditches; northern mountains.
  - 9 Trophophore and sporophore joined well above ground level; sporophore stalk length various, stalk erect
    - 10 Spans of basal pinnae less than 120° (often less than 100°)
      - 11 Sporophore stalk approximately ½ or less the length of the trophophore; trophophore sessile or with stalk shorter than the average of the distances between the first (basal) and second, and second and third, lowermost pinnae pairs ..... *B. campestris*  
W.H. Wagner & Farrar •Meadows, fen-like seeps, gravelly roadsides; known only from McKinley County.
      - 11 Sporophore stalk ½ or more the length of the trophophore; trophophore stalk ± equal to or longer than the average of the distances between the first (basal) and second, and second and third, lowermost pinnae pairs
        - 12 Plants green to yellow-green when fresh; pinnae entire to symmetrically 3 or 5 (odd) lobed, middle lobes often larger; stalks of lower pinnae appearing narrow, stalk widths approximately ¼ the pinnae widths; lower sporophore branches stalked, sporangia not obscuring the sporophore rachis ..... *B. minganense*  
Victorin •Disturbed ground at high elevations, often old logging roads, ski runs, clear cuts, mostly in the northern mountains, but also in Lincoln County.
        - 12 Plants pallid (pale) or whitish blue-green when fresh; pinnae entire to crenate to asymmetrically cleft into two principle lobes, upper lobe larger and more developed; stalks of lower pinnae not appearing narrow, stalk widths approximately ½ or more the pinnae widths; lower sporophore branches usually not stalked, sporangia partially obscuring the sporophore rachis ..... *B. "furculatum"*  
•Subalpine meadows and forest openings in the northern mountains.
    - 10 Spans of basal pinnae greater than 120° (often greater than 150°)
      - 13 Fresh plants deep green, dull to somewhat lustrous; pinnae symmetrically fan-shaped with abrupt differentiation between outer and side margins; sporophore stalk at maturity (spore release or later) equal to or longer than the length of the trophophore; basal sporophore branches generally ascending and not twisted ..... *B. neolunaria*  
Stensvold & Farrar •Poorly to moderately well-drained open areas dominated by perennial, herbaceous vegetation; mostly northern mountains, but also from Lincoln County.
      - 13 Fresh plants green to yellow-green, lustrous; pinnae ± round without abrupt differentiation between outer and side margins, basal pinnae often asymmetrical with lower half of the outer margin extended outward and downward; sporophore stalk at maturity less than the length of the trophophore; basal sporophore branches ± spreading and twisted so that sporangia point outward or downward ..... *B. tunux*  
Stensvold & Farrar •Very high elevations near tree line, loose scree slopes; known only from Taos County.
  - 8 Basal pinnae pinnately dissected to (rarely) entire, ovate to elliptic in outline, broadest at the base or middle
    - 14 Lobes of basal pinnae divergent (like spread fingers); upper pinnae and lobes of lower pinnae narrowly elliptic-elongate with mostly acute apices (less than 90°)
    - 15 Trophophore broadly triangular or pentangular in outline, ± as long as broad; lustrous dark green when fresh; sporophore ternately branched; sporangia bright yellow before spore release ..... *B. lanceolatum*  
(S.G. Gmelin) Angström •High elevations in the northern mountains.

- 15 Trophophore ovate to narrowly triangular in outline, longer than broad; somewhat lustrous to dull green when fresh; sporophore usually pinnately branched; sporangia dull yellow before spore release..... *B. echo*  
W.H. Wagner ●High elevations mostly in the northern mountains, disturbed gravelly flats, meadows, clear-cut areas.
- 14 Lobes of basal pinnae parallel to convergent (not spreading); upper pinnae and lobes of lower pinnae ovate with mostly obtuse apices (more than 90°)
- 16 Fresh trophophore lustrous green; all but the uppermost pinnae dissected or lobed on both the upper and lower margins; sporophore pinnately divided; common stalk, if not entirely green, uniformly maroon toward the base..... *B. pinnatum*  
H. St. John ●High elevation disturbed grassy slopes, old logging roads, woods; mostly northern mountains.
- 16 Fresh trophophore weakly to distinctly glaucous blue-green, not lustrous; pinnae above the basal pair often entire or shallowly dissected (often only on the lower margin); sporophore ternately divided; common stalk, if not entirely green, with a maroon stripe extending downward from the base of the trophophore..... *B. hesperium*  
(Maxon & R.T. Clausen) W.H. Wagner & Lellinger ●Grassy slopes, old roads, other moist ground at high elevation in the northern mountains.

**Botrypus**

*B. virginianus* (Linnaeus) Michaux ●Moist shady forests in the northern mountains; known only from Los Alamos County.

**Ophioglossum**

*O. engelmannii* Prantl ●Clayey depressions among limestone ridges.

**Sceptridium**

*S. multifidum* (S.G. Gmelin) M. Nashida ex Tagawa ●Marshy streamside meadows, moist forests in the northern mountains.

**POLYPODIACEAE POLYPODY FAMILY****Polypodium**

- 1 Rhizome scales entire and symmetric, concolorous; blades up to 7 cm wide; modified sporangia (and indument) absent..... *P. hesperium*  
Maxon ●Cracks and ledges on non-calcareous substrates in forested mountains; scattered locations.
- 1 Rhizome scales toothed and contorted distally, with a dark median band; blades up to 4 cm wide; modified sporangia (sporangia) forming an indument..... *P. saximontanum*  
Windham ●Cracks and ledges on rocks, usually granitic; known only from Rio Arriba county.

**PTERIDACEAE BRAKE FAMILY**

[Key to genera by Patrick J. Alexander]

- 1 Blades whitish- or yellowish-farinoso on the lower surface
- 2 Leaves palmatifid or pinnate-pinnatifid; smallest divisions of the leaf sessile, generally not distinctly separate
- 3 Sporangia only along the leaf margin, which is reflexed to form a false indusium..... *Notholaena*
- 3 Sporangia scattered along veins, leaf margin not forming a false indusium..... *Pentagramma*
- 2 Leaves twice-pinnate or more compound; leaflets stalked, clearly distinct..... *Argyrosma*
- 1 Blades glabrous, pubescent, or scaly on the lower surface, but not whitish- or yellowish-farinoso
- 4 Sporangia scattered along veins, leaf margin not forming a false indusium
- 5 Leaves once-pinnate to pinnate-pinnatifid, linear..... *Astrolepis*
- 5 Leaves palmatifid, pentagonal or deltate in outline..... *Bommeria*
- 4 Sporangia only along the leaf margin, which is reflexed to form a false indusium
- 6 Rachis green or yellowish; fertile and vegetative leaves strongly dimorphic; alpine or subalpine habitats..... *Cryptogramma*
- 6 Rachis brownish to black; fertile and vegetative leaves not or only slightly dimorphic; various habitats but rarely alpine or subalpine
- 7 Rachis pubescent or scaly
- 8 Surfaces of the leaflets pubescent or scaly or, if glabrous, then the leaflets toothed to pinnatifid..... *Myriopteris*
- 8 Surfaces of the leaflets glabrous (rarely with a few scattered hairs on the central vein); leaflets not toothed or pinnatifid..... *Pellaea*
- 7 Rachis glabrous
- 9 Leaflets toothed or shallowly lobed..... *Adiantum*
- 9 Leaflets entire
- 10 Stem scales bicolored..... *Pellaea*
- 10 Stem scales not bicolored (*A. microphylla*)..... *Argyrosma*

**Adiantum**

*Adiantum capillus-veneris* Linnaeus ●Often found hanging on wet rocks, ledges, and canyon walls; scattered locations, mostly southern.

**Argyrochosma**

- 1 Lower surface of blades glabrous, lacking whitish mealy covering.....*A. microphylla*  
(Mettenius ex Kuhn) Windham ●Rocky limestone hillsides and cliffs in the southeastern region.
- 1 Lower surface of blades obscured by whitish mealy covering
  - 2 Ultimate leaf segments jointed, the dark color of the stalks stopping abruptly at the base of the segment, the margins of the segments flat, not recurved .....*A. incana*  
(C. Presl) Windham ●Volcanic ledges and canyon walls; southwestern.
  - 2 Ultimate leaf segment not jointed, the dark color of the stalks continuing into the base of the segment on the lower surface, the margins of the segments recurved
    - 3 Rachises flexuous, zig-zag.....*A. fendleri*  
(Kunze) Windham ●Rocky slopes and cliffs, usually on granite or basalt; scattered mountain locations.
    - 3 Rachises ± straight, not zig-zag.....*A. limitanea*  
●Rocky slopes and cliffs, usually on calcareous or volcanic substrate; southwestern.

**Astrolepis**

- 1 Largest leaf segments 4-7 mm long; most scales on the upper blade surface circular to elliptic and attached in the middle, those on the lower surface ovate and 0.5-1 mm long .....*A. cochisensis*  
(Gooding) D.M. Benham & Windham ●Limestone cliffs and rocky slopes mostly in the southern portion of the state below 6500 ft.
- 1 Largest leaf segments 7-35 mm long; most scales on the upper blade surface elongate and attached basally, those on the lower surface lanceolate and 1-1.5 mm long
  - 2 Scales on the upper leaf surface dense, persistent; largest leaf segments asymmetrically lobed or entire.....*A. integerrima*  
(Hooker) D.M. Benham & Windham ●Rocky hillsides and cliffs, usually on limestone or other calcareous substrates; widespread, but more commonly southern.
  - 2 Scales on the upper leaf surface sparse, often deciduous; largest leaf segments usually symmetrically lobed
    - 3 Upper leaf surface sparsely scaly, at least some scales persistent, the scales 2-4 cells wide; scales of lower leaf surface ciliate with coarse marginal projections; leaf segments shallowly lobed..*A. windhamii*  
D.M. Benham ●On calcareous and non-calcareous hillsides, cliffs, and rocky slopes; southern third of the state.
    - 3 Upper leaf surface sparsely scaly to glabrescent, most scales deciduous with age, the scales 1-2 cells wide; scales of lower leaf surface ciliate-dentate with delicate marginal projections; leaf segments usually deeply lobed.....*A. sinuata*  
(Lagasca ex Schwartz) D.M. Benham ●Rocky slopes and cliffs on calcareous and non-calcareous substrates; southern.

**Bommeria**

*B. hispida* (Mettenius ex Kuhn) Underwood ●Shady rocky ledges and rock crevices in the southern foothills and dry mountains.

**Cryptogramma**

*C. acrostichoides* R. Brown ●Non-calcareous cliff faces, talus, and rocky slopes; northern forests, often at high elevation.

**Myriopteris**

- 1 Midveins with multiseriate scales on the lower surface, sometimes intermixed with hairs; vernation not circinate, the expanding leaves hooked but not coiled at the tips
  - 2 Rachises grooved on one side; ultimate segments spatulate; sori discontinuous, confined to the lobes.....*M. pringlei*  
(Davenport) Grusz & Windham ●Rocky slopes and ledges, usually on igneous substrates. Often reported for New Mexico, but this is a strictly Sonoran Desert fern; perhaps to be found in the bootheel region, if at all.
  - 2 Rachises rounded to slightly flattened, not grooved; ultimate segments round, elliptic, or oblong; sori ± continuous around the margins
    - 3 Ultimate laminar portion of segments scabrous, covered with stiff hairs; largest fertile ultimate segments 3-5 mm long.....*M. scabra*  
(C. Christensen) Grusz & Windham ●Rocky plains and bluffs in the southeastern region, usually on limestone; not common.
    - 3 Ultimate laminar portion of segments smooth, lacking stiff hairs; largest fertile ultimate segments less than 3 mm long
      - 4 Midvein scales linear, inconspicuous, the largest less than 0.5 mm wide.....*M. tomentosa*  
(Link) Fée ●Rocky slopes and ledges on a variety of substrates, including limestone and granite, in the southern third of the state.
      - 4 Midvein scales lanceolate to ovate, conspicuous, the largest 0.4-1.5 mm wide
        - 5 Margins of midvein scales entire to erose or denticulate, not ciliate

- 6 Ultimate segments glabrous on the upper surface; stems long-creeping; stem scales mostly uniformly colored ..... *M. fendleri* (Hooker) E. Fournier ●Widespread on rocky slopes and ledges.
- 6 Ultimate segments pubescent on the upper surface; stems compact; stem scales mostly bicolored with a dark central portion and a lighter margin
- 7 Segments densely tomentose with fine hairs on the lower surface in addition to the midvein scales, which do not conceal the segment ..... *M. rufa* Fée ●Cliffs and ledges on a variety of substrates throughout the state.
- 7 Segments nearly glabrous below except for the midvein scales that usually nearly conceal the segment..... *M. windhamii* Grusz ●On limestone cliffs and ledges in the southern third of the state.
- 5 Margins of midvein scales ciliate, especially near the base
- 8 Segments appearing densely tomentose on the upper surface, the midvein scales with fine curly cilia forming an entangled mass..... *M. lindheimeri* (Hooker) J. Smith ●Cliffs and ledges on a variety of substrates; southwestern.
- 8 Segments appearing glabrous or sparsely pubescent above, the midvein scales with coarse cilia that are not strongly entangled
- 9 Segments appearing glabrous above; midvein scales often ciliate only in the basal ½; stem scales usually brown, uniformly colored..... *M. wootonii* (Maxon) Grusz & Windham ●Widespread on usually igneous cliffs and ledges.
- 9 Segments appearing sparsely pubescent above; midvein scales usually ciliate the entire length; stem scales dark brown, often bicolored..... *M. yavapensis* (T. Reeves ex Windham) Grusz & Windham ●Rocky slopes, cliffs, and ledges of igneous origin; southwestern.
- 1 Midveins lacking multiseriate scales, but pubescent or glabrous, or midvein absent; venation circinate or not, the expanding leaves tightly coiled at the tip in most species
- 10 Rachises and segments essentially glabrous; petioles grooved for most their length..... *M. wrightii* (Hooker) Grusz & Windham ●Ledges and rocky slopes on igneous substrates; southwestern.
- 10 Rachises and often the segments pubescent or glandular; petioles never grooved below the middle
- 11 Rachis hairs of two different kinds, long divergent hairs and tortuous appressed hairs; segments nearly glabrous below..... *M. alabamensis* Maxon ●Rocky slopes and cliffs on a variety of substrates, widespread.
- 11 Rachis hairs all the same; segments conspicuously pubescent
- 12 Ultimate segments elongate, not beadlike, the largest 1-7 mm long; blades pinnate-pinnatifid throughout ..... *M. aurea* (Poiret) Grusz & Windham ●Cliffs and ledges, rarely on limestone; southern border areas.
- 12 Ultimate segments round to slightly oblong, beadlike, the largest 1-3 mm long; blades 3-pinnate at the base..... *M. gracilis* Fée ●Cliffs and ledges, usually on limestone or sandstone; widespread.

**Notholaena**

- 1 Frond linear-lanceolate in outline; lower blade surfaces with scales and a whitish mealy covering; upper surfaces with glandular hairs ..... *N. grayi* Davenport ●Rocky slopes and cliffs in the arid southwestern mountains.
- 1 Frond maple leaf-shaped in outline (pentagonal); lower blade surfaces without scales but with a dense yellowish mealy covering; upper surfaces without glandular hairs ..... *N. standleyi* Maxon ●Rocky slopes and cliffs on a variety of substrates, widespread.

**Pellaea**

- 1 Petioles and rachises straw-colored, tan, or gray, rarely shiny ..... *P. intermedia* Mettenius ex Kuhn ●Southern third of the state on rocky slopes and ledges.
- 1 Petioles and rachises dark brown to black, usually shiny
- 2 Stem (rhizome) scales bicolored, with a dark central region (like a midrib) and a lighter marginal region
- 3 Pinnae with 3-9 ultimate segments ..... *P. wrightiana* Hooker ●Nearly throughout the state on arid cliffs and rock faces.
- 3 Pinnae with 9-25 ultimate segments ..... *P. truncata* Goodding ●Widespread on cliffs and rocky slopes, but rarely on limestone.
- 2 Stem (rhizome) scales uniformly colored
- 4 Leaf segments glabrous or nearly so on the lower surface; rachis nearly glabrous ..... *P. glabella* Mettenius ex Kuhn ●Limestone cliffs and ledges.
- 4 Leaf segments sparsely pubescent on the lower surface on the midvein; rachis with short curly hairs, at least on one side ..... *P. atropurpurea* (Linnaeus) Link ●Widespread in the state, often on calcareous cliffs, ledges, and rocky places.

**Pentagramma**

- P. maxonii* (Weatherby) Schuettpelz & Windham ●Pine-oak woodlands in the bootheel.

**SALVINIACEAE FLOATING-FERN FAMILY**

- 1 Roots simple, unbranched; leaves uniform, alternate, with each leaf papillate and divided into an upper aerial lobe and a lower submerged lobe ..... *Azolla*
- 1 Roots absent; leaves dimorphic in whorls of three with two lateral and floating, and the third submerged and dissected into filiform, hairy segments ..... *Salvinia*

**Azolla**

- 1 Largest hairs on upper leaf lobes unicellular; megaspores warty with raised angular bumps ..... *A. filiculoides* Lamarck •Still water, sometimes on mud; known only from Hidalgo County.
- 1 Largest hairs on upper leaf lobes with 2 or more cells; megaspores pitted but not warty with raised angular bumps ..... *A. mexicana* Schlechtendal & Chamisso ex Kunze •Still or barely moving water, sometimes on mud; scattered riparian areas, mostly southwestern.

**Salvinia**

- \**S. minima* Baker •Known only from a single collection from a pond on the campus of New Mexico State University; definitely adventive there.

**SELAGINELLACEAE SPIKE-MOSS FAMILY**

**Selaginella**

- 1 Leaves of the aerial stems arranged in 4 distinct ranks; axillary leaves present at branching points
  - 2 Leaves without a bristle-tip, the margins with a wide transparent portion ..... *S. lepidophylla* (Hooker & Greville) Spring •Dry rocky soil and limestone talus in the southern mountains. Known from a single collection in Sierra County.
  - 2 Leaves with a bristle-tip 1/3 to 1/2 the length of the leaf, the margins with a narrow transparent portion ..... *S. pilifera* A. Braun •Dry rocky soil, cliff faces, and limestone talus; known from Eddy County.
- 1 Leaves of the aerial stems not in distinct ranks; axillary leaves absent at branching points
  - 3 Stems prostrate, the two sides (under- and upper-) differentiated; leaves at least slightly dimorphic
    - 4 Upper-side leaves 2-3 mm long; underside leaves decurrent ..... *S. peruviana* (Milde) Hieronymus •Igneous and sandstone cliffs and ledges; mostly central and eastern portions of the state.
    - 4 Upper-side leaves 3-4 mm long; underside leaves abruptly adnate or slightly decurrent ..... *S. wrightii* Hieronymus •On limestone cliffs; known only from Eddy County.
  - 3 Stems pendent, erect, ascending, or rarely prostrate, radially symmetric or the two sides only slightly differentiated
    - 5 Aerial stems erect or ascending; bud-like arrested branches usually present on rhizome
      - 6 Base of leaf decurrent ..... *S. weatherbiana* R. Tryon •Uncommon on granitic rock outcrops ledges, and cliffs in the northern forested mountains.
      - 6 Base of leaf abruptly adnate
        - 7 Leaf bristle 0.6-2 mm long; all cilia of the leaf long and spreading outward ..... *S. rupincola* Underwood •Exposed ledges, cliffs, and gravelly ground mostly in the southern regions near the border.
        - 7 Leaf bristle 0.3-0.5 mm long; cilia at the apex of the leaf short and ascending, those at the base long and spreading ..... *S. ×neomexicana* Maxon •Infrequent on canyon rock in Doña Ana County.
    - 5 Aerial stems creeping or decumbent, never erect; bud-like arrested branches absent
      - 8 Leaves of main stem adnate to the stem and distinct from the stem in color, the bases usually rounded ..... *S. mutica* D.C. Eaton ex Underwood •Widespread throughout the state on limestone, sandstone, or igneous rock.
      - 8 Leaves of main stem decurrent and not distinct from the stem in color, the bases cuneate or oblique
        - 9 Main stems radially symmetric, the leaves equal in size ..... *S. underwoodii* Hieronymus •Throughout the state on a variety of cliffs, outcrops, and ledges.
        - 9 Main stems with the two sides slightly differentiated, the leaves unequal in size
          - 10 Leaf bristle 1-2 mm long, conspicuously puberulent; leaf margins usually long-ciliate (the cilia nearly microscopic, however) ..... *S. densa* Rydberg •Dry rocky slopes, rock crevices, gravelly or sandy or clay soils, often at high altitudes in the mountains.
          - 10 Leaf bristle 0.5-1 mm long, hardly puberulent; leaf margins short-ciliate ..... *S. scopulorum* Maxon •Rock crevices, rocky slopes, meadows, often at high altitudes; widespread in mountain areas.



## WOODSIACEAE CLIFF-FERN FAMILY

**Woodsia**

- 1 *Indusia* composed of relatively broad segments, these multiseriate for most of their length, but often branched or divided distally
- 2 Vein tips enlarged and visible as whitish lines showing through on the upper surface; petiole light brown or straw-colored (sometimes darker at the very base)..... *W. cochisensis*  
Windham ●Moist, shaded ledges and protected sites near seeps and springs; central and southwestern mountains.
- 2 Vein tips not enlarged; petiole reddish brown to dark purple ..... *W. plummerae*  
Lemmon ●Cliffs, ledges, and rocky slopes in the mountains throughout the state, often on loose granite.
- 1 *Indusia* composed of narrow, usually filamentous segments, these uniseriate for most of their length
- 3 Pinnule margins (viewed from below) smooth to somewhat ragged but usually lacking translucent projections or filaments; lower portions of petioles reddish brown or dark purple
- 4 Pinnae with flattened, multicellular hairs along the midrib..... *W. scopulina*  
D.C. Eaton ●Cliffs and rocky slopes. ♦This fern has been reported for New Mexico, but no specimens are known.
- 4 Pinnae lacking flattened, multicellular hairs along the midrib..... *W. oregana*  
D.C. Eaton ●Cliffs and rocky slopes on various substrates; widely distributed in mountain areas except for the far southeast.
- 3 Pinnule margins (viewed from below) with translucent projections or filaments on the teeth; lower portions of petioles light brown or straw-colored
- 5 Translucent projections on pinnule margins mostly 1- or 2-celled, occasionally filamentous; largest pinnae divided into 3-7 pairs of closely spaced pinnules ..... *W. neomexicana*  
Windham ●Cliffs, crevices of rocks, ledges often on igneous substrates; mountain forests throughout the state.
- 5 Translucent projections on pinnule margins mostly multicellular, often prolonged to form twisted filaments; largest pinnae with 7-18 pairs of discrete, widely spaced pinnules ..... *W. phillipsii*  
Windham ●Cliffs and rocky slopes in the southern mountains, also Cibola, San Miguel and Harding counties.



## GYMNOSPERMS

## Key to the Families

- 1 Shrubs with green photosynthetic stems; leaves reduced to small brownish papery scales and separated by very long (2-10 cm) internodes ..... EPHEDRACEAE
- 1 Large shrubs or trees without green photosynthetic stems; leaves needle-like, or if scale-like then green and membranous and overlapping on very short (less than 0.5 cm) internodes
  - 2 Cones woody when mature; foliage leaves needle-like, borne singly or in fascicles, falling from the twigs in age ..... PINACEAE
  - 2 Cones woody or berry-like when mature; foliage leaves scale-like or needle-like (one species), borne singly, remaining on the twigs and usually the entire twig falling from the plant in age ..... CUPRESSACEAE

## CUPRESSACEAE CYPRESS FAMILY

- 1 Branchlets arranged in conspicuously flattened sprays, these vertical to horizontal; plants known only in cultivation
  - 2 Branchlets typically in vertical sprays; cones fleshy, the scales strongly curved, greenish or yellowish at maturity ..... *Platycladus*
  - 2 Branchlets typically in horizontal, or at least not vertical, sprays; cones not fleshy, more woody, brown at maturity ..... *Thuja*
- 1 Branchlets not arranged in flattened sprays; plants wild or cultivated
  - 3 Seed cones usually fleshy and somewhat berry-like, occasionally dry and mealy but not woody, the scales not opening and the seeds not released; plants monoecious or dioecious ..... *Juniperus*
  - 3 Seed cones becoming woody at maturity, the scales opening and releasing the seeds; plants monoecious
    - 4 Plants known only in cultivation; growth form narrowly columnar, the canopy rarely as much as 2 m in diameter ..... *Cupressus*
    - 4 Plants known in cultivation or in the wild; growth form open and spreading, the canopy 3-many m in diameter ..... *Hesperocyparis*

**Cupressus**

\**C. sempervirens* Linnaeus • A very popular ornamental tree in residential areas; not known in the wild in New Mexico; native to Eurasia.

**Hesperocyparis**

*H. arizonica* (Greene) Bartel • Uncommon in piñon-juniper woodlands and canyon bottoms in the southwestern mountains, at mid-elevations.

**Juniperus**

- 1 Mature leaves needle-like, 6-12 mm long, spreading; cones axillary ..... *J. communis*  
Linnaeus • Mixed conifer or subalpine forests at high elevations.
- 1 Mature leaves scale-like, triangular, less than 5 mm long, appressed; cones terminal
  - 2 Margins of leaves entire (at 20x); bark exfoliating in rectangular plates ..... *J. scopulorum*  
Sargent • Widely scattered throughout the mountains and higher foothills.
  - 2 Margins of leaves denticulate (at 20x); bark exfoliating in rectangular plates or in thin strips
    - 3 Seed cones with 3-6 seeds; bark exfoliating in rectangular plates ..... *J. deppeana*  
Steudel • Mostly in the western mountains; rather common with piñon, other junipers, oaks, and ponderosa pine.
    - 3 Seed cones with 1-3 seeds; bark exfoliating in thin strips
      - 4 Glands on leaves inconspicuous because they are embedded in leaf; seed cones somewhat dry and mealy at maturity; plants monoecious ..... *J. osteosperma*  
(Torrey) Little • Dry slopes, hills, low foothills on the western side of the state; overlapping with *J. monosperma*.
      - 4 Glands on leaves conspicuous; seed cones usually somewhat fleshy at maturity; plants dioecious (rarely monoecious)
        - 5 Seed cones reddish blue to brownish under the glaucous bloom; fewer than 1/5 of whip-leaf glands with evident white exudate ..... *J. monosperma*  
(Engelmann) Sargent • Widespread and common on plains, foothills, dry mountain slopes, and mesas, merging into grasslands at lower elevations and forests at upper elevations; generally at higher elevations or more mesic sites than *J. arizonica* when in the same area.
        - 5 Seed cones rose to pinkish or copper to copper-red under the glaucous bloom (if present); 1/4 or more of whip-leaf glands with evident white exudate
          - 6 Seed cones rose to pinkish, with a glaucous coating; inner surface of leaves glaucous ..... *J. arizonica*  
(R.P. Adams) R.P. Adams • Grassland-woodland ecotones and conifer woodlands of foothills, bajadas, and plains; mostly southwestern region, with a few outliers eastward.
          - 6 Seed cones copper to copper-red, without a glaucous coating; inner surface of leaves not glaucous ..... *J. pinchotii*

Sudworth ●Almost entirely in the southeastern portion of the state, with a few outliers in eastern Otero County and southern Quay County.

**Platycladus**

\**P. orientalis* (Linnaeus) Franco ●A commonly cultivated ornamental, not known in the wild.

**Thuja**

\**T. occidentalis* Linnaeus ●A commonly cultivated ornamental, not known in the wild.

**EPHEDRACEAE EPHEDRA or JOINT-FIR FAMILY**

Contributed by Robert C. Sivinski

**Ephedra**

- 1 Leaf scales whorled, 3 at a node; ovulate cone bracts in whorls of 3, papery  
 2 Leaves 5-15 mm long; twigs ending in sharp points ..... *E. trifurca*  
 Torrey ex S. Watson ●Rocky and sandy places in Chihuahuan Desert scrub.
- 2 Leaves 2-5 mm long; twigs blunt-tipped ..... *E. torreyana*  
 Torrey ex S. Watson ●Widespread throughout New Mexico from piñon-juniper woodland down to desert scrub.
- 1 Leaf scales mostly opposite, 2 at a node; ovulate cone bracts opposite, papery, membranous or fleshy  
 3 Plants strongly rhizomatous, forming low, clonal patches in rather deep sands  
 4 Twigs viscid; mature ovulate cone bracts membranous ..... *E. cutleri*  
 Peebles ●Sandy soil with sagebrush scrub and juniper savanna in some northwestern counties.
- 4 Twigs not viscid; mature ovulate cones berry-like, bracts fleshy ..... *E. coryi*  
 E.L. Reed ●Sandy soil, usually with shinnery oak scrub in some southeastern counties.
- 3 Plants not rhizomatous; woody shrubs in various habitats, but usually not deep sand  
 5 Seeds 1 (rarely 2) per cone ..... *E. aspera*  
 Engelmann ●Dry ridges and rocky slopes in Chihuahuan Desert scrub.
- 5 Seeds 2 (rarely 1) per cone ..... *E. viridis*  
 Coville ●Sedimentary outcrops and rocky slopes in piñon-juniper woodland or sagebrush scrub.

**PINACEAE PINE FAMILY**

- 1 Leaves in clusters of 2-5, surrounded by a basal sheath (which may be early deciduous) ..... *Pinus*
- 1 Leaves borne singly, not in clusters  
 2 Leaves ± square in cross-section; twigs roughed by peg-like projections that persist after the leaves fall *Picea*
- 2 Leaves flattened, not squarish; twigs lacking peg-like projections  
 3 Leaves sessile, leaving a circular leaf-scar; seed cones erect, the scales falling from the persistent main axis, the subtending bracts not 3-toothed ..... *Abies*
- 3 Leaves petiolate from a short stalk that lies flat against the twig, leaving an elliptic leaf-scar; seed cones drooping, the entire cone falling when mature, the subtending bracts conspicuously 3-toothed ..... *Pseudotsuga*
- Abies**
- 1 Branchlets glabrous; leaves mostly 3-5 cm or more long, the tips rounded to pointed ..... *A. concolor*  
 (Gordon & Glendinning) Lindley ex Hildebrand ●Forested mountains throughout the state, generally below 9,000 ft, but ascending up to 9,800 ft, often with *Pinus* species.
- 1 Branchlets pubescent; leaves mostly 2-3 cm long, the tips notched to rounded ..... *A. arizonica*  
 Merriam ●Forested mountains throughout the state, generally above 8,000 ft, but descending down to 7,200 ft, commonly with *Picea engelmannii*.

**Picea**

- 1 Twigs or leaf bases of current year's growth finely pubescent; seed cones mostly less than 7 cm long ..... *P. engelmannii*  
 Parry ex Engelmann ●Dominant with cork-bark fir in the high elevation forests of our mountains, generally above 8,000 ft.
- 1 Twigs and leaf bases of current year's growth glabrous; seed cones mostly more than 7 cm long ..... *P. pungens*  
 Engelmann ●At mid- to high elevations in the mountains, usually with white fir, generally above 8,200 ft.

**Pinus**

- 1 Leaves mostly 1-3 in a cluster  
 2 Leaves mostly 1-2 per cluster, 2-4 cm long ..... *P. edulis*  
 Engelmann ●Common on plains, hills, and mesas surrounding our mountain ranges.
- 2 Leaves mostly 2-3 per cluster, 3-40 cm long  
 3 Leaf sheaths early deciduous  
 4 Leaves mostly 6-12 cm long; plants monoecious ..... *P. leiophylla*  
 Schide & Deppe ex Schlechtendal & Chamisso ●Mid-elevation forests in the far southwestern region.
- 4 Leaves mostly 3-6 cm long; plants nearly dioecious ..... *P. cembroides*  
 Zuccarini ●Piñon-juniper-oak woodlands in the foothill region.
- 3 Leaf sheath persistent

- 5 Leaves mostly 10-22 cm long; sheaths 1-2 cm long..... *P. ponderosa*  
Douglas ex P. Lawson & C. Lawson ●Mid-elevations in all the mountains, often with *Pseudotsuga menziesii* and *Quercus gambelii*, sometimes in large, expansive parklands.
- 5 Leaves mostly 25-45 cm long; sheath 2-3 cm long..... *P. engelmannii*  
Carrier ●Barely entering New Mexico in the bootheel region.
- 1 Leaves mostly 5 (occasionally 4) in a cluster
- 6 Leaves mostly 10-22 cm long..... *P. arizonica*  
Engelmann ●An uncommon tree of the southwestern forests, with thick twigs (1-2 cm) and 4-5 long needles.
- 6 Leaves mostly 3-8 cm long
- 7 Needles sticky from tiny resin droplets, usually strongly curved; leaf sheaths persistent, coiled back but still present even on older clusters; cone scales with prickles (or bristles) 4-10 mm long, easily visible at least on the basal scales even on old cones..... *P. aristata*  
Engelmann ●Exposed sites and thin, rocky soils at high elevations in the northern forests.
- 7 Needles lacking resin droplets, straight or nearly so; leaf sheaths early deciduous, absent on older clusters; cones scales lacking any kind of prickle or bristle
- 8 Whitish stomatal lines visible only on the inner (adaxial) surfaces of the needles; needles 4-10 cm long, serrulate on the distal margins; cones 15-25 cm long, sometimes shorter ..... *P. reflexa*  
(Engelmann) Engelmann ●Canyon sides, rocky ridges, typically mixed with other conifers, in all New Mexico mountains.
- 8 Whitish stomatal lines visible on both inner and outer surfaces of the needles; needles 3-7 cm long, entire; cones 7-15 cm long..... *P. flexilis*  
James ●Summits, ridge tops, rocky foothills, often at edges of forest or at timberline, typically scattered with other conifers, in the Sangre de Cristo Mountains.

**Pseudotsuga**

*P. menziesii* (Mirbel) Franco ●Very common at intermediate elevations in our forests, invading openings in the canopy. ♦Our plants belong to var. *glauca* (Beissner) Franco.



## ANGIOSPERMS: MONOCOTYLEDONOUS PLANTS

## Key to Families

- 1 Plants parasitic or epiphytic on stems, branches, or roots of other plants, generally without chlorophyll and not green, or if green then clearly growing on and attached to a host plant
  - 2 Plants stem parasites or epiphytes, growing on the aerial portions of a host plant, not growing in the soil ..... BROMELIACEAE
  - 2 Plants root parasites, growing in the soil and attached to the roots or decaying matter of a host plant ..... ORCHIDACEAE
- 1 Plants not obviously parasitic on other plants, but producing chlorophyll and greenish in color
  - 3 Plants shrubby, sometimes with well-developed perennial stems 15 cm or more wide; leaves usually longer than 30 cm, leathery, often spiny, borne in rosettes at the tips of branches or all basal
    - 4 Leaves with spiny margins
      - 5 Leaves narrow and ribbon-like, 0.6-1 m long or more and 2-4 cm wide, with numerous stout hooked prickles all along the margins; ovary superior (*Dasylirion*) ..... RUSCACEAE
      - 5 Leaves shorter and wider, often thick and semi-succulent, with more widely spaced spines or hooks; ovary inferior (*Agave*) ..... AGAVACEAE
    - 4 Leaves without spiny margins (but may be filiferous with long threads)
      - 6 Leaves entire to filiferous, with a terminal spine; flowers bisexual, more than 1.4 cm long; seeds several to many in each chamber of the ovary ..... AGAVACEAE
      - 6 Leaves serrate to serrulate, lacking a terminal spine; flowers usually unisexual, less than 1 cm long; seeds 2 or 3 in each chamber of the ovary (*Nolina*) ..... RUSCACEAE
  - 3 Plants herbaceous, if perennial stems developed (some giant reed grasses) then the stems much less than 15 cm wide; leaves other than above
    - 7 Plants aquatic, at least most of the plant submerged or floating on the water
      - 8 Plants floating on the water, not rooted in the soil, the plant body less than 2 cm long, disc-shaped, not differentiated into stems and leaves ..... ARACEAE
      - 8 Plants floating or rooted in the soil, the entire plant body generally much longer than 6 cm, differentiated into stems and leaves
        - 9 Leaves sagittate ..... ALISMATACEAE
        - 9 Leaves not sagittate
          - 10 Leaves in whorls, very thin and nearly translucent, forming a sheath around the stem ..... HYDROCHARITACEAE
      - 10 Leaves not whorled and not as above
        - 11 Leaves floating or emergent out of the water
          - 12 Emergent leaves linear, cattail-like, lacking a petiole, passing from the sheathing portion directly into the blade portion, both about the same shape, the blade portion 50 cm or more long ..... TYPHACEAE
          - 12 Emergent leaves either not linear and cattail-like, or if so, then the blade portion much less than 50 cm long, usually petiolate, with a distinct difference in shape between the sheathing portion and the blade portion
            - 13 Mid-vein not at all evident ..... PONTEDERIACEAE
            - 13 Mid-vein distinct and prominent ..... POTAMOGETONACEAE
        - 11 Leaves all or mostly submerged under water
          - 14 Leaves alternate or basal (occasionally opposite toward the tips of the stems)
            - 15 Leaves all basal, the stems not elongate ..... ALISMATACEAE
            - 15 Leaves borne on elongate stems
              - 16 Leaves extremely filiform, about 0.5 mm wide; mature fruits in umbels on long coiling peduncles ..... RUPPIACEAE
              - 16 Leaves mostly wider than 2 mm; mature fruits in spikes, the peduncles stout and stiff ..... POTAMOGETONACEAE
          - 14 Leaves opposite
            - 17 Flowers on long thread-like stalks extending to the water's surface (*Elodea*) ..... HYDROCHARITACEAE
            - 17 Flowers remaining in the leaf axils, at most very shortly stalked
              - 18 Leaves prominently toothed to shallowly incised, with prickles on the abaxial midveins (*Najas marina*) ..... HYDROCHARITACEAE
              - 18 Leaves entire or minutely serrulate (use magnification), lacking prickles on the abaxial midveins
                - 19 Leaves 1-3 cm long (*Najas guadalupensis*) ..... HYDROCHARITACEAE
                - 19 Leaves 3-4 cm long (*Zannichellia*) ..... POTAMOGETONACEAE
    - 7 Plants not truly aquatic, growing on dry land, or if growing in mud or shallow water then most of the plant extending up out of the water

- 20 Perianth chaffy, scale-like, or of bristles, never petal-like in color or texture, or perianth absent
  - 21 Flower parts concealed in the axils of chaffy bracts (spikes and spikelets); perianth absent or represented by bristles or minute scales; grasses and sedges
    - 22 Leaves 2-ranked; sheath margins usually overlapping (fused in some); stems round or compressed in cross-section, but never 3-angled; flower and fruit subtended by two bracts (lemma and palea); anthers attached to their filaments at the middle of the anther ..... POACEAE
    - 22 Leaves 3-ranked; sheath margins fused together; stems 3-angled; flower and fruit subtended by a single bract (in *Carex* the flower completely enclosed in a sack-like perigynium and this subtended by a single bract); anthers attached to their filaments at the end of the anther ..... CYPERACEAE
  - 21 Flower parts not concealed in the axils of chaffy bracts; perianth various, present or absent
    - 23 Inflorescence an elongate spike
      - 24 Plants a meter or more tall; spike differentiated into a large, lower portion of pistillate flowers, and a smaller, upper portion of staminate flowers ..... TYPHACEAE
      - 24 Plants less than a meter tall; spike uniform of perfect flowers ..... JUNCAGINACEAE
    - 23 Inflorescence of racemes, loose clusters, or globose heads
      - 25 Flowers in globose heads, the lower heads pistillate, the upper heads staminate (*Sparganium*) ..... TYPHACEAE
      - 25 Flowers in various clusters, but not in unisexual heads ..... JUNCACEAE
  - 21 Perianth with some or all the parts petal-like in color or texture
    - 26 Ovary subterranean, the flower arising from ground level; plants acaulescent (*Leucocrium*) ..... AGAVACEAE
    - 26 Ovary above ground; plants caulescent, at least with a flowering scape
      - 27 Ovary wholly inferior
        - 28 Flowers zygomorphic; stamens 1 or 2, the pollen grains clumped together in a pollen mass ..... ORCHIDACEAE
        - 28 Flowers actinomorphic; stamens 3 or 6, the pollen grains readily dispersed individually
          - 29 Leaves cauline, 2-ranked and often equitant; stamens 3 ..... IRIDACEAE
          - 29 Leaves mostly basal, not 2-ranked nor equitant; stamens 6
            - 30 Perianth segments pilose on the abaxial surface; foliage grass-like, herbaceous, usually pubescent ..... HYPOXIDACEAE
            - 30 Perianth segments glabrous; foliage not grass-like, fleshy-thickened, glabrous or nearly so ..... AMARYLLIDACEAE
      - 27 Ovary superior or mostly so
        - 31 Carpels numerous (more than 6), separate and distinct in separate pistils; stamens 6-numerous (in pairs opposite each petal when 6) ..... ALISMACEAE
        - 31 Carpels 3 or 6, united into a single pistil; stamens 3-6, never in pairs
          - 32 Petals and sepals clearly differentiated from each other
            - 33 Petals less than 2 cm long, all purplish or two bluish and one white ..... COMMELINACEAE
            - 33 Petals more than 2 cm long, white or rose colored (*Calochortus*) ..... LILIACEAE
    - 32 Petals and sepals similar in size, texture, and color, not clearly differentiated
      - 34 Flowers mostly solitary or 2-3(4) together, borne at the stem tips or in the leaf axils
        - 35 Plants diffusely branched in flower (but not when very young); leaves scale-like, subtending filiform branches (cladophylls) that resemble leaves (*Asparagus*) ..... ASPARAGACEAE
      - 35 Plants and leaves not as above
        - 36 Leaves all basal or absent, none borne on the flowering stems
          - 37 Leaves 1-2, elliptic, mottled with purple; flowers bright yellow, nodding (*Erythronium*) ..... LILIACEAE
          - 37 Leaves 1 to several, linear, not mottled; flowers whitish to bluish, erect ..... THEMIDACEAE
        - 36 Leaves borne on the flowering stems
          - 38 Flowers borne in the axils of the leaves
            - 39 Perianth segments united to near the tips (*Polygonatum*) ..... RUSCACEAE
            - 39 Perianth segments separate to near the base (*Streptopus*) ..... LILIACEAE
- 38 Flowers borne at the stem tips
  - 40 Leaves linear-filiform; flowers white or purple-brown



- ..... LILIACEAE
- 40 Leaves broader; flowers whitish or orange-red
  - 41 Leaves whorled at the upper nodes, alternate below, lanceolate; flowers orange-red (*Lilium*)..... LILIACEAE
  - 41 Leaves alternate throughout, lanceolate to ovate; flowers whitish or yellowish
    - 42 Stems simple, unbranched; tepals neither swollen nor slightly inflated above the base; flowers erect to spreading (*Maianthemum*)..... RUSCACEAE
    - 42 Stems branched below; tepals weakly gibbous above the base; flowers nodding (*Prosartes*)..... LILIACEAE
- 34 Flowers usually several to numerous in umbels, well-developed racemes, or panicles
  - 43 Flowers in umbels or umbel-like clusters
    - 44 Perianth segments separate nearly to the base ..... ALLIACEAE
    - 44 Perianth segments united to about the middle... THEMIDACEAE
  - 43 Flowers in racemes or panicles
    - 45 Leaves 3-30 cm wide, tending toward broadly elliptic, obviously disposed along the stem, with 5-9 or more leaves on the flowering shoot well above the base
      - 46 Plants 1-2 m tall; leaves 15-30 cm long, the larger 10-20 cm wide; flowers borne in large panicles often more than 20 cm long (*Veratrum*)..... MELANTHIACEAE
      - 46 Plants up to 1 m tall; leaves 5-20 cm long, 3-10 cm wide; flowers borne in panicles or racemes 3-10 cm long (*Maianthemum*) ..... RUSCACEAE
    - 45 Leaves 1-2 cm wide, tending toward linear or narrowly lanceolate, mostly basal or nearly so, with only 1-3 leaves on the flowering shoot slightly above the base
      - 47 Flowers sessile or nearly so and borne in rather dense clusters, pedicels and branches absent or scarcely evident
        - 48 Flowers blue-purple; perianth segments united into an urn-shaped tube (*Muscari*)..... HYACINTHACEAE
        - 48 Flowers greenish to yellowish; perianth segments separate (*Schoenocaulon*) ..... MELANTHIACEAE
      - 47 Flowers borne on well-developed and evident pedicels or branches
        - 49 Tepals yellow to orange with dark veins, 7-8 cm long; leaves 70-100 cm long in mature plants; escaped ornamentals ..... HEMEROCALLIDACEAE
        - 49 Tepals yellowish to whitish, less than 2 cm long; leaves less than 50 cm long; native or exotic plants
          - 50 Pedicels jointed with a circular band about mid-length; exotic noxious weed rare in the southern desert region..... ASPHODELACEAE
          - 50 Pedicels not jointed, lacking a circular band; native plants, generally not of the Chihuahuan Desert region
            - 51 Flowers whitish; perianth segments each with a gland at the base; styles distinct..... MELANTHIACEAE
            - 51 Flowers yellowish; perianth segments lacking a gland at the base; styles united (*Echeandia*) ..... AGAVACEAE

**AGAVACEAE AGAVE FAMILY**

- 1 Plants shrubby, leaves usually longer than 30 cm, leathery, often spiny, borne in rosettes at the tips of branches or all basal
  - 2 Leaves mostly serrate to serrulate, some entire, lacking a terminal spine; flowers usually unisexual, less than 1 cm long; seeds 2 or 3 in each chamber of the ovary (*Dasyliirion*, *Nolina*)..... go to RUSCACEAE
  - 2 Leaves entire to filiferous, with a terminal spine; flowers bisexual, more than 1.4 cm long; seeds several to

- many in each chamber of the ovary
- 3 Leaves with spiny margins; ovary inferior ..... *Agave*
- 3 Leaves without spiny margins (but may be filiferous with long threads); ovary inferior or superior
  - 4 Ovary inferior; leaves 1-2 cm wide and 25-50 cm long; trunk absent, the leaves all basal (*A. schottii*) ..... *Agave*
  - 4 Ovary superior; leaves and trunk various
    - 5 Flowers reddish or yellowish, present during much of the growing season, in raceme-like inflorescences; leaves generally 0.5-1 cm wide, deeply furrowed or channeled; known only in cultivation ..... *Hesperaloe*
    - 5 Flowers white or cream-colored, usually present only during the flowering season, in panicles or raceme-like inflorescences; leaves mostly 1-5 cm wide, flat to channeled; common in the wild and in cultivation ..... *Yucca*
- 1 Plants herbaceous; leaves other than above
  - 6 Perianth white; ovary subterranean, the flower arising from ground level; plants acaulescent .... *Leucocrinum*
  - 6 Perianth yellow to yellow-orange; ovary above ground; plants caulescent, at least with a flowering scape ..... *Echeandia*

**Agave** [Key adapted from Reveal & Hodgson 2002]

- 1 Inflorescence spicate or sub-spicate
  - 2 Leaf margins entire or filiferous, sometimes with inconspicuous teeth near the base; Hidalgo County ..... *A. schottii*  
Engelmann ●Rocky hills and ledges in the bootheel region.
  - 2 Leaf margins conspicuously armed with spinose teeth; Doña Ana County and eastward ..... *A. lechuguilla*  
Torrey ●Rocky hills and slopes in the south-central and southeastern regions, barely entering the state.
- 1 Inflorescence paniculate
  - 3 Plants freely suckering, forming colonies of several rosettes; leaves narrowly lanceolate to broadly ovate ..... *A. parryi*  
Engelmann ●Grasslands, desert scrub, and oak woodlands in the southern regions.
  - 3 Plants rarely suckering, the rosettes single; leaves linear-lanceolate to lanceolate
    - 4 Leaves 18-30 cm long; flowers 6-45 per cluster; flowering summer to early fall; Doña Ana County and eastward ..... *A. gracilipes*  
Trelease ●Barely entering the state in the grasslands and desert scrub north of the Texas border.
    - 4 Leaves 35-92 cm long; flowers 8-16 per cluster; flowering late spring to summer; Luna County and westward ..... *A. palmeri*  
Engelmann ●Oak woodlands on limestone in the bootheel region.

**Hesperaloe**

\**H. parviflora* (Torrey) Coulter ●Not known in the wild in the state, but commonly used as a landscape ornamental.

**Echeandia**

*E. flavescens* (J.A. & J.H. Schultes) Cruden ●Desert plains, woodlands, openings in pine forests; widely distributed but nowhere abundant, often hiding among grasses on the forest floor.

**Leucocrinum**

*L. montanum* Nuttall ex Gray ●Prairies, foothills, bluffs, and sagebrush plains in the far northern counties.

**Yucca** [Key adapted from Sivinski, 2008]

- 1 Mature plants tree-like with well-developed stems 1-5 m long
  - 2 Leaves not or only rarely filiferous, 3-6 cm wide
    - 3 Plants mostly solitary; leaves somewhat flexible ..... *Y. madrensis*  
Gentry ●Infrequent in pine-oak woodlands in the bootheel region.
    - 3 Plants mostly forming colonies; leaves stiff and rigid ..... ×*Y. schottii*  
Engelmann pro sp. ♦We follow Lenz & Hanson (2000, 2001) in applying this name to supposedly hybrid derivatives involving *Yucca baccata* × *Y. elata* × *Y. madrensis*, all of which can be found in the bootheel.
  - 2 Leaves strongly filiferous, 0.5-8 cm wide
    - 4 Leaves thin and flexible, 0.5-2 cm wide; fruits dehiscent, semi-woody, erect ..... *Y. elata*  
(Engelmann) Engelmann ●Widespread throughout the deserts, grasslands, and foothills in the southern half of the state.
    - 4 Leaves thick, stout, rigid, 2-8 cm wide; fruits indehiscent, fleshy, pendulous
      - 5 Mature plants shorter than 2 m (not including panicles); distribution in the bootheel (var. *brevifolia*) .... *Y. baccata*  
Torrey ●Widespread nearly throughout the state.
      - 5 Mature plants taller than 2.5 m (not including panicles); distribution rarely in the bootheel
        - 6 Tepals connate basally; ovary 3-8 cm long; most of the panicle exceeding the leaves; leaf arrangement very orderly and symmetric, the leaves tending to be wider ..... *Y. faxoniana*  
Sargent ●Barely entering the state along the southern border with Texas, and known from very few specimens.

- 6 Tepals distinct; ovary 1-3 cm long; most of the panicle within the leaves; leaf arrangement unkempt and asymmetric, the leaves tending to be narrower ..... *Y. treculiana*  
 Carrière • Dry hillsides, bajadas, and brush land across the southern desert region.
- 1 Mature plants acaulescent, aerial stems absent or short to 0.5 m long (not including the peduncle and inflorescence)
- 7 Inflorescences mostly paniculate with well-developed branches
- 8 Leaves 2-6 cm wide; fruits fleshy, indehiscent, pendent ..... *Y. baccata*  
 Torrey • Widespread nearly throughout the state.
- 8 Leaves 0.2-1.5 cm wide; fruits semi-woody, dehiscent, erect
- 9 Peduncles long, lifting the lower panicle branches well-above the leaves; mostly west of Pecos River ...  
 ..... *Y. elata*  
 (Engelmann) Engelmann • Widespread throughout the deserts, grasslands, and foothills in the southern half of the state.
- 9 Peduncles short, holding the lower panicle branches below or just above the leaf tips; eastern plains .....  
 ..... *Y. campestris*  
 McKelvey • On the eastern plains.
- 7 Inflorescences primarily racemose, occasionally paniculate proximally
- 10 Leaves concave-convex, 1-4 cm wide; capsules constricted near the middle
- 11 Leaves 1-2 cm wide; lowermost flowers of raceme arising at least 10 cm or more above the leaves; styles yellowish or pale green; distribution east of Rocky Mountains in the northeastern counties ...  
 ..... *Y. neomexicana*  
 Wooton & Standley • Rocky slopes and ledges in grasslands and woodlands of the northeastern region.
- 11 Leaves 2-4 cm wide; lowermost flowers of raceme arising within or at the leaf tips; styles green; distribution west of Rocky Mountains in the Four Corners region ..... *Y. harrimaniae*  
 Trelease • Sometimes reported for the state, but authentic specimens are unknown; to be looked for on desert slopes and foothills in the Four Corners region.
- 10 Leaves plano-convex, 0.3-1.2 cm wide; capsules constricted or not
- 12 Lowest flowers of the racemes arising well beyond the leaves; capsules deeply constricted near the middle ..... *Y. angustissima*  
 Engelmann ex Trelease • Questionably present on arid foothills south of Mt. Taylor. We confine the name *Y. angustissima* to plants that are acaulescent and narrow-leaved, with the racemes elevated well above the leaves and the capsules strongly constricted; relatively few plants near Grants (Cibola Co.) approach this circumscription.
- 12 Lowest flowers of the racemes arising within or just beyond the leaves; capsules usually not constricted
- 13 Peduncles 10-20 cm long; styles slender-terete (var. *baileyi*) ..... *Y. baileyi*  
 Wooton & Standley • Woodlands, grasslands, and foothills .
- 13 Peduncles 20-50 cm long; style slender or swollen
- 14 Leaves 5-8 mm wide; styles slender, white or pale yellow-green; capsule 2-2.5 cm wide (var. *intermedia*) ..... *Y. baileyi*
- 14 Leaves 8-12 mm wide; styles swollen, dark green; capsules 3-5 cm wide ..... *Y. glauca*  
 Nuttall • Grasslands and plains in the northeastern quarter of the state.

**ALISMATACEAE WATER PLANTAIN FAMILY**

- 1 Ovaries and fruits arranged in a single whorl on the receptacle; stamens 6 ..... *Alisma*
- 1 Ovaries and fruits densely crowded over the surface of the receptacle, stamens more than 6
- 2 Leaf blades with translucent markings evident as distinct lines; flowers bisexual; fruits plump ... *Echinodorus*
- 2 Leaf blades lacking translucent markings; at least the proximal flowers unisexual; fruits compressed  
 ..... *Sagittaria*

**Alisma**

- 1 Leaves linear, less than 2.5 cm wide; achenes about as wide as long, distinctly bisulcate on the back; pedicels stout; petioles 4-6 mm wide ..... *A. gramineum*  
 K. C. Gmelin • Shallow water of lakes, ponds, and ditches; known from only a few collections.
- 1 Leaves (emergent) more than 2.5 cm wide; achenes longer than wide, with a solitary groove to almost flat on the back; pedicels slender; petioles less than 4 mm wide
- 2 Achenes 2 mm long or less, the dorsal groove shallow or with a somewhat depressed slight thickening in the trough; fruiting heads 3.5 mm or less in diameter ..... *A. subcordatum*  
 Rafinesque • Shallow water of ponds and ditches.
- 2 Achenes more than 2 mm long, the dorsal groove deep; fruiting heads more than 3.5 mm in diameter .....  
 ..... *A. triviale*  
 Pursh • Shallow water of ponds and ditches.

**Echinodorus**

- E. berteroi* (Sprengel) Fassett • Wet ditches, streams, and shallow ponds, reported from Roosevelt County.

**Sagittaria**

- 1 All leaves linear to oblong, not cordate, hastate, nor sagittate.....*S. demersa*  
J.G. Small ●Margins of lakes and ponds in the northern plains and foothills; known from few collections, otherwise known only from central Mexico.
- 1 At least some leaf blades cordate, hastate, or sagittate
  - 2 Sepals of pistillate/fruitlets erect and enclosing the head .....*S. montevidensis*  
Chamisso & Schlechtendal ●Mud flats of lakes and streams.
  - 2 Sepals of pistillate/fruitlets spreading to recurved, not enclosing the head
    - 3 Bracts distinct or connate much less than ¼ their total length.....*S. brevisrostra*  
Mackenzie & Bush ●Shallow water of ponds, lakes, and marshy ground; not known from New Mexico, but to be looked for in the northeast region.
    - 3 Bracts connate at least ¼ their total length
      - 4 Beak of the achene projecting horizontally, 1-2 mm long .....*S. latifolia*  
Willdenow ●Margins of lakes and ponds.
      - 4 Beak of the achene erect or incurved, to 0.6 mm long
        - 5 Emergent plants with recurved petioles and linear to sagittate blades; basal lobes equal to or shorter than the remainder of the blade; submersed leaves lanceolate, phyllodial; floating blades cordate to sagittate..... *S. cuneata*  
Sheldon ●Muddy shores and river banks, ditches, pastures.
        - 5 Emergent plants with ascending to erect petioles and sagittate blades; basal lobes longer than the remainder of the blade; submersed and floating leaves absent .....*S. longiloba*  
Engelmann ex J.G. Smith ●Margins of lakes and ponds, on the eastern plains. Reported by various workers, and present in Texas just east of the state line, but specimens from New Mexico are unknown.

**ALLIACEAE ONION FAMILY**

- 1 Plants smelling of onion; tepals white, pink, reddish, to pale lavender.....*Allium*
- 1 Plants not smelling of onion; tepals white, cream-colored, to pale yellow.....*Nothoscordum*
- Allium** Contributed by Robert C. Sivinski
- 1 Outer bulb coat persisting as a conspicuous reticulum of coarse, anastomosing fibers; rhizomes lacking
  - 2 Bracts of the involucre 2- to 5-nerved (occasionally coalescent into what appears to be a single wide nerve in *A. macropetalum*); spring blooming
    - 3 Ovary and capsule conspicuously crested with 3 pairs of short, flat projections; leaves usually 2 per scape; western and central New Mexico .....*A. macropetalum*  
Rydberg ●Desert scrub up to juniper savanna and sagebrush in the central and western regions; flowering in the spring.
    - 3 Ovary and capsule crestless; leaves usually 3 per scape; eastern New Mexico .....*A. perdulce*  
Fraser ●Desert scrub and shortgrass prairie up to juniper savanna in the eastern region; flowering in the spring.
  - 2 Bracts of the involucre mostly 1-nerved; spring or summer blooming
    - 4 Perianth spreading; epidermal cells of inner bulb coats (under outer reticulum) intricately contorted; portions of outer bulb coat fused into irregular, solid pieces except along the ragged top and bottom edges of the bulb; spring blooming .....*A. drummondii*  
Regel ●Woodlands on limestone hills down to desert scrub and shortgrass prairie in the eastern one-third of the state; flowering in the spring.
    - 4 Perianth urceolate; epidermal cells of the innermost bulb coats rectangular and vertically elongate; entire outer bulb coat a reticulate fabric of coarse fibers with open interstices; spring or summer blooming
      - 5 Leaves usually 2 per scape; spring blooming .....*A. textile*  
A. Nelson & Macbride ●Woodland, juniper savanna and sagebrush in the northern region; flowering in the spring.
      - 5 Leaves usually 3 or more per scape; summer blooming.....*A. geyeri*  
S. Watson ●Widespread on rocky slopes from woodlands up to subalpine meadows in all mountain ranges.
- 1 Outer bulb coat without fibers (or with a few thin, parallel fibers in *A. gooddingii*), never densely fibrous reticulate; with or without rhizomes
  - 6 Bulbs attached to stout, dark, *Iris*-like rhizomes; leaves flat, strap-shaped, 5-10 mm wide.....*A. gooddingii*  
M. Ownbey ●Stream sides, damp forest understory and rarely in subalpine meadows in the Mogollon, Sierra Blanca and Chuska mountains; flowering in the summer.
  - 6 Bulbs with or without rhizomes, if rhizomes present, then slender and pale; leaves linear-channeled or broadly u-shaped in cross section, usually less than 5 mm wide (occasionally flat and more than 5 mm wide in *A. cernuum*)
    - 7 Umbel nodding from a decurved bend in the scape below the involucral bracts; tepals obtuse; stamens exerted from corolla.....*A. cernuum*  
Roth ●Mountain meadows and rocky benches in woodlands and forests on all mountain ranges

throughout the state; flowering in the summer.

- 7 Umbel erect; perianth segments acute or acuminate; stamens shorter than the perianth segments
- 8 Inner whorl of perianth segments long-acuminate with recurved tips, the margins minutely serrulate-dentate; outer segments similar, but conspicuously broader and usually entire; outer bulb coat cells relatively square with thick walls (waffle-like).....*A. acuminatum*  
Hooker ●Rocky, north-facing slopes in arid southwestern hills and woodlands in northwestern canyons near the Colorado border; flowering spring or early summer.
- 8 Inner and outer whorls of perianth segments entire and not conspicuously wider or narrower; other characters never combined as above
- 9 Ovary and capsule crested
- 10 Scape usually less than 10 cm tall; perianth 8-14 mm long; rhizomes absent; outer bulb coats dark brown, the cells elongating vertically .....*A. bigelovii*  
S. Watson ●Desert scrub up to juniper savanna in the hills of the southwestern region; flowering in the spring.
- 10 Scape taller (10-30 cm); perianth segments 6-10 mm long; slender rhizomes often present at base of bulb; outer bulb coats grayish, the cells elongating horizontally .....*A. bisceptrum*  
S. Watson ●Open forests, meadows and aspen groves in the mountains of the western region; flowering in early summer.
- 9 Ovary and capsule not crested
- 11 Bulb subspherical, often (not always) proliferating from the base by slender, scaled rhizomes; corolla campanulate-spreading; tepals white (often drying pinkish) with a dark red-purple midrib on the outer surface; anthers pink-purple (drying brown)..... *A. rhizomatum*  
Wooton & Standley ●Oak woodland, piñon-juniper woodland or open pine forest in the southwestern region, usually on igneous soils; flowering in late summer.
- 11 Bulb ovoid, without rhizomes; corolla spreading-rotate; tepals white to pale pink (drying pink), outer midrib absent or vague; anthers yellow .....*A. kunthii*  
G. Don ●Desert scrub up to pine-oak woodland on limestone soils in the ridges and mountains of the southern region; flowering in the late summer.

#### Nothoscordum

*N. bivalve* (Linnaeus) Britton ●Moist ditch banks, fields, roadsides, plains in the southern region; not common.

### AMARYLLIDACEAE AMARYLLIS FAMILY

#### Zephyranthes

- 1 Flowers white; leaves glossy, to 3 mm wide .....*Z. candida*  
(Lindley) Herbert ●Wet ground of ditches and canals; recently found in Doña Ana County; native to South America.
- 1 Flowers yellow; leaves dull, to 1 mm wide ..... *Z. longifolia*  
Hemslay ●Sandy or gravelly soils of plains and flats in the southeastern half of the state.

### ARACEAE ARUM and DUCKWEED FAMILY

- 1 Each body segment (thallus) with several roots hanging down into the water .....*Spirodela*
- 1 Each body segment (thallus) with 0-1 roots hanging down into the water .....*Lemna*
- Lemna** [Key adapted from Landolt 2000]
- 1 Thallus submersed (except when flowering or fruiting), the margins denticulate at the ends.....*L. trisulca*  
Linnaeus ●Mesotrophic quiet waters rich in calcium.
- 1 Thallus floating, the margins entire
- 2 Thallus with a single vein
- 3 Vein prominent, longer than the extension of air spaces, or running through at least ¼ the distance between node and apex ..... *L. valdiviana*  
Philippi ●Mesotrophic quiet waters, creeks, ponds, ditches, mostly western mountains, but expected elsewhere.
- 3 Vein sometimes indistinct, shorter than the extension of air spaces, not longer than 2/3 the distance between node and apex ..... *L. minuta*  
Kunth ●Meso- to eutrophic quiet water, lakes, wetlands, ponds, creeks, ditches, marshy ground, scattered sites in the mountains.
- 2 Thallus with 3-5 veins
- 4 Root sheath winged at the base; root tip mostly sharp pointed; roots to 3 cm long; thallus lacking red color or spots, mostly with a single papilla near the apex on the upper surface
- 5 Root sheath wing 2-3 times longer than wide; seeds remaining within the fruit wall after ripening, with 35-70 indistinct ribs ..... *L. perpusilla*  
Torrey ●Meso- to eutrophic quiet water, known only from San Juan County.
- 5 Root sheath wing 1-2.5 times longer than wide; seeds falling from the fruit wall after ripening, with 8-26 distinct ribs .....*L. aequinoctialis*

Welwitsch ●Meso- to eutrophic quiet water, wet meadows and marshes, rivers, creeks; northern and western mountains.

- 4 Root sheath not winged; root tip mostly rounded; roots often longer than 3 cm; thallus often with reddish tinge or spots, with or without papilla
- 6 Largest air spaces more than 0.3 mm long; if red-colored on lower surface, then coloration beginning from the margin; ovary with 2-7 ovules ..... *L. gibba*  
Linnaeus ●Preferring eutrophic quiet water, streams, stock tanks; western mountains, foothills, and plains.
- 6 Largest air spaces 0.3 mm or less long; if red-colored, then coloration beginning from the attachment point of root; ovary with a single ovule
- 7 Thallus not reddish below (or at least much less than above); greatest distance between the lateral veins near or above the middle ..... *L. minor*  
Linnaeus ●Meso- to eutrophic quiet water, ponds, slow streams, stock tanks, river banks, marshes; widespread and relatively common in the northern and western regions.
- 7 Thallus often reddish below, and more so than above; greatest distance between the lateral veins near or below the middle
- 8 Thallus flat, with mostly distinct papillae on the midline of the upper surface ..... *L. turionifera*  
Landolt ●Meso- to eutrophic quiet water, ponds and lakeshores, in the northern mountains.
- 8 Thallus often gibbous, with very distinct papillae above node and near the apex on the upper surface, but not between the node and the apex ..... *L. obscura*  
(Austin) Daubs ●Meso- to eutrophic quiet water, small ponds.

**Spirodela**

*S. polyrhiza* (Linnaeus) Schleiden ●Quiet waters of ponds and lakes; known only from a few collections.

**ASPARAGACEAE ASPARAGUS FAMILY**

**Asparagus**

\**A. officinalis* Linnaeus ●Widely escaped to disturbed areas, fields, roadsides, especially sandy ground; expected in all counties.

**ASPHODELACEAE ASPHODEL FAMILY**

**Asphodelus**

\**A. fistulosus* Linnaeus ●Roadsides and similar waste places in Doña Ana and Luna counties; infrequent and not particularly aggressive in southern New Mexico.

**BROMELIACEAE PINEAPPLE FAMILY**

**Tillandsia**

*T. recurvata* Linnaeus ●On oaks in the bootheel region; known from a single collection in New Mexico.

**COMMELINACEAE DAYFLOWER FAMILY**

- 1 Inflorescence enclosed in a spathe; flowers zygomorphic; fertile stamens 3, the filaments glabrous...*Commelina*
- 1 Inflorescence not enclosed in a spathe, but subtended by 2 foliose bracts; flowers actinomorphic; fertile stamens 6, the filaments pubescent ..... *Tradescantia*

**Commelina**

- 1 Petals all alike and blue; spathe margins free to the base ..... *C. dianthifolia*  
Defile ●Widespread on rocky ground, nearly throughout the state, except for the eastern rank of counties.
- 1 Petals unlike, the upper 2 large and blue, the lower 1 smaller and white; spathe margins fused at the base .....  
..... *C. erecta*  
Linnaeus ●Numerous habitats, such as sand hills, plains, rocky slopes, ledges and outcrops, roadsides, in much of the state.

**Tradescantia**

- 1 Sepals glabrous
- 2 Petals rose to magenta or purple; leaf blades 4-10 cm long, 2-5 mm wide ..... *T. wrightii*  
Rose & Bush ●Moist canyons in the western and southern mountains and foothills.
- 2 Petals bright blue; leaf blades 5-62 cm long, 4-9 mm wide (var. *scopulorum*) ..... *T. occidentalis*  
(Britton) Smyth ●Throughout New Mexico in plains, prairies, foothills, woods, forests openings, and disturbed ground.
- 1 Sepals pubescent, the hairs glandular or not
- 3 Pedicels 0.8-1 cm long; sepals 4-6 mm long; petals 9-12 mm long ..... *T. pinetorum*  
Greene ●Moist canyons and stream banks.
- 3 Pedicels 0.8-3 cm long; sepals 4-11 mm long; petals 11-16 mm long (var. *occidentalis*) ..... *T. occidentalis*  
(Britton) Smyth ●Throughout New Mexico in plains, prairies, foothills, woods, forests openings, and disturbed ground.

## CYPERACEAE SEDGE FAMILY

Contributed by Max H. Licher and Glenn R. Rink

- 1 Achene completely or partially enclosed in a sac-like bract (perigynium); perianth absent; flowers all unisexual, with staminate and pistillate flowers in separate spikes or at opposite ends of the same spike, or rarely randomly mixed in a spike
- 2 Perigynium open with margin unsealed on one side, merely wrapping around the achene..... *Kobresia*
- 2 Perigynium closed with sealed margins, completely enclosing the achene except for an apical opening for the style..... *Carex*
- 1 Achene not enclosed in a sac-like bract (perigynium); perianth absent or present, when present consisting of bristles or scale-like structures; flowers usually bisexual, spikes and/or spikelets usually with flowers similarly arranged
- 3 Fruiting spikelets or heads resembling a dense tuft of cotton due to the numerous elongated hair-like perianth bristles that obscure the flowers and scales; montane wetland plants of high elevations..... *Eriophorum*
- 3 Fruiting spikes or heads not cottony as above; plants of various habitats and elevations
- 4 Spikelets with floral scales arranged in two opposite ranks on either side of the rachis, compressed to terete in cross-section
- 5 Proximal scales of the spikelet fertile or first one empty; perianth absent; spikelets compressed, subterete, or quadrangular; leaf sheaths not blackish; widespread..... *Cyperus*
- 5 Proximal 2 or more scales of the spikelet sterile (empty); perianth of bristles usually present; spikelets compressed; leaf sheaths blackish; Otero County ..... *Schoenus*
- 4 Spikelets with floral scales arranged spirally around the rachis, terete in cross section
- 6 Inflorescence consisting of a single terminal spikelet, without an involucrel bract..... *Eleocharis*
- 6 Inflorescence consisting of multiple spikelets, or if a single spikelet, appearing lateral with a bract-like extension .... of the culm surpassing the spikelets, or with a noticeable involucrel bract subtending the spikelets
- 7 Perianth present, of bristles and/or spatulate scales (do not confuse with remnants of filaments after anthers have fallen)
- 8 Perianth dimorphic, of 3 stipitate based, spatulate scales, alternating with 3 much shorter bristles..... *Fuirena*
- 8 Perianth monomorphic, of bristles only
- 9 Inflorescence bract apparently single, appearing as a continuation of the culm so that the inflorescence appears lateral (smaller bracts occasionally present but scale-like and not green); leaves either all basal or confined to the bottom third of the culm; leaves with obvious blades, or significantly reduced to little more than basal sheaths..... *Schoenoplectus*
- 9 Inflorescence bracts 2 or more, leafy and spreading and not resembling the culm; at least some leaf blades occurring above the middle of the culm; all leaves with obvious blades
- 10 Spikelets large (4-10 mm in width), commonly 3-40; achenes 2.3 mm or more long; culms with corm-like bases; leaf ligules lacking..... *Bolboschoenus*
- 10 Spikelets relatively small (less than 4 mm wide), commonly more than 40; culms without corm-like bases; achenes 1.8 mm or less long; leaf ligules present..... *Scirpus*
- 7 Perianth absent
- 11 Large perennial plants usually 1.5-2 m tall; leaves basal and cauline (above the lower ¼ of the culm), blades scabrid with fine sawtooth margins; inflorescences terminal and often lateral (from upper leaf axils), conspicuously branched and rebranched; spikelets 100-1000. *Cladium*
- 11 Small annuals to larger perennial plants (up to 1 m tall in *Fimbristylis*); leaves all basal (from the lower ¼ of the culm), blades without sawtooth margins, at most moderately scabrid; inflorescences terminal only, simple to branched; spikelets 50 or fewer
- 12 Style base not enlarged in fruit; inner transparent scale behind the thicker primary floral scale present or lacking..... *Cyperus*
- 12 Style base enlarged; inner transparent scale always lacking
- 13 Style base persistent as a tubercle in fruit; stigmas 3; plants of dry habitats. *Bulbostylis*
- 13 Style base deciduous in fruit; stigmas 2 in our species; plants of wet habitats..... *Fimbristylis*

**Bolboschoenus**

*B. maritimus* (Linnaeus) Palla •Watercourses and marshes, ponds and lakeshores, often brackish or alkaline; 3000-8700 ft; widely distributed throughout NM. ♦Our plants belong to subsp. *paludosus* (A. Nelson) T.

## Koyama.

**Bulbostylis**

- 1 Spikelets usually more than 1 per culm (often 1 in depauperate individuals); culms 10-30 cm tall; leaves ¼ to ½ of total culm length; basal spikelets only occasionally present..... *B. capillaris* (Linnaeus) Kunth ex C.B. Clarke •Sandy or gravelly clearings, rocky slopes, roadsides, semi-riparian desert scrub, and shallow depressions in piñon-juniper woodland; 5000-7600 ft; occasional in the southwestern counties.

- 1 Spikelets 1 per culm; culms up to 10(15) cm tall; leaves ½ to slightly exceeding culms; basal spikelets usually present
- 2 Anthers 2; culms to 15 cm tall; leaves ½ to exceeding culms; involucre bracts 1 or 0; achenes of the basal spikelets larger (1.5 mm long) than those on scapes (1 mm long); basal spikelets dissimilar to those on culms ..... *B. funckii*  
(Steudel) C. B. Clarke •Sandy clearings, road banks, fields, disturbed areas; 7500 ft; known from one collection in Catron County.
- 2 Anthers 3; culms to 7 cm tall; leaves exceeding culms; involucre bracts 2; achenes of the basal spikelets the same size as those on culms (1 mm long); basal spikelets similar to those on culms ..... *B. schaffneri*  
(Boeckeler) C. B. Clarke •Sandy or gravelly clearings, in pine or oak woodlands; 5100-8400 ft; infrequent in the southwestern counties.

**Carex** Contributed by Max H. Licher, James McGrath, William R. Norris, and Glenn R. Rink.

- 1 Spikes solitary per culm ..... KEY A
- 1 Spikes multiple per culm
- 2 Perigynia hairy (at least some hairs present on the upper half) ..... KEY B
- 2 Perigynia glabrous
- 3 Spikes generally of two types, the terminal spike(s) staminate (rarely androgynous) or gynecandrous; the lower spikes predominantly pistillate or androgynous, often pedunculate
- 4 Stigmas 3, achenes trigonous
- 5 Terminal spike staminate (rarely androgynous) ..... KEY C
- 5 Terminal spike gynecandrous ..... KEY D
- 4 Stigmas 2, achenes biconvex ..... KEY E
- 3 Spikes similar to each other in shape and/or gender arrangement, sessile, subsessile, or short pedunculate
- 6 Terminal spike androgynous or staminate or pistillate; lateral spikes androgynous or staminate or pistillate; stigmas 2 (3 in *C. muriculata*) ..... KEY F
- 6 Terminal spike gynecandrous (sometimes appearing wholly pistillate after anthers have fallen); lateral spikes gynecandrous or pistillate; stigmas 2 or 3
- 7 Stigmas 3; spikes sessile to pedunculate ..... KEY D
- 7 Stigmas 2; spikes sessile
- 8 Perigynia not winged ..... KEY G
- 8 Perigynia winged ..... KEY H

**KEY A: Single spike per culm**

- 1 Plants caespitose, growing in dense to loose clumps
- 2 Perigynia apices rounded to slightly retuse, without beaks; plants soft, lax, of wet/moist habitats within high elevation (8500-10,500 ft) conifer forests, loosely caespitose from short rhizomes ..... *C. leptalea*  
Wahlenberg •Mossy bogs, wet meadows, streamsides in conifer forests, 10,600-11,200 ft, known from one location near Wheeler Peak in the Sangre de Cristo Mtns.
- 2 Perigynia apices contracted, beaked; plants more stiffly upright, habitat and elevation various, densely tufted, rhizomes lacking or inconspicuous
- 3 Perigynia with stipitate base, glabrous, ellipsoid to narrowly ovoid or lanceolate; spike with staminate portion shorter than pistillate portion; pistillate scales ovate to lanceolate, dark brown with narrow hyaline margins; plants of dry to moist alpine habitats ..... *C. micropoda*  
C. A. Meyer •Alpine meadows, scree slopes, and snowmelt basins; 11,500-12,600 ft; Sangre de Cristo Mtns.
- 3 Perigynia lacking stipitate base, glabrous to finely pubescent, ovoid to obovoid; spike with staminate portion longer than pistillate portion (rarely equal); pistillate scales mostly broadly ovate, or broadly obovate to sub-orbulate, light tan to greenish, yellowish or reddish brown, with broad hyaline margins; plants of dry habitats in piñon-juniper woodland, mountain meadows, grasslands, or alpine
- 4 Leaf blades folded or channeled, wider blades 0.8-1.5(2.8) mm wide near base, culms sometimes scabrous below the inflorescence; plants of mountain meadows, dry slopes and grasslands, not alpine habitats ..... *C. oreocharis*  
Holm •Mountain meadows, dry slopes, and grasslands, 7500-10,900 ft; found in the northern Sangre de Cristo Mtns. and the Magdalena Mtns.
- 4 Leaf blades involute-cylindric, filiform, wider blades 0.2-0.8 mm wide near base, culms mostly smooth below the inflorescence; plants of piñon-juniper woodland or alpine habitats
- 5 Perigynia glabrous or sparsely short hirsute/ciliate only on the upper portion near the base of the beak; plants of alpine rock fields and meadows above timberline, 10,500-12,800 ft ..... *C. elynoides*  
Holm •Alpine rock fields and meadows above timberline, 11,100-13,200 ft; known from the Sangre de Cristo Mtns. and on Sierra Blanca Peak.
- 5 Perigynia usually short pubescent all over, at least on the distal portion; plants of desert scrub and open areas within piñon-juniper woodland, 5900-8200 ft ..... *C. filifolia*  
Nuttall •Desert scrub and open areas in piñon-juniper woodland, on sandy soils and limestone, 5800-8300 ft; found in the northern third of the state.

- 1 Plants rhizomatous, with single stems to small clusters of stems arising from obvious rhizomes



- 6 Spikes with pistillate and staminate sections separated by a section of bare rachis, pistillate portion of 1-2(3) separated perigynia; perigynia (4.4)4.9-6.4(8.4) mm long, obovoid, rounded at top with a minute beak or beakless; culms to 50 cm tall, plants of dry woodlands and forests, open slopes and meadows..... *C. geyeri*
- 6 Spikes with pistillate and staminate sections contiguous, pistillate portion usually with more than 3 adjacent perigynia; perigynia to 4.7 mm long (appearing longer in *C. microglochyn* due to exerted rachilla), widest usually at the middle or below, beaked; culms up to 25 cm tall, plants of wet or dry habitats
- 7 Plants of wet habitats, leaf blades 0.2-1 mm wide
  - 8 Perigynia lance-subulate, 3.4-4.7 mm long, more than 4 times as long as wide, strongly deflexed at maturity, the rachilla present, exerted from orifice up to 2.2 mm (appearing like an extension of the beak); stigmas 3..... *C. microglochyn*  
Wahlenberg ●Moist areas in alpine tundra, seeps, gravelly streambanks, fens, peaty ground and bogs, 10,800-11,700 ft; known from one location in the northern Sangre de Cristo Mtns.
  - 8 Perigynia ovoid, oblong, or plumply elliptic, 2.6-3.4 mm long, less than 3 times as long as wide, spreading to slightly deflexed at maturity, rachilla absent; stigmas 2..... *C. gynocrates*  
Wornskjold ex Drejer ●Mossy, peaty bogs in coniferous forests, or on gravelly streambanks, 10,300-11,100 ft; found in the northern Sangre de Cristo Mtns in NM.
- 7 Plants of drier habitats; leaf blades 0.5-3(3.8) mm wide
  - 9 Perigynia uniformly deep red-brown to dark brown, shiny; sheath fronts with red-purple dots; leaf blades 0.5-1.6(2) mm wide, tips generally straight or curved, not curling; rhizomes often reddish-purple; plants of montane grasslands, open forests, ponderosa pine savannas and rocky ridges up to 10,500 ft..... *C. obtusata*  
Liljeblad ●Montane grasslands, open forests, ponderosa pine savannas and rocky ridges, 6500-10,500 ft; found in widely scattered locations in the northern half of the state.
  - 9 Perigynia cream or pale green with darker tip, dull; sheath fronts without red-purple dots; leaf blades 1.4-3(3.8) mm wide, tips often curling; rhizomes brown; plants of alpine summits, dry meadows and rocky ridges at or above 11,500 ft..... *C. rupestris*  
Allioni ●Alpine summits, meadows and rocky ridges, 11,800-13,000 ft; found in the northern Sangre de Cristo Mtns.

**KEY B: Multiple spikes per culm, perigynia pubescent or muricate-warty**

- 1 Inflorescence a dense head of indistinguishable similar androgynous spikes; plants single-stemmed to occurring in small clumps connected by long rhizomes; dry habitats..... *C. duriuscula* (in part)  
C.A. Meyer ●Dry prairies, grasslands, and openings in woodlands and forests; 6300-11,500 ft; northern and western NM.
- 1 Inflorescence elongate with spikes of different types, terminal spike staminate and lateral spikes mostly pistillate, or if all spikes similar and androgynous, then separated along the rachis and easily distinguishable; plants caespitose or colonial rhizomatous; varying habitats (note that some of these species have both cauline and basal inflorescences, the latter having a simpler, compact structure)
  - 2 Pistillate spikes 1-7 cm long, with 40 or more perigynia; plants colonial from long rhizomes; wetland habitats, usually pond, lake margins, along streams, wet meadows or seasonally flooded wetlands
  - 3 Perigynia occasionally with a few bristles along the nerves, otherwise glabrous; base of leaf blades and summit of leaf sheaths usually pubescent; perigynia 6-8.2(9) mm long, beak bidentate with spreading teeth 1.6-2.2(3.6) mm long..... *C. atherodes* (in part)  
Sprengel ●Floodplains and seasonally flooded wetlands; 5300-9300 ft; known from three locations in northern NM.
  - 3 Perigynia densely pubescent over entire surface; base of leaf blades and summit of leaf sheaths glabrous; perigynia 2.5-3.8(5.2) mm long, beak bidentate with straight teeth 0.4-0.6 mm..... *C. pellita*  
Willdenow ●*Carex pellita* is a common wetland sedge that occurs in a wide variety of habitats including pond and stream edges, grassy and boggy meadows, seepage, and seasonally wet sites. 4700-10,900 ft. Widespread in NM except not present in the eastern central and southeastern regions of the state.
- 2 Pistillate (androgynous in *C. muriculata*) spikes 1.2 cm or less long (to 2.2 cm long in *C. muriculata*), with less than 20 perigynia; plants loosely to densely caespitose; dry to mesic woodland, forest, or prairie habitats
  - 4 Surface of perigynia muricate warty; lateral spikes 2-5, androgynous or sometimes appearing pistillate due to cryptic male flowers..... *C. muriculata* (in part)  
F.J. Hermann ●*Carex muriculata* is known only from dry limestone habitats in southeast NM; 5000-5900 ft.
  - 4 Surface of the perigynia more or less pubescent (proximally glabrous in *C. planostachys*); lateral spikes 1-3(4), pistillate
  - 5 Plants with cauline inflorescences only, usually with both staminate and pistillate spikes
    - 6 Culms to 50 cm tall, longer to much longer than the leaves; perigynia prominently 10-25 nerved at least to mid-body; proximal inflorescence bract as long or longer than the inflorescence, less frequently shorter; staminate scales pale green throughout, sometimes with a darker green midstripe; southwestern mountains only..... *C. leucodonta*  
Holm ●Open ponderosa pine forest (7500 ft) in the Pinos Altos Mtns. of the Gila National Forest

(Grant Co); currently known from a single observation (Alexander 2017).

- 6 Culms to 35 cm tall, shorter to longer than the leaves; perigynia nerveless except for two strong marginal nerves; proximal inflorescence bract usually shorter than the inflorescence, rarely a bit longer; staminate scales with brown body and pale or green midstripe; found primarily in the northern half of the state (hybrids w/ basal inflorescences are occasional)..... *C. heliophila* Mackenzie ●Mixed conifer and ponderosa pine forests, juniper woodlands and montane grasslands in north-central and northeastern NM. 6000-10,500 feet.
- 5 Plants with both basal and cauline inflorescences, occasionally basal only, the cauline inflorescences with staminate and pistillate spikes, the basal spikes on short peduncles, usually all pistillate
- 7 Perigynia with many prominent nerves, hispidulous distally, glabrous proximally, or nearly glabrous throughout; beak sometimes abruptly bent; southern mountains only ..... *C. planostachys* Kunze ●Dry, rocky oak-juniper woodland in southern NM. 4200-6800 ft.
- 7 Perigynia nerveless or with few fine nerves between the two prominent marginal nerves, uniformly pubescent; beak slightly bent or straight; of various distributions
- 8 Old leaf bases persisting as coarse fibers, tan to brown, usually without any red or orange color; cauline pistillate spike bract usually shorter than the inflorescence; pistillate scales shorter than to as long as the perigynia; staminate spikes often thick with many strongly overlapping scales..... *C. geophila* Mackenzie ●Mostly dry soil in ponderosa pine forests (and occasionally piñon-juniper woodlands) in the northern and western mountains. (5450)6000-8900 ft.
- 8 Old leaf bases only slightly fibrous, with some red or orange coloring; cauline pistillate spike bract shorter to longer than the inflorescence; pistillate scales usually shorter than perigynia; staminate spikes usually slender, with fewer, less overlapping scales, with more of the scale length exposed
- 9 Perigynia 2.3-3.4(4.2) mm long; beaks 0.5-1(1.5) mm long; plants loosely cespitose, often lax; alpine rock fields and tundra at or above above timberline..... *C. brevipes* W. Boott ex B.D. Jackson ●Alpine rock fields and tundra at or above timberline. 11,800-12,400 ft; known from a few locations in the Sangre de Cristo Mtns.
- 9 Perigynia 3-4.9 mm long; beaks 0.7-2 mm long; plants densely cespitose, strict or lax; piñon-juniper woodland to ponderosa pine or mixed conifer forests at or below timberline (rarely above in *C. rossii*)
- 10 Cauline pistillate spikes 3-6(15) flowered; proximal inflorescence bract wide, flat, longer to much longer than the inflorescence; culms 7-25(40) cm tall; staminate spikes (6)13-16.5 mm long, the scales pale to slightly tinged with brown or red (not deep purple)..... *C. rossii* Boott ●Ponderosa pine and mixed coniferous forests in the northern and western mountains, rarely above timberline. 6000-11,000 (12,300) ft.
- 10 Cauline pistillate spikes 1-4 flowered; proximal inflorescence bract narrow, folded or involute, shorter to slightly longer than the inflorescence; culms 3-15 cm tall; staminate spikes 4.8-13 mm long, the scales usually darker, with purple-black tinge
- 11 Cauline inflorescence with 2-4 pistillate spikes, each with 1(2)-3 perigynia, the perigynia thus appearing in clusters along the axis of the inflorescence; staminate spike 7.5-13 mm long, on a peduncle of variable length, often with a pistillate flower close to its base; leaves flat, lax ..... *C. "aff. rossii"* ined. ●Piñon-juniper woodland, ponderosa pine, and mixed conifer forests in the northern and western mountains.
- 11 Cauline inflorescence with 1-2(3) pistillate spikes, each with 1(2) perigynium, the perigynia thus often appearing separated along the axis of the inflorescence; staminate spike 4.8-8.3(11.5) mm long, usually on a long peduncle equal to or much longer than spike, rarely with a pistillate flower at its base; leaves often folded or involute, stiffer than the above..... *C. pityophila* Mackenzie ●Piñon-juniper woodland, ponderosa pine, and mixed coniferous forests in the mountains of northern NM. 7300-9900 ft.

**KEY C: Multiple spikes per culm, stigmas 3, perigynia glabrous, terminal spike staminate (rarely androgynous), mostly wetland plants** (Note: Only *C. capillaris*, *C. geyeri*, *C. hystericina*, & *C. utriculata*) are known from more than a few locations in the state)

- 1 Mature pistillate spikes uniformly dark; perigynia and scales at least partially suffused with dark purple or blackish coloration; plants rare in NM, known from Rio Arriba and Taos counties
- 2 Stigmas 2 (some flowers occasionally with 3); perigynia 2 times as long as wide, often shiny, ovate to ovate-lanceolate or broadly elliptic in profile, inflated (often flattened in pressing), the beaks smooth; plants colonial rhizomatous..... *C. saxatilis* Linnaeus ●Fens, bogs, lakeshores, ponds and slow moving streams; 10,300-11,600 ft; known only from the San Pedro Parks Wilderness (Rio Arriba Co.) and Glacier Lakes (Colfax Co.).
- 2 Stigmas 3; perigynia 2.5-3 times long as wide, not shiny, narrowly elliptic to lanceolate, not inflated, the

- beaks ciliate-setose (at least at the base of the beak); plants cespitose to short-rhizomatous..... *C. luzulina*  
 Olney ●Wet meadows, bogs; 9800 ft; known from one location in the San Juan Mtns.
- 1 Mature pistillate spikes green to brown or straw colored but not uniformly dark; either perigynia and scales both pale OR dark scales contrasting with pale colored perigynia OR pale scales contrasting with darker perigynia; plants of varying frequency and distribution in NM
- 3 Plants with robust pistillate spikes; longer pistillate spikes 2-13 cm long, each with more than 50 perigynia, the perigynia densely packed on the spike; perigynia moderately to strongly inflated (though often flattened/collapsed in pressing or flat to slightly inflated in *C. ultra*), the achenes not filling the perigynia; plants often robust; wetland habitats
- 4 Perigynia beaks 0.2-0.6 mm long, bodies with red-brown spotting or blotching, flattened to only slightly inflated; leaf blades usually glaucous, thick, coriaceous, with harsh scabrous margins; plants densely cespitose; Hidalgo County ..... *C. ultra*  
 L.H. Bailey ●Springs and stream banks; 4800-5200 ft; known only from two locations in the Peloncillo Mtns near the AZ border.
- 4 Perigynia beaks 0.7-4.2 mm long, bodies without red-brown spotting or blotching (though with dark brownish coloration in some species), usually inflated; leaf blades pale to dark green but not glaucous, thin to thick but not coriaceous and without harsh scabrous margins; plants cespitose to rhizomatous; various locations in NM
- 5 Pistillate scales with a long scabrous awn, the awn longer than 1 mm, often equaling or longer than the body, distinct from the body of the scale
- 6 Base of leaf blades and summit of leaf sheaths usually pubescent; perigynium beak bidentate with teeth 1.6-2.2(3.6) mm long; plants rhizomatous, producing large colonies ..... *C. atherodes* (in part)  
 Sprengel ●Floodplains and seasonally flooded wetlands; 5300-9300 ft; known from three locations in northern NM.
- 6 Base of leaf blades and summit of leaf sheaths glabrous; perigynium beak bidentate with teeth (0.2)0.3-1 mm long; plants rhizomatous or cespitose
- 7 Perigynium body obconic, widest near the top, abruptly contracted to the beak; proximal pistillate spike ascending to spreading; sheath fronts papery-membranous, easily torn, not ladder-fibrillose; plants rhizomatous; extreme southern NM ..... *C. aureolensis*  
 Steudel ●Mountain springs and along associated streams; 4300-5600 ft; known only from three locations: in the Guadalupe (Eddy Co.) and Florida (Luna Co.) mountains.
- 7 Perigynium body lanceoloid to ovoid to ellipsoid, widest at or near the middle, gradually tapering into the beak; proximal pistillate spike often pendent; sheath fronts not papery membranous, becoming ladder-fibrillose; plants densely cespitose; widespread in NM.....  
 ..... *C. hystericina*  
 Muhlenberg ex Willdenow ●Pond margins, springs and seeps, streams and stream banks; 3900-7300 ft; widely scattered in NM.
- 5 Pistillate scales without an awn, or with midrib extended as short, smooth awn less than 1 mm long, shorter than the length of the body
- 8 Perigynia bodies broadly obovoid to subspherical, 3-7 nerved, beaks 0.7-1.1 mm long; widest leaf blades 8-20 mm wide; Grant and Sierra counties ..... *C. amplifolia*  
 Boott ●Bogs, wet meadows, streambanks in conifer forests, often in shaded areas; 7800-8800 ft; known only from several locations in the Black Range in west central NM (Grant and Sierra counties).
- 8 Perigynia bodies lanceoloid, ovoid, or ellipsoid, 6-12 nerved, beaks 0.8-2 mm long; widest leaf blades 4.5-10 mm wide; widespread (*C. utriculata*) or rare in NM (*C. vesicaria*)
- 9 Ligule of lowest leaf blade no more than 1.5 times as long as wide, with rounded or emarginate apex; culms often thick, clothed in old leaf bases; sheaths thick and spongy based, often with crosswalls between the veins, appearing like brickwork, the sheaths surrounding the thickest culms rarely reddish, the sheaths surrounding narrower culms occasionally reddish; widest leaf blades up to 10 mm wide; plants colonial from long rhizomes; perigynia strongly spreading at maturity; common and widespread ..... *C. utriculata*  
 Boott ●Wet meadows, marshes, pond and lake margins, and stream banks; 5600-12,000 ft; common and widely scattered in the western 2/3 of NM, especially in the north.
- 9 Ligule of lowest leaf blade at least twice as long as wide, with acute apex; culms often thin, not clothed in old leaf bases; sheaths thin, not spongy based, with few or no crosswalls between the veins, not appearing like brickwork, the sheaths often reddish; widest leaf blades up to 6(8) mm wide; plants loosely cespitose from short rhizomes; perigynia ascending to spreading at maturity; rare in NM, Cibola and Rio Arriba counties ..... *C. vesicaria*  
 Linnaeus ●Wet meadows, pond margins, and stream banks; 7700-8400 ft; known only from a few widely scattered locations (Cibola and Rio Arriba counties).
- 3 Plants with delicate pistillate spikes; longer pistillate spikes less than 3 cm long (rarely longer in *C. luzulina*, *C. microdonta*, and *C. sprengelii*), each with fewer than 50 perigynia, the perigynia loosely packed on the spike (or if densely packed, then the spike less than 2 cm long); perigynia not or barely inflated, the

achenes more nearly filling the perigynia; plants robust or not; varying habitats

- 10 Proximal pistillate spikes pendent on long flexuous peduncles
  - 11 Perigynium body abruptly contracted to a long conspicuous beak, the beak 1.9-2.8 mm long, subequal to or slightly longer than the body; sheath bases disintegrating into a persistent tuft of vertical "horsehair" fibers; plants up to 90 cm tall; leaf blades up to 40 cm long ..... *C. sprengelii*  
Dewey ex Sprengel ●Riparian areas in canyon bottoms, mesic habitats in conifer forests or woodlands; 7400-8800 ft; known from the Jemez Mountains and Sugarite State Park near the Colorado border.
  - 11 Perigynium body gradually or abruptly tapered into a shorter beak, the beak 0.1-1.1 mm long, less than half the length of the body, or absent; sheath bases not disintegrating into a persistent tuft of fibers; plants 5-40(70) cm tall; leaf blades usually less than 10 cm long
  - 12 Perigynium surface smooth, beak 0.3-1.1 mm long; inflorescence bract with sheath 4 mm long or longer; roots without a covering of fine hairs; plants caespitose ..... *C. capillaris*  
Linnaeus ●Springs, streamsides, fens, bogs and wet meadows; 8500-12,500 ft; found in conifer forest and alpine sites in the Sangre de Cristo and Sacramento mtns.
  - 12 Perigynium surface papillate, beak 0.1(0.5) mm long or absent; inflorescence bract with a sheath 3 mm long or less; roots with a covering of fine hairs; plants rhizomatous (but stems sometimes in small clumps)
  - 13 Pistillate scales (0.6)0.9-1.9(2) mm wide, much narrower than and thus not concealing the perigynia, conspicuously longer than the mature perigynia and giving the pistillate spike a 'shaggy' appearance, deciduous; plants rhizomatous but sometimes growing in clumps; phyllopodic, culms usually with dead leaf remains at base ..... *C. magellanica*  
Lamarck ●Wet meadows, bogs, and fens; 10,300-10,500 ft; known only from the San Pedro Parks Wilderness. ♦Our plants belong to subsp. *irrigua* (Wahlenburg) Hiitonen.
  - 13 Pistillate scales (1.7)1.8-2.5(3.4) mm wide, as wide as the perigynia and concealing them, shorter to longer than the mature perigynia, not giving the pistillate spike a 'shaggy' appearance, persistent; plants rhizomatous, colonial; aphyllpodic, culms without dead leaf remains at base ..... *C. limosa*  
Linnaeus ●Bogs and fens, sometimes a component of floating mats; 10,200-11,700 ft; known from two locations in the Sangre de Cristo Mtns.
- 10 Proximal pistillate spikes erect or spreading on stiff peduncles, or sessile
  - 14 Inflorescence with only 1-2 individual sessile perigynia; perigynia obovoid, (4.4)4.9-6.4(8.4) mm long, beakless, with a narrow, spongy base; plants rhizomatous, of dry montane forest, woodland, and meadow habitats ..... *C. geyeri*  
Boott ●Dry montane forests and woodlands, open slopes and meadows, often in shade, 6300-10,200 ft; known from mountainous areas in northern NM.
  - 14 Inflorescence with more than 3 perigynia, on multiple spikes (sometimes a single basal spike in several species); perigynia of various shapes, without narrow spongy base, 4.5 mm long or less, with beak (except in *C. conoidea*), plant growth form and habitat various, but not both as above
  - 15 Perigynia 1.5-2.2 mm long; inflorescence with the terminal staminate spike surpassed by one or more pedunculate pistillate spikes; inflorescence bract reduced to a sheath only, without blade; leaf blades very fine, 0.2-0.5(1) mm wide; known from a single location in the Sacramento Mtns. (Otero Co.) ..... *C. eburnea*  
Boott ●Wet, spring-fed meadow in conifer forest; 8800-8900 ft; known only from one location in Brown Canyon in the Sacramento Mtns (Otero Co.).
  - 15 Perigynia 2.4 mm long or longer (1.8-3 mm in *C. viridula*); inflorescence with terminal staminate spike(s) surpassing all lateral pistillate spikes; inflorescence bract with blade; leaf blades 1 mm or more wide; distribution various
  - 16 Perigynia with impressed (sunken) nerves, beakless ..... *C. conoidea*  
Willdenow ●Moist meadows, lakeshores and streamsides; 8600-8800 ft; known from two northern locations: Sangre de Cristo mountains and Valles Caldera.
  - 16 Perigynia with raised nerves, beaked
    - 17 Proximal pistillate spike arising from the lower third of the culm; plants rhizomatous ..... *C. microdonta*  
Torrey & Hooker ●Limestone seeps in arid to mesic woodland sites; 6800-7100 ft; known only from one location in the Guadalupe Mtns.
    - 17 Proximal pistillate spike arising in the upper half (usually upper third) of the culm (separate basal inflorescences can be present in *Carex planostachys*); plants caespitose
    - 18 Proximal inflorescence bract greatly exceeding the inflorescence, erect to widely divergent; pistillate spikes oblong to ovoid to globose, the perigynia very densely packed; the terminal group of spikes tightly clustered and sessile to subsessile to short pedunculate ..... *C. viridula*  
Michaux ●Wet meadows, alkaline seeps, springs; 7800-10,000 ft; known only

- from canyons in the Sacramento Mtns. (Otero Co.) and one location in Taos Co.
- 18 Proximal inflorescence bract shorter than to slightly exceeding the inflorescence, usually erect to ascending; pistillate spikes cylindric to cylindric-oblongoid, the perigynia more loosely packed than in *C. viridula*; the terminal spikes not tightly clustered, or if clustered, then usually more loosely so and short pedunculate
- 19 Plants of dry habitats in southern NM, basal inflorescences often present, culms up to 15 cm tall..... *C. planostachys*  
Kunze ●Dry, rocky oak-juniper woodland in southern NM. 4200-6800 ft.
- 19 Plants of wet to mesic habitats, in northern NM, culms usually 15 cm or more tall
- 20 Perigynium beak evident, straight, 0.5-1.5 mm long, ciliate-serrulate (at least at the base of the beak); culms with leaf blades crowded near the base, fewer above on the culm ..... *C. luzulina*  
Olney ●Wet meadows, bogs; 9800 ft; known from one location in the San Juan Mtns.
- 20 Perigynium beak short, abruptly bent, 0.6 mm long or less, glabrous; culms with leaf blades more evenly distributed along the culm ..... *C. blanda*  
Dewey ●Wide range of habitats, often weedy; 6400 ft; known from one location at Ghost Ranch (Rio Arriba Co.) in a moist habitat near stream.

**KEY D: Multiple spikes per culm, stigmas 3(2), perigynia glabrous, terminal spike gynecandrous**

- 1 All spikes sessile in a compact head and closely overlapping one another (occasionally the basal spike slightly remote and subsessile)
- 2 Perigynia ovate to suborbicular, 1.3-2.5(2.8) times longer than wide, contracted abruptly to beak 0.2 - 0.5(0.6) mm long; spikes often not readily distinguishable..... *C. nova*  
L.H. Bailey ●Moist subalpine and alpine meadows, seeps, springs and lake margins; 9400-12,500 ft; known only from the Sangre de Cristo Mtns.
- 2 Perigynia narrowly elliptic to narrowly ovate, 2.8-3.9 times longer than wide, tapering to a beak (0.3)0.5-0.8(0.9) mm long; spikes easily distinguishable..... *C. nelsonii*  
Mackenzie ●Moist alpine meadows, edges of spring outflows; 12,200-12,400 ft; known only from one location in the Sangre de Cristo Mtns near the CO border.
- 1 Lower spikes pedunculate, some shortly so; inflorescence usually moderately elongate, always with one to several lower spikes remote from the terminal cluster
- 3 Pistillate scale apices typically with awns 0.5-2(3.5) mm long; lateral spikes sessile to short pedunculate; plants rhizomatous; lower leaf sheath fronts-light-colored becoming ladder-fibrillose with age; rare in NM ..... *C. buxbaumii*  
Wahlenberg ●Wet meadows, fens and bogs; 10,300 ft; known from one location in the San Pedro Parks Wilderness (Rio Arriba Co.)
- 3 Pistillate scale apices acute to acuminate, without awns; lateral spikes short to long-pedunculate; plants loosely to densely caespitose; lower leaf sheaths not becoming ladder-fibrillose with age; rare to common in NM
- 4 Lowest lateral spike gynecandrous (though often with only a few staminate flowers at the base), on a peduncle longer than the upper spikes); spikes generally long and cylindric or narrowly ellipsoid, often more than 3 times as long as wide ..... *C. bella*  
L.H Bailey ●Montane conifer forests to alpine rock fields and meadows, but most common in subalpine forests; 7600-12,200 ft; widespread in the mountains in the northern part of the state, found also in the Sacramento Mtns.
- 4 Lowest lateral spike wholly pistillate (rarely gynecandrous in *Carex chalciolepis*), short pedunculate; spikes oblong, ovoid or ellipsoid in shape, generally less than 2.5 times as long as wide
- 5 Perigynia 1.9-2.7 mm long, usually bright green or tan, contrasting with the dark scales; pistillate scales shorter than the perigynia; plants of seeps, moist meadows, streambanks or forests ... *C. stevenii*  
(Holm) Kalela ●Moist meadows, springs, and streambanks, often in partially shaded areas in forests; (6200)7700-12,300 ft; found in the Sangre de Cristo and Jemez mtns, with one occurrence from the Mogollon Mtns.
- 5 Perigynia 2.8-4.8 mm long, usually partially suffused with darker color, not contrasting strongly with the dark scales; pistillate scales usually as long as or longer than the perigynia; plants of rocky alpine or subalpine habitats
- 6 Pistillate scales lanceolate to ovate-lanceolate, exceeding the perigynia in the upper half of the spike, giving the inflorescence a 'shaggy' appearance; achene filling approximately half of the perigynium; inflorescence often nodding in maturity ..... *C. chalciolepis*  
Holm ●Subalpine and alpine meadows, rock fields; 10,300-13,000 ft; found only in the northern Sangre de Cristo mountain range and on Sierra Blanca Peak (Lincoln Co.).

- 6 Pistillate scales broadly ovate, about equaling the perigynia in length, not giving the inflorescence a 'shaggy' appearance; achene filling most of the perigynium; inflorescence usually remaining erect. .... *C. abonigra*  
 Mackenzie ●Alpine rock fields and meadows above timberline, 11,400-12,600 ft; known only from the Sangre de Cristo Mtns and on Sierra Blanca Peak (Otero Co.).

**KEY E: Multiple spikes per culm, stigmas 2(3), perigynia glabrous, terminal spike staminate (androgynous) or gynocaudous**

- 1 Plants relatively slight; culms thin and flexuous, generally less than 40 cm tall; perigynia nearly beakless; lateral pistillate spikes up to 2.8 cm long; leaf blades less than 3.5 mm wide; rhizomes 0.7-1(1.8) mm thick; stigmas usually 2, but sometimes with a few flowers (up to 20%) with 3 stigmas; perigynia sometimes golden yellow to orange. .... *C. aurea*  
 Nuttall ●Wet meadows, seepage slopes, springs, and marginal to sluggish streams; 5500-11,600 ft, scattered in the western 2/3 of NM.
- 1 Plants more robust or coarse; culms thick and upright, ranging from 7-120 cm tall; perigynia beaks 0.1-1.1 mm long; lateral pistillate spikes 0.5-8 cm long; leaf blades 1-10(12) mm wide; rhizomes 1-6 mm thick; stigmas 2 (occasionally 3 in *C. saxatilis*); perigynia never golden yellow to orange
  - 2 Plants cespitose or culms densely clustered in clumps
    - 3 Basal sheaths red brown, often shiny, ladder-fibrillose; uncommon in southwestern NM; 4500-8500 ft. .... *C. senta* (in part)  
 Boott ●Along rivers, streams and lakes, often forming tussocks on midstream rocks; 4500-8500 ft; uncommon in southwest NM.
  - 3 Basal sheaths not red brown, not shiny, not becoming ladder fibrillose; northern and western NM (*C. kelloggii*) or nearly statewide except southwestern NM (*C. emoryi*); 3400-12,500 ft.
    - 4 Plants cespitose; terminal staminate spike usually one; perigynia abruptly and narrowly stipitate; ligule never shorter than wide; free portion of ligules 0.5-2 mm long; spikes dark; 7000-12,500 ft. .... *C. kelloggii*  
 W. Boott ●Wet meadows, seasonally wet pond or lake margins, and marginal to sluggish streams; 6900-12,500 ft; uncommon in the western 2/3 of NM.
    - 4 Plants rhizomatous; terminal staminate spikes 2 or more; base of perigynia attenuate to broadly stipitate; ligule usually shorter than wide, free portion of ligules up to 0.5 mm long; spikes pale; 3400-8800 ft. .... *C. emoryi*  
 Dewey ●Banks of slow-moving streams, and floodplain meadows; northern NM and south along the Rio Grande; *Carex emoryi* is the dominant sedge lining the Rio Grande and similar large streams and associated drains and ditches at lower elevations; 3400-8800 ft.
- 2 Plants with culms occurring singly or a few together connected by rhizomes
  - 5 Perigynia beaks (0.2)0.3-1.1 mm long; perigynia inflated, suborbicular in cross-section (often flattened in pressed specimens); pistillate scales dark brown to reddish black, often with a white hyaline apex; mostly 2-styled with biconvex achenes, occasionally 3-styled with trigonous achenes; rare in NM; over 10,000 ft. .... *C. saxatilis*  
 Linnaeus ●Fens, bogs, lakeshores, ponds and slow moving streams; 10,300-11,600 ft; known only from the San Pedro Parks Wilderness (Rio Arriba Co.) and Glacier Lakes (Colfax Co.).
  - 5 Perigynia beaks 0.1-0.6 mm long; perigynia flattened (not inflated), not suborbicular in cross section; pistillate scales light to dark-colored, dark scales lacking a white hyaline apex; 2-styled with biconvex achenes; uncommon to common in NM; 3400-13,000 ft
    - 6 Pistillate scales usually with broad pale midportion with light brown marginal stripes, spikes light colored; ligule usually broadly U-shaped to horizontal, usually shorter than wide; sheaths pale, fronts usually red spotted. .... *C. emoryi*  
 Dewey ●Banks of slow-moving streams, and floodplain meadows; northern NM and south along the Rio Grande; *Carex emoryi* is the dominant sedge lining the Rio Grande and similar large streams and associated drains and ditches at lower elevations; 3400-8800 ft.
  - 6 Pistillate scales usually dark with narrow, light-colored midvein (sometimes broad in *Carex aquatilis*); spikes dark-colored; ligule V or U-shaped, as long or longer than wide; sheaths often red-brown, fronts not red spotted
    - 7 Some lower pistillate scale midveins excurrent as a short awn; leaf blades 3-10(12) mm wide; perigynia beaks often bidentate and ciliate at the apex. .... *C. nebrascensis*  
 Dewey ●Wet meadows, seeps, springs, fens, ditches, and margins of seasonally flooded wetlands and sluggish streams, often in areas used by cattle; 5400-12,100 ft; common in northern NM with fewer populations in the western part of the state.
    - 7 Pistillate scales lacking awns; leaf blades 1-6(8) mm wide; perigynia beaks entire or minutely bidentate, not ciliate at the apex (sometimes ciliate in *C. scopulorum*)
      - 8 Basal sheaths ladder-fibrillose; southwestern NM; 4500-8500 ft. .... *C. senta* (in part)  
 Boott ●Along rivers, streams and lakes, often forming tussocks on midstream rocks; 4500-

8500 ft; uncommon in southwest NM.

8 Basal sheaths not ladder-fibrillose; northern NM; 7000-13,000 ft

9 Inflorescence elongate, (4)6-18(21) cm long; proximal bract longer to slightly shorter than the inflorescence; proximal spike 1-5(7) cm long ..... *C. aquatilis*  
 Wahlenberg ●Streambanks, fens and wet meadows; 7000-12,100 ft; common in the mountains of northern NM.

9 Inflorescence congested, 2-8 cm long; proximal bract shorter than the inflorescence; proximal spike 0.5-3.1 cm long ..... *C. scopulorum*  
 T. Holm ●Seeps, springs and edges of lakes and ponds in alpine and subalpine habitats. 9600-13,000 ft; uncommon in northern NM.

**KEY F: Multiple spikes per culm, stigmas 2 (3 in *C. muriculata*), perigynia glabrous, spikes sessile, terminal spike androgynous or staminate or pistillate**

1 Delicate plants, culms arching, flexible; mostly less than 5 perigynia per spike (6, or rarely up to 8 in *C. radiata*)

2 Rhizomes conspicuous; mature perigynia unequally biconvex to round in cross section, plump, the faces conspicuously veined, the margins not serrulate, 1-4 per spike; spikes 2-4(7) ..... *C. disperma*  
 Dewey ●Wetlands, shady seeps and streambanks, wet meadows, mossy and shady coniferous woods; 7400-11,600 ft; northern NM and the Mogollon Mountains in southwest NM.

2 Rhizomes inconspicuous; mature perigynia planoconvex to biconvex in cross-section, not plump, the faces not or inconspicuously veined, the margins serrulate, 1-6(8) per spike; spikes 3-5(8) ..... *C. radiata*  
 (Wahlenberg) Small ●Riparian zones, canyon bottoms, and shady, moist depressions. 7100-8500 ft; rare in northern NM.

1 Coarse plants, culms upright and stiff; mostly more than 5 perigynia per spike (sometimes fewer in *C. jonesii* and *C. occidentalis*)

3 Plants rhizomatous, with clear separation between small groups of 1-several culms; distance between the culms along the rhizome mostly greater than 1 cm long

4 Rhizomes flexible, 0.6-1.6 mm thick; plants of dry habitats

5 Plants mostly monoecious; inflorescence 2-9 mm wide, not appearing shaggy

6 Culms to 30 cm tall; inflorescence compact, 0.7-2 cm long; all spikes tightly overlapping and indistinguishable; perigynia 2.8-3.8 mm long; beak 0.3-0.8 long; culms smooth just below the inflorescence ..... *C. duriuscula* (in part)  
 C.A. Meyer ●Dry prairies, grasslands, and openings in woodlands and forests; 6300-11,500 ft; northern and western NM.

6 Culms to 90 cm tall; inflorescence elongate, 1-3.5 cm long; lowest spikes loosely overlapping and distinguishable; perigynia 3.6-6 mm long; beak 1.2-2.5 mm long; culms usually scabrous just below the inflorescence ..... *C. siccata*  
 Dewey ●Forests and grasslands, alpine meadows; 6600-12,300 ft; mountains of the western 2/3 of NM.

5 Plants mostly dioecious; staminate inflorescence 7-20 mm wide, pistillate inflorescence 8-20 mm wide, appearing shaggy ..... *C. douglasii*  
 Boott ●Seasonally flooded depressions, grasslands to forests; 6600-10,000 ft; northern and southwest NM.

4 Rhizomes stout, 1.2-3.6 mm thick; plants of wet to mesic habitats

7 Perigynia beaks 0.3-0.5 mm long, perigynia 1.7-2.4 mm long, dark reddish brown; culm bases typically pale; of wetter habitats frequently flooded throughout the growing season ..... *C. simulata*  
 Mackenzie ●Wetlands with saturated soils, often in standing water; 6100-11,700 ft; northern and western NM.

7 Perigynia beaks greater than 0.5 mm long; perigynia 2-4.2 mm long, brown to black at maturity; of moist to wet habitats but usually not those that are flooded throughout the growing season or of springs

8 Culm bases typically dark brown; rhizomes typically not straight; inflorescences branched or spicate; plants usually of wetlands with saturated soils or moist areas that dry out seasonally, sometimes weedy ..... *C. praeagrillis*  
 W. Boott ●Though inconspicuous, *C. praeagrillis* is a common wetland sedge that occurs at springs, in seeps, cienegas, floodplains, often in agricultural areas subject to livestock grazing, and in seasonally wet areas; 3500-11,800 ft; northern and western NM.

8 Culm bases typically light brown; rhizomes typically straight; inflorescences always branched; plants typically of springs or creek banks, never weedy ..... *C. agrostoides* (in part)  
 Mackenzie ●Mountain springs, mountain streambanks and ciénegas in the plains; 4600-6200 ft; common in southwest NM.

3 Plants mostly cespitose, forming clumps; distance between the culms along the rhizome mostly less than 1 cm, rarely up to 2 cm long in *Carex agrostoides*

9 Inflorescence 0.8-1.5(2) cm long, spikes and branches nearly indistinguishable ..... *C. jonesii*  
 L.H. Bailey ●Wet subalpine meadows, seeps, and stream banks; 9400-10,600 ft; uncommon in northern

NM.

- 9 Inflorescence usually greater than 1.5 cm long, spikes and branches more readily distinguishable
- 10 Beaks of perigynia light colored and contrasting with the dark and shiny bodies; perigynia with two prominent raised ridges on either side of a dorsal central groove, otherwise without nerves, with a distinct hyaline flap at the top of the dorsal suture; known from a single high elevation wetland in Rio Arriba County ..... *C. diandra*  
 Schrank ●Wetlands, lake margins, floating logs, sometimes forming floating mats in deeper water; 8000-10,400 ft; in NM, known only from Lagunitas Lakes (Rio Arriba Co.).
- 10 Beaks of the perigynia the same color as the bodies; perigynia lacking two ridges, with or without nerves on at least one face, lacking a distinct hyaline flap at the top of the dorsal suture; NM distributions various
- 11 Perigynia 3-5.5 mm long, 2-3 mm wide; proximal leaf sheaths loose, longitudinally green and white striped and with prominent green cross veins; northeastern NM..... *C. gravida*  
 L.H. Bailey ●Rocky sandy soil; 4900-6700 ft; uncommon in northeast NM near Clayton Lake State Park (Union Co.), perhaps other areas.
- 11 Perigynia 2.2-4.8 mm long, 0.9-2 mm wide; proximal leaf sheaths tight, not or indistinctly striped, without prominent cross veins; NM distributions various
- 12 Inflorescence branched, at least some spikes attached to the lower branches of the inflorescence; generally wet habitats
- 13 Inflorescence bracts hair-like; perigynia 2.2-2.8 mm long, sharp-margined basally .....  
 ..... *C. vulpinoidea*  
 Michaux ●Wetlands along streams and lakes; 5300-8200 ft; northern and southwest NM.
- 13 Inflorescence bracts broader, not hair-like; perigynia 2.6-4.6 mm long, round-margined basally
- 14 Culms 4-6 mm wide with the angles winged; sheath fronts cross-rugulose; leaf blades 2-8(11) mm wide; inflorescence robust, spiky with long acute-tipped perigynia pointing in all directions; perigynia 3.6-4.6 mm long ..... *C. stipata*  
 Muhlenberg ex Willdenow ●Wetland, often inundated with flowing water, near springs, along lakes and streams; 6000-9800 ft; mountainous areas of NM.
- 14 Culms 1.5-3.5 mm wide, sharp angled but not winged; sheath fronts not cross-rugulose; leaf blades 0.7-4(4.4) mm wide; inflorescence softer, if spiky then not so robust; perigynia 2.6-4.2 mm long..... *C. agrostoides* (in part)  
 Mackenzie ●Mountain springs, mountain streambanks and ciénegas in the plains; 4600-6200 ft; common in southwest NM.
- 12 Inflorescence unbranched, all spikes attached to the main axis of the inflorescence; generally dry habitats
- 15 Stigmas 3; achenes trigonous; perigynia muricate-warty; limestone substrates; southeast NM..... *C. muriculata* (in part)  
 F.J. Hermann ●*Carex muriculata* is known only from dry limestone habitats in southeast NM; 5000-5900 ft.
- 15 Stigmas 2; achenes lenticular to biconvex; perigynia smooth; various habitats, wide-ranging in NM
- 16 Pistillate scales as long and wide as the perigynia, mostly concealing them; mature perigynia planoconvex but not plump, with marginal nerves usually on the margins of the body, rarely one nerve pushed over onto the ventral face, mostly unnerved on the faces; beak prominently (and doubly) serrulate on the margins, obviously bidentate; perigynia uniformly oriented in the spikes, giving the inflorescence a smooth appearance ..... *C. occidentalis*  
 L.H. Bailey ●Dry grasslands, woodlands, forest, more mesic habitats at lower elevations; 5400-11,500 ft; common throughout NM, except the eastern plains.
- 16 Pistillate scales usually shorter and narrower than the perigynia, the perigynia readily visible; mature perigynia plumply planoconvex, with at least one of the marginal nerves pushed over onto the ventral face, many-nerved dorsally and often ventrally; beak smooth or finely (and singly) serrulate on the margins, obliquely cleft or only slightly bidentate; some of the perigynia with random orientations in the spikes, giving the inflorescence a rough appearance .....  
 ..... *C. vallicola*  
 Dewey ●Dry grasslands, woodlands, forests, more mesic habitats at lower elevations; 6900-9400 ft; northern and western NM.

**KEY G: Multiple spikes per culm, stigmas 2, perigynia glabrous & unwinged, spikes sessile, terminal spike gynecandrous**

- 1 Inflorescence compact and capitate, spikes often indistinguishable..... *C. illota*  
 L.H. Bailey ●Seeps, springs, and wet meadows, often in mixed coniferous forests; 10,400-12,000 ft;



uncommon in northern NM.

- 1 Inflorescence elongate, spikes easily distinguishable
  - 2 Perigynia radiating in all directions (star-shaped) at maturity; perigynia widest near the base, with spongy thickened tissue at the base apparent
    - 3 Perigynia 2.1-3(3.2) mm long; beaks 0.3-1 mm long ..... *C. interior*  
L.H. Bailey ●Bogs, seeps, wet meadows and springs; 6000-11,000 ft; in mountains of northern NM and the Sacramento Mtns. of south-central NM.
    - 3 Perigynia (2.6)2.8-3.5 mm long; beaks 0.9-1.5 mm long ..... *C. echinata*  
Murray ●Along subalpine streams, in fens and wet meadows; 9000-10,800 ft; known from north-central NM.
  - 2 Perigynia spreading, ascending, and/or appressed, not radiating in all directions at maturity; perigynia widest well above the base, spongy thickened tissue at base not apparent
    - 4 Perigynia planoconvex, 2.5-3.8(4) times longer than wide, margins with a definite edge, surfaces smooth; beaks 0.9-1.8(2.5) mm long
      - 5 Ligule of distal leaf on culm about as long as wide, 0.7-2(2.7) mm long; achenes 1.7-2.1 mm long; inflorescence with 2-4(5) spikes ..... *C. deweyana*  
Schweinitz ●Moist conifer forest or along shaded streambanks in montane conifer forest: 6500-9100 ft; known from northern, south central, and southwest NM.
      - 5 Ligule of distal leaf on culm much longer than wide, (2)3.4-7.1 mm long; achenes 1.2-1.6(2.1) mm long; inflorescence with 4-6(9) spikes ..... *C. bolanderi*  
Olney ●Wetlands and riparian areas, streamside and at springs in montane coniferous forest habitats; 6700-8,800 ft; known from north-central and southwest NM.
    - 4 Perigynia biconvex, (1.4)1.6-2.7 time longer than wide, margins rounded, surfaces smooth to papillose; beaks up to 1 mm long
      - 6 Spikes light-colored, the lower spikes well separated; pistillate scales hyaline throughout, sometimes tinged brown or brown in the middle with green midveins; perigynia dorsal sutures lacking dark coloration or dark coloration present, but not extending for the entire length of the beaks
      - 7 Spikes (2)3-8 mm long, with 1-11 perigynia; perigynia with the dorsal suture well developed, often extending the length of the beak or more, sometimes with a white hyaline flap ..... *C. brunnescens*  
(Persoon) Poirer ●Boggy wetlands; 8400-8700 ft; known from Valles Caldera National Preserve in north-central NM.
      - 7 Spikes 3-14 mm long with (2)5-23(30) perigynia; perigynia with the dorsal suture poorly developed, not extending the length of the beak, lacking a white hyaline flap ..... *C. canescens*  
Linnaeus ●Bogs, fens, lakeshores, streambanks, and other wetlands; 8000-12,000 ft; common in northern NM.
    - 6 Spikes darker colored, mostly strongly overlapping; pistillate scales reddish-brown or light chestnut brown with hyaline margins; perigynia dorsal sutures dark colored for the entire length of beaks
      - 8 Perigynia 1.5-2.3 mm long, papillose; beaks 0.2-0.4(0.5) mm long; inflorescence with (3)4-5(6) spikes ..... *C. praeceptorum*  
Mackenzie ●Bogs and streambanks; known from one location in north-central NM (Carson National Forest, Rio Arriba Co.) at 8400 ft.
      - 8 Perigynia (2)2.4-3.8 long, smooth; beaks 0.5-1 mm long; inflorescence with (1)3(4) spikes ..... *C. lachenalii*  
Schkuhr ●Alpine wet meadows, shallow pond shores; 12,500-12,600 ft; known from the Sangre de Cristo Mtns. in northern NM.

**KEY H: Multiple spikes per culm, spikes similar, stigmas 2, all spikes sessile and gynecandrous, perigynia winged** (Section *Ovales*, excluding *C. illota*)

- 1 Longest perigynia up to 4 mm long; wet areas
  - 2 Most inflorescences having 1-3 lower inflorescence bracts longer than the head (often broken off on dried specimens); broad (usually hyaline) margins of the basal portion of the lowest inflorescence bract longer than 1/2 the length of the lowest spike; perigynia beak tips terete and entire in the distal 0.3-0.8 mm ..... *C. athrostachya*  
Olney ●Wetlands, seasonally flooded ponds, depressions and streams; 6000-9900 ft; widespread in NM.
  - 2 Few inflorescences having 1-3 lower inflorescence bracts longer than the head, if so, the broad (usually) hyaline margins of the basal portion of the lowest inflorescence bract less than 1/2 the length of the lowest spike; perigynia winged and serrulate to the tips, or less commonly entire in distal up to 0.5 mm in *C. subfusca*
    - 3 Upper spikes usually indistinguishable, usually tightly clustered; most perigynia apices acuminate to acute, more nearly terete, serrulate to the tip or sometimes as much as 0.5 mm of distal portion entire; widespread in northern and southwestern NM ..... *C. subfusca* (in part)  
W. Boott ●Moist to wet meadows, streambanks, forest margins; 5500-10,700 ft; widespread in northern and southwestern NM.
    - 3 Upper spikes usually distinguishable, clustered to moniliform; most perigynia apices acute and winged to tip, rarely terete in the distal 0.2 mm, often serrulate to the tips; rare plants of northern NM

- 4 Lowest inflorescence internode 2-4.5 mm long; upper spikes usually clustered; spikes (2)5-9; presently known only from Sandoval County..... *C. bebbii*  
(L. H. Bailey) Olney ex Fernald ●Wet meadows and streambanks; 7900-8800 ft; rare in NM.
- 4 Lowest inflorescence internode (2)4-9 mm long; spikes moniliform; spikes 3-5(8); presently known only from Rio Arriba County..... *C. tenera*  
Dewey ●Dry to wet open forests and meadows, seeps; 8000-8100 ft; Rio Arriba Co.
- 1 Longest perigynia longer than 4 mm; wet or dry areas
- 5 Longest perigynia up to 5 mm long (rarely up to 5.2 in *C. phaeocephala*)
- 6 Upper spikes distinguishable
- 7 Perigynia less than 2 times as long as wide, body suborbicular; spikes often clavate due to the large number of male flowers at the base, often rough textured (due to prominent beaks on more widely spreading perigynia)..... *C. brevior*  
(Dewey) Mackenzie ex Lunell ●Wet meadows and swales, springs and seeps, streambanks and lakeshores; 5400-8200 ft; known from northern NM.
- 7 Perigynia more than 2 times as long as wide, body various, but not orbicular; spikes not clavate (except in *C. tahoensis*), smooth textured (perigynia more appressed than in the former)
- 8 Plants found at or above tree line, of dry places; culms to (5)15-45 cm tall; perigynia tips hyaline ....  
..... *C. phaeocephala*  
Piper ●Alpine or windswept high montane rocky areas; 10,100-12,700 ft; uncommon in mountain areas of north-central NM.
- 8 Plants found below tree line (rarely up to tree line in *C. tahoensis*), of wet to dry places; culms up to 120 cm tall; perigynia tips hyaline or not
- 9 Spikes 3-4(6); achenes nearly filling the middle third of the perigynia; culms loosely clustered, arising from short linear rhizomes; dry places ..... *C. tahoensis* (in part)  
Smiley ●Grasslands, sagebrush slopes, open rocky and sandy slopes, subalpine and alpine meadows; 9400-9900 ft; known from two locations in northern NM (Rio Arriba and Taos counties).
- 9 Spikes (1)3-10(14); achenes mostly filling the lower half of the perigynia; culms densely cespitose; wet places (*C. praticola* might be found in dry places)
- 10 Most perigynia winged to tip; pistillate scale apices acute to acuminate; moist areas below 8500 ft..... *C. scoparia* (in part)  
Schkuhr ex Willdenow ●Wetlands, wet meadows, streamside, edges of ponds, seasonal ponds, in wet or saturated soils; 5000-8100 ft; uncommon in NM.
- 10 Most perigynia terete at the tip, terete portion 0.4-1 mm long; pistillate scale apices acute to obtuse; mostly wet areas over 8500 ft
- 11 Perigynia 3.6-4.5 mm long; spikes 5-9(11) mm long; inflorescence 0.6-2.2 cm long .....  
..... *C. pachystachya* (in part)  
Chamisso ex Steudel ●Montane canyons along streams; 9800 ft; known from one location east of Tierra Amarilla, Rio Arriba Co.
- 11 Perigynia (3.7)4.5-6 mm long; spikes 8.5-20 mm long; inflorescence (1.7)2.5-5 cm long .....  
..... *C. praticola*  
Rydberg ●Moist to wet meadows, open dry woods, rocky areas; 9100-9300 ft; known from one location in Rio Arriba County.
- 6 Upper spikes congested and indistinguishable
- 12 Culms to 25(40) cm tall, often arching; distance from the beak tips to the tops of the achenes (2.3)2.6-3.8 mm; alpine tundra, above 11,800 ft..... *C. haydeniana*  
Olney ●Rocky or gravelly alpine slopes and clearings; 11,800-12,300 ft; known from near the CO border in the Sangre de Cristo Mtns.
- 12 Culms to 120 cm tall, rarely arching; distance from the beak tips to the tops of the achenes (1.2)1.5-3 mm; plants growing in forested areas or meadows below 11,800 ft, rarely higher
- 13 Perigynium dorsal suture long white-hyaline, tips hyaline; scales dark brown, sometimes with a metallic sheen, hyaline margins of middle scales 0.2-0.5 mm wide ..... *C. macloviana*  
D'Urville ●Wet areas and dry meadows in subalpine or alpine habitats; 8900-12,000 ft; rare in northern NM.
- 13 Perigynium dorsal suture not long white-hyaline, tips brown; scales tan to brown, without a metallic sheen, hyaline margins of middle scales 0.1-0.3(0.5) mm wide
- 14 Perigynia planoconvex, narrowly wing-margined, 0.45-0.6 mm thick
- 15 Perigynia 3.6-4.5 mm long, 1.1-2 mm wide, slightly spreading when mature, veined or not, sometimes with coppery sheen, most perigynia beaks entire in distal 0.3-0.6 mm, sometimes a few serrulate to tips..... *C. pachystachya* (in part)  
Chamisso ex Steudel ●Montane canyons along streams; 9800 ft; known from one location east of Tierra Amarilla, Rio Arriba Co.
- 15 Perigynia 2.4-4(4.3) mm long, 0.9-1.2(1.5) mm wide, ascending when mature, conspicuously veined, never with coppery sheen, most perigynia beaks serrulate to

- tips, sometimes up to 0.5 mm of distal portion entire ..... *C. subfusca* (in part)  
 W. Boott ●Moist to wet meadows, streambanks, forest margins; 5500-10,700 ft;  
 widespread in northern and southwestern NM.
- 14 Perigynia flat except where distended over the achene to thinly planoconvex, broadly wing-  
 margined, 0.3-0.5 mm thick
- 16 Lowest inflorescence internode up to 3 mm, inflorescence (0.7)1.1-2.4 cm long, the  
 base truncate; perigynia usually widest below the top of the achene ..... *C. microptera*  
 Mackenzie ●Moist to wet meadows and along streams; 5800-11,800 ft; widespread in  
 mountain areas of NM.
- 16 Lowest inflorescence internode usually greater than 4 mm, inflorescence (1.5)2-3.6 cm  
 long, the base tapered; perigynia usually widest at the top of the achene.....  
 ..... *C. "apachense"* (in part)  
**ined.** ●Moist to wet meadows, along streams; 5400-9700 ft; mostly known from  
 southwestern NM.
- 5 Longest perigynia more than 5 mm long
- 17 Upper spikes distinguishable; most perigynia winged to tip
- 18 Perigynia not thick, flat except over the achene
- 19 Perigynia 3.3-5.4(6.8) mm long, (1)1.2-2.2 mm wide; pistillate scale apices acuminate to acute;  
 spikes (1)3-9(13), (5)6-12(16) mm long; moist areas, 5000-8100 ft ..... *C. scoparia* (in part)  
 Schkuhr ex Willdenow ●Wetlands, wet meadows, streamside, edges of ponds, seasonal  
 ponds, in wet or saturated soils; 5000-8100 ft; uncommon in NM.
- 19 Perigynia (4.8)5.2-7(7.2) mm long, (1.6)1.8-3.5(3.8) mm wide; pistillate scale apices acute;  
 spikes 2-7(8), 8-21 mm long; dry areas, 6700-11,000 ft
- 20 Perigynia up to 2.3 times as long as wide, (2.2)3-3.5(3.8) mm wide; spikes 8-15 mm long;  
 proximal inflorescence internode (2)4-5 mm long ..... *C. egglestonii*  
 Mackenzie ●Subalpine and alpine meadows, steep grassy slopes, talus; 9700-9800 ft;  
 known from San Pedro Parks Wilderness, Rio Arriba Co. in northern NM.
- 20 Perigynia more than 2.1 times as long as wide, (1.6)1.8-2.9(3) mm wide; spikes 9-21 mm  
 long; proximal inflorescence internode (2)4-10 mm long..... *C. wootonii* (in part)  
 Mackenzie ●Dry places in open meadows and slopes, clearings in forests, and rocky  
 areas; 6700-11,000 ft; widespread in central to western NM.
- 18 Perigynia thick, planoconvex, with achenes more nearly filling the perigynia
- 21 Perigynia usually nerveless ventrally, usually winged to tips; spikes obovoid, with few  
 staminate flowers at the base of each spike; hyaline margins on pistillate scales 0-0.5 mm  
 wide ..... *C. wootonii* (in part)  
 Mackenzie ●Dry places in open meadows and slopes, clearings in forests, and rocky areas;  
 6700-11,000 ft; widespread in central to western NM.
- 21 Perigynia usually nerved ventrally, winged to the tips or not; spikes narrowly fusiform,  
 lanceoloid, to oblanceoloid, often with many staminate flowers at the base of each spike;  
 hyaline margins on pistillate scales 0.2-0.8 mm wide
- 22 Perigynia 6-8.4 mm long; distance from perigynium beak tip to top of the achene (1.8)3.2-  
 4.6 mm; pistillate scales shorter and narrower than the perigynia, or equal to the  
 perigynia, pale green to light brown with a pale or green midvein ..... *C. petasata*  
 Dewey ●Dry to wet meadows, grasslands, and open clearings in forests; 5100-11,900 ft;  
 uncommon in mountain areas of NM.
- 22 Perigynia 4-4.8(6.2) mm long; distance from perigynium beak tip to top of the achene 1.7-  
 2.2 (2.6) mm; pistillate scales usually covering the perigynia, bronze with a straw to tan  
 midvein ..... *C. tahoensis* (in part)  
 Smiley ●Grasslands, sagebrush slopes, open rocky and sandy slopes, subalpine and  
 alpine meadows; 9400-9900 ft; known from two locations in northern NM (Rio Arriba  
 and Taos counties).
- 17 Upper spikes indistinguishable; perigynia not winged to tip (usually winged to tip in *C. wootonii*)
- 23 Perigynia (1.6)1.8-2.9(3) mm wide; spikes 3-7(8), 9-21 mm long..... *C. wootonii* (in part)  
 Mackenzie ●Dry places in open meadows and slopes, clearings in forests, and rocky areas; 6700-  
 11,000 ft; widespread in central to western NM.
- 23 Perigynia 1.1-1.8 mm wide; spikes 5-12(13), 6-15 mm long
- 24 Spikes 9-15 mm long; proximal inflorescence internode usually 1-3 mm, rarely up to 5 mm;  
 perigynia (3.5)5.3-7.1 mm long; dry places, over 9000 ft ..... *C. ebenea*  
 Rydberg ●Subalpine and alpine meadows, openings in conifer forests, edges of wetlands and  
 lakes, talus; 9000-13,300 ft; known from northern NM and Sierra Blanca Peak (Otero Co.).
- 24 Spikes 6-10 mm long; proximal inflorescence internode usually at least (3)4 mm long;  
 perigynia (3.5)4-5.6 mm long; wet places, 5700-9700 ft..... *C. "apachense"* (in part)  
**ined.** ●Moist to wet meadows, along streams; 5400-9700 ft; mostly known from  
 southwestern NM.

**Cladium**

*C. californicum* (S. Watson) O'Neil ●Alkaline marshes and springs, streambanks; 3200-5600 ft; known from several locations in the southeastern counties, and the wet ciénega below Blue Hole Spring in Santa Rosa (Guadalupe Co.).

**Cyperus**

- 1 Stigmas 2; achenes lenticular; spikelets highly compressed or terete in cross section (if terete, the florets spirally arranged)
- 2 Spikelets with one fertile floret subtended by 1-3 scales; spikes 1-3(4), compact, ovoid to subspherical, sessile
  - 3 Annual, diminutive; spikes 1-2(3), subequal, seemingly lateral; primary inflorescence bract ascending to vertical and often appearing to be an extension of the culm; floral scales 1-2 per spikelet, with outer scale opaque and inner scale membranous or sometimes absent; anthers 0.1-0.2 mm; achenes terete (*Lipocarpus micrantha*)..... *C. subsquarrosus* (Muhlenberg) Bauters ●Sandy soils, emergent shorelines, streambanks, pond margins; 5000-5200 ft; rare in NM, known only from a few collections in Hidalgo County.
  - 3 Perennial, cespitose; spikes 1-3(4), unequal, terminal, the primary spike vertical and larger than the others; inflorescence bracts spreading to reflexed; floral scales 2(3) per spikelet, similar in texture; anthers (0.4)0.6-0.8(1) mm; achenes biconvex (*Kyllinga odorata*)..... *C. sesquiflorus* (Torrey) Mattfeld & Kukenthal ●Damp grasslands (in its natural habitat), 6400 ft; known from one collection at Ghost Ranch (Rio Arriba Co.), a probable waif.
- 2 Spikelets with more than one fertile floret, typically more than 3; spikes 1-many, compact to open, of varying shapes, sessile to pedunculate
  - 4 Florets spirally arranged on the spikelet rachilla (atypical for the genus); spikelets 100+ in number, densely packed into a single ovoid to subglobose capitate head; stigmas 2 or 3 ..... *C. michelianus* (Linnaeus) Link ●Wet areas along riverbanks, floodplains, pond margins, 3900-4400 ft; native to Asia, first collected in 2008, known only from along the Gila River in southwest NM (Grant Co.).
  - 4 Florets distichously arranged on the spikelet rachilla (typical for the genus); spikelets 2-60 in number, loosely distributed along the spike rachis, or digitately arranged in a radiating cluster; stigmas always 2
  - 5 Spikes loosely cylindrical with an obvious rachis; floral scales widely spreading so that the spikelets have a sawtooth edge; plants annual..... *C. flavicomus* Michaux ●Moist draws and grasslands in oak woodland, 4000-5700 ft; of pantropical distribution, in NM known only from the Animas and Peloncillo Mountains in Hidalgo County.
  - 5 Spikes subcapitate, lacking an obvious rachis; floral scales appressed so that the spikelets have a smooth edge; plants perennial or annual
    - 6 Perennial with slender rhizomes, often producing dense clumps; spikes with (3)5-25(60) spikelets; floral scales 1.9-2.7 mm long; anthers 0.6-0.8 mm long ..... *C. niger* Ruiz & Pavon ●Ciénegas, wet meadows, ditches, riverbanks, seeps and springs, 3900-7400 ft; found occasionally in the southwestern mountains, and in the north-central part of the state.
    - 6 Annual with fibrous roots; spikes with 3-5(8) spikelets; floral scales 1.5-2.1 mm long; anthers 0.4-0.5 mm long ..... *C. bipartitus* Torrey ●Emergent shorelines, stream banks, ditches, and disturbed areas, 4000-6700 ft; infrequent and known from few widely scattered locations.
- 1 Stigmas 3; achenes trigonous; spikelets compressed, quadrangular, or terete in cross-section (not spirally arranged, except *C. michelianus*)
- 7 Spikelets borne in digitate clusters or in umbellate heads; spikelets compressed in cross-section (except in *Cyperusmichelianus*)
  - 8 Plants annual (occasionally biennial in *C. acuminatus*), lacking rhizomes or tuberous rootstocks
    - 9 Florets spirally arranged on the spikelet rachilla (atypical for the genus); numerous spikelets (100+), densely packed into a single ovoid to subglobose capitate head (spike); stigmas 2 or 3 ..... *C. michelianus* (Linnaeus) Link ●Wet areas along riverbanks, floodplains, pond margins, 3900-4400 ft; native to Asia, first collected in 2008, known only from along the Gila River in southwest NM (Grant Co.).
    - 9 Florets distichously arranged on the spikelet rachilla (typical for the genus); spikelets 2-75, digitate in a subspherical head, or subdigitate in a hemispheric cluster; stigmas 3
      - 10 Floral scales 2 keeled at the base, with 3-5 ribs visible on each side, ribbed almost to the margins, awned tip 0.5-1.0+ mm long, strongly excurved ..... *C. squarrosus* Linnaeus ●Receding shorelines and flood plains, gravelly road margins, soil pockets in exposed bedrock, disturbed moist soils, 3900-9100 ft; throughout the state except in the southeastern plains.
      - 10 Floral scales single keeled, with 0-2 ribs visible on each side, with a wide area smooth to the margins, cusp up to 0.5 mm long, slightly excurved..... *C. acuminatus* Torrey & Hooker ●Wet shorelines and riverbanks, disturbed soils, 5100-6300 ft; infrequent and known from a few widely scattered locations in southwestern NM.
  - 8 Plants perennial with rhizomes or tuberous rootstocks

- 11 Inflorescence a single dense spike (head), spikelets 20-60(-100), tightly radiating; inflorescence bracts horizontal to deflexed parallel to culm; floral scales often milky white; culms 4-30 cm tall ..... *C. andinus*  
 Palla ex Kükenthal ●Clearings in woodlands and forests, 7600 ft; rare and known from one location in Sierra County, northern Black Range.
- 11 Inflorescence usually of more than one spike; spikelets usually less than 20 per spike, ascending in a loose cluster; inflorescence bracts strongly ascending; floral scales not milky-white; culms 15-50(60) cm tall
- 12 Floral scales (2.3)2.8-3.2 mm, distal scales with apical cusp 0.3-1 mm; achenes broadly ellipsoid; anthers 0.8-1.4 mm; upper culms usually scabrous on the angles; plants of sandy substrates..... *C. schweinitzii*  
 Torrey ●Sandy soils, dunes, from piñon-juniper woodland to prairies, 4300-7500 ft; occasional mostly in the northern half of the state.
- 12 Floral scales (1.6)1.8-2.4 mm, distal scales with apical cusp 0.1-0.3 mm; achenes ovoid to obovoid; anthers 0.4-0.6 mm; upper culms usually smooth on the angles; plants primarily of rocky slopes..... *C. sphaerolepis*  
 Boeckeler ●Clearings in montane forests and pine/oak or piñon/juniper woodlands, rocky slopes and grasslands, 4800-8000 ft; primarily found in the southern half of the state.
- 7 Spikelets borne in linear spikes (sometimes the rachis so shortened that the spikes appear almost head-like, or with a few ascending spikes from a common terminus), compressed, quadrangular, or terete in cross-section
- 13 Apex of floral scales with a definite cusp or awn-like tip greater than 0.2 mm long
- 14 Plants annuals, small, slender, tufted, with fibrous roots; larger culms generally less than 0.8 mm wide; floral scales with strongly excurved awned tips ..... *C. squarrosus*  
 Linnaeus ●Receding shorelines and flood plains, gravelly road margins, soil pockets in exposed bedrock, disturbed moist soils, 3900-9100 ft; throughout the state except in the southeastern plains.
- 14 Plants perennial, robust, rhizomatous; larger culms generally more than 1 mm wide; floral scales with a straight to slightly spreading cusp
- 15 Floral scales deciduous (the empty rachilla generally remaining persistent on the spike); spikelets strongly compressed, more than 2x as wide as thick, mostly strongly ascending throughout the spike
- 16 Most inflorescence bracts slightly ascending (at less than 45 degrees above horizontal) to reflexed; spikes sessile (the central one longest), forming an elongate head, very rarely with 1 short ray ..... *C. fendlerianus*  
 Linnaeus ●Clearings in woodlands and forests, 4900-9500(10,500) ft; widespread in all mountainous parts of the state.
- 16 Most inflorescence bracts ascending at greater than 45 degrees above horizontal; most spikes usually on elongate rays, spikes of varying lengths
- 17 Floral scales (2.3)2.8-3.2 mm, distal scales with apical cusp 0.3-1 mm; achenes broadly ellipsoid; anthers 0.8-1.4 mm; upper culms usually scabrous on the angles; plants of sandy substrates ..... *C. schweinitzii*  
 Torrey ●Sandy soils, dunes, from piñon-juniper woodland to prairies, 4300-7500 ft; occasional mostly in the northern half of the state.
- 17 Floral scales (1.6)1.8-2.4 mm, distal scales with apical cusp 0.1-0.3 mm; achenes ovoid to obovoid; anthers 0.4-0.6 mm; upper culms usually smooth on the angles; plants primarily of rocky slopes..... *C. sphaerolepis*  
 Boeckeler ●Clearings in montane forests and pine/oak or piñon/juniper woodlands, rocky slopes and grasslands, 4800-8000 ft; primarily found in the southern half of the state.
- 15 Floral scales persistent with spikelets deciduous as a unit (including the rachilla), spikelets quadrangular to slightly compressed, less than 2x as wide as thick, mostly spreading at right angles to the rachis at mid spike
- 18 Longest spikelets (2.2)4-10(18) mm, floral scales 1-5; distal scale with glabrous midrib, the mucro 0.1-0.3(0.5) mm; anthers (0.3)0.4-0.6 mm..... *C. retroflexus*  
 Buckley ●Damp to dry, sandy soils in desert scrub to piñon-juniper woodlands, 3400-5500 ft; found primarily at lower elevations in the southeastern corner of the state
- 18 Longest spikelets 9-21 mm, floral scales 3-8(13); distal scale with scabrid midrib, the mucro 0.6-1.9 mm; anthers 0.5-1.3 mm..... *C. floribundus*  
 (Kukenthal) J. Rich, Carter, & S. D. Jones ●Sandy, open areas, 4360 ft; known from a single collection in Curry Co.
- 13 Apex of floral scales obtuse to acute, lacking any extension, or with a tiny cusp (0.1-0.2 mm long)
- 19 Spikelets quadrangular to terete, sometimes slightly compressed in cross-section, less than 1.5 times as wide as thick

- 20 Plants perennial with short rhizomes; spikes less than 1 cm wide, the rays usually with solitary spikes; spikelets with 1-5 floral scales
- 21 Inflorescence a cluster of 3-6 sessile spikes, sometimes with 1-5 additional spikes on rays; floral scales laterally pale green to whitish; achenes (1.6)1.8-2(2.2) mm long; plants of the sky island ranges in the Bootheel ..... *C. pallidicolor* (Kukenthal) G.C. Tucker ●Moist draws in ak/juniper woodland, 5200-5300 ft; found only in the Sky Island mountain ranges in Hidalgo County.
- 21 Inflorescence of one sessile spike, with 4-11 additional spikes elevated on rays; floral scales laterally tan to brown; achenes 1.2-1.7 mm long; plants known from two locations (Dona Ana & Rio Arriba cos.) ..... *C. retrorsus* Chapman ●Damp to dry, sandy soils in open woods and thickets, 3900-6400 ft; introduced, native to the SE US & NE Mexico, known from only two collections, both presumed waifs, at Ghost Ranch (Rio Arriba Co.) and in a nursery in Las Cruces (Doña Ana Co.).
- 20 Plants annual to short-lived perennial, with primarily fibrous roots (rarely producing rhizomes in *Cyperus strigosus*); spikes often significantly wider than 1 cm (except in depauperate specimens), the rays often with clusters of spikes at the apex; spikelets with 3-12(30) floral scales
- 22 Floral scales 3.2-4.5(6) mm; spikelets generally appearing straight and stiff, falling whole from the rachis of the spike; plants short-lived perennials with thickened corm-like bases (rarely producing rhizomes) ..... *C. strigosus* Linnaeus ●Pond shores, ciénegas, damp wash-beds, 5000-5200 ft; known only from Hidalgo County in the Bootheel region.
- 22 Floral scales less than 3.2 mm long; spikelets often appearing somewhat flexuous, with the floral scales deciduous from the rachilla or the rachilla disarticulating at each joint and falling with the scale; plants small to robust annuals without corm-like bases or rhizomes
- 23 Floral scales 1.3-1.5 mm long, spreading at maturity, imbricate, deciduous from the persistent rachilla of the spikelet ..... *C. erythrorhizos* Muhlenberg ●Emergent shorelines, 3900-5600 ft; known from widely scattered locations.
- 23 Floral scales 2-2.8(3.2) mm long, generally remaining appressed at maturity and not imbricate; spikelets disarticulating at each joint of the rachilla, each scale remaining attached to its rachilla joint ..... *C. odoratus* Linnaeus ●Riverbanks and lakeshores, emergent shorelines, disturbed wet areas, 2900-5800 ft; occasional and widespread in the lower elevations.
- 19 Spikelets compressed in cross section, more than 1.5 times as wide as thick
- 24 Floral scales 1-2 mm long; spikelets densely packed on the spike rachis, the rachis either hidden completely or poorly visible between the spikelets; plants annual
- 25 Floral scales 1-1.5 mm long; achenes (0.4)0.7-1 mm long; inflorescence bracts (3)5-7(11); plants native, from widely scattered locations in NM ..... *C. erythrorhizos* Muhlenberg ●Emergent shorelines, 3900-5600 ft; known from widely scattered locations.
- 25 Floral scales 1.5-2 mm long; achenes 1.3-1.4 mm long; inflorescence bracts 3-4; plants introduced, known from the Rio Grande corridor in central NM ..... *C. glomeratus* Linnaeus ●Riverbanks and lakeshores, 4700-5000 ft; known only from the Rio Grande floodplain near Albuquerque; native to Eurasia.
- 24 Floral scales (1.8)2-4.5(6) mm long; spikelets loosely to moderately packed on the spike rachis, the rachis usually easily visible between the spikelets; plants annual or perennial
- 26 Floral scales and spikelet rachilla persistent; plants perennial, colonial, with fine rhizomes bearing tubers in mature plants (often not collected)
- 27 Spikelets golden orange-brown, 10-20(25) per spike ..... *C. esculentus* Linnaeus ●Widespread in many habitats, both natural and disturbed, riparian areas, washes, ditches, croplands, roadside margins, 3600-8900 ft; throughout the state except in the arid deserts and high mountains.
- 27 Spikelets purplish to reddish-brown, (2)3-7(12) per spike ..... *C. rotundus* Linnaeus ●Croplands, lawns, ditches, and roadside margins, 3600-4300 ft; native to Africa and Eurasia, infrequent and known from few locations in southern NM.
- 26 Floral scales or spikelets as a whole deciduous; plants annual or perennial, the rhizomes if present not bearing tubers
- 28 Floral scales 2.3-3.1 mm long, often with some pink to reddish tinge; plants annual; culms 5-25 cm tall, 1-1.5 mm wide; widely scattered in the southwestern mountains and river corridors ..... *C. parishii* Britton ex Parish ●Streambanks, springs, desert washes, 3900-7600 ft; found in the SW portion of the state.

- 28 Floral scales 3-4.5(6) mm long, tan to yellowish or reddish brown; plants perennial (sometimes flowering first year like an annual); culms 20-100 cm tall (shorter in depauperate *C. strigosus*), 1-6 mm wide; rare in NM, known only from a few locations
- 29 Floral scales reddish brown at maturity, deciduous; plants robust perennials with long rhizomes; anthers 1.5-2 mm long; known from one roadside collection north of Santa Rosa (Guadalupe Co.) ..... *C. setigerus* Torrey & Hooker •Ditches, roadsides, croplands, 5350 ft.
- 29 Floral scales yellowish-green to yellowish-brown at maturity, persistent (the spikelet falling whole); plants short-lived perennials to annuals with hardened corn-like bases, rarely producing rhizomes; anthers 0.3-0.5 mm long; known only from a few collections in the Bootheel (Hidalgo Co.) ..... *C. strigosus* Linnaeus •Pond shores, ciénegas, damp wash-beds, 5000-5200 ft; known only from Hidalgo County in the Bootheel region.

### Eleocharis

- 1 Stigmas 2 (or a mix of 2 & 3, with up to ½ flowers with 3 stigmas in several annual species); achenes biconvex (or up to ½ compressed trigonous)
- 2 Plants perennial, colonial with rhizomes; stigmas almost always 2
- 3 Proximal scale nearly orbicular, clasping 100% of the culm circumference; 2<sup>nd</sup> proximal scale always with flower; culms 0.3-0.8(1.4) mm wide, averaging 0.6 mm wide, terete; spikelet 3-18 mm long; floral scales 15-50 ..... *E. erythropoda* Steudel •Wet shorelines and riverbanks, meadows, springs, fens, and ponds, (5000)5600-8900ft; widely scattered throughout the state at mid elevations.
- 3 Proximal scale usually longer than wide, clasping ¾-¾ of the culm circumference; 2<sup>nd</sup> proximal scale with or without flower; culms 0.5-5.0 mm wide, averaging 1.3 mm wide, terete or compressed; spikelet 5-40 mm long; floral scales 30-100
- 4 Stem often strongly compressed; distal sheath summit subtruncate, sometimes with apical tooth present; spikelets 5-40 mm long, the apex often sharply pointed; 2<sup>nd</sup> proximal scale with or without flower..... *E. macrostachya* Britton •Wet shorelines and riverbanks, meadows, springs, ditches, pastures, and ponds, 3100-11,600 ft; widely scattered throughout the state.
- 4 Stem terete to slightly compressed; distal sheath summit oblique, often splitting, without apical tooth; spikelets 5-25 mm long, the apex rounded to pointed; 2<sup>nd</sup>. proximal scale always without flower..... *E. palustris* (Linnaeus) Roemer & Schultes •Wet shorelines and riverbanks, meadows, springs, ditches, pastures, and ponds, 3100-11,600 ft; widely scattered throughout the state.
- 2 Plants tufted annuals, with fine fibrous roots only (late season plants may rarely develop rhizomes), or tiny matted perennials with fine rhizomes that appear like roots; up to ½ flowers with 3 stigmas in some species
- 5 Tubercles not strongly dorsoventrally compressed, cross sectional shape similar to shape of achene, differentiated from the achene with a distinct change in color and texture or constriction; mature achenes dark brown to black; distal leaf sheath apex oblique or with an acute to acuminate tip, without apical tooth
- 6 Distal leaf sheath apex thin, inflated and membranous, often wrinkled and disintegrating; mature achenes dark brown, the tubercle as high or higher than wide, triangular in appearance from the side; plants often matted, not distinctively tufted, with very fine rhizomes that are difficult to see in the root mass ..... *E. flavescens* (Poiret) Urban •Wet shorelines and floodplains, ditches, springs, and mudflats, 4200-5600 ft; infrequent in widely scattered locations.
- 6 Distal leaf sheath apex thickened, persistent, with an acute tip on one side; mature achenes black, the tubercle significantly shorter than wide, cap-like when seen from the side; plants definitely tufted, without fine rhizomes
- 7 Achenes 0.3-0.5 mm long, 0.3-0.4 mm wide; perianth bristles white or clear; culms 2-15 cm tall..... *E. atropurpurea* (Retzius) J. Presl & C. Presl •Floodplains, shorelines and riverbanks, stock ponds, 4000-4400 ft; rare, known only from one collection in the White Sands area.
- 7 Achenes 0.5-1.1 mm long, 0.3-0.7 mm wide; perianth bristles red-brown; culms 3-45 cm tall..... *E. geniculata* (Linnaeus) Roemer & Schultes •Floodplains, shorelines, riverbanks, stock ponds, 4500-6500 ft; uncommon in widely scattered locations.
- 5 Tubercles strongly dorsoventrally compressed, cross sectional shape proportionally much thinner than the cross sectional shape of achene, distinct but more or less confluent with the achene; mature achenes stramineous to dark brown; distal leaf sheath apex oblique to acute, often toothed
- 8 Larger spikelets lanceoloid to subcylindric; tubercles not more than ¼ as high as achene; perianth bristles shorter than achene to equaling tubercle, or often absent..... *E. engelmannii*

- Steudel ●Receding shorelines and riverbanks, seasonal wetlands, ponds, 7200-8400 ft; occasional in widely scattered locations in the mountains.
- 8 Larger spikelets broadly ovoid to lanceoloid; tubercles  $\frac{1}{4}$  - $\frac{1}{2}$  as high as the achene; perianth bristles equaling to exceeding the tubercle ..... *E. obtusa*  
(Willdenow) Schultes ●Receding shorelines and riverbanks, seasonal wetlands, ponds, 6450 ft; rare in NM, known only from one early collection in Las Vegas (San Miguel Co.).
- 1 Stigmas all or mostly 3; achenes trigonous
- 9 Floral scales cleft at the apex (at least on the lower scales); culms subterete to strongly compressed ..... *E. compressa*  
Sullivant ●Seasonal seeps and depressions, meadows, woods, 7600 ft; rare, known from one location in Colfax Co.
- 9 Floral scales all entire; culms terete to slightly compressed
- 10 Achenes with a network of strong vertical ridges interconnected by fine horizontal ridges; tubercle separated from the achene by a distinct constriction
- 11 Plants annual, tufted, usually with many stems radiating from a central clump of fibrous roots, rarely producing rhizomes; culms 0.1-0.2 mm thick, often some curving upward, usually less than 3 cm tall in our specimens; floral scales 1-1.5 mm long, apex narrowly acute to acuminate; anthers 0.3-0.5 mm long ..... *E. bella*  
(Piper) Svenson ●Bare, drying out soil on shorelines, riverbanks, and seasonally wet depressions (4200) 7500-8000 ft; uncommon in the southwestern mountains, with one anomalous location in an eastern prairie pothole.
- 11 Plants perennial, with fine rhizomes (hard to see) forming large, fine irregular colonies; culms wider, 0.2-1.0 mm thick, usually straight, 3-25 cm tall; floral scales 1.5-2.5(3.5) mm long, apex rounded to acute; anthers 0.6-1.5 mm long ..... *E. acicularis*  
(Linnaeus) Roemer & Schultes ●Wet shorelines and riverbanks, meadows, springs, and disturbed soils, 6300-10,000 ft; frequent in mountainous areas.
- 10 Achenes without a regular pattern of ridges; tubercle either confluent with achene or with a distinct constriction
- 12 Tubercle distinct from achene, with a definite constriction where it joins the rounded top of the achene; distal sheath apex usually with tooth on some culms; plants colonial from rhizomes, the rhizomes 0.5-2 mm thick
- 13 Spikelets narrowly lanceoloid to cylindrical, 3-20 mm long; floral scales 15-40, 3-4 per mm of rachilla length ..... *E. parishi*  
Britton ●Wet shorelines and riverbanks, meadows, springs, and ponds, 3900-8000 ft; most frequent in the southwestern quarter of the state, but also following the central mountain ranges north.
- 13 Spikelets ovoid or ellipsoid to subcylindric, 4-12 mm long; floral scales 30-100, 6-10 per mm of rachilla length ..... *E. montevidensis*  
Kunth ●Wet shorelines and riverbanks, meadows, springs, and ponds, 3500-5800 ft; occasional in the extreme southern part of the state at lower elevations
- 12 Tubercle confluent with the achene, the achene tapering into an acute to acuminate tip; distal sheath apex without a tooth; large plants either tufted from very short rhizomes, or small colonial plants from fine rhizomes, the rhizomes 0.1-1 mm thick
- 14 Robust plants, tufted from short stout ascending or horizontal caudex-like rhizomes, often forming large dense colonies; culms to over 1 m tall, compressed, with some culms arching to decumbent and rooting at the tip; bulbs not present at the rhizome tips; floral scales 20-40 ..... *E. rostellata*  
(Torrey) Torrey ●Wet alkaline meadows, seeps, springs, and fens, often dominant or co-dominant in its habitat, 3000-8800 ft; widespread at lower to mid elevations throughout the state.
- 14 Small plants, colonial from fine rhizomes; culms less than 35 cm tall, subterete to slightly compressed, erect, never rooting at the tips; bulbs or tubers often present at the rhizome tips; floral scales 3-25
- 15 Achenes 1.5-2.7 mm long; perianth bristles rudimentary to equaling the achene; floral scales 3-10, 2.5-6 mm long; rhizomes 0.2-1 mm thick; culms 5-35 cm tall ..... *E. quinqueflora*  
(F. X. Hartman) O. Schwartz ●Wet meadows, seeps & springs, and fens in the mountains, 8500-11,800 ft; moderately common at higher elevations in the Sangre de Cristo and Jemez mountains in the northern part of the state.
- 15 Achenes 0.7-1.1 mm long; perianth bristles absent or rudimentary, less than  $\frac{1}{2}$  of the achene length when present; floral scales 6-25, 1.7-2.5 mm long; rhizomes 0.1-0.2 mm thick; culms 2-9 cm tall ..... *E. coloradensis*  
(Britton) Gilly ●Floodplains, drying shorelines and riverbanks, ponds, ditches, 2900-6700 ft; uncommon in widely scattered locations.



**Eriophorum**

- 1 Spikelets solitary, erect..... *E. scheuchzeri*  
 Hoppe ●Tundra, marshes, peaty soils, riverbanks, pond shores; 12,500-12,600 ft; known only from the highest elevations in the Sangre de Cristo mountains near the Colorado border in Taos County.
- 1 Spikelets 2-10, spreading or nodding ..... *E. angustifolium*  
 Honckeney ●Marshes, bogs, fens, wet meadows; 10,400-11,900 ft; known from the northern mountains, primarily Sangre de Cristo mountains and San Pedro Parks Wilderness.

**Fimbristylis**

*F. puberula* (Michaux) Vahl ●Moist sandy or silty soils in prairie swales or along streambanks; 3400-4600 ft; known from two locations, the wet ciénega below Blue Hole Spring in Santa Rosa (Guadalupe Co.), and along the Pecos River in the Bitter Lake Refuge near Roswell (Chaves Co.). ♦Our plants belong to var. *interior* (Britton) Kral.

**Fuirena**

*F. simplex* Vahl ●Moist soils at seeps and springs, along streambanks; 4300-5900 ft; known primarily from the Guadalupe and San Andreas mountains in southern NM.

**Kobresia**

- 1 Inflorescence a spike, unbranched; inflorescence bract 0; basal sheaths somewhat glossy, with blades deciduous; plants of drier tundra habitats..... *K. myosuroides* (Villars) Fiori ●Alpine tundra and scree slopes; 10,200-12,800 ft; known only from the Sangre de Cristo Mountains in northern NM.
- 1 Inflorescence paniculate, with short branches; inflorescence bract present; basal sheaths dull, usually with the withered remains of the blades attached; plants of more mesic habitats ..... *K. simpliciuscula* (Wahlenberg) Mackenzie ●Wet montane to alpine meadows, bogs; 10,800-10,900 ft; known only from a few locations in Colfax Co., in the northern Sangre de Cristo Mountains.

**Schoenoplectus**

- 1 Inflorescence branches absent or scarcely developed, the spikelets borne in a tight cluster on the culm; culms trigonous
- 2 Plants typically robust; spikelets light brown in color; scales often pale with brown dots, the apex notch 0.1-0.4(0.8) mm deep, with awn 0.2-0.6 mm long; distal leaf blade much shorter than to equaling (rarely 1.5 times longer than) the sheath; proximal inflorescence bract 1-3(6) cm long, other bracts without blades; sides of the mid-culm deeply concave, rarely nearly flat..... *S. americanus* (Persoon) Volkart ex Schinz & R. Keller ●Marshes, ditches, streambanks, pond-shores; 3400-7600 ft; found primarily in the southern half of the state.
- 2 Plants usually less robust; spikelets dark brown in color; scales often rich brown, the apex notch (0.3)0.5-1 mm deep, with awn 0.5-1.5(2.5) mm long; distal leaf blade much longer than to nearly equaling the sheath; proximal inflorescence bract (1)3-20 cm long, other bracts with narrow blades sometimes exceeding the spikelets; sides of the mid-culm shallowly concave to flat or slightly convex ..... *S. pungens* (Vahl) Palla ●Marshes, ditches, streambanks, lakeshores, often emergent in water to 0.7 m deep; 3000-8700 ft; found throughout the state.
- 1 Inflorescence branches well-developed and evident, the spikelets borne on branches; culms cylindric
- 3 Spikelet scales uniformly orange-brown (sometimes with straw-colored streaks), the dorsal side of scales smooth to sparsely rarely densely) scabrous; awns of the scales straight to bent, 0.2-0.8 mm long; many spikelets solitary at the tips of the pedicels..... *S. tabernaemontani* (C.C. Gmelin) Palla ●Marshes, lakeshores, streambanks, often emergent in water to 1.0 m deep; 3600-8700 ft; found throughout the state.
- 3 Spikelet scales wholly or partially pale grey to tan colored with prominent streaks, the dorsal side of the scales sparsely to often densely scabrous; awns of the scales usually contorted, 0.5-2 mm long, most spikelets in sessile clusters of 2 or more..... *S. acutus* (Muhlenberg ex Bigelow) A.&D. Love ●Marshes, lakeshores, streambanks, often emergent in water to 1.5 m; 3000-8800 ft; found throughout the state.

**Schoenus**

\**S. nigricans* Linnaeus ●Alkaline marshes and springs, damp meadows; 6900 ft; known from one location in Karr Canyon (Otero County).

**Scirpus**

- 1 Terminal bract of the flowering stem single, generally resembling a prolongation of the culm so the inflorescence appears to be lateral rather than terminal (smaller bracts occasionally present but scale-like and not green)..... go to *Schoenoplectus*
- 1 Terminal bracts of the flowering stem 2 or more, leafy and spreading and not resembling the culm
- 2 Spikelets large, mostly 12-25 mm long, fewer in number (commonly 3-40)..... go to *Bolboschoenus*
- 2 Spikelets small, mostly 3-6 mm long, numerous (more than 100) (*Scirpus* s.s.)
- 3 Spikelets in open clusters, with all but the central spikelet long pedicellate; perianth bristles smooth, strongly contorted, much longer than achenes (sometimes not projecting beyond them because of their contortion) ..... *S. pendulus* Muhlenberg ●Marshes, moist meadows, streambanks, often on calcareous substrates; 5100-7500 ft;

## Monocotyledonous Plants - Hemerocallidaceae

known only from a few collections near Las Vegas (San Miguel Co.).

- 3 Spikelets borne closely together in tight clusters with all spikelets sessile within each cluster; perianth bristles barbed, straight, or curved, shorter to longer than achenes
- 4 Stigmas predominantly 2; spikelets in many smaller clusters of 3-18; scales not (or only very shortly) awned; perianth bristles mostly 4 (sometimes up to 6), the teeth thick-walled, sharp-tipped, densely crowded over most of the bristle length..... *S. microcarpus*  
J. Presl & C. Presl ●Marshes, moist meadows, streambanks, lakeshores; 5400-10,400 ft; found in mountainous areas in the northern and southwestern part of the state.
- 4 Stigmas predominantly 3; spikelets in fewer, larger clusters of 12-130; scales awned, awns often strongly spreading; perianth bristles 6, the teeth thin-walled, round-tipped, mostly restricted to distal 0.5 mm or less of bristle length..... *S. pallidus*  
(Britton) Fernald ●Marshes, moist meadows, streambanks; 5200-8300 ft; found in mountainous areas throughout the state.

## HEMEROCALLIDACEAE DAYLILY FAMILY

### Hemerocallis

\**H. fulva* (Linnaeus) Linnaeus ●Escaped along roadsides near Rociada, San Miguel County, and expected elsewhere in similar, cool habitats.

## HYACINTHACEAE HYACINTH FAMILY

### Muscari

\**M. neglectum* Gussone ex Tenore ●A flower-garden plant, previously reported, but yet to be found in the wild.

## HYDROCHARITACEAE FROGBIT FAMILY

- 1 Leaves all basal (not yet known in the state)..... *Vallisneria*
- 1 Leaves borne on an elongated stem
- 2 Leaf blades abruptly broadened at the base to sheath the stems..... *Najas*
- 2 Leaf blades not broadened as above
- 3 Plants with rhizomes, often terminated by smooth light-brown turions (tuber-like); erect stems often with scaly green turions (bud-like) in leaf axils ..... *Hydrilla*
- 3 Plants lacking rhizomes and turions
- 4 Whorls with 5 or more leaves per node..... *Egeria*
- 4 Whorls with mostly 2-3 leaves per node, or leaves opposite (2 per node) at the lowermost nodes..... *Elodea*

### Egeria

\**E. densa* Planchon ●Shallow water of lakes and streams; known only from a few collections; native to Brazil.

### Elodea

- 1 Staminate spathes 4 mm or less long; styles usually 2 mm or less long; leaves usually less than 1.7 mm wide ..... *E. nuttallii*  
(Planchon) St. John ●Lakes and rivers; known from subalpine zone in Rio Arriba County.
- 1 Staminate spathes 6 mm or more long; styles usually more than 2 mm long; leaves usually more than 1.8 mm wide
- 2 Anthers 2-3 mm long; leaves mostly in 3s; seeds 4.5-6 mm long ..... *E. canadensis*  
Michaux ●Rivers, streams, lakes; northern mountains, also Grant County.
- 2 Anthers 3-5 mm long; leaves in 2s and 3s; seeds about 3 mm long ..... *E. bifoliata*  
St. John ●Streams, lakes, wet meadows, borders of ponds; northern and western mountains.

### Hydrilla

\**H. verticillata* (Linnaeus f.) Royle ●Slow-moving waters of lakes, ponds, reservoirs, and irrigation ditches; native to Eurasia, Africa, Australia.

### Najas

- 1 Plants dioecious; leaves coarsely toothed to incised; internodes and the abaxial midvein with prickles..... *N. marina*  
Linnaeus ●Ponds and lakes; San Juan County.
- 1 Plants monoecious; leaves minutely toothed; internodes and the abaxial midvein smooth ..... *N. guadalupensis*  
(Sprengel) Magnus ●Lakes, rivers, and ponds in the southern mountains and foothills.

## HYPOXIDACEAE STAR-GRASS FAMILY

### Hypoxis

*H. hirsuta* (Linnaeus) Coville ●Moist to dry woodlands and prairies; known only from the Zuni Mountains of Cibola County.

## IRIDACEAE IRIS FAMILY

- 1 Flowers more than 5 cm wide, outer perianth parts spreading or reflexed, inner perianth parts erect ..... *Iris*
- 1 Flowers less than 2 cm wide, all perianth parts spreading..... *Sisyrinchium*

### Iris

- 1 Flowers bluish; moist native habitats usually in the mountains ..... *I. missouriensis*

- Nuttall ●Widespread in the state on wet slopes, seeps, marshy ground, and clearings in the mountains and upper foothills.
- 1 Flowers bright yellow; moist weedy spots, escaped from cultivation ..... *I. pseudoacorus*  
Linnaeus ●A common ornamental widely escaped in temperate North America, and becoming noxious in some places; presently known only from the Rio Grande floodplain in Bernalillo County.
- Sisyrinchium** [Key adapted from Cholewa & Henderson 2002]
- 1 Perianth yellow to orange; filaments free or only connate at the base
- 2 Stems 0.5-2 mm wide; perianth segments 7-11 mm long; capsules 4-9 mm long.....*S. longipes*  
(Bicknell) Kearney & Peebles ●Moist to wet sites in the western mountains, known from only a few collections.
- 2 Stems 3.5-8 mm wide; perianth segments 11-23 mm long; capsules 8-19 mm long .....*S. arizonicum*  
Rothrock ●Moist meadows and clearings in the forests of the western mountains.
- 1 Perianth purple to light blue, white, or pinkish; filament completely connate
- 3 Stems branched, or the population with predominately branched individuals
- 4 First internode shorter than the longest leaf .....*S. chilense*  
Hooker ●Moist, sometimes disturbed, areas in the southern mountains and foothills; known from Eddy, Otero, and Sierra counties.
- 4 First internode longer than the longest leaf ..... *S. demissum*  
Greene ●Mountain meadows and riparian areas, canyon bottoms, moist ground; widespread.
- 3 Stems simple, or the population with predominately stem-stemmed individuals
- 5 Outer spathes usually at least 16 mm longer than the inner; keel of inner spathe gibbous at the base; seed coat rugulose.....*S. montanum*  
Greene ●Moist meadows, stream banks, and clearings in the forest, mostly in the northern mountains.
- 5 Outer spathes no more than 16 mm longer than the inner; keel of inner spathe not gibbous; seed coat usually granular.....*S. idahoense*  
Bicknell ●Moist meadows, seeps and springs, and forest glades in the northern mountains. ♦Our plants belong to var. *occidentale* (Bicknell) D.M. Henderson.

### JUNCACEAE RUSH FAMILY

Contributed by Max H. Licher & Glenn R. Rink

- 1 Leaves glabrous, or blades absent; capsules with numerous seeds (in ours); bracteoles when present entire; sheaths open..... *Juncus*
- 1 Leaves ciliate, with hairs at least on the basal margins; capsules with three seeds; bracteoles sub-entire to lacerate or fringed; sheaths closed..... *Luzula*

#### **Juncus**

- 1 Annual; inflorescence usually at least half the height of the plant; roots fine, fibrous; leaf blades less than 1 mm wide, generally inrolled; plants generally less than 30 cm tall, not of alpine habitats ..... *J. bufonius*  
Linnaeus ●Receding pond and lake margins, streambanks, moist soil in washes, ditches, and roadsides, usually in open and sunny sites; 3900-9130 ft; widespread in the northern and western parts of the state.
- 1 Perennial; inflorescence usually less than half the height of the plant; roots coarse and/or rhizomes present; leaf blades narrow or wide, flat, or cylindrical, or margins inrolled; plants of varying heights and habitats, if less than 30 cm tall, then of alpine habitats
- 2 Flowers borne singly (sometimes on very short pedicels in a loose cluster), a pair of bracteoles present on opposite sides of the base of each flower; leaf blades without septa (subgenus *Poiophylli*)
- 3 Seeds tailed; flowers 1-7; plants 5-40 cm tall, of subalpine to alpine habitats ..... KEY A (in part)
- 3 Seeds not tailed; flowers 3-100+; plants 8-100 cm tall, of various habitats
- 4 Inflorescence arising laterally through what appears to be a slit in the cylindrical or compressed stem; leaf blades absent or present, when present, cylindrical to compressed cylindrical, sometimes corkscrewed ..... KEY A (in part)
- 4 Inflorescence terminal; leaf blades basal, flat with face toward stem, sometimes involute or canaliculate ..... KEY B
- 2 Flowers usually in heads or clusters, rarely single; bracteoles absent at the base of each flower (though one to several individual bracts may be present in a cluster); leaf blades with or without septa (subgenus *Juncus*)
- 5 Leaf blades flat
- 6 Leaf blades ensiform (flat with edge towards stem, *Iris*-like, with the free edges becoming fused upwards from the stem), with partial septa ..... *J. saximontanus*  
A. Nelson ●Wet meadows, stream banks and lakeshores, marshy areas, ditches, and open wetlands; 4000-11,800 ft; widespread throughout the western & central portions of NM.
- 6 Leaf blades with face towards stem (grass-like), without septa ..... KEY C
- 5 Leaf blades channeled to terete
- 7 Leaf blades with or without imperfect septa; seeds tailed; plants, 2-40 cm tall, of alpine tundra, cespitose, or rhizomatous and of subalpine to alpine habitats ..... KEY D
- 7 Leaf blades with septa; seeds not tailed, merely apiculate; plants 3-100 cm tall, of various habitats,

rhizomatous to at least some degree.....KEY E

**KEY A: Perennial herb; bracteoles present; inflorescence bract erect and stem-like** (section *Juncotypus*)

- 1 Rhizomes long; stems scattered or in lines, in loose colonies; inflorescence generally with more than 5 flowers (except in some depauperate specimens); seeds not tailed; plants generally below subalpine
- 2 Blades well developed on some upper sheaths, more than 5 cm long, stem-like; culms and leaves often compressed and twisted..... ***J. mexicanus***  
Willdenow ex Roemer & Schultes ●Wet meadows, stream banks and lakeshores, marshy areas, ditches, often in alkaline areas, tolerating soils that dry out seasonally; 3700–9950 ft; throughout the state, but less common than *Juncus balticus*.
- 2 Blades 0 or poorly developed on any sheaths, less than 1 cm long, not stem-like; culms and leaves usually not much compressed, less frequently twisted ..... ***J. balticus***  
Willdenow ●Wet meadows, stream banks and lakeshores, marshy areas, ditches, often in alkaline areas, tolerating soils that dry out seasonally; 4000-12,530 ft; throughout the state, more common in the north.
- 1 Rhizomes short; stems cespitose, in dense tufts like bunchgrass; inflorescence typically with 1-4(7) flowers; seeds tailed; plants of subalpine to alpine habitats
- 3 Leaf blades absent (reduced to bristles only); capsule apex blunt to slightly retuse ..... ***J. drummondii***  
E. Meyer ●Wet and dry meadows, stream banks, talus slopes, and ridges in subalpine and alpine habitats; 10,000-13,000 ft; primarily in the Sangre de Cristo Mountains.
- 3 Leaf blades present on at least some stems; capsule apex either acute or strongly retuse
- 4 Capsule apex strongly retuse; inflorescence bract reduced and scarious to leaf-like but scarcely exceeding the flowering head..... ***J. hallii***  
Engelmann ●Wet and dry meadows, ponds, streambanks, and rocky slopes, in high montane and alpine habitats; 7952-12,500 ft; infrequent in the northern mountains.
- 4 Capsule apex acute; inflorescence bract exceeding the inflorescence by 2-4 cm..... ***J. parryi***  
Engelmann ●Wet and dry meadows, talus slopes, and ridges, in alpine habitats; 10,800-12,600 ft; found only in the Sangre de Cristo Mountains.

**KEY B: Perennial herbs; bracteoles present; inflorescence bracts flat and leaf-like** (section *Steiroidia*)

- 1 Inflorescence congested, 2 cm long or less; tepals usually with brown stripes marginal to the central green stripe (with immature specimens, these stripes can be very light, but are often thickened or have a different texture than the central stripe); mature capsule, 2.5-3.5 cm long, with 3 chambers, the locular partitions united almost to tip, apex retuse; anthers 0.3-0.5 mm long; above 7000 ft..... ***J. confusus***  
Coville ●Moist, grassy meadows and streambanks; 8900–10,500 ft; northern mountain ranges.
- 1 Inflorescence open (only appearing congested when immature), 1.5-7 cm long; tepals more uniform in color; mature capsules, 3-4.7 mm long, with single chamber, the locular partitions separated except at base, apex obtuse to truncate; anther 0.1-1 mm long; diverse habitats, from low to high elevations
- 2 Capsules chestnut to dark brown; tepals with obtuse apices, shorter than the capsule..... ***J. compressus***  
Jacquin ●Disturbed soils, ditch banks, roadsides; 5930 ft; native to Europe, and widely naturalized in the US; known in NM from one collection in San Juan County.
- 2 Capsules tan to light brown; tepals with acute to acuminate apices, slightly shorter to slightly longer than the capsule in length
- 3 Auricles stiff, thick-margined, leathery to cartilaginous, shiny, often yellowish, apex rounded; tepals 4-6 mm long; anthers 0.6-1 mm long..... ***J. dudleyi***  
Wiegand ●Moist areas along stream banks, ditches, and around springs, in either exposed or shady sites, 4900-9040 ft; throughout the state with the exception of the eastern plains.
- 3 Auricles not stiff, thin-margined, dull, white or translucent, apex rounded to acuminate; tepals 3.3-4.4 mm long; anthers 0.1-0.6(1) mm long
- 4 Auricles 0.2-0.6 mm long, thicker and opaque below, thinner and more translucent above, apex generally rounded; bracteoles acuminate, sometimes bristle-tipped; stem with 2–6 strong ridges per side; anthers 0.4-0.6(1) mm long; plants often with pinkish bases ..... ***J. interior***  
Wiegand ●Moist areas along stream banks, ditches, and around springs, and somewhat drier upland areas, in either exposed or shady sites; 4500-10,800 ft; throughout the state with the exception of the eastern plains.
- 4 Auricles generally 1–8 mm long until late in season when generally broken or missing, more or less uniformly translucent, apex generally acute to acuminate; bracteoles generally acute to blunt; stem with or without strong ridges per side; anthers 0.1-0.2 mm long; plants rarely with pinkish bases ..... ***J. tenuis***  
Willdenow ●Moist areas along stream banks and around springs, in either exposed or shady sites; 7120-8000 ft; known from several collections in north-central NM.

**KEY C: Perennial herb; bracteoles absent; leaves flat with face towards stem, crosswalls (septa) absent** (section *Graminifolii*)

- 1 Perianth segments (tepals) 1.8-3.5 mm long; capsules nearly globose, 1.8-2.9 mm long; stamens 3; inflorescence heads 5-200 in number, with 2-10(20) flowers each; plants cespitose; cataphylls absent at base of culm; leaves to 5 mm wide ..... ***J. marginatus***

Michaux ●Moist areas along stream banks, ponds, and in seasonally dry washes, at lower to mid elevations in desert scrub or chaparral to oak woodland communities; 5000-5600 ft; known from the Peloncillo Mountains in the Bootheel region.

- 1 Perianth segments (tepals) 4.5-6 mm long; capsules obovoid, 3-5 mm long; stamens 6; inflorescence heads 1-8(12), with 3-12 flowers each; plants from elongate rhizomes, cataphylls present on at least some culm bases; leaves to 3 mm wide..... *J. longistylis*  
Torrey ●Wet mountain meadows, springs, and streambanks, at mid to higher elevations, in ponderosa pine to mixed conifer communities; 5000-10,800 ft; widespread in the mountains in the northern and western parts of NM.

**KEY D: Perennial herb; bracteoles absent; leaves channeled to terete, without or with only partial crosswalls (section *Stygiopsis*)**

- 1 Plants rhizomatous; leaves inrolled or folded most of the way to the terete, septate tip, 1-2.5 mm wide in the middle; tepals dark brown to purplish, 4.5-7.5 mm long; inflorescence generally of more than one cluster ..... *J. castaneus*  
Smith ●Wet soil in subalpine to alpine tundra, streamsides, and bogs; 10500-12540 ft; found at high elevations only in the Sangre de Cristo Mountains.
- 1 Plants cespitose; leaves channeled to terete, 0.5 mm diameter in the middle, tepals pale to dark brown, 2.5-5 mm long; inflorescence a single terminal cluster of flowers
- 2 Inflorescence bract much longer than the inflorescence, on at least some of the culms; capsule with retuse apex ..... *J. biglumis*  
Linnaeus ●Wet soil or gravel in alpine tundra, slopes, streamsides, mossy pond margins; 12,530 ft; known from one collection in Vermejo Park Ranch in northern Taos County.
- 2 Inflorescence bract shorter than to almost equaling the inflorescence; capsule apex obtuse to sub-truncate..... *J. triglumis*  
Linnaeus ●Wet gravel soils in alpine tundra, mossy pond margins and bogs; 10,300-12,540 ft; known from the Sangre de Cristo Mountains in northern NM.

**KEY E: Perennial herb; bracteoles absent; leaves terete, with crosswalls (section *Ozophyllum*)**

- 1 Some to most mature heads in an inflorescence spheric to subspheric, with flowers spreading significantly below the horizontal (sometimes barely so in *Juncus acuminatus*); flowers greenish to tan colored, sometimes with reddish tinting
- 2 Plants cespitose, capsules broadly lanceoloid with a bluntly acute tip..... *J. acuminatus*  
Michaux ●Streambanks, lakeshores, wet meadows; 5120-5610 (8200) ft; found primarily in the Bootheel region.
- 2 Plants rhizomatous with tuberous nodes (sometimes not present on herbarium collections); capsules narrowly lanceoloid with a long-tapering apex
- 3 Plants low, 10-40 cm tall; leaves erect to ascending; auricles less than 1 mm long; perianth 3-4 mm long, tepals often reddish, inner tepals equal to or longer than the outer ones; cataphylls sometimes present; anthers 3 or 6..... *J. nodosus*  
Linnaeus ●Stream banks and lakeshores, wet meadows, swamps, ditches, and open wetlands; 5640-9100 ft; found primarily in the northern counties.
- 3 Plants taller, 40-100 cm tall; leaves divaricate, auricles 2-5 mm long; perianth 4-5 mm long, tepals rarely reddish, inner tepals shorter than the outer ones; cataphylls never present; anthers 6 ..... *J. torreyi*  
Coville ●Stream banks and lakeshores, wet meadows, swamps, ditches, and open wetlands, tolerates alkaline conditions well; 3500-8730 ft; widespread throughout the state, except in the southeast counties.
- 1 Most mature heads in an inflorescence hemispheric to obpyramidal (flowers in the mature heads mostly spreading or ascending to erect, few, if any, definitely reflexed), sometimes subspheric, but then flowers dark brown to blackish; flowers various colored
- 4 Inflorescence highly diffuse, 5-20 cm long, with 30-70(130) heads; capsule twice as long as tepals; stamens 3..... *J. diffusissimus*  
Buckley ●Marshy shores, sloughs, ditches, in mucky substrates; 5560 ft, known from an irrigation ditch near Farmington, possibly a waif; native eastward in the United States.
- 4 Inflorescence compact to moderately diffuse, 0.5-8 cm long, with 1-30(50) heads; capsule slightly shorter to exerted to 1.5 times the length of the tepals; stamens 6
- 5 Inflorescence of 5--30(--50) heads; tepals 1.8-3 mm long, apex obtuse to acuminate, green to brown
- 6 Stems decumbent to erect; inflorescence branches spreading, sometimes widely so; inner tepals acuminate ..... *J. articulatus*  
Linnaeus ●Wetlands, lake and stream margins, ditches, roadside swales; 5085-9515 ft; found primarily in northwestern counties.
- 6 Stems erect; inflorescence branches ascending to erect; inner tepals obtuse..... *J. alpinoarticulatus*  
Chaix ●Wet meadows and marshy lakeshores; 8250 ft; known only from Vermejo Park Ranch in northern Colfax County.
- 5 Inflorescence of 1—11 heads; tepals 2.5-6 mm long, apex acuminate mucronate, dark brown to almost black
- 7 Inflorescence a single head (rarely a second one); tepals 2.3-4.9 mm long; anthers 0.25 times to equal

the filament length; auricles 0.3-0.6(1.2) mm long; capsules abruptly narrowed to beak to truncate or even retuse; plants with densely branching rhizomes, tending to form loose identifiable clumps ..... *J. mertensianus*

Rostikovius ●Wet soil in alpine meadows, streamsides, spring sites; 8900-12,000 ft; found at high elevations in the mountains in the northern part of the state.

- 7 Inflorescence with (1)2-10 heads; tepals 2.4-6.2 mm long; anthers 1-2 times filament length; auricles 1-3.2 mm long; capsules more gradually to abruptly narrowed to beak; plants with long rhizomes, tending to express as individual stems in mixed turf composed of other graminoids ..... *J. nevadensis*  
S. Watson ●Wet soil along stream banks and lakeshores, montane meadows, springs, marshy areas, sometimes in standing water; 8000-10,200 ft.

**Luzula**

- 1 Flowers borne singly or several together on long, slender branch tips in an open, drooping panicle; leaves 3-13 mm wide, sparsely hairy on the lower margins ..... *L. parviflora*  
(Ehrhart) Desvoux ●Meadows and forest glades, wooded slopes, in moist and shaded locations; 7874-12,040 ft; common in the northern mountains, with a few outlying populations in the Sacramento and Mogollon Mountains.
- 1 Flowers borne in congested spikes, each with 5-20 sessile or nearly sessile flowers; leaves 1—6 mm wide, obviously hairy along the lower margins
- 2 Spikes tightly clustered into a single irregularly continuous inflorescence, usually nodding at maturity; leaves 1-4 mm wide; plants of subalpine forests to alpine tundra ..... *L. spicata*  
(Linnaeus) A.P. de Candolle ●Alpine tundra and scree slopes to subalpine forests; 9842-13,160 ft; found only at high elevations in the Sangre de Cristo Mountains.
- 2 Spikes widely separated on ascending, unequal, stiff peduncles, culm strictly upright below inflorescence; leaves 3-6 mm wide; plants of mountain forests and meadows (var. *laxa*) ..... *L. comosa*  
E. Meyer ●Meadows, open woods, and coniferous forests; 8000-10,300 ft; infrequent in the Sangre de Cristo and Jemez mountains with one outlying record from the Black Range.

**JUNCAGINACEAE ARROW-GRASS FAMILY**

**Triglochin**

- 1 Pistils 6, 3 fertile, 3 sterile; sheaths 3-5 cm long; fruiting receptacles winged ..... *T. palustris*  
Linnaeus ●Marshy meadows and edges of ponds, mostly in the mountains.
- 1 Pistils 6, all fertile; sheaths 1-3 cm long; fruiting receptacles not winged ..... *T. maritima*  
Linnaeus ●Marshy meadows and edges of ponds, mostly in the mountains.

**LILIACEAE LILY FAMILY**

- 1 Petals and sepals clearly differentiated from each other ..... *Calochortus*
- 1 Petals and sepals similar in size, texture, and color, not clearly differentiated
- 2 Leaves all basal or absent, none borne on the flowering stems ..... *Erythronium*
- 2 Leaves borne on the flowering stems
- 3 Flowers borne in the axils of the leaves ..... *Streptopus*
- 3 Flowers borne at the stem tips
- 4 Leaves linear-filiform; flowers white or purple-brown
- 5 Flowers purple-brown, pendent ..... *Fritillaria*
- 5 Flowers white, erect ..... *Gagea*
- 4 Leaves broader; flowers whitish or orange-red
- 6 Leaves whorled at the upper nodes, alternate below, lanceolate; flowers orange-red ..... *Lilium*
- 6 Leaves alternate throughout, lanceolate to ovate; flowers whitish or yellowish ..... *Prosartes*

**Calochortus** [Key adapted from Bleakly 2000]

- 1 Stems decumbent to weakly erect, usually contorted, often twining among other plants or straggling along ground, branched; petals white with lilac tinge to purplish; petal hairs few, short and thick, or petals glabrous; glands not (or only slightly) depressed ..... *C. flexuosus*  
S. Watson ●Dry stony slopes, rocky mesas and flats, western regions.
- 1 Stems erect, straight, unbranched; petals white, purplish, or yellow; petal hairs usually elongate, simple or branched; glands depressed
- 2 Glands elongate transversely, either narrow or broad; petal hairs with the tips enlarged or branched and ± glandular
- 3 Glands broad, lunate to orbicular; petal hairs with the tips expanded to slightly lobed; petals pinkish to bluish-gray; anther tips usually obtuse (rarely acute) ..... *C. ambiguus*  
(M.E. Jones) M. Ownbey ●Rocky open slopes and hills in the western region.
- 3 Glands narrow, oblong to elongate; petal hairs with the tips branched; petals white to purple or yellow; anther tips acute to apiculate ..... *C. gunnisonii*  
S. Watson ●Dry to moist slopes in the mountains and foothills.
- 2 Glands circular; petal hairs simple, the tips not enlarged or branched and not glandular
- 4 Petal hairs with the tips expanded to slightly lobed; petals pinkish to bluish-gray ..... *C. ambiguus*

(M.E. Jones) M. Ownbey ●Rocky open slopes and hills in the western region.

- 4 Petal hairs with the tips simple (rarely slightly dilated); petals & sepals with reddish-brown or purple band or spot above gland
- 5 Petals lemon yellow..... *C. aureus*  
S. Watson ●Dry sandy or clayey sites in the northwest region.
- 5 Petals white, tinged with lilac, yellow at base of claw ..... *C. nuttallii*  
Torrey ●Dry slopes and plains in the northern and western regions.

**Erythronium**

*E. grandiflorum* Pursh ●Subalpine meadows and clearings in the far northern mountains.

**Fritillaria**

*F. atropurpurea* Nuttall ●Known only from an 1892 collection from the Chuska Mountains; it has not been collected since and its continued occurrence in the state is doubtful.

**Gagea**

*G. serotina* (Linnaeus) Ker-Gawler ●Gravelly or rocky slopes and cliffs at high elevations in the central cordillera.

**Lilium**

*L. philadelphicum* Linnaeus ●Uncommon in aspen clearings and wet open places in the central cordillera.

**Prosartes**

*P. trachycarpum* S. Watson ●Rich, shaded sites in the mountains.

**Streptopus**

*S. amplexifolius* (Linnaeus) A.P. de Candolle ●Moist sites in coniferous forests in the northern mountains.

**MELANTHIACEAE DEATH-CAMAS FAMILY**

- 1 Plants 1-2 m tall; leaves obviously disposed along the stem, the larger 10-20 cm wide..... *Veratrum*
- 1 Plants mostly much less than 1 m tall; leaves tending to be basal, never as much as 10 cm wide
- 2 Flowers greenish to yellowish, sessile or nearly so and borne in rather dense clusters, pedicels and branches absent or scarcely evident..... *Schoenocaulon*
- 2 Flowers whitish, cream-colored, to greenish, borne on well-developed and evident pedicels or branches
- 3 Tepals large, 7-16 mm long ..... *Anticlea*
- 3 Tepals small, 3-6 mm long
- 4 Ovary partly inferior; tepal gland bilobed apically (*A. virescens*)..... *Anticlea*
- 4 Ovary fully superior; tepal gland rounded apically ..... *Toxicoscordion*

**Anticlea**

- 1 Tepals small, 3-6 mm long (rarely longer)..... *A. virescens*  
(Kunth) Rydberg ●Widespread on mountain slopes in the coniferous forests at mid- to high elevations.
- 1 Tepals large, 7-16 mm long (rarely shorter)
- 2 Tepals 7-11 mm long; flowers whitish to yellowish green, but not purplish along the margins, ascending.....  
..... *A. elegans*  
(Pursh) Rydberg ●Widespread in the mountains, in clearings, meadows, edges of woods.
- 2 Tepals 12-16 mm long; flowers reddish purple along the margins and blending to yellowish-green at the middle, nodding..... *A. mogollonensis*  
(Hess & Sivinski) Zomlefer & Judd ●Endemic to upper elevations in the Mogollon Mountains of western New Mexico.

**Schoenocaulon**

*S. texanum* Scheele ●Dry, rocky calcareous sites in the southeastern mountains and foothills.

**Toxicoscordion**

- 1 Inflorescences paniculate below, the proximal 3-4 nodes with branches, racemose above and lacking branches; upper stem leaves lacking a sheath, the free blade attached to the stem ..... *T. paniculatum*  
(Nuttall) Rydberg ●Open rocky hills and grassy slopes at low to mid-elevations in the northwest region.
- 1 Inflorescences all racemose, or only the proximal 1-2 nodes bearing branches; upper stem leaves sheathing, the free blade portion diverging from a sheath portion..... *T. venosum*  
(S. Watson) Rydberg ●Wooded slopes and open ground in the northwest region. ♦Our plants belong to var. *gramineum* (Rydberg) Brasher.

**Veratrum**

*V. californicum* Durand ●Moist to wet marshy or seepy ground in the mountains, generally at higher elevations.

**ORCHIDACEAE ORCHID FAMILY**

[Key adapted from Coleman 2002]

- 1 Plants without chlorophyll; leaves reduced to brownish sheaths, green leaves absent
- 2 Lip without any longitudinal ridges; flowers white (soon discoloring), in dense spicate clusters go to lead 13, below
- 2 Lip with 1-several longitudinal ridges; flowers not white, or only partly whitish, rather loosely arranged
- 3 Lip with 5-7 conspicuous longitudinal ridges or crests extending from the base nearly to the tip

- Hexalectris*
- 3 Lip with 1-2 short longitudinal ridges at the base, not extending even to mid-length of the lip.....*Corallorhiza*
- 1 Plants with chlorophyll; normal leaves produced (sometimes withering at flowering time)
- 4 Inflorescence of 1-2 flowers terminating the stem
- 5 Leaf single per flowering stem, 1-5 cm wide; lip bearded, 1.5-3 cm long..... *Calypso*
- 5 Leaves 2-5 per flowering stem, 4-10 cm wide; lip glabrous, 2-6 cm long.....*Cypripedium*
- 4 Inflorescence of several flowers arranged in a spike or raceme
- 6 Lip prolonged backward and downward at base into an evident spur or sac (*Habenaria* s.l.)
- 7 Leaves mostly basal or on the lower ¼ of the stem, withering by anthesis; flowers subsessile ... *Piperia*
- 7 Leaves distinctly cauline on at least the lower ½ of the stem; flowers pedicelled
- 8 Lip with 3 unequal teeth at the tip; spur saccate, about half the length of the lip.....*Dactylorhiza*
- 8 Lip entire at the tip (may be toothed on the margins); spur slender, as long as or longer than the lip  
..... *Platanthera*
- 6 Lip not prolonged backward, spur or sac absent
- 9 Leaf blades 1-2 per flowering stem
- 10 Leaves 2, opposite, borne near the middle of the stem ..... *Neottia*
- 10 Leaves mostly 1, if 2 then alternate (though the sheaths overlapping) and at the base of the stem  
..... *Malaxis*
- 9 Leaf blades 3-several per flowering stem, may be basal only, or withered and nearly gone
- 11 Leaves mottled, evergreen, mostly in a basal rosette ..... *Goodyera*
- 11 Leaves not mottled nor evergreen, mostly cauline
- 12 Flowers pedicelled, brownish purple, the raceme not twisted; leaves lanceolate to ovate  
..... *Epipactis*
- 12 Flowers white or whitish, the spike spirally twisted; leaves linear to linear-lanceolate  
(*Spiranthes* s.l.)
- 13 Spike densely flowered with many more than 10 flowers; lip lacking a reddish blotch at the back, but yellowish or whitish ..... *Spiranthes*
- 13 Spike sparsely flowered with 10 flowers or less; lip with a reddish blotch on the upper surface at the back
- 14 Leaves present during anthesis; blooming late summer..... *Microthelys*
- 14 Leaves absent at anthesis; blooming in May..... *Schiedeella*

**Calypso**

*C. bulbosa* (Linnaeus) Oakes ●Rather common in the northern to central mountains above 8,000 ft. ♦Our plants belong to var. *americana* (R. Brown) Luer

**Corallorhiza**

- 1 Lip 3-lobed or at least with small lateral lobes or teeth
- 2 Sepals 1-veined; lip 3-4 mm long.....*C. trifida*  
Chatelain ●Dry to wet sites in the central cordillera, generally at 9,000-10,500 ft.; few collections.
- 2 Sepals 3-veined; lip 5-9 mm long.....*C. maculata*  
(Rafinesque) Rafinesque ●Dry, open forests at mid- to high-elevations, commonly in the leaf litter of conifers, aspens, and oaks; widespread throughout the state, probably the most common orchid in New Mexico.
- 1 Lip entire, without lateral lobes or teeth
- 3 Lip with involute margin giving a boat-shaped appearance; tepals striped..... *C. striata*  
Lindley ●Rather dry, open forests throughout the state, in dry decaying plant matter, also along streams; flowering spring – early summer.
- 3 Lip not involute; tepals not striped
- 4 Dorsal sepal less than 4.5 mm long, 1-veined; flowering late summer and fall.....*C. odororhiza*  
(Willdenow) Poiret ●Deciduous and conifer woodlands. ♦Included herein based on a report in Magrath & Freudenstein (2002), but specimens are unknown to us; perhaps to be found in the southeastern mountains of Eddy County.
- 4 Dorsal sepal more than 4.5 mm long, 3-veined; flowering spring..... *C. wisteriana*  
Conrad ●Wide-ranging in the mountains of the state in a variety of habitats, from juniper and oak woodlands at low elevations to pine and fir forests at higher elevations; often in deep forest duff or among rocks.

**Cypripedium**

*C. parviflorum* Salisbury ●Mesic openings in the forests, moderate to full shade, fairly widespread but not common. ♦Our plants belong to var. *pubescens* (Willdenow) Knight.

**Dactylorhiza**

*D. viride* (Linnaeus) Bateman, Pridgeon, & Chase ●Aspen and fir forests at 9,000-10,000 ft. elevations in the northern and western mountains.

**Epipactis**

- 1 Lip deeply 3-lobed; lateral sepals 16-24 mm long..... *E. gigantea*  
Douglas ex Hooker ●Wet sites along streams or in rocky ground at streamside, at low elevations generally



below 7,500 ft. Widespread in scattered locales in the mountains and foothills.

- 1 Lip not 3-lobed; lateral sepals 10-13 mm long..... *E. helleborine*  
(Linnaeus) Crantz ●River and stream banks, cottonwood bosques, along the Rio Grande, Rio Embudo, and Pecos River; native to Eurasia and north Africa.

### Goodyera

- 1 Whitish reticulations of the leaves mostly extending from the white midribs outward, the marginal regions usually greenish; leaf blades 2.5-10 cm long; lateral sepals 5-8 mm long..... *G. oblongifolia*  
Rafinesque ●Mixed coniferous and spruce-fir forests, generally 7600-10,000 ft.
- 1 Whitish reticulations of the leaves mostly extending from the margins inward, the midribs usually not whitish; leaf blades 1-3 cm long; lateral sepals 3-5 mm long..... *G. repens*  
(Linnaeus) R. Brown ex Aiton f. ●Shady and moist sites on the forest floor in the mountains, generally 8,000-10,000 ft.

### Hexalectris

- 1 Lip deeply 3-lobed, the sinus between the lobes 3 mm or more long
- 2 Petals 15-17 mm long; column 9-13 mm long; central lobe of the lip nearly truncate apically..... *H. revoluta*  
Correll ●Questionably reported for New Mexico, but definitely known in the adjacent Guadalupe Mountains National Park in Texas; to be looked for in pine-oak woodlands in Eddy County.
- 2 Petals 19-22 mm long; column 14-15 mm long; central lobe of the lip acute apically..... *H. colemanii*  
(Catling) Kennedy & Watson ●Juniper-oak woodlands in the bootheel; as yet known from a single recent collection.
- 1 Lip 3-lobed, but not as deeply, the lobes 2 mm or less long
- 3 Lip less than 10 mm long; column 6-8 mm long..... *H. nitida*  
L.O. Williams ●Shaded sites in rocky canyons of the Guadalupe Mountains, Eddy County.
- 3 Lip more than 12 mm long; column 11-18 mm long
- 4 Flowers opening (chasmogamous), the petals and sepals apically revolute; petals 14-23 mm long, 5-9 mm wide..... *H. spicata*  
(Walter) Barnhart ●Not yet known definitely from the state; New Mexico reports of this belong to *Hexalectris arizonica*
- 4 Flowers often remaining closed (cleistogamous), or when open, the petals and sepals not apically revolute; petals 14-16 mm long, 4-5 mm wide..... *H. arizonica*  
(S. Watson) Kennedy & L. Watson ●Pine-oak woodlands in the southern mountains and foothills, rare.

### Malaxis

- 1 Flowers red-purple..... *M. porphyrea*  
(Ridley) Kuntze ●Mixed oak, fir, and pine forests in the mountains throughout the state, often in mossy or grassy wet spots.
- 1 Flowers greenish
- 2 Flowers appressed to the rachis, sessile or nearly so; lip 3-lobed..... *M. soulei*  
L.O. Williams ●Dry to rather moist ground and from low to high elevations in the mountains throughout the state, often at meadow edges or on rocky slopes.
- 2 Flowers not appressed to the rachis, definitely pedicellate; lip unlobed..... *M. abieticola*  
Salazar & Arenas ●Damp mossy and grassy places under fir at about 8,000-9,500 ft. in the southern and southwestern mountains.

### Microthelys

- M. rubrocallosa* (B.L. Robinson & Greenman) Garay ●Dry hillsides in the Sacramento Mountains, also Mexico; known from a single population; flowering July-Aug.

### Neottia

- 1 Lip cleft  $\frac{1}{2}$  to  $\frac{3}{4}$  its length into 2 narrow pointed diverging lobes; sepals and petals (other than the lip) spreading but not reflexed..... *L. cordata*  
(Linnaeus) Richard ●Damp sites in aspen, fir, and pine forests at high elevations in the northern mountains.
- 1 Lip cleft about  $\frac{1}{2}$  or less its length into broad rounded scarcely diverging lobes; sepals and petals (other than the lip) strongly reflexed..... *L. borealis*  
(Morong) Szlachetko ●Damp ground in spruce-fir forests in the northern mountains; known from very few collections.

### Piperia

- P. unalascensis* (Sprengel) Rydberg ●Wooded canyons in coniferous forests; known as yet only from McKinley County.

### Platanthera

- 1 Leaves reduced to bracts along the stem..... *P. brevifolia*  
(Greene) Kraenzlin ●Dry to moist ground in pine-oak woodland and coniferous forests at mid elevations, mostly in the southern and western mountains.
- 1 Leaves well developed
- 2 Leaves typically single at the base of the plant, obovate, broadly rounded at the apex, 4-15 cm long; lateral petals erect or spreading outward, not much curved inward with the sepal hood..... *P. obtusata*  
(Banks ex Pursh) Lindley ●Damp forests of the Pecos Wilderness, Sangre de Cristo Mountains.

- 2 Leaves typically numerous, not as above; lateral petals curved inward with the sepal hood
- 3 Lip pure white, usually with a pronounced dilation at the base; flowers predominantly whitish .. *P. dilatata* (Pursh) Lindley ex Beck ●Rare in wet meadows in the northern mountains; known from scant collections.
- 3 Lip greenish to yellowish, sometimes whitish but with evident and distinct tinges of green, dilated or not at the base; flowers whitish-green, greenish, to yellowish
- 4 Lip with a small basal protuberance or bump ..... *P. limosa* Lindley ●Wet places in mixed forest at mid-elevations, along streams and hillside seeps with constant moisture.
- 4 Lip without a protuberance or bump
  - 5 Column comparatively large, ½ or more the length of the dorsal sepal; lip linear to lance-linear ..... *P. sparsiflora* (S. Watson) Schlechter ●Wet places in the central and southern mountains, at low to mid-elevations, commonly along seeps and streams in rocky ground.
  - 5 Column comparatively small, less than ½ the length of the dorsal sepal; lip usually broader than lance-linear
    - 6 Spike densely flowered (sometimes lax); flowers distinctly whitish green (sometimes pale yellowish)..... *P. huronensis* (Nuttall) Lindley ●Wet meadows, ditches, and clearings in the northern mountains, above 8,000 ft., often associated with aspen.
    - 6 Spike not densely flowered; flowers yellowish green to deep green with purplish tinges
      - 7 Spur 2-3 mm long, sac-like to inflated club-shaped, about ½ or less the length of the lip..... *P. purpurascens* (Rydberg) Sheviak & Jennings ●Widespread in moist to damp areas in the mountains above 7,000 ft., commonly along streams, seeps, and wet meadows.
      - 7 Spur 3-7 mm long, cylindrical to narrowly club-shaped, subequal to the lip
        - 8 Lip 3-6 mm long; spur (2)3-5 mm long; anther low, appearing to lie atop the stigma..... *P. aquilonis* Sheviak ●Wet ground along streams and hillside seeps, marshy ground, generally above 8,000 ft in the northern mountains.
        - 8 Lip 5-8 mm long; spur 5-7 mm long; anther high, rising above the stigma .....*P. tescamnis* Sheviak & Jennings ●Not definitely known from the state, but to be looked for in the northwest region, canyons, riparian pine-juniper woodlands; known westward in the Great Basin and Colorado Plateau regions.

**Schiedeella**

*S. arizonica* P.M. Brown ●Mixed coniferous-deciduous forests at a variety of elevations, often in heavy forest duff in the understory; southern and southwestern mountains.

**Spiranthes**

- 1 Plants often leafless at flowering time; rachis of spike moderately glandular-hairy; sepals and petal free and spreading, not forming a hood..... *S. magnicamporum* Sheviak ●Moist to wet meadows and clearings in the northern mountains and plains; little collected.
- 1 Plants with leaves at flowering time; rachis of spike glabrous or nearly so; sepals and petal connate and forming a hood..... *S. romanzoffiana* Chamisso ●Moist to wet meadows, marshy ground, stream banks, and clearings in the northern mountains.

**POACEAE (GRAMINEAE) GRASS FAMILY**

- 1 Plants not known to flower in New Mexico, spikelets not produced; blades constricted at the base into a narrow stalk-like portion with a tuft of stiff bristles on each side; cultivated ornamentals ..... *Phyllostachys*
- 1 Plants usually flowering each year, the spikelets present; blades not constricted at the base into a narrow stalk-like portion and without stiff bristles on each side; cultivated or wild grasses
  - 2 All or some of the spikelets concealed and hidden from view within modified structures, such as spiny burs, involucre, bony rachis joints, dense fleshy cobs (ears), or detachable clusters of hard bracts..... KEY A
  - 2 Spikelets not concealed and not hidden within modified structures, but evident and easily seen, sometimes closely subtended by foliage leaves or covered by hairs
    - 3 One or more bristles (sterile branchlets) borne immediately below the spikelets, the bristles sometimes clustered into a bur or involucre
      - 4 Spikelets disarticulating singly, leaving the bristles on the plant ..... *Setaria*
      - 4 Spikelets disarticulating with the involucre of bristles, the two falling together ..... *Pennisetum*
    - 3 Bristles not borne immediately below the spikelets, a bur or involucre absent
      - 5 Glumes with numerous hooked prickles 1-2 mm long ..... *Tragus*
      - 5 Glumes lacking hooked prickles
        - 6 Lemma with 7-13 awns (rarely 5) ..... KEY B
        - 6 Lemma with 1-3 awns or awnless
          - 7 Flowering shoots 2 meters or more tall ..... KEY C

- 7 Flowering shoots less than 2 meters tall
- 8 All or many of the spikelets sessile and borne on the main axis; inflorescence branches absent, the inflorescence a spike, spicate raceme, or dense head-like cluster of spikelets ..... KEY D
- 8 All or most of the spikelets borne on branches, the inflorescence a panicle, or if branches absent then all the spikelets with evident pedicels and few (if any) sessile
- 9 Andropogoneae Tribe: Glumes mostly hardened (membranous in *Zea* and *Imperata*), completely enclosing the florets, dorsally compressed; disarticulation below the glumes and nearly always in units consisting of a sessile spikelet with attached rachis joint and pedicel (the pedicelled spikelet present or absent); spikelets borne in pairs, one spikelet sessile or subsessile and one spikelet pedicelled (sometimes the pedicelled spikelet absent, but the pedicel always present); lemmas very thin and translucent, delicate, awned or awnless.....KEY E
- 9 Combination of features other than above
- 10 Spikelets with a single floret only ..... KEY F
- 10 Spikelets with at least 2 florets, some may be small and poorly developed (look carefully)
- 11 Paniceae Tribe: Spikelets with 2 florets, the upper bisexual and usually with a hardened lemma at maturity, the lower male or neuter; lemma of the lower floret similar to the second glume in size and texture; disarticulation below the glumes; spikelets dorsally compressed ..... KEY G
- 11 Combination of features other than above
- 12 Lemmas with 3 nerves, the nerves usually prominent ..... KEY H
- 12 Lemmas with 5-many nerves, at least at the base, or the nerves not discernible.....KEY I

**KEY A: Spikelets variously concealed**

- 1 Spikelets enclosed in a bur (involucre) of bristles or stiff spines, the bur falling entire
- 2 Bur of sharp, stiff spines ..... *Cenchrus*
- 2 Bur of bristles, without spines ..... *Pennisetum*
- 1 Spikelets not enclosed in a bur (involucre) of bristles or spines
- 3 Plants mat- or sod-forming, with stolons or rhizomes
- 4 Sheaths strongly compressed-keeled; spikelets all alike and sunken into one side of a corky or succulent, flattened rachis; cultivated lawn grasses ..... *Stenotaphrum*
- 4 Sheaths rounded; spikelets unisexual and different in appearance, the male on spicate, flag-like primary branches raised above the foliage, the female in bony clusters hidden in the foliage; native range grasses, but sometimes also grown as a lawn grass (*B. dactyloides*).....*Bouteloua*
- 3 Plants not mat-forming, without stolons or rhizomes
- 5 Glumes with numerous hooked prickles 1-2 mm long ..... *Tragus*
- 5 Glumes lacking hooked prickles
- 6 Female spikelets borne singly in hard, whitish beads at the ends of long stalks; ornamental or garden grasses only infrequently grown ..... *Coix*
- 6 Female spikelets borne in cobs, or if bead-like then several borne adjacent to each other; cultivated or wild grasses
- 7 Spikelets borne in spicate racemes no more than 2 cm long; spikelets paired, the sessile one bisexual, grenade-shaped, and covered with square pits, the pedicelled one male and flattened; rare ..... *Mnesithea*
- 7 Spikelets borne in panicles or cobs more than 10 cm long; spikelets all unisexual, the sexes in different part of the same inflorescence or in separate inflorescences on the same plant
- 8 Male spikelets borne in a terminal panicle (tassel); female spikelets borne below in a thick axillary spike (cob) and covered by leaf sheaths, the styles (silk) protruding from the tip; cultivated grasses ..... *Zea*
- 8 Male and female spikelets borne together in the same panicle, the male ones papery and in pairs at the terminal portion of the spicate branches, the female ones bony and at the base of the same branches; wild grasses, but probably not extirpated from the state..... *Tripsacum*

**KEY B: Lemma with 7-13 awns**

- 1 Awns plumose, feathery,  $\pm$  equal in length ..... *Enneapogon*
- 1 Awns glabrous to scabrous, not plumose and not equal in length
- 2 Glumes 1-nerved ..... *Pappophorum*
- 2 Glumes many-nerved..... *Cottea*

**KEY C: Flowering shoots 2 meters or more tall**

- 1 Grasses cultivated for ornament, landscaping, or as a harvested crop, occasionally escaping around fields or dwellings
- 2 Corn: male spikelets borne in a terminal panicle (tassel); female spikelets borne on the stem in a thick axillary spike (cob or ear) covered by leaf sheaths, the styles (silks) protruding from the tip ..... *Zea*

- 2 Plants not as above
    - 3 Plants growing in large, thick tussocks with numerous flowering shoots; rhizomes lacking
      - 4 Blades sharply saw-toothed on the margins; spikelets borne singly on rebranching branches of the inflorescence, with several florets extending beyond thin glumes ..... *Cortaderia*
      - 4 Blades scabrous to smooth on the margins; spikelets borne in pairs on spicate branches, with no florets extending beyond the stiff glumes
        - 5 Panicle branches breaking apart at the nodes (joints) when mature ..... *Tripidium*
        - 5 Panicle branches remaining intact, the spikelets falling separately when mature ..... *Miscanthus*
    - 3 Plants not in large tussocks, the shoots single, or if clustered then with strong vigorous rhizomes
      - 6 Plants annual, lacking rhizomes (*S. bicolor*) ..... *Sorghum*
      - 6 Plants perennial, with vigorous rhizomes
        - 7 Panicles plume-like, with very dense silky hairs; plants commonly to 6 or 7 meters tall ..... *Arundo*
        - 7 Panicles slightly pubescent but not plume-like; plants rarely taller than 3 meters ..... *Sorghum*
  - 1 Grasses wild or weedy, or seeded for range or pasture improvement, but not crop or ornamental plants
    - 8 Plants tufted, not developing rhizomes
      - 9 Spikelets subtended by numerous bristles; plants annual (*S. magna*) ..... *Setaria*
      - 9 Spikelets not subtended by bristles, but may be pubescent; plants perennial
        - 10 Inflorescence a spike, no branches developed ..... *Elymus*
        - 10 Inflorescence a panicle with branches
          - 11 Disarticulation above the glumes; spikelets awned
            - 12 Basal sheaths compressed-keeled; spikelets purplish; awns less than 1.5 cm long ..... *Muhlenbergia*
            - 12 Basal sheath round; spikelets greenish or tawny; awns 2-3 cm long (*E. robusta*) ..... *Eriocoma*
          - 11 Disarticulation below the glumes; spikelets awned or awnless; sheaths mostly rounded
            - 13 Inflorescence branches 2-5 in number and mostly not rebranched, clustered toward the tip of the shoot (*A. gerardi*) ..... *Andropogon*
            - 13 Inflorescence branches numerous and rebranched, not clustered toward the tip of the shoot ..... *Panicum*
      - 8 Plants developing rhizomes
        - 14 Disarticulation below the glumes, the spikelets falling entire
          - 15 Inflorescence a panicle of 2-5 spicate, unbranched primary branches clustered at the tip of the shoot, sometimes a few of the branches rebranching (*A. gerardi*) ..... *Andropogon*
          - 15 Inflorescence a rebranched panicle, the numerous primary branches always rebranching
            - 16 Outer bracts of the spikelet (glumes) membranous, thin and flexible, not hardened; upper floret hardened at maturity; spikelets awnless ..... *Panicum*
            - 16 Outer bracts of the spikelet (glumes) stiff, hardened; inner floret very thin and delicate, not at all hardened; spikelets awned, at least when young
              - 17 Spikelets dull, fuzzy-hairy, the hairs standing out from the spikelet; awn persistent through maturity ..... *Sorghastrum*
              - 17 Spikelets somewhat shiny, glabrous or slightly pubescent, the hairs pressed against the spikelet; awn early-deciduous ..... *Sorghum*
        - 14 Disarticulation above the glumes, the glumes remaining on the plant and the florets falling
          - 18 Panicles with unbranched spicate branches ..... *Spartina*
          - 18 Panicles with rebranched branches
            - 19 Spikelets with a single floret (*S. arenicola* & *S. rigidus*) ..... *Sporobolus*
            - 19 Spikelets with several florets
              - 20 Glumes nearly equal in length; rachilla glabrous; lemma long-hairy ..... *Arundo*
              - 20 Glumes unequal, the first about half as long as the second; rachilla beset with long silky hairs; lemma glabrous ..... *Phragmites*
- KEY D: Inflorescence a spike, spicate raceme, or dense head-like cluster, all or many of the spikelets sessile on the main axis, branches absent from the inflorescence.**
- 1 Disarticulation below the glumes, the spikelets falling entire or in clusters, no spikelet parts left on the axis
    - 2 Main axis of the inflorescence breaking apart at maturity
      - 3 Spikelets borne in pairs of one sessile and one pedicelled (sometimes only the pedicel present); glumes mostly enclosing the spikelet, the florets mostly not visible (members of the Andropogoneae tribe)
        - 4 Spikelets awned, the awns at least 5 mm long
          - 5 Awns 1-2 cm long ..... *Schizachyrium*
          - 5 Awns 4-12 cm long
            - 6 Racemes 4-8 cm long; awns 5-12 cm long; main axis (or most of it) breaking apart when mature ..... *Heteropogon*
            - 6 Racemes 10-18 cm long; awns 4-6 cm long; main axis persistent ..... *Trachypogon*
        - 4 Spikelets awnless, or with awns 1-2 mm long
          - 7 Racemes less than 3 cm long, glabrous or only sparsely pubescent; plants annual ..... *Mnesithea*
          - 7 Racemes more than 4 cm long, densely wooly-pubescent; plants perennial ..... *Elyonurus*

- 3 Spikelets borne other than above; glumes may be longer than, but not enclosing the spikelet, the florets usually visible (Triticeae tribe)
- 8 Spikelets 3 at each node of the main axis, the lateral pair pedicelled, the central spikelet sessile; spikelets with one floret ..... *Hordeum*
- 8 Spikelets mostly 1 or 2 at each node of the main axis, if 3 then not otherwise as above; spikelets with 2 to many florets
- 9 Spikelets mostly 1 at each node of the main axis
- 10 Plants annual
- 11 Spikes 0.6-2 cm long ..... *Eremopyrum*
- 11 Spikes 5-10 cm long ..... *Aegilops*
- 10 Plants perennial
- 12 Inflorescence very dense, almost head-like, the rachis obscured and viewed only with difficulty; fertile plants of alpine or subalpine habitats (*Elymus scribneri*) ..... *Elymus*
- 12 Inflorescence less congested and somewhat elongate, not at all head-like, the rachis easily observed; sterile hybrid plants of low-elevation or mid-montane habitats
- 13 Awns of the lemma 4-17 mm long, usually erect, rachis internodes 2.5-6(7) mm long  
... these are *Elymus elymoides* × *E. trachycaulus* hybrids [*Elymus saundersii* Vasey, *Agropyron saundersii* (Vasey) A.S. Hitchc.].
- 13 Awns of the lemma (14)18-37 mm long, spreading to recurved downward; rachis internodes mostly 7-10 mm long...these are *Elymus elymoides* × *E. spicata* hybrids [*Elymotrigia saxicola* (Scribn. & Smith) Barkw. & Dewey, *Elymus saxicolus* Scribn. & Smith].
- 9 Spikelets mostly 2 at each node of the main axis
- 14 Glumes 3-7 mm long; anthers 4-5 mm long ..... *Psathyrostachys*
- 14 Glumes 12-100 mm long; anthers, when present, about 2 mm long
- 15 Glumes 12-24 mm long; sterile hybrid plants ... these are *Elymus trachycaulus* × *Hordeum jubatum* hybrids [*Elyhordeum macounii* (Vasey) Barkw. & Dewey, *Elymus macounii* Vasey].
- 15 Glumes 25-100 mm long; fertile plants ..... *Elymus*
- 2 Main axis of the inflorescence remaining intact
- 16 Plants strongly rhizomatous or stoloniferous perennials
- 17 Wild range grasses, not cultivated in lawns; spikelets falling in clusters of three ..... *Hilaria*
- 17 Lawn grasses, occasionally escaping in weedy ground in residential areas; spikelets not falling in clusters of three
- 18 Plants mostly stoloniferous; blades fleshy and somewhat succulent; spikelets borne on one side of a flattened, succulent main axis ..... *Stenotaphrum*
- 18 Plants mostly rhizomatous; blades thin and membranous, not at all succulent; spikelets variously disposed on short pedicels around the thin, non-succulent main axis ..... *Zoysia*
- 16 Plants tufted annuals or perennials, not stoloniferous or rhizomatous
- 19 Plants cultivated lawn grasses or weedy in lawns
- 20 Spikelets pointed at the tip and arranged on one side of a thickened rachis ..... *Stenotaphrum*
- 20 Spikelets blunt at the tip and arranged on both sides of the rachis ..... *Sclerochloa*
- 19 Plants of various habitats, but never cultivated or weedy in lawns
- 21 First glume with 2 or 3 awns; lower stems angled or flattened somewhat ..... *Muhlenbergia*
- 21 First glume with a single awn or awnless; lower stems rounded
- 22 Awns 4-6 cm long ..... *Trachypogon*
- 22 Awns, if present, less than 2 cm long
- 23 Ligules hairy; sheaths prominently inflated; blades widely spreading to reflexed; inflorescence dense and head-like or spike-like, the base often included in the sheath; much-branched annuals (*S. alopecuroides* & *S. schoenoides*) ..... *Sporobolus*
- 23 Plants not as above in all respects
- 24 Spikelets in pedunculate clusters of three, usually hanging downward, and falling together ..... *Aegopogon*
- 24 Spikelets not so arranged
- 25 Glumes awnless; lemma awned (use a lens) ..... *Alopecurus*
- 25 Glumes awned
- 26 Glumes strongly flattened laterally, ciliate on the keeled midnerve ..... *Phleum*
- 26 Glumes rounded on the back, not keeled, not ciliate on the midnerve but may be pubescent elsewhere ..... *Polypogon*
- 1 Disarticulation above the glumes, the glumes often remaining on the inflorescence
- 27 Spikelets of two different kinds, the male spikelets awnless and the female spikelets with awns 9-10 cm long, the plants mostly dioecious and stoloniferous ..... *Scleropogon*
- 27 Spikelets all similar, awnless or with awns mostly less than 6 cm long; plants tufted or if stoloniferous then

with short awns

- 28 Spikelets in very dense ovoid, wooly or bristly heads, at most 2 times longer than wide, with longer awns conspicuous and protruding (resembling *Polypogon*); plants annual
  - 29 Seed heads stiff-bristly; plants essentially glabrous..... *Cynosurus*
  - 29 Seed heads soft-wooly; plants with markedly pubescent leaves and sheaths..... *Lagurus*
- 28 Plants not as above in every characteristic
  - 30 Lemmas with 3 awns..... *Aristida*
  - 30 Lemmas with one awn or awnless
    - 31 Spikelets with one floret only
      - 32 Plants annual; leaves with prominent, claw-like auricles 2-6 mm long; awns 50-160 mm long..... *Hordeum*
      - 32 Plants perennial; leaves without auricles, or occasionally with small rounded auricles about 1 mm long; awns 1-4 mm
        - 33 Spikelets strongly compressed; glumes flattened, keeled on the midnerve, completely enclosing the floret..... *Phleum*
        - 33 Spikelets not strongly compressed; glumes rounded on the back, only slightly keeled, not completely enclosing the floret..... *Muhlenbergia*
    - 31 Spikelets with more than one floret, some may be poorly developed, rudimentary, or vestigial
      - 34 Spikelets in dense, sessile, head-like clusters that are mostly surpassed by and nestled within the foliage..... *Munroa*
      - 34 Spikelets not in dense, head-like clusters, or if so then elevated well above the foliage
        - 35 Lemmas with 3 conspicuous nerves
          - 36 Lemmas conspicuously pubescent; spikelets with several well-developed florets; blades white-margined..... *Erioneuron*
          - 36 Lemmas glabrous or scabrous; spikelets with one well-developed floret and 1-3 rudiments above it; blades not white-margined..... *Bouteloua*
    - 35 Lemmas with 1 or 5-several nerves
      - 37 Plants low annuals; inflorescence not a true spike, but the branches very short with 1-3 spikelets borne on short pedicels nearly on the main axis; lemmas about 2 mm long, the glumes mostly shorter..... *Catopodium*
      - 37 Plants, inflorescence, lemmas, and glumes not as above
        - 38 Spikelets 2 or more per node of the rachis
          - 39 Rhizomes present, evident, creeping..... *Leymus*
          - 39 Rhizomes absent, occasionally short rhizomes developed but the plants still forming dense clumps
            - 40 Glumes absent or reduced to 1 or 2 minute bristles; spikelets horizontally spreading or ascending at maturity (*E. hystrix*)..... *Elymus*
            - 40 Glumes present; spikelets rarely horizontally spreading
              - 41 Glumes 2-10 cm long..... *Elymus*
              - 41 Glumes shorter than 1.5 cm
                - 42 Glumes 2- to 5-nerved; anthers 1.5-3 mm long..... *Elymus*
                - 42 Glumes 1-nerved; anthers 3-5 mm long... *Psathyrostachys*
    - 38 Spikelets mostly 1 per node of the rachis
      - 43 Spikelets placed edge-wise to the rachis, the first glume absent on all but the terminal spikelets..... *Lolium*
      - 43 Spikelets placed flat-wise to the rachis; both glumes present on all spikelets
        - 44 Plants annual
          - 45 Spikes very short, 0.6-2 cm long; plants usually less than 30 cm tall
            - 46 Inflorescence exerted from the sheath at maturity; glumes and lemmas awn-tipped; blades with small auricles..... *Eremopyrum*
            - 46 Inflorescence often partially enclosed in the upper sheath; glumes and lemmas blunt-tipped; blades lacking auricles..... *Sclerochloa*
          - 45 Spikes longer, mostly 5-15 cm long; plants usually much more than 30 cm tall
            - 47 Glumes narrow, linear, 1-nerved; spikelets with 2 florets..... *Secale*
            - 47 Glumes broad, oblong to ovate, 3- to several-nerved; spikelets mostly with 3-5 florets
              - 48 Nerves of the lemma converging at the apex; plants

- commonly glaucous ..... × *Triticosecale*
- 48 Nerves of the lemma ± parallel, not converging at the apex; plants commonly green and not glaucous ..... *Triticum*
- 44 Plants perennial
  - 49 Spikelets borne in pairs of one pedicelled and one nearly sessile; glumes awnless; lemmas awned, the awns 4-6 cm long ..... *Trachypogon*
  - 49 Spikelets not as above
    - 50 Glumes linear, needle-like, 1-nerved (occasionally broader at the base and 3-nerved) ..... *Leymus*
    - 50 Glumes lanceolate or broader, usually 3- to 7-nerved
      - 51 Spikelets spreading away from the rachis, placed very close together on the main axis; rachis internodes between the spikelets 0.3-3 mm long in the middle of the spike ..... *Agropyron*
      - 51 Spikelets mostly pressed against the rachis, or curving outward toward the tip of the spikelet; rachis internodes between the spikelets 4-25 mm long
        - 52 Glumes acuminate, asymmetrical to curved and somewhat sickle-shaped, gradually tapering to an awn-tip; blades somewhat rigid and prominently ridged above; plants rhizomatous, commonly bluish (*P. smithii*) ..... go to *Pascopyrum*
        - 52 Glumes various, blunt to acuminate, symmetrical, not curving, not gradually tapering to an awn-tip; blades often lax, not prominently ridged above; plants tufted to rhizomatous, not commonly bluish ..... *Elymus*

**KEY E: Andropogoneae Tribe**

- 1 Spikelets all unisexual, the male and female spikelets conspicuously different in form and borne either separately in the same inflorescence or in separate inflorescences on the same plant; plants monoecious
  - 2 Female spikelets borne singly in hard, whitish beads at the end of long stalks; domesticated grasses ..... *Coix*
  - 2 Female spikelets in cobs, or if bead-like then not borne singly at the end of long stalks but adjacent to other bony spikelets; wild or domesticated grasses
    - 3 Male spikelets borne in a terminal panicle (tassel); female spikelets in a separate inflorescence and borne below in a thick axillary spike (cob) and covered by leaf sheaths, the styles (silks) protruding from the tip; domesticated grasses ..... *Zea*
    - 3 Male and female spikelets borne together in the same panicle, the male ones papery and in pairs at the terminal portions of the spike branches, the female spikelets bony and at the base of the same branches; wild grasses ..... *Tripsacum*
- 1 Spikelets unisexual or bisexual but usually not conspicuously different in form, borne in pairs and not separated one from the other; plants not monoecious
  - 4 Each inflorescence a panicle with branches (occasionally a few inflorescences with a single branch), with or without inflated sheaths subtending the inflorescence (spathes)
    - 5 Spikelets all similar in appearance and size
      - 6 Pedicels without a spikelet borne at the tip
        - 7 Flowering shoots mostly with one or a few large, terminal panicles 10 cm or more long ..... *Sorghastrum*
        - 7 Flowering shoots with numerous small panicles clustered together, each less than 3 cm long and each with a subtending spathe ..... *Andropogon*
      - 6 Pedicels with a spikelet borne at the tip
        - 8 Pedicels and rami segments (rachis joints) with a central longitudinal groove or membrane, flattened in cross-section ..... *Bothriochloa*
        - 8 Pedicels and rami segments without a central groove or membrane, nearly round in cross-section
          - 9 Panicles narrow and spike-like, with soft silky hairs, 1-3 cm wide and 8-18 cm long, the branches scarcely noticeable at arm's length ..... *Imperata*
          - 9 Panicles not as above, usually wider and/or shorter or the branches obvious at arm's length
            - 10 Panicles with 2-5 primary branches ..... *Andropogon*
            - 10 Panicles with more than 10 branches
              - 11 Hairs at the bases of the spikelets much shorter than the spikelets, less than 1 mm long; plants grown for crops or adventive in weedy ground ..... *Sorghum*

- 11 Hairs at the bases of the spikelets nearly equaling or longer than the spikelets, 4-12 mm long; plants grown for ornament
  - 12 Panicle branches breaking apart at the nodes (joints) when mature..... *Tripidium*
  - 12 Panicle branches remaining intact, the spikelets falling separately when mature..... *Miscanthus*
- 5 Spikelets not all similar, the pedicelled ones often smaller in size or different in appearance when compared to the sessile ones
  - 13 Pedicels and rame segments (rachis joints) with a central groove or membrane running lengthwise, flattened in cross section..... *Bothriochloa*
  - 13 Pedicels and rame segments without a central groove or membrane, nearly round in cross section, at least at the apex
    - 14 Inflorescence with numerous (more than 5) branches; sessile spikelets ovoid to nearly globose .... *Sorghum*
    - 14 Inflorescence with 2-5 nearly digitate branches; sessile spikelets lanceolate (*A. gerardi*)..... *Andropogon*
- 4 Each inflorescence a single unbranched spicate raceme without branches, subtended by a somewhat inflated bladeless sheath (spathe), the flowering shoot usually bearing numerous such inflorescences
  - 15 Spikelets awnless, or with awns 1-2 mm long
    - 16 Racemes less than 3 cm long, glabrous or only sparsely pubescent..... *Mnesithea*
    - 16 Racemes more than 4 cm long, densely wooly-pubescent..... *Elionurus*
  - 15 Spikelets awned, the awns at least 5 mm long
    - 17 Awns 0.5-2 cm long..... *Schizachyrium*
    - 17 Awns 4-12 cm long
      - 18 Racemes 4-8 cm long; awns 5-12 cm long; the main axis breaking apart at maturity, at least most of it..... *Heteropogon*
      - 18 Racemes 10-18 cm long; awns 4-6 cm long; the main axis persistent..... *Trachypogon*

**KEY F: Spikelets with a single floret.**

- 1 Glumes absent; leaf blades strongly saw-toothed on the edges..... *Leersia*
- 1 Glumes present, at least one; leaf blades smooth to slightly saw-toothed on the edges
  - 2 Glumes and lemmas awnless
    - 3 Inflorescence a panicle of evident, unbranched, spicate primary branches
      - 4 Panicle branches all attached at the tip of the main axis..... *Cynodon*
      - 4 Panicle branches attached along the length of the main axis, not only at the tip
        - 5 Glumes equal in length or nearly so; spikelets nearly round in outline..... *Beckmannia*
        - 5 Glumes unequal, the first glume shorter than the second; spikelets lanceolate in outline
          - 6 Spikelets widely spaced, rarely overlapping, appearing embedded in the branches; blades spirally twisted (*M. paniculata*)..... *Muhlenbergia*
          - 6 Spikelets very closely spaced, overlapping, not at all appearing embedded in the branches; blades not spirally twisted..... *Spartina*
    - 3 Inflorescence a panicle of rebranched branches, or dense and spike-like
      - 7 Disarticulation below the glumes
        - 8 Ligules hairy; sheaths prominently inflated; blades widely spreading to reflexed; inflorescence dense and head-like or spike-like, the base often included in the sheath; much-branched annuals (*S. alopecuroides* & *S. schoenoides*)..... *Sporobolus*
        - 8 Plants not as above in all respects
          - 9 Spikelets nearly round in outline, the glumes somewhat inflated or puffy-looking.... *Beckmannia*
          - 9 Spikelets mostly lanceolate in outline, the glumes not at all inflated or puffy-looking
            - 10 Glumes softly pubescent on the midnerves; inflorescence dense and spike-like, rarely lobed..... *Alopecurus*
            - 10 Glumes glabrous to scabrous, not softly pubescent; inflorescence usually lobed at least below..... *Polyogon*
      - 7 Disarticulation above the glumes
        - 11 Lemma hardened at maturity, enclosing the palea and flower
          - 12 Lemma with 1 or 2 slender bracts, bristles, or scales at the base of the floret, these sometimes pubescent and often difficult to see without dissecting carefully..... *Phalaris*
          - 12 Lemma without any bracts, bristles, or scales at the base of the floret
            - 13 Florets dorsally compressed; lemma margins not overlapping, the palea exposed, at least in part..... *Piptatheropsis*
            - 13 Florets terete; lemma margins slightly overlapping, the palea hidden..... *Oryzopsis*
        - 11 Lemma remaining thin and flexible, not hardened, not enclosing the palea
          - 14 Lemma with a single nerve; ligule a ring of hairs
            - 15 Rare turf grasses planted for lawns; first glume absent, the second glume enclosing the floret..... *Zoysia*
          - 15 Mostly common grasses of numerous habitats, but never lawn grasses..... *Sporobolus*



- 14 Lemma with 3 or more nerves; ligule a membrane  
 16 Sheath margins fused together for half their length or more ..... *Catabrosa*  
 16 Sheath margins overlapping most of their length  
 17 Palea about as long as the lemma; body of the glumes (not including awn tips) shorter than the lemma; lemma mostly 3-nerved ..... *Muhlenbergia*  
 17 Palea half or less as long as the lemma; body of the glumes longer than the lemma; lemma obscurely nerved  
 18 Rachilla prolonged beyond the palea as a short bristle to 0.6 mm long *Podagrostis*  
 18 Rachilla not prolonged beyond the palea ..... *Agrostis*
- 2 Glumes and/or lemmas awned  
 19 Inflorescence a panicle of several evident, unbranched, spicate, primary branches  
 20 Spikelets nearly round in outline, the glumes somewhat inflated ..... *Beckmannia*  
 20 Spikelets lanceolate in outline, the glumes not at all inflated  
 21 Panicle branches all less than 2 cm long ..... *Bouteloua*  
 21 Panicle branches mostly longer than 2 cm long ..... *Spartina*
- 19 Inflorescence a panicle of rebranched branches, or a raceme, or in some the pedicels and branches poorly developed and the inflorescence spike-like  
 22 Lemma hard at maturity, usually enclosing or clasping the palea and flower, mostly with a well-developed and pointed callus  
 23 Ligule a ring of hairs; lemma terminating in three awns, the two lateral awns occasionally shortened and inconspicuous ..... *Aristida*  
 23 Ligule a membrane; lemma terminating in a single awn, this may be deciduous  
 24 Palea hardened, longitudinally grooved and slightly longer than the lemma, protruding from between the lemma margins as a small point; lemma margins involute, fitting into the grooves of the palea ..... *Piptochaetium*  
 24 Palea usually membranous, not grooved, shorter than or equaling the lemma, not protruding as a small point; lemma margins flat  
 25 Lemma margins strongly overlapping; palea less than 1/3 the length of the lemma, glabrous, lacking veins ..... *Nassella*  
 25 Lemma margins not or only slightly overlapping; palea 1/3 to equaling the length of the lemma, always pubescent when short, sometimes glabrous when longer, 2-veined  
 26 Awns 6-20 cm long or more; glumes longer than 1.8 cm  
 27 Membranous ligules of lower leaves densely ciliate, with hairs 0.3-1 mm long ..... *Pappostipa*  
 27 Membranous ligules of lower leaves glabrous or at most minutely ciliate ..... *Hesperostipa*  
 26 Awns 0.5-7.5 cm long, if longer than 6 cm then the glumes 1-1.5 cm long  
 28 Palea pubescent, the apex flat, the veins terminating below the apex; lemma coriaceous at maturity but not strongly indurate  
 29 Glumes without evident nerves, the apices rounded to acute; plants alpine, growing on mossy hummocks in wet ground ..... *Ptilagrostis*  
 29 Glumes with 1-5 evident nerves and/or the apices attenuate; plants growing in various habitats, but rarely as above  
 30 Plants with neither woody nor bamboo-like culms 3-6 mm thick, with mostly 2-3 nodes ..... *Eriocoma*  
 30 Plants with ± woody, bamboo-like culms 3-6 mm thick below, with 3-13 nodes ..... *Pseudoeriacoma*  
 28 Palea glabrous or pubescent, the apex appearing prow-tipped or pinched, the veins extending to the apex; lemma indurate at maturity  
 31 Florets dorsally compressed; lemma margins not overlapping, the palea exposed, at least in part ..... *Piptatheropsis*  
 31 Florets terete; lemma margins slightly overlapping, the palea hidden ..... *Oryzopsis*
- 22 Lemma not hard (somewhat so in *Apera* but then the rachilla prolonged beyond the palea), not enclosing the flower and palea; mostly without a well-developed callus  
 32 Inflorescence spike-like or head-like, the branches absent or highly shortened  
 33 First glume 2-nerved with 2 or 3 awns; lower stems angled or flattened somewhat ..... *Muhlenbergia*  
 33 First glume 1-nerved with a single awn or awnless; lower stems rounded  
 34 Glumes plumose; spikelets in dense ovoid heads, rarely any more than 2 times longer than wide; plants annual with markedly pubescent sheaths and blades, grown for ornament and dried bouquets, rarely escaping ..... *Lagurus*  
 34 Plants not as above in all respects  
 35 Glumes awnless; lemma awned ..... *Alopecurus*

- 35 Glumes awned
  - 36 Glumes strongly flattened laterally, ciliate on the keeled midnerve .... *Phleum*
  - 36 Glumes rounded, not keeled, not ciliate on the midnerve, but may be pubescent on the body..... *Polypogon*
- 32 Inflorescence a panicle with evident branches
  - 37 Disarticulation below the glumes
    - 38 First glume with 2 or 3 awns; spikelets falling in pairs ..... *Muhlenbergia*
    - 38 First glume with a single awn or awnless
      - 39 Spikelets nearly circular in outline; glumes and lemma awnless (glumes with a tiny point, but not awned) ..... *Beckmannia*
      - 39 Spikelets elongate, not circular in outline; glume and/or lemmas awned
        - 40 Glumes awnless; lemma awned
          - 41 Panicle loose, the branches at least 5 cm long and drooping at maturity ... *Cinna*
          - 41 Panicle cylindrical, dense, the branches very short ..... *Alopecurus*
        - 40 Glumes awned
          - 42 Glumes strongly flattened laterally, ciliate on the keeled midnerve ..... *Phleum*
          - 42 Glumes rounded, not keeled, not ciliate on the midnerve, but may be pubescent on the body ..... *Polypogon*
    - 37 Disarticulation above the glumes
      - 43 Glumes strongly flattened laterally, ciliate on the keeled midnerve ..... *Phleum*
      - 43 Glumes rounded, not keeled, not ciliate on the midnerve
        - 44 Lemma awned from the back, at about the middle or below
          - 45 Floret with a tuft of hairs at the base; rachilla prolonged beyond the palea as a slender bristle ..... *Calamagrostis*
          - 45 Floret without a tuft of hairs at the base; rachilla not prolonged beyond the palea ..... *Agrostis*
        - 44 Lemma awned from the apex or just below
          - 46 Rachilla prolonged beyond the palea as a slender bristle; plants annual. *Apera*
          - 46 Rachilla not prolonged beyond the palea; plants annual or perennial ..... *Muhlenbergia*

**KEY G: Paniceae Tribe.**

- 1 Spikelets subtended by one or more bristles or enclosed in an involucre of spines or bristles
  - 2 Spikelets subtended by one to several bristles, these remaining on the plant when the spikelets fall .... *Setaria*
  - 2 Spikelets enclosed in a bowl-like cluster (bur or involucre) of bristles or flattened spines, these falling with the spikelets and not remaining on the plant
    - 3 Bur of sharp spines, sometimes also with a whorl of bristles ..... *Cenchrus*
    - 3 Bur of bristles, without spines..... *Pennisetum*
- 1 Spikelets not subtended by bristles or spines
  - 4 Inflorescence spike-like, the spikelets embedded in the side of a somewhat corky rachis ..... *Stenotaphrum*
  - 4 Inflorescence a panicle, the spikelets not at all embedded in the rachis
    - 5 Spikelets covered with long, silky, reddish hairs 2-4 mm long ..... *Melinis*
    - 5 Spikelets glabrous or pubescent, but any hairs never as above
      - 6 First glume usually less than 0.5 mm long, absent or vestigial
        - 7 Inflorescence an open rebranched panicle, the spikelets on long pedicels ..... *Leptoloma*
        - 7 Inflorescence a panicle of unbranched branches, the spikelets sessile or short-pedicelled
          - 8 Spikelets with a small cup-like structure at the base (the first glume); lemma of upper floret awn-tipped ..... *Eriochloa*
          - 8 Spikelets without a cup-like structure at the base; lemma of upper floret not awn-tipped
            - 9 Spikelets rounded on one side and flattened on the other, orbicular to ovate in outline; margins of the lemma of the upper floret firm and hard when mature, the apex rounded ..... *Paspalum*
            - 9 Spikelets not rounded and flattened as above, lanceolate in outline; margins of the lemma of the upper floret thin and translucent when mature, the apex acute to acuminate
              - 10 Spikelets glabrous or with short, stiff hairs; plants annual ..... *Digitaria*
              - 10 Spikelets silky-pubescent with long, whitish hairs; plants perennial
                - 11 Panicles with 3 or more nodes, the branches not subdigitate; plants known in the wild, relatively common ..... *Trichachne*
                - 11 Panicles with only 1-2 nodes, the branches subdigitate; plants not known in the wild (*D. eriantha*) ..... *Digitaria*
      - 6 First glume usually more than 0.5 mm long, well-developed, evident
        - 12 Ligule absent, the ligular region glabrous; plants annual ..... *Echinochloa*
        - 12 Ligule present, the ligular region often pubescent; plants annual or perennial

- 13 Lemma of the upper floret with a stiff bristle projecting from the otherwise blunt apex ..... *Urochloa*
- 13 Lemma of the upper floret without a bristle, the apex rounded to acute
- 14 Plants stoloniferous perennials ..... *Hoplia*
- 14 Plants tufted annuals or perennials
- 15 Inflorescence a panicle of simple or nearly simple spicate branches; spikelets nearly sessile; back of fertile lemma and second glume turned toward the branch axis; plants annual ..... *Urochloa*
- 15 Inflorescence an open rebranched panicle; spikelets often pedicelled; back of fertile lemma and second glume turned away from the branch axis; plants annual or perennial
- 16 Palea of the lower floret inflated, enlarged, obovate, forcing the spikelet to gape open; rare or extirpated plants not known in NM since 1895 ..... *Steinchisma*
- 16 Palea of the lower floret not inflated as above, the spikelet closed (except open somewhat during anthesis); including many common grasses
- 17 Sheaths keeled; lemmas of fertile florets finely roughened-rugose, dull; bases of culms mostly thickened into bulb-like corms ..... *Zuloagaea*
- 17 Sheaths rounded; lemmas of fertile florets smooth and shiny; bases of culms never thickened into bulb-like corms
- 18 Plants perennial, with two distinct growth phases: during the cool season producing a basal rosette of short broad blades and terminal panicles; during the warm season producing much-branched lateral shoots with small axillary panicles; palea of lower floret vestigial ..... *Dichanthelium*
- 18 Plants annual or perennial, with a single growth phase; basal rosettes not produced; flowering during the warm season only; palea of lower floret vestigial to well-developed ..... *Panicum*
- KEY H: Lemmas 3-nerved; florets more than one.**
- 1 Some spikelets (female ones) with long awns 5 cm or more long; plants stoloniferous, monoecious or dioecious, with awnless male spikelets ..... *Scleropogon*
- 1 All spikelets with awns less than 1 cm long or awnless; plants stoloniferous or tufted, unisexual in *Bouteloua dactyloides* or bisexual
- 2 Spikelets in dense, sessile, head-like clusters closely subtended and mostly surpassed by the leaves
- 3 Disarticulation below the glumes, the spikelets in bony clusters and falling together; plants strongly stoloniferous perennials (*B. dactyloides*) ..... *Bouteloua*
- 3 Disarticulation above the glumes, the spikelets not falling in bony clusters; plants annual or perennial, stoloniferous or tufted
- 4 Plants annual; blades mostly flat (*M. squarrosa*) ..... *Munroa*
- 4 Plants perennial; blades mostly rolled and needle-like
- 5 Plants tufted, lacking stolons; lemmas with 3 ciliate awns from the nerves ..... *Blepharidachne*
- 5 Plants producing short stolons; lemmas with a single awn, the lateral nerves extending into lobes (*M. pulchella*) ..... *Munroa*
- 2 Spikelets not in dense, sessile, head-like clusters, and/or elevated well above the leaves
- 6 Inflorescence a panicle of definite and obvious spicate or racemose unbranched primary branches
- 7 Spikelets all male, 2-flowered with orange-red anthers; lemmas awnless (*B. dactyloides*) ..... *Bouteloua*
- 7 Combination of features otherwise
- 8 Panicle branches all digitate or in whorls near the apex of the main axis
- 9 Spikelets with 2-several well-developed, bisexual florets
- 10 Second glume and some lemmas short-awned or mucronate; rachis projecting as a stiff point beyond the terminal spikelet ..... *Dactyloctenium*
- 10 Second glume and lemmas awnless; rachis not projecting beyond the terminal spikelet ..... *Eleusine*
- 9 Spikelets with 1 well-developed, bisexual floret with 1-4 rudimentary and mostly neuter florets above it
- 11 Spikelets awnless; the upper rudimentary floret single and represented by a minute scale ..... *Cynodon*
- 11 Spikelets awned (awnless or mucronate in *Chloris submutica*); the upper rudimentary florets 1-4 in number and obvious
- 12 Lemma of the lower floret with 3 awns 8-12 mm long ..... *Leptochloa*
- 12 Lemma of the lower floret with a single awn or awnless ..... *Chloris*
- 8 Panicle branches distributed all along the main axis and most not in whorls, or with a single branch only
- 13 Spikelets with a single fertile, well-developed floret and with 1-3 smaller, rudimentary florets above ..... *Bouteloua*

- 13 Spikelets with usually 3-many fertile, well-developed florets
  - 14 Axils of primary panicle branches with tufts of long hairs; spikelets mostly few and widely spaced on each branch..... *Eragrostis*
  - 14 Axils of primary panicle branches glabrous; spikelets mostly numerous and usually crowded on each branch
    - 15 Plants perennial..... *Disakisperma*
    - 15 Plants annual
      - 16 Ligules 2-8 mm long, attenuate, not lacerate except by tearing..... *Diplachne*
      - 16 Ligules 1-3 mm long, truncate to rounded, often erose or lacerate..... *Dinebra*
- 6 Inflorescence a raceme, or a panicle of rebranched primary branches
  - 17 Sheath margins fused together for ½ their length or more
    - 18 Spikelets less than 5 mm long..... *Catabrosa*
    - 18 Spikelets usually more than 10 mm long..... *Bromus*
  - 17 Sheath margins overlapping for most of their length
    - 19 Lemmas pubescent on the nerves or at the base (except *Tridens albenscens*), the midnerve usually exerted as an awn or short point (except *Poa*)
      - 20 Ligules membranous; lemma midnerves not exerted as a small point..... *Poa*
      - 20 Ligules a ring of hairs, or if membranous (*Triplasiella eragrostoides*) then the lemma midnerve exerted as a small point
        - 21 Plants strongly rhizomatous; lemma nerves glabrous..... *Redfieldia*
        - 21 Plants lacking rhizomes; lemma nerves pubescent (except *Tridens albenscens*)
          - 22 Palea densely long-ciliate on the upper half; plants annual..... *Triplasis*
          - 22 Palea not long-ciliate on the upper half; plants perennial
            - 23 Blades with white margins..... *Erioneuron*
            - 23 Blades not white-margined
              - 24 Panicles open, loose, the branches spreading to drooping
                - 25 Lemmas 2-3 mm long, only the midnerve projecting as a short point..... *Triplasiella*
                - 25 Lemmas 3-5 mm long, the midnerve and lateral nerves projecting as short points (*T. flavus*)..... *Tridens*
              - 24 Panicles narrow, contracted, the branches erect
                - 26 Nerves of the lemma plainly pubescent..... *Tridentopsis*
                - 26 Nerves of the lemma glabrous or pubescent only at the base (*T. albenscens*)..... *Tridens*
        - 19 Lemmas glabrous on the nerves and at the base, awnless or awned from the back or from a deeply cleft apex
          - 27 Ligule a membrane
            - 28 Spikelets on long pedicels mostly much longer than the spikelets; plants spreading from stolons or rhizomes..... *Muhlenbergia*
            - 28 Spikelets sessile or nearly so, the pedicels much shorter than the spikelets; plants tufted
              - 29 Lemmas conspicuously awned from the back, the awns 3-6 mm long (*K. spicata*, *K. vaseyi*)..... *Koeleria*
              - 29 Lemmas awnless or with an awn to 2 mm long
                - 30 Second glume broadened below the middle; lemmas commonly short-awned, the awn 0-2 mm long; palea colored, at least on the nerves..... *Graphophorum*
                - 30 Second glume broadened above the middle; lemmas completely awnless; palea colorless, scarious, white (*K. macrantha*)..... *Koeleria*

**KEY I: Lemmas with 5-many nerves; florets more than one.**

- 1 Glumes and lemmas stiff-ciliate on the midnerves and keels; spikelets arranged in dense, one-sided clusters at the branch tips; sheath margins fused together..... *Dactylius*
- 1 Glumes and lemmas glabrous or variously pubescent but not ciliate on the midnerves and keels; spikelets not so arranged; sheath margins fused or overlapping
  - 2 Sheath margins fused together ¾ or more their length
    - 3 Callus of the floret with a prominent tuft of stiff hairs (otherwise glabrous) and lemmas prominently awned..... *Schizachne*

- 3 Callus of the floret lacking a tuft of hairs and/or lemmas awnless
- 4 Nerves of the lemma 7 in number, nearly parallel, not converging at the truncate or rounded apex ..... *Glyceria*
- 4 Nerves of the lemma 3-11 in number, converging at the obtuse to acute apex, if parallel then less than 7 in number
- 5 Spikelets awned, or if awnless then longer than 15 mm; palea and grain strongly adherent to each other when mature ..... *Bromus*
- 5 Spikelets awnless and shorter than 15 mm; palea and grain free from each other when mature
- 6 Spikelets on mostly racemose unbranched primary branches, hanging like flags away from the axis; upper florets empty, inrolled and represented by a club-shaped rudiment ..... *Melica*
- 6 Spikelets variously arranged, but mostly on rebranched primary branches; upper florets usually not empty nor as above ..... *Poa*
- 2 Sheath margins free from each other, overlapping, or fused only at the lower 1/3 or less
- 7 Disarticulation below the glumes
- 8 Florets 2 per spikelet, the upper with a short hooked awn, the lower awnless ..... *Holcus*
- 8 Florets 2-several per spikelet, all either awnless or awned, but the awn never short and hooked ..... *Sphenopholis*
- 7 Disarticulation above the glumes
- 9 Spikelets (glumes and/or lemmas) awned
- 10 Inflorescence a panicle of unbranched, spicate primary branches all clustered toward the apex of the stalk; plants annual ..... *Chloris*
- 10 Inflorescence a panicle, but the main branches rebranched or the spikelets on obvious pedicels; plants annual or perennial
- 11 Florets 3 per spikelet, the lower two florets sterile, silky with brownish hairs, and awned, the upper floret fertile, glabrous, awnless, hidden within the sterile florets and appearing as the hardened grain ..... *Anthoxanthum*
- 11 Florets not as above
- 12 Florets dissimilar, some awned, some awnless
- 13 Glumes large, more than 15 mm long ..... *Avena*
- 13 Glumes small, less than 12 mm long
- 14 Plants perennial, robust, to 1 m or more tall; mountain plants ..... *Arrhenatherum*
- 14 Plants annual, delicate, to 30 cm or so tall; disturbed ground ..... *Aira*
- 12 All florets alike and awned
- 15 Glumes not extending beyond the lowermost floret
- 16 Spikelets 2(4)-flowered; awn arising from the back of the lemma or from a deeply cleft apex ..... *Koeleria*
- 16 Spikelets mostly 3- to many-flowered; awn arising from an entire apex
- 17 Plants annual ..... *Vulpia*
- 17 Plants perennial; flowers with 3 stamens
- 18 Auricles present; blades mostly wider than 3 mm, flat when fresh ..... *Schedonorus*
- 18 Auricles absent; blades mostly narrower than 3 mm, rolled and somewhat stiff (but see *F. sororia*) ..... *Festuca*
- 15 Glumes, at least the second, equal to or surpassing the lowermost floret
- 19 Lemmas awned from the back or base
- 20 Spikelets not large, the glumes 2-8 mm long
- 21 Awn of the lemma attached above the middle; lemmas 4-9 mm long (sometimes slightly shorter) ..... *Koeleria*
- 21 Awn of the lemma attached below the middle; lemmas 1.5-4 mm long (sometimes slightly longer) ..... *Deschampsia*
- 20 Spikelets large, the glumes 10-30 mm long
- 22 Plants annual; glumes 18-30 mm long ..... *Avena*
- 22 Plants perennial; glumes 10-15 mm long
- 23 Panicles 2-5 cm long; blades rolled, usually pubescent ..... *Helictotrichon*
- 23 Panicles 5-15 cm long; blades flat or folded, mostly glabrous ..... *Avenula*
- 19 Lemmas awned from an entire or cleft apex, if cleft the awn arising from the sinus at the tip of the midnerve, or lemmas awnless
- 24 Awns of the lemma minute and nearly obsolete, scarcely visible ..... *Schismus*
- 24 Awns of the lemma well-developed, easily visible
- 25 Spikelets mostly 2-3-flowered, 3.5-6.5 mm long; rachilla extending beyond the uppermost floret ..... *Koeleria*

- 25 Spikelets 3- to 7-flowered, 6-15 mm long; rachilla not extending beyond the uppermost floret.....*Danthonia*
- 9 Spikelets (glumes and lemmas) awnless or at most with an awn tip no more than 1 mm long
  - 26 Glumes mostly longer than 2 cm and longer than the florets .....*Avena*
  - 26 Glumes shorter than 2 cm and/or shorter than the florets
    - 27 Spikelets appearing 1-flowered, but the large fertile floret subtended by 1 or 2 smaller scales or bristles representing rudimentary florets, these often appressed to the fertile floret and not immediately apparent ..... *Phalaris*
    - 27 Spikelets not as above
      - 28 Glumes and lemmas at maturity stiff, firm, greenish to straw-colored; leaves distichous, the lower ones bladeless as the stems grade into rhizomes; lemmas 7- to 11-nerved, the nerves obscure; plants strongly rhizomatous, dioecious perennials of alkaline areas and flood plains .....*Distichlis*
      - 28 Glumes and lemmas pliable, thin, often greenish to purplish (stiff in the annual *Catapodium*); leaves not distichous, the lower ones usually with well-developed blades; lemmas generally 5- to 7-nerved (9-nerved in the annual *Schismus*); plants annual or perennial, of various habitats
        - 29 Glumes and lemmas spreading at right angles to the rachilla, inflated and papery; florets and spikelets about as wide as long; spikelets on long capillary pedicels, resembling the rattles of a rattlesnake ..... *Briza*
        - 29 Glumes, lemmas, florets, and spikelets not all as above
          - 30 First glume 5- to 7-nerved; blades thread-like; small tufted annuals of sandy desert areas.....*Schismus*
          - 30 First glume 1- to 3-nerved; blades thread-like to much broader; annuals and perennials of various habitats
            - 31 Glumes, at least the second, equaling or surpassing the lowermost floret
              - 32 Florets 3 in number, the lower (outer) 2 as large as the upper (middle) one but male, their margins prominently ciliate, the upper (middle) floret fertile, somewhat hardened, and pubescent at the tip ..... *Hierochloa*
              - 32 Florets not as above
                - 33 Second glume broadened below the middle; lemmas commonly short-awned, tiny but visible; palea colored, at least on the nerves .....*Grappophorum*
                - 33 Second glume broadened above the middle; lemmas completely awnless; palea colorless, scarious, white ..... *Koeleria*
  - 31 Glumes, at least one but usually both, not extending beyond the lowermost floret
    - 34 Lemmas awned or narrowing at the apex to an awn-tip
      - 35 Auricles present; blades mostly wider than 3 mm, flat when fresh ..... *Schedonorus*
      - 35 Auricles absent; blades mostly narrower than 3 mm, rolled and somewhat stiff (but see *F. sororia*)..... *Festuca*
    - 34 Lemmas completely awnless, often blunt
      - 36 Second glume broadened above the middle; palea colorless, scarious, white; pedicels puberulent..... *Koeleria*
      - 36 Second glume, palea, and pedicels not all as above
        - 37 Inflorescence scarcely branched, the spikelets on short stout pedicels  $\pm$  on the main axis; plants annual.....*Catapodium*
        - 37 Inflorescence noticeably branched, the spikelets not borne as above; plants annual or perennial
          - 38 Plants rhizomatous and dioecious; glumes hyaline and translucent ..... *Leucopoa*
          - 38 Plants not rhizomatous and dioecious and with translucent glumes
            - 39 Sheath margins fused at least at the base; nerves of the lemma converging toward the acute apex; base of lemma with or without a tuft of cobwebby hair ..... *Poa*
            - 39 Sheath margins overlapping at the base; nerves of the lemma  $\pm$  parallel, not converging toward the truncate apex; base of lemma never with a tuft of cobwebby hairs
              - 40 Nerves of the lemma conspicuous; plants with

- creeping rhizomes; blades mostly flat, 4-15 mm wide; plants of freshwater habitats.....  
 ..... *Torreyochloa*  
 40 Nerves of the lemma obscure; plants tufted, lacking rhizomes; blades rolled, or if flat then 1-3(4) mm wide; plants of usually alkaline or saline habitats..... *Puccinellia*

**Aegilops**

\**A. cylindrica* Host ●A troublesome weed of crop fields and roadsides, along railroads, disturbed ground; widely distributed throughout the state and expected in every county; native to the Mediterranean region and central Asia.

**Aegopogon**

*A. tenellus* (A.P. de Candolle) Trinius ●Known only from desert plains and foothills of the bootheel region, in shaded canyons and beneath shrubs and trees, sometimes roadsides.

**Agropyron**

- 1 Lemmas with an awn 1-6 mm long; spikelets diverging from the rachis at angles of 30-95°, often giving the spike a bristly appearance..... *A. cristatum*  
 (Linnaeus) Gaertner ●Widely introduced for rangeland rehabilitation (so-called) and soil stabilization, except in the southern desert; native to Asia.  
 1 Lemmas awnless or at most mucronate; spikelets scarcely diverging from the rachis at angles less than 30°, the spike not at all bristly..... *A. fragile*  
 (Roth) P. Candargy ●Old fields, roadsides; known as yet only from a few scattered counties; native to Asia.

**Agrostis**

- 1 Palea well-developed, 0.5-2 mm long, ½ to ¾ the length of the lemma  
 2 Panicle dense, compact, interrupted; spikelets usually disarticulating below the glumes (*P. viridis*)..... go to *Polypogon*  
 2 Panicle open or closed but not dense nor compact; spikelets disarticulating above the glumes  
 3 Plants 3-20 cm tall; anthers 0.5-0.7 mm long; rachilla prolonged beyond the floret; alpine and subalpine meadows and boggy ground (*P. humilis*)..... go to *Podagrostis*  
 3 Plants taller, mostly 40 or more cm tall; anthers 0.8-1.4 mm long; rachilla not prolonged beyond the floret; occurring in a wide variety of habitats, and common at lower elevations  
 4 Panicles open during anthesis but contracted thereafter and when mature, mostly 1-1.5 cm broad, the branches erect-appressed; plants often stoloniferous and decumbent at the base, if short rhizomes developed then these bearing no more than 3 scale leaves..... *A. stolonifera*  
 Linnaeus ●Moist pastures, ditches, stream banks, meadows, widespread; native to Europe.  
 4 Panicles open both during and after anthesis, more than 1.5 cm broad, the branches ascending to widely spreading; plants with well developed rhizomes bearing more than 3 scale leaves, not stoloniferous, erect at the base..... *A. gigantea*  
 Roth ●Moist pastures, ditches, stream banks, meadows, very widespread and expected in all the counties; native to Europe.  
 1 Palea obsolete or a small scale less than 0.4 mm long, never as much as ½ the length of the lemma  
 5 Panicle narrow, contracted, several times longer than broad, at least some of the branches spikelet-bearing to the base  
 6 Stems slender, generally not much more than 20 cm tall; blades mostly not more than 1 mm wide.....  
 ..... *A. variabilis*  
 Rydberg ●Perennial, subalpine and alpine slopes, uncommon in the northern mountains.  
 6 Stems usually stout, mostly much more than 20 cm tall; blades mostly 2-10 mm wide..... *A. exarata*  
 Trinius ●Widespread in all the mountains and surrounding foothills and plains, in moist meadows, stream banks, and shady understorey. ●Our plants belong to var. *minor* Hooker.  
 5 Panicle open to diffuse, often less than 3 times longer than broad, the branches naked at the base  
 7 Lemmas with a slender, flexuous awn; plants annual; anther 1..... *A. elliotiana*  
 Schultes ●Along stream banks and in moist woods of the southern desert mountains, uncommon; known only from a few collections in Hidalgo County.  
 7 Lemmas awnless or with a straight awn; plants perennial, though they may appear annual; anthers 3  
 8 Cauline leaves well-developed, the basal ones often withered by anthesis; blades 2-5 mm wide, flat, 6-20 cm long..... *A. perennans*  
 (Walter) Tuckerman ●Stream banks, moist meadows, shady roadsides; not common; northern and western mountains.  
 8 Cauline leaves weakly developed, the basal ones usually persistent or at least not withered; blades 1-2 mm wide, rolled to flat, 1-14 cm long  
 9 Lower panicle branches 1-4 cm long; panicle not detaching at maturity; blades 1-7 cm long.....  
 ..... *A. ×idahoensis*  
 Nash ●Wet meadows, seeps, and moist ground at high elevations in the northern mountains; there are few collections from New Mexico.

- 9 Lower panicle branches 4-12 cm long; panicle often detaching at the base at maturity; blades 4-14 cm long..... *A. scabra*  
 Willdenow ● Meadows, grassy slopes, rocky ground, roadsides, foothills to high mountains throughout the western ¾ of the state.

**Aira**

\**A. caryophyllea* Linnaeus ● Found once in New Mexico in 1998; weakly adventive in ornamental plantings in Las Cruces, not likely persisting; native to Europe. ♦ Our plants belong to var. *capillaris* (Mertens & W.D.J. Koch) Mutel.

**Alopecurus**

- 1 Spikelets 5-6 mm long  
 2 Glumes conspicuously ciliate on the keel..... *A. pratensis*  
 Linnaeus ● Moist woods and ciénegas; uncommon in the mountains, introduced for erosion control and reseeding; native to Europe.  
 2 Glumes glabrous to scabrous on the keel ..... *A. myosuroides*  
 Hudson ● Known only from a single collection in the late 1800s from a farm in Las Cruces; native to Europe.  
 1 Spikelets 2-4 mm long  
 3 Awn slightly exerted beyond the glumes, scarcely visible without magnification..... *A. aequalis*  
 Sobolewsky ● Ponds, ditches, wet ground; widespread in the state from low to high elevations.  
 3 Awn well-exserted beyond the lemma, easily visible without magnification  
 4 Plants annual; anthers 0.3-0.5 mm long..... *A. carolinianus*  
 Walter ● Moist ground, ditch banks, irrigated ground, fields; uncommon in the southwestern region of the state, with additional records northward, and perhaps elsewhere.  
 4 Plants perennial; anthers 1.2-2 mm long..... *A. geniculatus*  
 Linnaeus ● Moist or wet ground, stream and canal banks, irrigated ground; uncommon, mostly in the western region of the state; native to Europe.

**Andropogon**

- 1 Pedicelled spikelets vestigial or absent; sessile spikelets less than 4 mm long..... *A. eremicus*  
 Wippf & Shaw ● Seasonally wet places, seeps, and springs in the desert foothills.  
 1 Pedicelled spikelets present, nearly as large as the sessile one; sessile spikelets at least 6 mm long ..... *A. gerardi*  
 Vitman ● Prairies, plains, sand dunes, wooded slopes and forests.

**Anthoxanthum**

\**A. odoratum* Linnaeus ● Disturbed ground, pastures, meadows, sporadic; known from a 1968 collection in Colfax County, and a 1997 collection in Doña Ana County; native to Europe.

**Apera**

\**A. interrupta* (Linnaeus) Beauvois ● Disturbed moist sites; known only from a few collections in the central region of the state; native to Europe.

**Aristida**

- 1 Plants annual  
 2 Awns mostly 1-2 cm long; glumes mostly 5-12 mm long..... *A. adscensionis*  
 Linnaeus ● Waste ground, disturbed sites, roadsides, sparsely vegetated ground; throughout the state and expected in every county.  
 2 Awns 2-7 cm long; glumes mostly 20 mm or more long..... *A. oligantha*  
 Michaux ● Disturbed areas and old fields; an uncommon immigrant from the eastward plains known from a few scattered counties, and considered exotic in New Mexico.  
 1 Plants perennial  
 3 Lateral awns shortened, rarely longer than 3 mm  
 4 First glume noticeably shorter than the second; inflorescence narrow, contracted, the branches erect ..... (*wrightii* forma *brownii*)..... *A. purpurea*  
 4 First glume equal to or longer than the second; inflorescence open, the branches spreading from axillary swellings at maturity  
 5 First glume longer than the second; awn usually bent at a wide angle, the column twisted; blades flat and curling like wood shavings in age; base of blade glabrous (do not confuse with ligule hairs) ..... *A. schiedeana*  
 Trinius & Ruprecht ● Mountain slopes and foothills in the piñon and ponderosa zones of the southwestern mountains.  
 5 First glume subequal to the second; awn mostly straight or only slightly bent, the column straight or slightly twisted; blades rolled or flattened at the base, but not curling like wood shavings; base of blade with scattered long hairs (var. *ternipes*)..... *A. ternipes*  
 Cavanilles ● Dry plains and mesas, roadsides, in the southwestern and southern regions of the state.  
 3 Lateral awns longer than 3 mm, well-developed, though often shorter than the central awn  
 6 Panicle closed, contracted, the branches erect-appressed  
 7 Glumes equal or nearly so; blades usually flat and curling like wood shavings in age..... *A. arizonica*  
 Vasey ● Somewhat dry mountain slopes and forest clearings at medium elevations, especially



associated with ponderosa pine forests; widespread in the mountainous regions of the state.

- 7 Glumes noticeably unequal; blades usually rolled and not curling like wood shavings, but sometimes arcuate.....*A. purpurea*  
Nuttall ●Dry plains, slopes, foothills, sandy sites, disturbed ground; throughout the state in all counties.
- 6 Panicle open, at least the lower branches spreading
- 8 Primary panicle branches somewhat capillary and curving or drooping under the weight of the spikelets but without axillary swellings; awns mostly (2)3-8 cm long.....*A. purpurea*  
Nuttall ●Dry plains, slopes, foothills, sandy sites, disturbed ground; throughout the state in all counties.
- 8 Primary panicle branches stiffly divaricate to ascending from axillary swellings; awns mostly 1-2.5 cm long
- 9 Anthers 0.8-1 mm long
- 10 Plants more than 25 cm tall; secondary branchlets present and usually well-developed; primary branches 5-13 cm long; apex of lemma strongly twisted 4 or more turns.....*A. divaricata*  
Humboldt & Bonpland ex Willdenow ●Dry plains and foothills nearly throughout the state.
- 10 Plants less than 25 cm tall; secondary branchlets absent or nearly so; primary branches 2-6 cm long; apex of lemma not twisted or twisted only 1 or 2 turns ..... *A. havardii*  
Vasey ●Dry plains and foothills, nearly throughout the state except for the northern tier of counties.
- 9 Anthers 1.2-2 mm long or longer
- 11 Glumes strongly unequal, the first about ½ to ¾ the length of the second (var. *perplexa*).....*A. purpurea*  
Nuttall ●Dry plains, slopes, foothills, sandy sites, disturbed ground; throughout the state in all counties.
- 11 Glumes equal or nearly so in length
- 12 Base of blades with scattered, soft, weak hairs 1.5-3 mm long on the upper surface or margin (var. *gentilis*).....*A. ternipes*  
Cavanilles ●Dry plains and mesas, roadsides, in the southwestern and southern regions of the state.
- 12 Base of blades glabrous to minutely pubescent on the upper surface, lacking long hairs, any hairs present less than 0.5 mm long (do not confuse with hairs at the collar or summit of the sheath)
- 13 Blades flat, loosely curling like wood shavings in age; summit of lemma conspicuously twisted.....*A. schiedeana*
- 13 Blades rolled, straight to arcuate but not curling; summit of lemma not or only slightly twisted.....*A. pansa*  
Wootton & Standley ●Dry, sandy plains and mesas, mostly southern regions.

### Arrhenatherum

\**A. elatius* (Linnaeus) Beauvois ex J. & K. Presl ●Introduced for hay and forage, found escaped in moist, shady places in the mountains; native to Europe.

### Arundo

\**A. donax* Linnaeus GIANT REED. ●Found along ditches, culverts, roadsides, and where water accumulates, mostly in the southern half of the state, but with scattered occurrences northward; native to warm regions of the Eastern Hemisphere.

### Avena

- 1 Teeth at apex of lemma very thin, elongate, needle-like; pedicels capillary..... *A. barbata*  
Pott ex Link ●A weed in fields and along roads; a few collections from Doña Ana County; native to Eurasia.
- 1 Teeth at apex of lemma acute but not elongate and needle-like; pedicels slender but not capillary
- 2 Awns usually absent or short and straight; florets not disarticulating and remaining on the plant, or falling together, when broken apart mechanically a portion of the rachilla remaining attached to the glabrous callus.....*A. sativa*  
Linnaeus ●Commonly cultivated, sometimes escaping along the fields; widespread in the state; native to Eurasia.
- 2 Awns usually well developed and bent abruptly; florets separating and falling separately, leaving a circular scar or "sucker-mouth" at the bearded callus.....*A. fatua*  
Linnaeus ●Weed in grain fields and along roads; widespread in the state; native to Eurasia.

### Avenula

*A. hookeri* (Scribner) Holub ●Alpine and subalpine slopes and ledges. Known only from a single 1923 collection in Taos County, but expected to still be in the state and to be looked for in high elevations scraggy habitats.

### Beckmannia

*B. syzigachne* (Steudel) Fernald ●Along irrigation ditches, marshes, floodplains, riverbanks, and sloughs in the northern plains and mountains. ♦Our plants belong to subsp. *baicaulensis* (N.I. Kusnezov) T. Koyama &

Kawano.

**Blepharidachne**

*B. bigelovii* (S. Watson) Hackel • Limestone knolls and ledges in Dofia Ana and Eddy counties, uncommon.

**Bothriochloa**

1 Pedicelled spikelets well-developed, about as large and broad as the sessile ones

2 Sessile spikelets more than 5 mm long ..... *B. wrightii*  
(Hackel) Henrard • Perhaps extirpated, but to be looked for in rocky, grassy foothills of the piñon zone in the southwestern mountains.

2 Sessile spikelets less than 5 mm long  
3 Panicle axis longer than the branches ..... *B. blaadhii*  
(Retzius) S.T. Blake • Introduced for range restoration, stabilization of roadsides, and erosion control; scattered localities in the state; native to Asia and Africa, notwithstanding its common name.

3 Panicle axis shorter than the branches ..... *B. ischaemum*  
(Linnaeus) Keng • Introduced for improving dry-land pastures and roadside stabilization, escaping along roadways; native to southern Europe and Asia.

1 Pedicelled spikelets much shorter and narrower than the sessile ones

4 Sessile spikelets less than 4.5 mm long; awns less than 18 mm long  
5 Panicle reddish; hairs subtending the sessile spikelet about ¼ the length of the spikelet, sparse, not at all obscuring the spikelet ..... *B. blaadhii*  
(Retzius) S.T. Blake • Introduced for range restoration, stabilization of roadsides, and erosion control; scattered localities in the state; native to Asia and Africa, notwithstanding its common name.

5 Panicle silvery; hairs subtending the sessile spikelets at least ½ the length of the spikelet or longer, copious, at least somewhat obscuring the spikelets ..... *B. torreyana*  
(Steudel) Scrivanti & Anton • Well-drained soils of grasslands, river valleys, roadsides, watered lawns, and cemeteries.

4 Sessile spikelets more than 4.5 mm long; awns more than 18 mm long  
6 Panicle axis mostly less than 5 cm long, with 2-8 branches; rachises and pedicels densely white long-pubescent; nodes densely white long-pubescent with spreading hairs ..... *B. springfieldii*  
(Gould) Parodi • Rocky to sandy slopes and plains, roadsides, in grasslands and woodlands.

6 Panicle axis 5-15 cm long, usually with numerous branches; rachises and pedicels long-pubescent but with off-white hairs; nodes bearded with stiff tan or off-white hairs  
7 Panicles of the larger shoots 14-25 cm long; stems stout, stiffly erect, little-branched above the base, 1.2-2.5 m tall, bluish-glaucous below the nodes; nodes bearded with spreading hairs 3-6 mm long ..... *B. alta*  
(Hitchcock) Henrard • Plains in the southern region, uncommon, usually along roadways and ditchbanks where extra water accumulates.

7 Panicle mostly 7-13 cm long; stems tending to be bent at the base and much-branched in age, mostly 1.2 m or less tall, not bluish-glaucous below the nodes; nodes bearded with appressed hairs less than 3 mm long ..... *B. barbinodis*  
(Lagasca) Herter • Arid plains and grasslands, commonly along roadsides.

**Bouteloua**

1 Stem internodes (not the sheaths) wooly-pubescent ..... *B. eriopoda*  
(Torrey) Torrey • Desert grasslands, dry plains, and rocky slopes throughout the state.

1 Stem internodes glabrous (distal internodes of *B. breviseta* with a chalky-whitish bloom)  
2 Plants unisexual, dioecious, stoloniferous, forming low mats often less than 10 cm tall ..... *B. dactyloides*  
(Nuttall) J.T. Columbus • Plains, prairies, and grasslands nearly throughout the state except for the central corridor.

2 Plants bisexual, tufted or shortly rhizomatous, usually taller  
3 Inflorescence branches deciduous at maturity; spikelets 1-16 per branch  
4 Branches of the inflorescence 15-80 per stem, or if less than 15 then the branches (including the spikelets) less than 1 cm long  
5 Leaf blades 1-2(2.5) mm broad; plants not rhizomatous; anthers purple ..... *B. warnockii*  
Gould & Kapadia • Dry plains on limestone in desert grasslands, on ledges and outcrops, often on gypsum; uncommon in the southern regions.

5 Leaf blades mostly more than 2.5 mm broad; plants with or without rhizomes; anthers red, orange, or yellow ..... *B. curtipendula*  
(Michaux) Torrey • Prairies, grasslands, woodlands, forest openings, usually on well-drained soils; throughout the state.

4 Branches of the inflorescence 1-13 per stem or if more than 13 then the branches (including the spikelets) 1.5 cm or more long  
6 Plants annual ..... *B. aristoides*  
(Kunth) Grisebach • Alluvial plains and uplands, dry mesas, disturbed rangelands.

6 Plants perennial  
7 Glumes and often the lemmas densely pubescent, the hairs not confined to the midnerves

- 8 Inflorescence axis 3-6 cm long; spikelet clusters (including awns) mostly less than 1 cm long ..... *B. rigidiseta* (Steudel) A.S. Hitchcock ●Shin-oak mottes on the eastern plains; known from a few recent collections in Roosevelt County.
- 8 Inflorescence axis 7-10 cm long; spikelet clusters mostly more than 1 cm long ..... *B. eludens* Griffiths ●Dry, rocky slopes and desert grasslands; known from a single collection in Hidalgo County.
- 7 Glumes and lemmas glabrous, or scabrous to ciliate on the midnerves only
- 9 Middle inflorescence branches with 12-20 spikelets; lemma of lower floret 4-6 mm long ..... *B. repens* (Kunth) Scribner & Merrill ●Semi-arid rangelands and woodlands in the southwestern region, not common.
- 9 Middle inflorescence branches with 4-16 spikelets; lemma of lower floret 4.5-8 mm long
- 10 Shoots from hard, stout, rhizomatous bases, the stems thus appearing ± in linear progression and close together; basal sheaths mostly flattened, ribbon-like; middle branches mostly 2-3 cm long (excluding awns) ..... *B. radicata* (Fournier) Griffiths ●Dry rocky slopes, desert grasslands and woodlands; uncommon.
- 10 Shoots solitary or several together in somewhat concentric tufts or from weak rhizomes; basal sheaths little flattened, mostly somewhat keeled and not ribbon-like; middle branches mostly 0.7-2 cm long (excluding awns) ..... *B. repens* (Kunth) Scribner & Merrill ●Semi-arid rangelands and woodlands in the southwestern region, not common.
- 3 Inflorescence branches and glumes persistent on the plant; spikelets usually 20-60 per branch
- 11 Inflorescence reduced to a single branch
- 12 Plants annual ..... *B. simplex*  
Lagasca ●Dry rocky plains, mesas, hills, and disturbed ground in the mountains, nearly throughout the state.
- 12 Plants perennial
- 13 Primary inflorescence branch extending well beyond the attachment of the terminal spikelet ..... *B. hirsuta*  
Lagasca ●Plains, rocky slopes, woodlands; widespread.
- 13 Primary inflorescence branch not extending beyond the attachment of the terminal spikelet ..... *B. gracilis* (Willdenow ex Kunth) Lagasca ex Griffiths ●Plains, mesas, grasslands, woodlands, forest openings.
- 11 Inflorescence with 2 or more branches (*B. barbata* rarely with a single branch)
- 14 Second glume of some spikelets with stiff, bulbous-based hairs
- 15 Primary branch extending well beyond the attachment of the terminal spikelet ..... *B. hirsuta*  
Lagasca ●Plains, rocky slopes, woodlands; widespread.
- 15 Primary branch not extending beyond the attachment of the terminal spikelet
- 16 Lemma 2-3(3.5) mm long; inflorescence branches 2(3-6) in number ..... *B. parryi* (Fournier) Griffiths ●Dry sandy plains in the southern regions.
- 16 Lemma 4-6 mm long; inflorescence branches 2(1-4) in number ..... *B. gracilis* (Willdenow ex Kunth) Lagasca ex Griffiths ●Plains, mesas, grasslands, woodlands, forest openings.
- 14 Second glume glabrous or pubescent without bulbous-based hairs
- 17 Plants annual ..... *B. barbata*  
Lagasca ●Alluvial flats and slopes, plains, rocky slopes, washes, dry woodlands, roadsides, fields, often disturbed ground; found throughout the state and expected in the few counties not recorded.
- 17 Plants perennial
- 18 Inflorescence branches 2(1-4) in number
- 19 Stem usually with 2-3 nodes; distal internodes lacking a chalky bloom ..... *B. gracilis* (Willdenow ex Kunth) Lagasca ex Griffiths ●Plains, mesas, grasslands, woodlands, forest openings.
- 19 Stem usually with 5 or more nodes, the plants somewhat bushy; distal internodes with a chalky bloom ..... *B. breviseta* Vasey ●Gypsum plains, hills, and grasslands in the southeastern quarter of the state.
- 18 Inflorescence branches 3-30 in number
- 20 Lemma of first floret glabrous ..... *B. trifida*  
Thurber ex S. Watson ●Calcareous, rocky slopes in the southern desert grasslands, infrequently collected.
- 20 Lemma of first floret pubescent at the base ..... *B. barbata*

Lagasca ●Alluvial flats and slopes, plains, rocky slopes, washes, dry woodlands, roadsides, fields, often disturbed ground; found throughout the state and expected in the few counties not recorded.

- Briza**  
 1 Spikelets 10-20 mm long; panicles bearing fewer than 10 spikelets ..... *B. maxima*  
 Linnaeus ●Weakly adventive; found recently in Union County; native to the Mediterranean region.  
 1 Spikelets 2-5 mm long; panicles bearing numerous (more than 20) spikelets ..... *B. minor*  
 Linnaeus ●Weakly adventive; collected from Las Cruces, but not likely persisting; native to the Mediterranean region.

- Bromus**  
 1 Plants perennial  
   2 Rhizomes present  
     3 Culm nodes usually glabrous; leaves (blades and sheaths) usually glabrous; lemmas mostly glabrous or scabrous; awns 0-3 mm long; seeded or disturbed sites, widespread ..... *B. inermis*  
     Leysser ●Pastures, mountain slopes, roadside swales and slopes; throughout the state; native to Eurasia.  
     3 Culm nodes often pubescent; leaves often pilose; lemmas pubescent; awns 1-6 mm long; native plant communities, uncommon in the northern mountains ..... *B. pumpellianus*  
     Scribner ●Uncommon in the forests of the northern mountains.  
   2 Rhizomes absent  
     4 Spikelets strongly flattened, the lemmas v-shaped in cross-section; second (upper) glume 5- to 9-nerved  
       5 Lemma awns 0-2.5 mm long ..... *B. catharticus*  
       Vahl ●Widespread in the state in disturbed ground, lawns, weedy sites, and roadsides; native to South America.  
       5 Lemma awns 3-15 mm long (rarely as short as 2 mm ..... *B. carinatus*  
       Hooker & Arnott ●Mountain slopes and forest clearings, widespread.  
     4 Spikelets not strongly flattened, but ± terete, the lemmas rounded on the back in cross-section; second (upper) glume 3-nerved  
       6 First glume 3-nerved  
         7 Glumes mostly glabrous; leaf blades often glaucous ..... *B. frondosus*  
         (Shear) Wooton & Standley ●Semi-desert mountain scrub and riparian areas, oak and piñon/juniper woodlands, upwards to ponderosa forests, mostly below 8100 ft in new Mexico.  
         7 Glumes mostly pubescent; leaf blades not glaucous  
           8 Pedicels puberulent; blades of the upper half of the shoot erect, the midrib not narrowed below the collar; auricles absent ..... *B. porteri*  
           (Coulter) Nash ●Ponderosa and spruce/fir forests, aspen groves, often at high elevations.  
           8 Pedicels glabrous; all blades mostly lax or spreading, the midrib mostly narrowed below the collar; auricles frequently present on the lower leaves ..... *B. anomalus*  
           Ruprecht ex Fournier ●Mountain scrub, oak & piñon/juniper woodlands, ponderosa parklands, aspen groves, and mountain meadows, often growing with *Bromus ciliatus* and *B. richardsonii*, mid- to high elevations.  
       6 First glume 1(2)-nerved  
         9 Sheaths densely lanate, the hairs spreading from the sheath but becoming matted at the tips ..... *B. lanatipes*  
         (Shear) Rydberg ●Semi-desert riparian areas and mountain brush, oak and piñon-juniper woodlands and plains, most plants growing between 6500 and 7600 ft (but extending beyond).  
         9 Sheaths glabrous to lightly pilose or hirtellous, if pubescent then not becoming matted  
           10 Midrib of the culm leaves abruptly narrowed below the collar; anthers 2-4 mm long; lemmas pubescent across the back as well as on the margins ..... *B. anomalus*  
           Ruprecht ex Fournier ●Mountain scrub, oak & piñon/juniper woodlands, ponderosa parklands, aspen groves, and mountain meadows, often growing with *Bromus ciliatus* and *B. richardsonii*, mid- to high elevations.  
           10 Midrib of the culm leaves not narrowed below the collar; anthers 1-2.7 mm long; lemmas glabrous to pubescent across the back, pubescent on the margins  
             11 Anthers 1-1.4 mm long; upper glumes 7-8 mm long; backs of all lemmas glabrous ..... *B. ciliatus*  
             Linnaeus ●Common and widespread in ponderosa, mixed conifer, spruce/fir forests, and mountain meadows, but also extending to lower elevations.  
             11 Anthers 1.6-2.7 mm long; upper glumes 9-11 mm long; backs of the upper lemmas in a spikelet with appressed hairs, the backs of the lower lemmas glabrous ..... *B. richardsonii*  
             Link ●Ponderosa, mixed conifer, spruce/fir forests, and mountain meadows.  
 1 Plants annual  
   12 Lemma awns 0-2.5 mm long  
     13 Lemmas lanceolate, broadest at the base, 9-14 mm long; anthers about 3-4 mm long ..... *B. catharticus*  
     Vahl ●Widespread in the state in disturbed ground, lawns, weedy sites, and roadsides; native to

South America.

13 Lemmas inflated, broadest at the middle, 7-9 mm long; anthers 1 mm long or less ..... *B. briziformis*  
Fischer & Meyer ●Weedy, dry sites; native to Europe.

12 Lemma awns longer than 3 mm

14 First glumes mostly 3- to 5-nerved or more

15 Spikelets strongly flattened, the lemmas v-shaped in cross-section ..... *B. carinatus*  
Hooker & Arnott ●Mountain slopes and forest clearings, widespread.

15 Spikelets not strongly flattened, but ± terete, the lemmas rounded on the back in cross-section .....  
..... *B. squarrosus*  
Linnaeus ●Weedy sites, disturbed ground, roadsides; widespread throughout the state; native to Europe.

14 First glumes mostly 1-nerved (sometimes 3-nerved in *B. diandrus*)

16 Panicle dense, compact, ovoid; panicle branches stout, erect, and mostly much shorter than 2 cm ...  
..... *B. madritensis*  
Linnaeus ●Weedy, dry, disturbed ground, roadsides, old fields; native to Europe.

16 Panicle loose, open, elongate; panicle branches often spreading or drooping, and mostly much longer than 2 cm

17 Awns mostly 3-6 cm long; lemmas 20-35 mm long ..... *B. diandrus*  
Roth ●Dry, disturbed ground in scattered locales, but most common in the southern counties; native to Europe.

17 Awns mostly 1-3 cm long; lemmas 9-20 mm long

18 Primary panicle branches mostly with 1(3) spikelets; awns 15-30 mm long; lemmas 14-20 mm long ..... *B. sterilis*  
Linnaeus ●Dry, disturbed ground, a few scattered locales in the state but not common; native to Europe.

18 Primary panicle branches mostly with more than 3 spikelets, at least on mature shoots; awns 10-18 mm long; lemmas 9-12 mm long ..... *B. tectorum*  
Linnaeus ●Dry, disturbed ground, nearly throughout the state; native to Europe.

**Calamagrostis**

1 Plants cultivated ornamentals, not known in the wild ..... *C. ×acutiflora*  
(Schrader) A.P de Candolle cultivar 'Karl Foerster' ♦Not known in the wild, this is an attractive ornamental grass that is being planted more and more in the state; native to Europe.

1 Plants native wild grasses, not known in cultivation

2 Awns exerted well beyond the glumes, easily visible, 4.5-8 mm long; blades usually densely hairy on the upper surface ..... *C. purpurascens*  
R. Brown ●Open rocky slopes, meadows, and alpine plains at high elevations (above 11,000 ft) in the Sangre de Cristo mountains; currently known only from Taos County.

2 Awns scarcely if at all exerted beyond the glumes, less than 4.5 mm long; blades glabrous or sparsely hairy  
3 Pedicels glabrous or nearly so; panicles contracted, 1-2(3) cm wide ..... *C. scopulorum*  
Jones ●Known in the state from a single collection in San Juan County, at about 6000 ft, along a seep in a hanging garden of a piñon-juniper community.

3 Pedicels evidently scabrous; panicles contracted to open

4 Glumes oblong, the apex abruptly acute and not drawn out to an awn tip; blades 1-4 mm wide, usually rolled and stiffly ascending; lemmas not translucent on the upper ½; callus hairs ½ to ¾ as long as the lemma ..... *C. stricta*  
(Timm) Koeler ●Stream banks, wet meadows, seeps, and marshy or wet ground in the mountains, above 7500 ft, often in rather open clearings on mesic mountain slopes.

4 Glumes lance-ovate, the apex of especially the first drawn out to an awn tip; blades 3-10 mm wide, mostly flat and lax; lemmas translucent on the upper ½; callus hairs ¾ to as long as the lemma .....  
..... *C. canadensis*  
(Michaux) Beauvois ●Wet meadows, seeps, marshy ground and other wet sites in the northern mountains, above 8000 ft.

**Catabrosa**

*C. aquatica* (Linnaeus) Beauvois ●Stream banks in the northern mountains, known only from Colfax County.

**Catapodium**

\**C. rigidum* (Linnaeus) C.E. Hubbard ex Dony ●Weakly adventive from horticultural plantings in the southern region, but likely to appear almost anywhere in the state; native to Europe.

**Cenchrus**

1 Burs with a single whorl of flattened spines subtended by 1-several whorls of bristles ..... *C. echinatus*  
Linnaeus ●Disturbed ground; known only from a single, old collection in Doña Ana County, and not likely to have persisted; native to more mesic to tropical areas of North and South America.

1 Burs with more than one whorl of flattened spines, the spines projecting at irregular intervals throughout the body of the bur

2 Burs mostly with 8-40 spines, the bases of the larger spines frequently 1-2 mm wide; upper floret of the

Monocotyledonous Plants - Poaceae

- spikelets 3.4-5.8 mm long; only one margin of the blade of uppermost leaf crinkled near the base..... *C. spinifex*  
Cavanilles ●Disturbed ground, plains, grasslands; throughout the state.
- 2 Burs mostly with 45-75 spines, the bases of the larger spines seldom over 1 mm wide; upper floret of the spikelets 5-7.6 mm long; both margins of the blade of uppermost leaf conspicuously crinkled near the base..  
..... *C. longispinus*  
(Hackel) Fernald ●Disturbed ground, plains, grasslands; throughout the state.

**Chloris**

- 1 Lemma of the lower floret with 3 awns 8-12 mm long (*L. crinita*).....go to *Leptochloa*
- 1 Lemma of the lower floret with a single awn or awnless
- 2 Lowermost lemma awnless or with a short awn less than 2 mm long
- 3 Upper floret inflated-spheroidal, bowl-shaped, about 1 mm wide..... *C. cucullata*  
Bischoff ●Plains and grasslands, roadsides, disturbed ground of the eastern plains, with a disjunct collection from the BUFFALOGRASS plains of Hidalgo County.
- 3 Upper floret not inflated, less than 0.5 mm wide
- 4 Florets with a short awn 0.5-2 mm long.....“*C. subdolichostachya*”  
C. Mueller Plants referred to this name are hybrid derivatives involving *Chloris andropogonoides* Fournier (not in New Mexico), *C. cucullata*, and *C. verticillata*, not accurately assignable to a biologic species, and will have features of all three parents: perennial, panicle branches digitate or in very close whorls, and slightly inflated florets with short awns.
- 4 Florets awnless or with a short mucro to 0.5 mm..... *C. submutica*  
Kunth ●Infrequent adventive from Mexico, occasionally found in disturbed ground, lawns, and fields in the southern region.
- 2 Lowermost lemma prominently awned, the awn more than 3 mm long
- 5 Panicle branches typically in several whorls along an axis 2 cm or more long..... *C. verticillata*  
Nuttall ●Plains and grasslands, roadsides, widespread throughout much of the state, and expected in the other counties.
- 5 Panicle branches in a single terminal whorl, or if in several whorls then the axis less than 2 cm long
- 6 Tip of lower lemma with a tuft of spreading hairs to 2 mm long; plants annual ..... *C. virgata*  
Swartz ●Disturbed fields, roadsides, and waste areas throughout the state.
- 6 Tip of lower lemma with short, appressed hairs; plants perennial..... “*C. subdolichostachya*”  
C. Mueller Plants referred to this name are hybrid derivatives involving *Chloris andropogonoides* Fournier (not in New Mexico), *C. cucullata*, and *C. verticillata*, not accurately assignable to a biologic species, and will have features of all three parents: perennial, panicle branches digitate or in very close whorls, and slightly inflated florets with short awns.

**Cinna**

*C. latifolia* (Trevisan ex Goeppinger) Grisebach ●Moist places in mixed conifer woodlands and forests; not commonly collected.

**Coix**

\**Coix lacryma-jobi* Linnaeus ●Occasionally cultivated in flower gardens for the bead-like female involucre; not known in the wild; native to tropical Asia.

**Cortaderia**

\**C. selloana* (J.A. & J.H. Schultes) Ascherson & Graebner ●Introduced as an ornamental landscape plant, with numerous cultivars; not known in the wild in New Mexico; native to central South America.

**Cottea**

*C. pappophoroides* Kunth ●Rocky volcanic hills and plains of the southern desert regions, seldom collected.

**Cynodon**

\**C. dactylon* (Linnaeus) Persoon ●A common grass for lawns (if you don’t mind it turning brown in winter) and improved pastures, also escaping into gardens, fields, and along roads; throughout the state and expected in all the counties; native to tropical regions of the Eastern Hemisphere.

**Cynosurus**

\**C. echinatus* Linnaeus ●Known as yet only from moist weedy ground in Bandelier National Monument, Sandoval County; native to southern Europe.

**Dactylis**

\**D. glomerata* Linnaeus ●Widely introduced for meadow and pasture improvement and found throughout the state; native to Europe.

**Dactyloctenium**

\**D. aegyptium* (Linnaeus) Willdenow ●An infrequent weed of cultivated fields, moist waste places, and lawns in the southern region; native to Africa.

**Danthonia**

1 Pedicels and branches puberulent.....*D. parryi*  
Scribner ●Coniferous forests, mountain meadows and grasslands, mostly in the northern mountains.

1 Pedicels glabrous

2 Panicle branches widely spreading (chasmogamous form, at anthesis)..... *D. spicata*

(Linnaeus) Beauvois ex Roemer & J.A. Schultes • Dry sandy mineral soil in ponderosa pine forests of the northern and western mountains.

2 Panicle branches erect-appressed

3 Older blades prominently straw-colored and markedly curly or coiling; lemmas 2.5-5 mm long; callus of middle florets about as long as wide..... *D. spicata*

(Linnaeus) Beauvois ex Roemer & J.A. Schultes • Dry sandy mineral soil in ponderosa pine forests of the northern and western mountains.

3 Older blades green to pale green but not prominently straw-colored, ± straight or only arcuate, not markedly curly or coiling; lemmas 6-8 mm long; callus of middle florets longer than wide *D. intermedia* Vasey • Forest meadows and clearings at high elevations in the northern mountains.

### Deschampsia

1 Plants perennial; blades 1-5 mm wide; panicle loose and open at maturity, the branches spreading .. *D. cespitosa* (Linnaeus) Beauvois • Widespread in moist mountain meadows, bogs, grasslands, and forest openings at medium to high elevations.

1 Plants annual; blades 0.5-1.5 mm wide; panicle narrow at maturity, the branches mostly erect. *D. danthonioides* (Trinius) Munro in Bentham • An infrequent weed of moist waste places; known from Grant and Torrance counties; native to the western United States and Mexico.

### Dichanthelium

1 Basal leaf blades similar in shape to those of the lower cauline leaves, usually erect to ascending; culms branching from near the base in the fall, with 2-4 leaves, only the upper 2-4 internodes elongated; spikelets 2.4-3.4 mm long

2 Panicles 1-2 cm wide, narrow with appressed spikelets; upper cauline blades 10-20 cm long, distinctly longer than those below..... *D. perlongum* (Nash) Freckmann • Moist shaded woodlands and canyon bottoms, from a few scattered locales.

2 Panicles 2-4 cm wide, open with spreading spikelets; upper cauline blades 4-8 cm long, similar to those below..... *D. wilcoxianum* (Vasey) Freckmann • Moist open grassland clearings in the western mountains; Catron County.

1 Basal leaf blades usually well-differentiated from those of the lower cauline leaves, spreading, forming a rosette; culms usually branching from the mid-culms in the fall, with many leaves, usually all the internodes elongated; spikelets 1.4-3.8 mm long

3 Spikelets 1.4-2 mm long; upper glume lacking an orange or purplish spot at the base..... *D. acuminatum* (Swartz) Gould & Clark • Moist woodlands, stream banks, and shaded canyons in a few scattered locales; reports from San Juan County are undocumented.

3 Spikelets 2.7-3.5 mm long; upper glume with an orange or purplish spot at the base..... *D. oligoanthes* (Schultes) Gould • Moist shaded places along mountain streams and rivers; widespread in mountain regions.

### Digitaria

1 Spikelets on long pedicels; inflorescence an open, rebranching panicle ..... go to *Leptoloma*

1 Spikelets sessile or short pedicelled; inflorescence a panicle of unbranched spicate or racemose branches

2 Spikelets silky-pubescent with long, whitish hairs; plants perennial

3 Panicles with 3 or more nodes, the branches not subdigitate..... go to *Trichachne*

3 Panicles with only 1-2 nodes, the branches subdigitate..... *D. eriantha* Steudel • Introduced for experimental planting in Quay County at the Tucumcari Research Station, New Mexico State University, but not known to escape; native Africa.

2 Spikelets glabrous or with short, stiff hairs; plants annual

4 Blades usually with prominent, stiff, bulbous-based hairs on both surfaces; lower lemma scabrous on the lateral nerves (use 10x or higher magnification)..... *D. sanguinalis* (Linnaeus) Scopoli • Weed of gardens and open, moist, waste ground, widespread, native to Eurasia.

4 Blades glabrous, only rarely with scattered hairs; lower lemma smooth on the lateral nerves  
5 Spikelets 1.7-2.3 mm long, borne in 3s at the middle portion of the branch; lower glume absent or a nerveless membranous rim less than 0.3 mm long..... *D. ischaemum* (Schreber) Schreber ex Muhlenberg • Lawns and gardens, scattered locales; native to Eurasia.

5 Spikelets 2.8-4.1 mm long, borne in 2s at the middle portion of the branch; lower glume 0.2-0.8 mm long..... *D. ciliaris* (Retzius) Koeler • Weed of moist waste places in the southern region; native to Asia.

### Dinebra

1 Sheaths sparsely to densely hairy, the hairs bulbous-based; spikelets 2-4 mm long; lemmas less than 2 mm long, awnless..... *D. panicea* (Retzius) P.M. Peterson & N. Snow • Moist weedy ground in the southern region.

1 Sheaths glabrous (sometimes hairy near the base); spikelets 4.5-8 mm long; lemmas more than 2 mm long, short-awned..... *D. viscida* (Scribner) P.M. Peterson & N. Snow • Plains and swales in the southern region.

### Diplachne

*D. fusca* (L. innaeus) Beauvois ex Roemer & J.A. Schultes • Weedy, moist ground.

**Disakisperma**

*D. dubium* (Kunth) Peterson & Snow ●Widespread throughout the state on plains, slopes, bajadas, ravines, roadsides, often shady sites.

**Distichlis**

*D. spicata* (Linnaeus) Greene ●Floodplains, saline soils, swales, salt flats, marshes; throughout the states, and expected in the counties not yet reported.

**Echinochloa**

- 1 Palea of lower floret absent or vestigial, much less than half as long as the lemma ..... *E. crusgavonis* (Kunth) Schultes ●Marshy ground and wet disturbed places, uncommon in a few scattered localities.
- 1 Palea of lower floret well-developed, nearly as long as the lemma
  - 2 Hairs of the panicle branches and spikelets not bulbous-based; panicle branches simple, usually 2(3) cm or less long; spikelets awless, 2-3 mm long, arranged in four rows on the branch..... *E. colona* (Linnaeus) Link ●Moist disturbed ground, lawns, gardens, in the southern regions; native to tropical Asia.
  - 2 Hairs of the panicle branches and/or spikelets bulbous-based; panicle branches usually rebranched, the lower branches usually more than 2 cm long; spikelets awless or awned, 2.8-4 mm long (excluding the awns), mostly arranged in two rows on the panicle branch
    - 3 Shiny apical portion of the fertile lemma obtuse or broadly acute, with a line of minute hairs, the tip sharply differentiated and withering; hairs of the panicle branches, at least some, longer than 3 mm ..... *E. crusgalli* (Linnaeus) Beauvois ●Wet ground, muddy places, ditch banks, around stock ponds; throughout the state; native to Eurasia.
    - 3 Shiny apical portion of the fertile lemma narrowly acute to acuminate, without a line of minute hairs, with a gradual transition to a membranous, stiff tip; hairs of the panicle branches absent to rarely longer than 3 mm ..... *E. muricata* (Beauvois) Fernald ●Moist to wet swales and seeps, disturbed ground, roadsides.

**Eleusine**

\**E. indica* (Linnaeus) Gaertner ●Weed of lawns, cultivated fields, and moist waste places, being rather common in Bernalillo and Doña Ana counties, and expected elsewhere; native to Eurasia.

**Elionurus**

*E. barbiculmis* Hackel ●Rocky, grassy slopes and foothills in the bootheel region, uncommon.

**Elymus**

- 1 Spikelets mostly solitary at each node of the rachis
  - 2 Spikelets (glumes and/or lemmas) long-awned, the awns prominent and mostly greater than 10 mm long
    - 3 Awns erect-appressed or nearly so, scarcely diverging as much as 15° from vertical; glumes ¼ to equaling the length of the spikelet (subsp. *subsecundus*) ..... *E. trachycaulus* (Link) Gould ●Mountain slopes, meadows, roadsides, from foothills to alpine, nearly throughout the state.
    - 3 Awns widely spreading to reflexed, diverging at least 30° or more from the vertical; glumes ½ to 2/3 the length of the spikelet
      - 4 Anthers 4-6 mm long; spikelets widely spaced and hardly overlapping
        - 5 Spike 15-30 cm long, often nodding; blades 4-6 mm wide ..... *E. arizonicus* (Scribner & Smith) Gould ●Dry rocky slopes of the southern and western mountains.
        - 5 Spike 8-15 cm long, usually erect; blades 1-2 mm wide ..... *E. spicatus* (Pursh) Gould ●Sagebrush flats, piñon-juniper foothills, and dry slopes in the western half of the state.
      - 4 Anthers 1-2 mm long; spikelets at least moderately congested and overlapping
        - 6 Spikes 3-7 cm long, very dense, the lowermost internodes 3-7 mm long; plants 15-45 cm tall, the bases usually decumbent to prostrate; mid-culm nodes mostly 0.5-1.5 mm wide; glumes 1- to 3(5)-nerved ..... *E. scribneri* (Vasey) M.E. Jones ●Rocky slopes at high elevations, mostly above 9,000 ft in the central chain of mountains.
        - 6 Spikes 7-20 cm long, not especially dense, the lowermost internodes 8-15 mm long; plants 30-70 cm tall, the bases usually erect; mid-culm nodes mostly 1.5-2.5 mm wide; glumes (3)5- to 7-nerved ..... *E. ×bakeri* (E. Nelson) Löve ♦These are sterile hybrids and perhaps partially fertile hybrid derivatives between *Elymus trachycaulus* and several other species, including *E. scribneri*, *E. etymoides*, and *E. canadensis*, and the features of such plants are diverse and reflect the parentage. High elevation populations (generally above 9,000) have been called *Elymus bakeri*, which serves as a catch-all name for the entire group.
    - 2 Spikelets (glumes and lemmas) awless or nearly so, any awns usually less than 5 mm long
      - 7 Glumes blunt, nearly truncate, thick and very firm; spikelets awless; sheaths typically ciliate on at least one margin
        - 8 Plants with evident, long-creeping rhizomes ..... *E. hispidus* (Opiz) Melderis ●Introduced for range revegetation and erosion control, widespread in the forests



- and foothills; native to Eurasia.
- 8 Plants densely tufted, lacking evident rhizomes ..... *E. ponticus*  
(Podpěra) N. Snow •Introduced for range revegetation, pasture improvement, and erosion control, widespread in the forests and foothills; native to Eurasia.
- 7 Glumes acute to acuminate, thin and membranous to stiff, but not thick; spikelets awned or awnless; sheaths rarely ciliate
- 9 Anthers 1-2 mm long
- 10 Glumes 1- to 2(3)-nerved; rachis tending to break apart at maturity; sterile hybrid plants... these are *E. trachycaulus* × *E. elymoides* hybrids, occurring where the two parents grow together.
- 10 Glumes (3)5-nerved; rachis remaining intact; fertile to sterile plants
- 11 Plants mostly with rhizomes ..... *E. ×pseudorepens*  
(Scribner & Smith) Barkworth & Dewey •Mountain slopes, grasslands, roadsides, generally below 9000 ft; very common in the southern mountains.
- 11 Plants tufted ..... *E. trachycaulus*  
(Link) Gould •Mountain slopes, meadows, roadsides, from foothills to alpine, nearly throughout the state.
- 9 Anthers 4-16 mm long
- 12 Plants with evident, long-creeping rhizomes
- 13 Glumes acuminate, asymmetrical to curved and somewhat sickle-shaped, gradually tapering to an awn-tip; blades somewhat rigid and prominently ridged above (*P. smithii*)..... go to *Pascopyrum*
- 13 Glumes acute to acuminate, symmetrical, not gradually tapering to an awn-tip; blades often lax, not prominently ridged above
- 14 Blades flat, mostly 5-15 mm wide, dark green, often with a circular constriction toward the tip; anthers (3)4-7 mm long ..... *E. repens*  
(Linnaeus) Gould •Aggressive weed of moist disturbed ground, gardens, and flower beds; native to Europe.
- 14 Blades rolled or less than 4 mm wide when flat, usually glaucous, lacking a circular constriction toward the tip; anthers 3-5 mm long..... *E. lanceolatus*  
(Scribner & Smith) Gould •Moist to dry plains and forest clearings.
- 12 Plants lacking evident rhizomes, occasionally rhizomes weakly developed and short
- 15 Spike 15-30 cm long, often nodding; blades 4-6 mm wide ..... *E. arizonicus*  
(Scribner & Smith) Gould •Dry rocky slopes of the southern and western mountains.
- 15 Spike 8-15 cm long, usually erect; blades 1-2 mm wide ..... *E. spicatus*  
(Pursh) Gould •Sagebrush flats, piñon-juniper foothills, and dry slopes in the western half of the state.
- 1 Spikelets 2 or more at each node of the rachis
- 16 Rachis fragile and breaking apart at maturity
- 17 Glumes 1 mm or more in width and conspicuously hardened ..... *E. virginicus*  
Linnaeus •Moist woods, bottomlands, roadsides, in scattered locales, not common.
- 17 Glumes less than 1 mm in width, flexible and not hard
- 18 Lemma awns 4-17 mm long; rachis internodes 2.5-7 mm long... these are *Elymus elymoides* × *E. trachycaulus* hybrids [*Elymus ×saundersii* Vasey, *Agropyron ×saundersii* (Vasey) A.S. Hitchcock].
- 18 Lemma awns 20-80 mm long; rachis internodes mostly 5-12 mm long ..... *E. elymoides*  
(Rafinesque) Swezey •Plains, grasslands, woodlands, mountain slopes; widespread.
- 16 Rachis persistent, not breaking apart at maturity
- 19 Glumes absent or reduced to one or two minute bristles; spikelets horizontally spreading or ascending at maturity ..... *E. hystrix*  
Linnaeus •A single collection in 1939 from Colfax County; this was most likely a one-time introduction that has not persisted; it is native and very common roughly west of Kansas City and north of Alabama.
- 19 Glumes present and well-developed
- 20 Glumes nearly subulate, 1- to 2-nerved
- 21 Sheaths villous; glumes short pilose ..... *E. villosus*  
Muhlenberg ex Willdenow •Known only from a few roadside collections in Union County.
- 21 Sheaths mostly glabrous; glumes glabrous
- 22 Glumes 1-3 cm long, indurate on the lower portion ..... *E. interruptus*  
Buckley •Moist canyons and woodlands in rich soil; known from a single collection at Kingston, Sierra County, in the early 1900s, and an unsubstantiated report from Otero County; likely no longer present in the state.
- 22 Glumes 4-15 cm long, rarely slightly shorter, only slightly hardened if at all. *E. elymoides*  
(Rafinesque) Swezey •Plains, grasslands, woodlands, mountain slopes; widespread.
- 20 Glumes narrowly lanceolate and broadened above the base, mostly conspicuously 3- to 7-nerved

- 23 Glumes firm and hardened on at least the lower portion, the bottom bowed out slightly; lemmas 6-9 mm long..... *E. virginicus*  
 Linnaeus ●Moist woods, bottomlands, roadsides, in scattered locales, not common.
- 23 Glumes not hardened nor bowed out at the base; lemmas 8-14 mm long
- 24 At maturity, the spikes erect and the awns erect-appressed; glumes mostly less than 20 mm long, commonly overlapping at the base and obscuring the florets; lemmas glabrous to scaberulous..... *E. glaucus*  
 Buckley ●Open woods, aspen groves, edges of mountain meadows, never achieving very thick stands; in all the mountain ranges, but much more common in the north.
- 24 At maturity, the spikes usually nodding or curved and the awns spreading outward; glumes 20 mm or more long, commonly separate at the base, the florets easily visible; lemmas scabrous to short-hairy (rarely glabrous) ..... *E. canadensis*  
 Linnaeus ●Stream banks, ditch banks, flood plains, moist sandy soil; throughout the state.

**Enneapogon**

- E. desvauxii* Desvaux ex Beauvois ●Plains and alluvial hills in desert or arid grasslands.

**Eragrostis**

1 Plants annual

- 2 Plants with stolons, rooting at the nodes and forming mats..... *E. hypnoides*  
 (Lamarck) Britton, Sterns, & Poggenburg ●Sand and mud bars along slow-moving streams and lakeshores; uncommon, in scattered locales.
- 2 Plants lacking stolons, not forming mats
- 3 Lemma keel (midnerve) with tiny crater-like glands toward the apex; mature spikelets 2-4 mm wide; lemmas with prominent green nerves contrasting sharply with the otherwise whitish body *E. ciliatensis* (Allioni) Vignolo-Lutati ex Janchen ●Disturbed and weedy ground, widespread; native to Europe.
- 3 Lemma keel lacking crater-like glands (occasionally present *E. minor*); mature spikelets less than 2.5 mm wide; lemmas generally colored otherwise
- 4 Mature grains with a groove on the side opposite the embryo
- 5 Spikelets with 5-15 florets; rather common and widespread in the state..... *E. mexicana*  
 (Hornemann) Link ●Roadsides, moist disturbed sites in a variety of habitats, often gravelly or rocky sites, widespread.
- 5 Spikelets with 3-6 florets; rare or now absent ..... *E. frankii*  
 C.A. Meyer ex Steudel ●Disturbed ground, moist weedy sites; native to central and eastern United States
- 4 Mature grains lacking a groove (slightly flattened in *E. barrelieri*)
- 6 Pedicels with a glandular ring toward the tip ..... *E. minor*  
 Host ●Native to Europe, and not yet known from New Mexico, but occurring in adjacent counties in Colorado; sometimes confused with our annual species; included here for comparison.
- 6 Pedicels lacking a glandular ring
- 7 Mature panicles 0.5-2 cm wide; spikelets light yellowish, occasionally purplish ..... *E. lutescens*  
 Scribner ●Sandy, moist soil, uncommon with a few scattered localities, mostly southern.
- 7 Mature panicles 2-15 cm wide; spikelets generally darkish
- 8 Spikelets with 3-6 florets; rare or now absent ..... *E. frankii*  
 C.A. Meyer ex Steudel ●Disturbed ground, moist weedy sites; native to central and eastern United States
- 8 Spikelets, at least many of them, with 7-20 florets
- 9 Culms with prominent glandular rings below the nodes..... *E. barrelieri*  
 Daveau ●Disturbed sites, flower beds, roadsides, common and widespread, essentially throughout the state; native to the Mediterranean region.
- 9 Culms lacking glandular rings, but sometimes with a few glandular pits
- 10 Panicle branches usually solitary at the lowest 2 nodes; spikelets 1.2-2.5 mm wide.....  
 ..... *E. pectinacea*  
 (Michaux) Nees ●Roadsides, fields, alkali flats, sandy plains, disturbed ground, widespread.
- 10 Panicle branches usually paired or whorled at the lowest 2 nodes; spikelets 0.6-1.4 mm wide..... *E. pilosa*  
 (Linnaeus) P. Beauvois ●Roadsides, disturbed ground, gardens, fields; native to Eurasia.

1 Plants perennial

- 11 Plants with extensive creeping rhizomes; blades very stiff and sharp-pointed (*K. obtusiflora*)...go to *Kalinia*
- 11 Plants lacking rhizomes or with short knotty rhizomes only; blades usually rather lax, not sharp-pointed
- 12 Spikelets 3-10 mm wide, disarticulating below the glumes at maturity and the spikelets falling entire....  
 ..... *E. superba*  
 Peyritsch ●Introduced in seeding trials and for erosion control in southern regions, uncommon;

native to Africa.

- 12 Spikelets 1-5 mm wide, disarticulating above the glumes at maturity
- 13 Spikelets sessile and borne on divergent unbranched primary branches ..... *E. sessilispica*  
Buckley ●Sandy hills and prairies on the eastern plains.
- 13 Spikelets pedicelled, at least shortly so, and/or the primary panicle branches rebranched
- 14 Lateral (not the terminal) pedicels 2 mm or less long
- 15 Mature spikelets 3-5 mm wide and arranged in overlapping clusters ..... *E. secundiflora*  
Presl ●Sandy grasslands and prairies, roadsides, mostly on the eastern plains. ♦Our plants belong to subsp. *oxylepis* (Torrey) S.D. Koch.
- 15 Mature spikelets less than 3 mm wide and not arranged in overlapping clusters
- 16 Panicle branches gummy, stout, and stiffly spreading ..... *E. curtipedicellata*  
Buckley ●Sandy or clayey plains and grasslands on the eastern plains.
- 16 Panicle branches not gummy and stiff, but at least somewhat lax or drooping
- 17 Basal sheaths ± glabrous on the back; culms usually geniculate-based; lemmas mostly less than 1.8 mm long ..... *E. lehmanniana*  
Nees ●Introduced from Africa for range land rehabilitation and roadside erosion control, widespread, especially common in the southern regions.
- 17 Basal sheaths villous on the back; culms usually erect at the base; lemmas mostly more than 2 mm long ..... *E. curvula*  
(Schrader) Nees ●Widespread throughout the state, from plains and prairies to foothills and mid-elevations in the mountains, often along roadsides.
- 14 Lateral (not the terminal) pedicels longer than 2 mm
- 18 Mature spikelets 3-5 mm wide and arranged in dense, overlapping clusters .....  
..... *E. secundiflora*  
Presl ●Sandy grasslands and prairies, roadsides, mostly on the eastern plains. ♦Our plants belong to subsp. *oxylepis* (Torrey) S.D. Koch.
- 18 Mature spikelets less than 3 mm wide and not arranged in dense, overlapping clusters
- 19 Paleas conspicuously ciliate; lateral nerves of lemma prominent; panicle breaking away when mature and tumbling before the wind ..... *E. spectabilis*  
(Pursh) Steudel ●Sandy soil, in the northeastern grasslands.
- 19 Paleas smooth or minutely ciliate; lateral nerves of lemma prominent or obscure; panicle usually not breaking away
- 20 New basal shoots breaking through the base of the sheaths (extravaginal); stem bases knotty ..... *E. palmeri*  
S. Watson ●Rocky plains and mountain slopes, uncommon in the southeastern mountains.
- 20 New basal shoots not breaking through the base of the sheath, but emerging out of the top or off to the side; stem bases not knotty
- 21 Mature lemmas mostly shorter than 2.2 mm ..... *E. intermedia*  
A.S. Hitchcock ●Sandy or rocky plains, prairies, mountain slopes, disturbed ground, widespread.
- 21 Mature lemmas mostly longer than 2.2 mm, usually longer than 2.4 mm
- 22 Grains squarish; lemmas reddish, acuminate with smooth tips; basal nodes and internodes crowded ..... *E. trichodes*  
(Nuttall) Wood ●Sandy prairies and open woodlands, mostly in the northeastern quarter of the state.
- 22 Grains elongate to elliptic; lemmas greenish, acute with usually fringed tips; basal nodes and internodes not crowded ..... *E. erosa*  
Scribner ●Rocky limestone hills and mountain slopes, often in piñon-juniper areas, widespread, but more common in the southern regions.

### **Eremopyrum**

\**E. triticeum* (Gaertner) Nevski ●Dry plains in the Four Corners region; native to Eurasia, India.

### **Eriochloa**

- 1 Spikelets solitary in the middle of the branches ..... *E. contracta*  
A.S. Hitchcock ●Loamy soil of prairies and swales in the south-central and south-eastern regions of the state.
- 1 Spikelets in pairs in the middle of the branches
- 2 Adaxial blade surface velvety-hairy; lower paleas 1-4 mm long ..... *E. lemmonii*  
Vasey & Scribner ●Rocky, grassy slopes in the bootheel region, with a few outliers.
- 2 Adaxial blade surface glabrous to sparsely pilose; lower paleas absent ..... *E. acuminata*  
(Presl) Kunth ●Disturbed moist ground, rocky slopes, in the southern half of the state.

### **Eriocoma**

- 1 Lemma densely covered with long hairs; awn short, 3-5 mm long, quickly deciduous; panicle widely spreading at maturity, with dichotomous branches ..... *E. hymenoides*  
(Roemer & J.A. Schultes) Rydberg ●Sandy plains and dunes, in nearly every county of the state.

- 1 Lemma glabrous or covered with short appressed hairs; awn longer than 6 mm, persistent or deciduous; panicle narrow with ascending branches
- 2 Basal segment of the once-geniculate awn plumose with long hairs 3-8 mm long..... go to *Pappostipa*
- 2 Basal segment of the awn glabrous or with hairs less than 2 mm long
- 3 Awn ± readily deciduous; blades 1-2 mm wide ..... *E. ×bloomeri*  
(Bolander) Romaschenko ●Not definitely recorded for New Mexico, but to be expected in the Four Corners area. ♦This is a catch-all name for hybrids between *Eriocoma hymenoides* and various other species of *Eriocoma*, generally with the readily deciduous awns of *E. hymenoides* and the longer, narrow florets and wider blades of the other parent.
- 3 Awn persistent; blades various
- 4 Lower segment of the awn (not the lemma tip) with hairs 1-2 mm long ..... *E. curvifolia*  
(Swallen) Romaschenko ●Crevices and rocky ledges and cliffs, limestone substrate, sometimes in well-developed soil; uncommon in the southern desertic mountains and foothills; also known from adjacent Texas and Chihuahua; flowering April to mid-June.
- 4 Lower segment of the awn (not the lemma tip) scabrous or with hairs less than 1 mm long
- 5 Awns 3-7.5 cm long, obscurely bent, the terminal segment flexuous or curving
- 6 Ligule minute, less than 1 mm long, hardly visible; panicle narrow, contracted, the main axis obscured..... *E. arida*  
(M.E. Jones) Romaschenko ●Desert scrub vegetation of the Four Corners region; only recently (2000) found in New Mexico and not well-collected in the state.
- 6 Ligule 1-2 mm long, evident; panicle open when mature, the branches spreading, the main axis visible..... go to *Pseudoeriacoma*
- 5 Awns 1-3 cm long, usually plainly bent, the terminal segment ± straight
- 7 Palea approximately 2/3 the length of the lemma
- 8 Hairs at the tip of the palea about the same length as those below; mature stems 60-180 cm tall, 2-6 mm in diameter; blades 4-10 mm wide ..... *E. robusta*  
(Vasey) Romaschenko ●Mountain grasslands, plains, disturbed pastures; widespread in the mountains and foothills of the state, increasing under grazing pressure.
- 8 Hairs at the tip of the palea longer than those below; mature stems 25-80 cm tall, 1-2 mm in diameter; blades 1-2 mm wide ..... *E. lettermanii*  
(Vasey) Romaschenko ●Sagebrush flats and hills, dry mountain meadows and clearings, from sagebush to subalpine communities; widespread in the mountains of the state, but not common.
- 7 Palea 1/2 to 2/3 the length of the lemma
- 9 Hairs at the lemma tip 2.5-3 mm long; callus with a pointed extension..... *E. scribneri*  
(Vasey) Romaschenko ●Dry rocky hills and woodlands, widespread in the state in the piñon to ponderosa pine communities.
- 9 Hairs at the lemma tip 1-2.2 mm long; callus blunt, without a pointed extension
- 10 Apical lemma hairs erect; lemma lobes 0.5-1.2 mm long; florets widest about midlength ..... *E. lobata*  
(Swallen) Romaschenko ●Rocky hills and woodlands, most common in the semi-arid southern regions, but extending northward to the Colorado state line; flowering summer to fall.
- 10 Apical lemma hairs ascending to divergent; lemma lobes 0.2-0.5 mm long; florets widest below midlength
- 11 Awns mostly 2-3 cm long; blades 3-7 mm wide ..... *E. nelsonii*  
(Scribner) Romaschenko ●Infrequent and only recently accurately reported (2006) in mixed conifer forests in the northern mountains; meadows and clearings in the forest; flowering spring to early summer.
- 11 Awns mostly 1-2 cm long; blades 2-3 mm wide ..... *E. perplexa*  
(Hoge & Barkworth) Romaschenko ●Mountain grasslands, clearings, and dry slopes in the piñon to ponderosa pine communities; flowering late summer to fall.

**Erioneuron**

- 1 Spikelets arranged in leafy clusters borne down among the pungent, spine-tipped blades; plants often stoloniferous and shorter than 10 cm (*M. pulchella*)..... go to *Munroa*
- 1 Spikelets borne on an elongated, leafless stalk elevated above the leaves; plants not or rarely stoloniferous and often taller than 10 cm
- 2 Tip of lemma acute or with a notch 0.5 mm or less deep; both glumes shorter than the lowermost floret ..... *E. pilosum*  
(Buckley) Nash ●Limestone hills and rocky outcrops, widespread and expected in all counties.
- 2 Tip of lemma with a notch 1-2.5 mm deep; upper glume equaling or surpassing the lower floret
- 3 Spikelets of vigorous plants 10-15 mm long, usually silvery or only slightly purple-tinged; lemmas copiously pubescent at the base; lateral lemma nerves not extended into a mucro ..... *E. avenaceum*  
(Kunth) Tateoka ●Limestone hills and rocky outcrops in the southcentral region.

- 3 Spikelets seldom longer than 10 mm, usually purplish-tinged or brownish-purple; lemmas with some hairs but not copiously pubescent at the base; lateral lemma nerves extended into a mucro to 1 mm long  
 ..... *E. nealleyi*  
 (Vasey) Tateoka • Limestone hills and rocky outcrops in the southcentral region.

**Festuca**

- 1 Blades mostly wider than 3 mm, usually at least somewhat lax and flat when fresh
- 2 Spikelets 2- to 4-flowered, 8-11 mm long; auricles absent; panicle branches spreading, at least below ..... *F. sororia*  
 Piper • Moist, shaded slopes and stream banks in the mountains.
- 2 Spikelets (4)5- to 9-flowered, 10-17 mm long; small auricles usually developed; panicle branches usually ascending ..... go to *Schedonorus*
- 1 Blades mostly less than 3 mm wide, usually rolled and somewhat stiff
- 3 Glumes (both) equaling or exceeding the upper florets; lemma awns 0-1.3 mm long ..... *F. hallii*  
 (Vasey) Piper • High-elevation meadows and forest glades in the northern mountains; known from a single recent collection, Taos County, at 10,200 ft.  
 (Vasey) Piper. High elevation meadows in the northern mountains; not common.
- 3 Glumes distinctly shorter than the upper florets; lemma awns various
- 4 Ligules 2.5-5(9) mm long; lemma awns 0-0.3 mm long; nodes usually visible and conspicuous; plants generally more than 50 cm tall ..... *F. thurberi*  
 Vasey • High mountain grasslands in the central cordillera.
- 4 Ligules less than 2 mm long; lemma awns usually more than 0.5 mm long, occasionally shorter; nodes often not visible nor conspicuous; plant height various
- 5 Plants usually with short rhizomes, the shoots often loosely tufted; basal sheaths reddish and rapidly separating into thread-like fibers (the whitish veins)
- 6 Anthers 1.8-4.5 mm long; ovary apices glabrous ..... *F. rubra*  
 Linnaeus • High mountain grasslands and open clearings, sometimes found in lawns.
- 6 Anthers 0.6-1.4 mm long; ovary apices densely pubescent ..... *F. earlei*  
 Rydberg • Subalpine to alpine meadows and grassy slopes.
- 5 Plants lacking rhizomes, the shoots loosely to densely tufted; basal sheaths usually not reddish nor separating into thread-like fibers (sometimes thus separating in *F. calligera*)
- 7 Anthers 2-4 mm long (sometimes shorter in *F. trachyphylla*)
- 8 Blades, especially the older ones, strongly laterally compressed, thickened and stiff, 0.5-1 mm wide ..... *F. trachyphylla*  
 (Hackel) Krajina • Introduced for reseeding, erosion control, and range land restoration; grassy slopes of the northern mountains; native to Europe.
- 8 Blades, even the older ones, at least somewhat terete, not thickened, but thread-like, 0.2-0.4 mm wide
- 9 Peduncle and lower panicle branches densely scaberulous; old basal sheaths conspicuous at the base of the clump, generally 4-12 cm long (rarely shorter); body of larger lemmas 5-9 mm long, the awn 0.5-2.5 mm long; ovary apex pubescent ..... *F. arizonica*  
 Vasey • High mountain grasslands throughout the mountain regions of the state; our most common fescue.
- 9 Peduncle and lower branches glabrous or nearly so; old basal sheaths conspicuous or not at the base of the clump, 1-3 cm long; body of larger lemmas 3-5.5 mm long, the awn 1-7 mm long; ovary and grain apex glabrous or with a few sparse hairs
- 10 Body of larger lemmas 3.5-5 mm long, the awn 1-2.5 mm long; lower glume 2.5-3.5 mm long; ovary apex with a few sparse hairs at maturity (glabrous when very young); grain 2-3 mm long ..... *F. calligera*  
 Piper • Relatively rare, mostly in the southcentral mountains (but extending north to Colorado), and usually growing with Arizona fescue.
- 10 Body of larger lemmas (4.5)5-5.5 mm long, the awn 2-7 mm long; lower glume 3.5-4.5 mm long; ovary apex glabrous at maturity and when very young; grain 4-5 mm long ..... *F. idahoensis*  
 Elmer • Mountain grasslands of the central (mostly northern) cordillera, not common.
- 7 Anthers 0.4-1.7 mm long, rarely longer
- 11 Plants found only as ornamentals and border plants (in New Mexico), never in native habitats; foliage markedly bluish-glaucous in dense hemispheric tufts; ovary and grain apex densely pubescent ..... "*F. glauca*"  
 BLUE FESCUE. ♦ We use this provisional name for several species that have been used in the nursery trade; they are all characterized by dense rounded clumps with markedly bluish foliage and narrow blades. They have gone most commonly by the name *Festuca glauca* Villars, with various additional cultivar names, but also by *F. arvernensis* Auquier, Kerguelén, & Markgraf-Dannenberg and *F. ovina* Linnaeus var. *glauca* in various works.
- 11 Plants not growing as ornamental landscape plants, planted infrequently as a pasture grass,

common in native mountain habitats; growth form various, but usually not in dense hemispheric tufts; foliage somewhat glaucous to green; ovary and grain apex glabrous or pubescent

12 Plants 3-10 cm tall

13 Lemma body 2-3 mm long, with an awn 0.5-1.5 mm long; spikelets with 2, occasionally 3, florets; panicle branches at lowest node usually 2-3; ovary and grain apex pubescent..... *F. minutiflora*  
Rydberg ●Alpine grasslands in the northern mountains.

13 Lemma body 3-5.5 mm long, with an awn 2-3.6 mm long; spikelets with 3-4 florets, occasionally only 2; panicle branches at lowest node 1; ovary and grain apex glabrous..... *F. brachyphylla*  
J.A. Schultes ex J.A. & J.H. Schultes ●Alpine grasslands in the northern mountains.  
◆Our plants belong to subsp. *coloradensis* Frederiksen.

12 Plants over 10 cm tall, usually 15-50 cm tall

14 Basal sheaths reddish and splitting into thread-like fibers (the whitish veins) in age; ovary and grain apex pubescent..... *F. earlei*  
Rydberg ●Subalpine to alpine meadows and grassy slopes.

14 Basal sheaths mostly straw-colored to brownish, not splitting into thread-like fibers in age (occasionally so in *F. brachyphylla*); ovary and grain apex glabrous

15 Blades soft, striate from the veins showing, somewhat wrinkled in drying, with little or no sclerenchyma tissue; spikelets and foliage greenish; culms usually less than twice the height of the leaves; anthers 0.5-1.3 mm long; rachilla internodes of middle florets 0.6-0.8 mm long..... *F. brachyphylla*  
J.A. Schultes ex J.A. & J.H. Schultes ●Alpine grasslands in the northern mountains. ◆Our plants belong to subsp. *coloradensis* Frederiksen.

15 Blades stiff, terete or sulcate, not striate nor wrinkled, the veins generally not visible because of a build-up of sclerenchyma tissue; spikelets and foliage often glaucous; culms usually twice the height or more of the leaves; anthers 1-1.7 mm long (rarely longer); rachilla internodes of middle florets 0.9-1.1 mm long ...  
..... *F. saximontana*  
Rydberg ●Mountain grasslands and forest clearings, mostly in the northern mountains, but also known from Grant County.

**Glyceria**

1 Spikelets linear, nearly round in cross-section, 9-18 mm long, 8- to 12-flowered; lemmas 3-5.5 mm long.....  
..... *G. borealis*

(Nash) Batchelder ●Borders of lakes and ponds in the northern mountains.

1 Spikelets ovate or oblong, somewhat compressed, 2.5-7 mm long, 3- to 6(7)-flowered; lemmas 1.5-3 mm long  
2 Apices of lemmas flat; anthers 3; nerves of 1 or both glumes usually extending to the apex of the glume.....  
..... *G. grandis*

S. Watson ●Marshes, swampy ground, irrigation banks, and springs in the foothills and mid-elevations in the mountains.

2 Apices of lemmas prow-shaped; anthers 2; nerves of both glumes ending below the apex of the glume

3 Blades 6-15 mm wide; anthers 0.5-0.8 mm long; culms 2.5-8 mm thick, spongy, 75-150 cm tall or more, often decumbent-based..... *G. elata*  
(Nash ex Rydberg) M.E. Jones ●Mountain springs and marshy ground at subalpine elevations; not common.

3 Blades 2-6 mm wide; anthers 0.2-0.6 mm long; culms 1.5-3.5 mm thick, not or slightly spongy, 20-80 cm tall, generally erect..... *G. striata*  
(Lamarck) A.S. Hitchcock ●Marshes, springs, wet ground, stream-banks, in the mountains.

**Grappheporum**

*G. wolfii* (Vasey) Vasey ex Coulter ●Marshy ground around seeps and springs at high elevations in the northern mountains.

**Gymnopogon**

*G. ambiguus* (Michaux) Britton, Sterns, & Poggenburg was reported in New Mexico by Smith (2003), based on an 1853 collection from Doña Ana County; the species has not been found since and occurs naturally from central Texas eastward.

**Helictotrichon**

1 Panicles 2-5 cm long; blades rolled, usually pubescent..... *H. mortionianum*

1 Panicles 5-15 cm long; blades flat or folded, mostly glabrous (*A. hookeri*)..... go to *Avenula*

*H. mortionianum* (Scribner) Henrard ●Alpine slopes and forest edges in the northern mountains.

**Hesperostipa**

1 Terminal segment of awn plumose, with feathery hairs 2-3 mm long..... *H. neomexicana*  
(Thurber) Barkworth ●Plains, grassy hills, rocky slopes, usually on limestone, throughout the state.

1 Terminal segment of awn not plumose, any hairs present shorter than 1 mm

- 2 Lemmas evenly white-hairy, sometimes glabrous above the callus; lower ligules usually acute, thin, often cut or torn; margins of lower sheaths mostly glabrous ..... *H. comata*  
(Trinius & Ruprecht) Barkworth •Plains, prairies, woodland clearings.
- 2 Lemmas unevenly brownish hairy, densely hairy on the margins and in lines on the proximal portion, glabrous distally; lower ligules rounded to truncate, thick, not cut or torn; margins of lower sheaths often ciliate ..... *H. spartea*  
(Trinius) Barkworth •Plains and prairies, scattered localities in the northern region.

**Heteropogon**

- 1 Plants perennial; glumes of the upper pedicelled spikelets lacking glandular pits ..... *H. contortus*  
(Linnaeus) Beauvois ex Roemer & J.A. Schultes •Desert hills in the southwestern region.
- 1 Plants annual; first glume of the upper pedicelled spikelets with glandular pits ..... *H. melanocarpus*  
(Elliott) Bentham •This occurs in adjacent Arizona, and perhaps may be found in the bootheel region

**Hierochloa**

- \**H. odorata* (Linnaeus) Beauvois. •Wet high mountain meadows and subalpine to alpine slopes, flowering very early; native to Europe.

**Hilaria**

- 1 Glumes thickened, indurate, and fused at the base; plants stoloniferous and not rhizomatous and rarely taller than 30 cm
- 2 Glumes of the lateral spikelets pale to purplish, lacking glandular dots or these only at the base, awned below midlength ..... *H. belangeri*  
(Steudel) Nash •Desert hills and rocky slopes in the southern mountains.
- 2 Glumes of the lateral spikelets blackish or purplish, evenly covered with glandular dots, awned from above midlength ..... *H. swallenii*  
Cory •Desert hills and rocky slopes in the southwestern desert mountains.
- 1 Glumes papery or membranous throughout, not fused at the base; plants usually rhizomatous and rarely shorter than 30 cm
- 3 Lower cauline internodes tomentose; known only from Dona Ana County ..... *H. rigida*  
(Thurber) Bentham ex Scribner •Introduced from California and Arizona for range reseeding trials, without success, but a few plants remain in the test plots of the College Ranch of New Mexico State University.
- 3 Lower cauline internodes glabrous
- 4 Glumes of the lateral spikelets fan-shaped, the awns not exceeding the apical lobes; cauline nodes short-hairy, sometimes glabrous ..... *H. mutica*  
(Buckley) Bentham •Flats and swales, gravelly hillsides, mostly in the southern half of the state.
- 4 Glumes of the lateral spikelets lanceolate or parallel-sided, the awns exceeding the apical lobes; cauline nodes long-hairy or glabrous ..... *H. jamesii*  
(Torrey) Bentham •Plains and foothills; widespread, but mostly in the northern half of the state.

**Holcus**

- \**H. lanatus* Linnaeus •Adventive in cool, moist, waste places; native to Europe.

**Hopia**

- H. obtusa* (Kunth) Zuloaga & Morrone •Usually heavy soils of swales, playas, flats, and low spots; sometimes planted to control soil erosion, throughout the state.

**Hordeum**

- 1 Rachis persistent, not breaking apart when mature; plants annual ..... *H. vulgare*  
Linnaeus •Introduced barley crop also used for erosion control along roads, adventive along fields and roadsides; expected sporadically in any of the counties; native to Eurasia.
- 1 Rachis breaking apart when mature; plants annual or perennial
- 2 Glumes of the central spikelet with conspicuous ciliate margins; auricles usually well-developed, mostly 1-8 mm long ..... *H. murinum*  
Linnaeus •Weedy ground; native to Eurasia.
- 2 Glumes of the central spikelet without ciliate margins, at most scabrous; auricles usually lacking or weakly developed and less than 0.5 mm long
- 3 Plant perennial
- 4 Glumes of the central spikelet flattened near the base ..... *H. arizonicum*  
Covas •Weedy ground, uncommon, sporadically occurring in the southwestern counties.
- 4 Glumes of the central spikelet terete throughout, not flattened near the base
- 5 Glumes 7-20 mm long; awns of the lemmas 5-10(20) mm long ..... *H. brachyantherum*  
Nevski •Moist mountain slopes and grassy hills, from mid- to high elevations.
- 5 Glumes 20-150 mm long; awns of the lemmas 10-70 mm long ..... *H. jubatum*  
Linnaeus •Moist ditches, meadows, roadsides, disturbed ground, throughout the state.
- 3 Plants annual
- 6 Glumes bent outward at the base, strongly divergent when mature
- 7 Glumes of the central spikelets terete throughout, not flattened near the base, 20-150 mm long (see lead 5) ..... *H. jubatum*

- 7 Glumes of the central spikelets flattened near the base, 11-28 mm long..... *H. arizonicum*  
Covas ●Weedy ground, uncommon, sporadically occurring in the southwestern counties.
- 6 Glumes erect at the base, ascending to only slightly divergent when mature
  - 8 Glumes of lateral spikelets prominently flattened near the base; ligules 0.2-0.8 mm long.....  
..... *H. pusillum*  
Nuttall ●Waste places, nearly throughout the state.
  - 8 Glumes of lateral spikelets terete to slightly flattened near the base; ligules 0.6-1.8 mm long.....  
..... *H. arizonicum*  
Covas ●Weedy ground, uncommon, sporadically occurring in the southwestern counties.

**Imperata**

- 1 Spikelets 3-4 mm long; foliage green; stamen 1; native grass of floodplains..... *I. brevifolia*  
Vasey ●In New Mexico, known only from Doña Ana County along the Rio Grande floodplain; last found in 1939.
- 1 Spikelets 4-5 mm long; foliage reddish at least in age; stamens 2; exotic grasses in cultivation as an ornamental  
..... *I. cylindrica*  
(Linnaeus) Beauvois var. *koenigii* (Retzius) T. Durand & Schinz JAPANESE BLOODGRASS 'RED BARON'.  
●Cultivated as an ornamental landscape plant but not known to escape to the wild in New Mexico; native to Asia, India, Australia, Africa.

**Kalinia**

*K. obtusiflora* (Fournier) H.L. Bell & Columbus ●Along dry shores of Playas Lake in Hidalgo County.

**Koeleria**

- 1 Florets awnless..... *K. macrantha*  
(Ledebour) J.A. Schultes ●Mountain slopes, foothills, and plains, throughout the state.
- 1 Florets conspicuously and definitely awned
  - 2 Panicles 3-10 cm long, the spikelets densely congested, the branches mostly less than 1 cm long and erect-appressed; leaves tending to be basal ..... *K. spicata*  
(Linnaeus) Barberá, Quintanar, Soreng, & P.M. Peterson ●Alpine to subalpine ridges, slopes, and forest clearings, mostly in the northern mountains, generally at higher elevations than *K. montana*.
  - 2 Panicles 8-24 cm long, the spikelets somewhat crowded to loosely arranged, the branches (1)2-6 cm long and ascending to somewhat divergent; leaves tending to be cauline ..... *K. vaseyi*  
Barberá, Quintanar, Soreng, & P.M. Peterson ●Mountain woodlands and grasslands, clearings, grassy slopes, roadsides; widespread in the mountains, generally at lower elevations than *K. spicata*.

**Lagurus**

\**L. ovatus* Linnaeus ●A recently found adventive, rarely escaping from cultivation for ornament and dried bouquets; native to the Mediterranean region.

**Leersia**

*L. oryzoides* (Linnaeus) Swartz ●River and stream banks in the southern region, often aquatic; expected in more counties than currently known.

**Leptochloa**

- 1 Plants perennial
    - 2 Panicle branches subdigitate, appearing as a single terminal whorl; spikelets with numerous awns to 12 mm long..... *L. crinita*
    - 2 Panicle branches not digitate, attached singly along the main axis; spikelets awnless ..... go to *Disakisperma*
  - 1 Plants annual
    - 3 Ligules 2-8 mm long, attenuate, not lacerate except by tearing ..... go to *Diplachne*
    - 3 Ligules 1-3 mm long, truncate to rounded, often erose or lacerate..... go to *Dinebra*
- L. crinita* (Lagasca) P.M. Peterson & N. Snow ●Disturbed ground, roadsides, fields, and drainages in the desert grasslands.

**Leptoloma**

*L. pubiflorum* (Vasey) Wipff & Shaw ●Southern and eastern plains.

**Leucopoa**

*L. kingii* (S. Watson) W.A. Weber ●Woodlands and brushy hills of the Four Corners region, known from a single collection.

**Leymus**

- 1 Plants strongly rhizomatous, the rhizomes long and slender, not bunch-forming
  - 2 Culms 8-12 mm thick; blades 8-20 mm wide; spikes with 3-8 spikelets per node; glumes 12-25 mm long.....  
..... *L. racemosus*  
(Lamarck) Tzvelev ●Known only from a few collections along weedy roadsides in San Miguel and Colfax counties; native to Europe and central Asia.
  - 2 Culms 1-3 mm thick; blades 3-10 mm wide; spikes with 2 spikelets per node at mid-spike; glumes 5-16 mm long.....  
..... *L. triticoides*  
(Buckley) Pilger ●Some of our plants are from high mountain forest clearings (introduced there?), but the species is more common on clay flats and swales at much lower elevations.
- 1 Plants tufted, or with short rhizomes but still bunch-forming



- 3 Plants in giant clumps to 2 m or more tall, usually much taller than 100 cm; blades flat, 5-15 mm wide; spikelets usually 3-6 per node..... *L. cinereus* (Scribner & Merrill) Löve ●Known only from Colfax and San Juan counties, where it appears to be adventive or deliberately planted; native to the western United States.
- 3 Plants much smaller, rarely as much as 1 m tall and usually less than 70 cm tall; blades mostly involute or rarely flat, 2-5 mm wide; spikelets 1-2 per node
- 4 Spikelets mostly one per node of the rachis; blades often flat or sometimes involute..... *L. salina* (M.E. Jones) A. Löve ●Dry plains in the Four Corners region.
- 4 Spikelets mostly 2 per node of the middle rachis (solitary at the apex and base of the spike); blades almost always involute ..... *L. ambiguus* (Vasey & Scribner) D.R. Dewey ●Dry, rocky foothills and plains, sometimes mountain slopes with oak brush.

**Lolium**

- 1 Glume exceeding the uppermost floret ..... *L. temulentum* Linnaeus ●Moist weedy ground, known only from Santa Fe Ski Basin; native to Eurasia.
- 1 Glume shorter than the spikelet, the florets extending beyond the glume ..... *L. perenne* Linnaeus ●Introduced from Europe and Asia for lawns, roadsides, and pastures, escaping to moist weedy ground; expected in all the counties.

**Melica**

- 1 Rudiments at end of rachilla blunt and club-like, not resembling the other florets in shape, 1-3 mm long ..... *M. nitens* (Scribner) Nuttall ex Piper ●Calcareous soil and rocky outcrops of the Guadalupe Mts, Eddy County.
- 1 Rudiments at end of rachilla pointed, resembling the other florets in shape, 2-5 mm long ..... *M. porteri* Scribner ●Mountain slopes and forest clearings.

**Melinis**

- \**M. repens* (Willdenow) Zizka ●Known only from only two localities in Luna and Hidalgo counties; native to Africa and western Asia.

**Miscanthus**

- \**M. sinensis* Andersson ●Widely used as an ornamental landscape plant, with numerous cultivars; not known as an escape in the wild; native to southeastern Asia.

**Mnesithea**

- \**M. granularis* (Linnaeus) de Koning & Sosef ●Dry desert plains and foothills in the bootheel region; native to the Eastern Hemisphere.

**Muhlenbergia**Key I. Large tussock-forming species (see Key II to all species, below)

- 1 Lower sheaths conspicuously compressed-keeled..... *M. emersleyi*
- 1 Lower sheaths rounded on the back
- 2 Glumes, excluding the awns 3/4 or more the length of the floret; spikelets awnless
- 3 Ligules 1-3 mm long; panicles tightly contracted, spike-like, the branch tips erect-appressed..... *M. rigens*
- 3 Ligules 6-20 mm long; panicles loosely contracted, mostly not spike-like, the branch tips often spreading ..... *M. longiligula*
- 2 Glumes, excluding the awn, 2/3 or less the length of the floret; spikelets awned or awnless
- 4 Panicles open, very diffuse, 8-40 cm wide, strikingly reddish when mature; landscape plants, not known to escape to the wild ..... *M. capillaris*
- 4 Panicles narrow or somewhat open, not reddish, or if so, then not in cultivation
- 5 Lemma awns 5-30 mm long ..... *M. rigida*
- 5 Lemma awns 0-4(5) mm long
- 6 Awns (3)5-10 mm long; panicles reddish; glumes 1.5-2 mm long ..... *M. rigida*
- 6 Awns 0-4(5) mm long; panicles greenish; glumes 2-3 mm long ..... *M. dubia*

Key II. All species

- 1 Plants annual
- 2 First glume prominently 2-nerved, usually cleft; panicle branches falling as a unit, bearing 2-3(4) spikelets
- 3 Glumes about 1/2 the length of the floret; spikelets 4-6 mm long; lemma awns (5)10-20 mm long..... *M. brevis* C.O. Goodding ●Grassy slopes and clearings in volcanic soils in the western half of the state.
- 3 Glumes and floret about equal in length; spikelets 2.5-3.5 mm long; lemma awns 0.5-5(10) mm long..... *M. depauperata* Scribner ●Grassy slopes and clearings in volcanic soils in the southcentral and eastern regions.
- 2 First glume 1-nerved; panicle branches persistent
- 4 Lemma awns 10-30 mm long
- 5 Second glume (1)2- to 3-nerved, the apex truncate to acute, 2- or 3-toothed..... *M. peruviana* (Beauvois) Steudel ●Mountain meadows and ciénegas, known only from Catron County.
- 5 Second glume 1-nerved, the apex acute to acuminate ..... *M. tenuifolia*

- 4 Lemma awns 0-5 mm long
  - 6 Mature panicles narrow, contracted, the branches appressed to the main axis ..... *M. filiformis*  
(Thurber ex S. Watson) Rydberg ●Ponderosa/Douglas-fir forests, occasionally higher, mostly in the northern mountains, but populations also in the Mogollon Mountains.
  - 6 Mature panicles open, the branches spreading
  - 7 Glumes glabrous or nearly so
    - 8 Pedicels 0.3-1 mm long, stout, of equal thickness throughout; blades lacking white margins .....  
..... *M. ramulosa*  
(Kunth) Swallen ●Moist soil in forest clearings in the central and western mountains, and northwestern mesas.
    - 8 Pedicels 2-8 mm long, capillary but straight, narrowed downward; blades with thickened white margins ..... *M. fragilis*  
Swallen ●Moist sandy soil and rocky clearings in the western mountain regions and northwestern mesas.
  - 7 Glumes minutely-pubescent to long-pubescent, at least at the apex (use a lens)
    - 9 Terminal pedicels 2 mm long, the lateral ones appressed to the branchlets ..... *M. eludens*  
C. G. Reeder ●Rocky woodlands and forest clearings in the western mountains; known from only a few collections.
    - 9 Terminal pedicels mostly longer than 5 mm, the lateral ones spreading to flexuous
      - 10 Pedicels sinuous, often tangled with one another; anthers 0.9-1.4 mm long ..... *M. sinuosa*  
Swallen ●Moist soil of canyon bottoms, riparian habitats, and rocky hills, mostly in the central and western mountains.
      - 10 Pedicels straight or subflexuous, not tangled; anthers 0.3-0.5 mm long
        - 11 Lemma awnless, 0.8-1.5 mm long ..... *M. minutissima*  
(Steudel) Swallen ●Moist, sandy or rocky slopes, widespread.
        - 11 Lemma usually awned, 1.3-2 mm long ..... *M. texana*  
Buckley ●Rocky outcrops, sandy drainages, disturbed ground, southwestern counties.
- 1 Plants perennial
  - 12 Second glume evidently 3-nerved, often 3-toothed; lower sheaths flattened, ribbon-like
    - 13 Sheaths usually becoming coiled and appearing like wood shavings; second glume acute, entire or occasionally toothed, nearly as long as the floret ..... *M. straminea*  
A.S. Hitchcock ●Rocky slopes and clearings, mostly in pine forest, southwestern mountains.
    - 13 Sheaths not conspicuously coiled; second glume toothed to awned, shorter than the floret
      - 14 Ligules 2-5 mm long; stems and blades very slender and narrow; plants usually 15-30 cm tall .....  
..... *M. filiculmis*  
Vasey ●Moist, sandy ground in high mountain grasslands and clearings, in the northern mountains.
      - 14 Ligules 10-20 mm long and the tip often shredded; stems and blades more robust; plants 25-80 cm tall ..... *M. montana*  
(Nuttall) A.S. Hitchcock ●Rocky or grassy slopes, ledges, forest clearings, widespread.
  - 12 Second glume 1-nerved, entire or fringed; lower sheaths usually not ribbon-like
    - 15 Stems stiff, wiry, much-branched, the plants bush-like ..... *M. porteri*  
Scribner ex Beal ●Dry plains, nearly throughout the state.
    - 15 Stems not as above, the plants not bush-like
      - 16 Plants with evident, slender, creeping rhizomes
        - 17 Callus hairs copious, as long as the body of the lemma ..... *M. andina*  
(Nuttall) A.S. Hitchcock ●Mountain meadows, forest clearings, gravely river beds, in the northern mountains.
        - 17 Callus hairs long-pubescent to glabrous, but the hairs much shorter than the body of the lemma
          - 18 Awn of the lemma 6-25 mm long
            - 19 Blades mostly 2-6 mm wide, mostly flat ..... *M. mexicana*  
(Linnaeus) Trinius ●Moist thickets, woodlands, and canyon bottoms, scattered locales; not well-known in the state.
            - 19 Blades 0.5-2(2.5) mm wide, mostly rolled
              - 20 Anthers purple, 1.3-3 mm long; lemmas lanceolate, 3.5-5 mm long, the awns 4-12(20) mm long; ligules with lateral lobes to 1.5 mm long ..... *M. arsenei*  
A.S. Hitchcock ●Limestone rock outcrops, gypsum sands, stream-banks; northwestern region.
              - 20 Anthers orange, 1.5-2 mm long; lemmas elliptic, 2-3.5 mm long, the awns 10-25 mm long; ligules lacking lateral lobes ..... *M. polycaulis*  
Scribner ●Shaded ledges and grassy slopes in the southern regions.
      - 18 Awn of the lemma 0-3(5) mm long
        - 21 Panicles open, loosely flowered with usually spreading to divergent branches at

- maturity
- 22 Awns 1-1.5(2) mm long; panicle branches attached in clusters..... *M. pungens*  
Thurber ●Sand dunes and plains, mostly in the western regions.
- 22 Awns 0-0.3 mm long; panicle branches not clustered
- 23 Ligules with pointed lateral extensions 1-2 mm long; blades with thickened white margins and midribs..... *M. arenacea*  
(Buckley) A. S. Hitchcock ●Playas and clay flats in the southern regions, often growing with *Scleropogon brevifolius*.
- 23 Ligules without lateral extensions; blades without thickened white margins or midribs..... *M. asperifolia*  
(Nees & Meyer ex Trinius) Parodi ●Damp or wet ground along streams and rivers, floodplains, alkaline meadows, along seeps and springs; expected in all counties.
- 21 Panicles contracted, narrow and usually densely flowered, the branches mostly erect to appressed
- 24 Blades (2.5)3-6 mm wide, mostly flat
- 25 Glumes 2-3.5 mm long, subequal to the lemma..... *M. mexicana*  
(Linnaeus) Trinius ●Moist thickets, woodlands, and canyon bottoms, scattered locales; not well-known in the state.
- 25 Glumes 4.5-6 mm long, the awn-tips much exceeding the lemma
- 26 Internodes dull and puberulent, usually terete; culms seldom branched above the base; ligules 0.2-0.6 mm long..... *M. glomerata*  
(Willdenow) Trinius ●Moist shaded ground in conifer forest; known from a single collection in Colfax County.
- 26 Internodes polished and glabrous, keeled; culms much-branched above the base; ligules 0.6-1.7 mm long..... *M. racemosa*  
(Michaux) Britton, Sterns, & Poggenburg ●Canyon bottoms, riparian strands, irrigation ditches, moist prairies, roadsides.
- 24 Blades 0.5-2(3) mm wide, rolled
- 27 Lemma long-pubescent below
- 28 Blades 4 cm or more long; glumes acuminate or aristate..... *M. glauca*  
(Nees) B.D. Jackson ●Desert plains in the bootheel region, with an outlier eastward; little known in New Mexico.
- 28 Blades 2-4(5) cm long; glumes acute
- 29 Lemma 2-2.5 mm long; glumes about half as long as the floret.....  
..... *M. villiflora*  
A. S. Hitchcock ●Dry plains; known in New Mexico from a few collections in Eddy and Otero counties.
- 29 Lemma 3-4 mm long; glumes shorter than to nearly as long as the floret..... *M. thurberi*  
(Scribner) Rydberg ●Dry hills in the northwestern region.
- 27 Lemma glabrous or scabrous only
- 30 Inflorescence usually included in the sheath at least below, with 9 nodes or fewer; ligules 0.5-1.5 mm long; glumes ½ to equaling the floret..... *M. repens*  
(Presl) A. S. Hitchcock ●Flats, roadside swales, moist plains, widespread and expected in all the counties.
- 30 Inflorescence usually well-exserted from the sheath, with 11-12 nodes; ligules 1-3 mm long; glumes ½ to ½ as long as the floret.....  
..... *M. richardsonii*  
(Trinius) Rydberg ●Mountain meadows and ciénegas; not common.
- 16 Plants tufted, or sometimes the bases decumbent and spreading, but lacking creeping rhizomes
- 31 Panicles of long, strongly divergent, unbranched primary branches bearing widely spaced, sessile, awnless spikelets; blades usually spirally twisted..... *M. paniculata*  
(Nuttall) P.M. Peterson ●Plains and grasslands nearly throughout the state.
- 31 Panicles and blades not as above
- 32 Nerves of lemmas and paleas densely pubescent..... *M. tricholepis*  
(Torrey) Columbus ●Widespread on rocky or gravely slopes in the mountains and foothills.
- 32 Nerves of lemmas and/or paleas glabrous, scabrous, or short-pubescent but not densely or noticeably so
- 33 Sheaths (at least the lower) compressed-keeled; blades flat or folded
- 34 Panicles 20-40 cm long; plants 50-100 cm or more tall in large tussocks.....  
..... *M. emersleyi*

- Vasey ● Rocky hills and woodlands, mostly in the southern regions.
- 34 Panicles 5-10 cm long; plants 20-60 cm tall in small tufts
- 35 First glume 1-nerved, awnless or with an awn to 1 mm long; lemma awns 0.3-1 mm long
- 36 Ligules less than 1 mm long; glumes gradually narrowed to a micro at most 0.3 mm long ..... *M. cuspidata* (Torrey ex Hooker) Rydberg ● Plains and gravelly slopes in the eastern region, uncommon
- 36 Ligules 1-5 mm long; glumes abruptly narrowed to awns 0.5-1 mm long ..... *M. wrightii* Vasey ex Coulter ● Plains and grassy hills and slopes, widespread.
- 35 First glume 2-nerved, with awns 1-3.5 mm long; lemma awns 1.5-3 mm long (*Lycurus*)
- 37 Blades terminating in a slender, hair-like bristle 3-12 mm long; ligules acute to acuminate, 3-10 mm long; culms erect ..... *M. alopecuroides* (Grisebach) Peterson & Columbus ● Dry slopes, plains, and woodlands, nearly throughout the state.
- 37 Blades acute or with a bristle 1-3 mm long; ligules 1.5-3 mm long, with lateral acuminate projections on either side; culms erect to ascending, often geniculate ..... *M. phleoides* (Kunth) Columbus ● Dry slopes, plains, and woodlands mostly in the southern regions.
- 33 Sheaths rounded on the back; blades usually becoming rolled
- 38 Lemma awns 0-4(5) mm long
- 39 Glumes, excluding the awn, 3/4 or more the length of the floret
- 40 Ligules 1-3 mm long ..... *M. rigens* (Bentham) A.S. Hitchcock ● Dry woodland stream banks, rocky canyons, gullies, common in the southwestern region but in scattered locales elsewhere; also found increasingly as an ornamental landscape plant.
- 40 Ligules 6-20 mm long ..... *M. longiligula* A.S. Hitchcock ● Canyons and rocky slopes, mostly in the southwestern region.
- 39 Glumes, excluding the awn, 2/3 or less the length of the floret
- 41 Blades 25-60 cm long
- 42 Awns (3)5-10 mm long; panicles reddish; glumes 1.5-2 mm long ..... *M. rigida* (Kunth) Trinius ● Rocky hillsides, canyon slopes, and woodlands in the southern regions.
- 42 Awns 0-4(5) mm long; panicles greenish; glumes 2-3 mm long ..... *M. dubia* Fournier ex Hemsley ● Woodlands, rocky mountain slopes, canyons.
- 41 Blades 1-15 cm long
- 43 Mature panicles narrow, 0.5-1 cm wide, the primary branches erect to appressed ..... *M. filiformis* (Thurber ex S. Watson) Rydberg ● Ponderosa/Douglas-fir forests, occasionally higher, mostly in the northern mountains, but populations also in the Mogollon Mountains.
- 43 Mature panicles open, 4-15 cm wide, at least the primary branches widely spreading
- 44 Blades mostly flat, the margins white-cartilaginous ..... *M. arizonica* Scribner ● Moist plains and rocky hillsides in the bootheel region, uncommon.
- 44 Blades mostly rolled or folded, rarely flat, the margins not white-cartilaginous
- 45 Blades strongly arcuate, curving, less than 1 mm wide, 1-3(4) cm long; leafy portion 1/8 or less the length of the plant; lateral pedicels commonly longer than the spikelets. .... *M. torreyi* (Kunth) A.S. Hitchcock ex Bush ● Sandy plains, throughout the state.
- 45 Blades rather straight, 1-2 mm wide, 3-15 cm long; leafy

- portion 1/5 to 1/2 the length of the plant; lateral pedicels commonly shorter than the spikelet ..... *M. arenicola* Buckley ●Sandy plains, nearly throughout the state.
- 38 Lemma awns 7-40 mm long
- 46 Awns 7-10 mm long
- 47 Blades 20-60 cm long
- 48 Glumes awned; panicles 8-20 cm wide or more; introduced ornamental plants ..... *M. capillaris* (Lamarck) Trinius ●Introduced as an ornamental landscape plant, not known in the wild; native to eastern Texas and Oklahoma and eastward.
- 48 Glumes awnless; panicles 2-4 cm wide; native plants in the wild ..... *M. rigida* (Kunth) Trinius ●Rocky hillsides, canyon slopes, and woodlands in the southern regions.
- 47 Blades 1-14 cm long; glumes acute to aristate
- 49 Blades mostly 1-4(5) cm long; glumes acute; lemmas and paleas sparsely but noticeably short-pilose on the lower half; lateral lobes of ligules less than 1.5 mm long ..... *M. arsenei* A.S. Hitchcock ●Limestone rock outcrops, gypsum sands, stream-banks; northwestern region.
- 49 Blades mostly 4-14 cm long; glumes acuminate to aristate; lemmas and paleas glabrous or minutely scaberulous; lateral lobes of ligules 1.5-3 mm long ..... *M. pauciflora* Buckley ●Rocky slopes, ledges, and mountain outcrops, widespread.
- 46 Awns 10-40 mm long
- 50 Ligules 3-15 mm long
- 51 Lemmas purple, scaberulous near the apex; glumes 1-1.3 mm long ..... *M. rigida* (Kunth) Trinius ●Rocky hillsides, canyon slopes, and woodlands in the southern regions.
- 51 Lemmas straw-colored, smooth and shining; glumes 1.5-2.1 mm long ..... *M. setifolia* Vasey ●Dry gravelly plains and hillsides, juniper woodlands, in the southern regions.
- 50 Ligules 0.5-3 mm long
- 52 Glumes obtuse, 0.5-1 mm long; lemma awn 20-40 mm long ..... *M. spiciformis* Trinius ●Canyons and moist woodlands, known only from a few collections in Lincoln and Eddy counties.
- 52 Glumes acute to subaristate, 1-2 mm long; lemma awn mostly 10-15 mm long
- 53 Lemmas essentially glabrous, with only a few closely appressed callus hairs; ligules with lateral lobes 1.5-3 mm long ..... *M. pauciflora* Buckley ●Rocky slopes, ledges, and mountain outcrops, widespread.
- 53 Lemmas pubescent on the lower half; ligules without lateral lobes
- 54 Plant bases usually geniculate and rooting at some of the lowest nodes, sometimes erect, with the lowest sheaths nearly lacking blades; anthers 1.5-2 mm long, orange; lemma hairs to 0.5 mm long ..... *M. polycaulis* Scribner ●Shaded ledges and grassy slopes in the southern regions.
- 54 Plant bases usually erect, sometime geniculate, rarely rooting at the lowest nodes; anthers 1-1.5 mm long, yellowish; lemma hairs 0.5-1.5 mm long ..... *M. tenuifolia* (Kunth) Trinius ●Rocky ledges and outcrops, canyons, sandy drainages.

**Munroa**

- 1 Plants perennial; blades rolled; glumes longer than the lower lemma ..... *M. pulchella* (Kunth) L.D. Amarilla ●Rocky desert flats and hills, common in the southern regions, but extending

northward to San Juan County.

- 1 Plants annual; blades flat; glumes shorter than the lower lemma ..... *M. squarrosa*  
(Nuttall) Torrey ●Sandy plains and flats throughout the state.

**Nassella**

- 1 Awns 4-10 cm long, capillary; florets 2-3 mm long; summit of sheath glabrous or obscurely pubescent .....  
..... *N. tenuissima*  
(Trinius) Barkworth ●Rocky slopes and woodlands, mostly in the southern regions.

- 1 Awns 2-3 cm long, stout; florets 4-6 mm long; summit of sheath with a conspicuous tuft of hair .....*N. viridula*  
(Trinius) Barkworth ●Grassy hills, plains, and flats in the northern regions.

**Oryzopsis**

*O. asperifolia* Michaux ●Moist wooded sites in the northern mountains, usually in the shade.

**Panicum**

- 1 Plants annual

- 2 Lemma of the upper floret wrinkled; spikelets nearly sessile on simple or nearly simple primary branches .....  
..... go to *Urochloa*

- 2 Lemma of the upper floret smooth, not wrinkled; spikelets pedicelled in a usually open freely rebranched panicle

- 3 First glume about 1/4 as long as the spikelet, obtuse or rounded at the tip; stems as much as 1 m long, coarse and often somewhat trailing..... *P. dichotomiflorum*  
Michaux ●Moist stream banks, meadows, roadsides, not common; native to central and eastern United States and Canada.

- 3 First glume more than 1/4 as long as the spikelet, acute to acuminate at the tip; stems various

- 4 Spikelets 4.5-5 mm long; panicle nodding at maturity ..... *P. miliaceum*  
Linnaeus ●Occasionally cultivated, adventive in waste places, sometimes found under bird feeders; native to Asia.

- 4 Spikelets less than 4 mm long; panicle usually not nodding

- 5 Mature panicles 2-3 cm long and congested among the leaves, never exceeding the foliage; plants 2-8 cm tall..... *P. mohavense*  
Reeder ●Limestone ridges of the Oscura Mts, Socorro County; also Arizona.

- 5 Mature panicles longer, exceeding the leaves; plants usually taller

- 6 Mature panicles more than half the length of the entire plant; panicle axils pubescent .....  
..... *P. capillare*  
Linnaeus ●Roadsides and other disturbed sites throughout the state.

- 6 Mature panicles not more than 1/3 the length of the entire plant; panicle axils glabrous

- 7 Palea of lower floret well developed, as long as the upper floret; first glume 1/2-1/2 the length of the spikelet ..... *P. stramineum*  
A.S. Hitchcock & Chase ●Reported by several previous works, but re-examination of the specimens from New Mexico failed to confirm its presence; to be looked for in the bootheel region.

- 7 Palea of lower floret 1/2 or less the length of the upper floret; first glume 1/2 to nearly the length of the spikelet

- 8 Upper floret ovoid to ellipsoid, not stipitate, lacking thickenings at the base, but with 2 small scars, the base with a cavity when mature and the palea usually bulging outward at the base ..... *P. hirticaule*  
Presl ●Rocky to sandy slopes, plains, and washes, mostly in the southwestern regions, common.

- 8 Upper floret obovoid at maturity, shortly stipitate, with 2 fleshy thickenings at the base, the base lacking a cavity and the palea not protruding but even with the lemma .*P. atatum*  
Zuloaga & Morrone ●Sandy to clayey disturbed ground, roadsides, swales, in the bootheel region.

- 1 Plants perennial

- 9 Terminal spikelet of each branch subtended by one or more bristles (vestigial branchlets)..... go to *Setaria*

- 9 Terminal spikelets not subtended by a bristle

- 10 First glume about as long as the second; primary panicle branches mostly unbranched; long stolons developed ..... go to *Hopia*

- 10 First glume shorter than the second; primary panicle branches often rebranched; stolons not developed

- 11 Spikelets 4-8 mm long

- 12 Spikelets 6-8 mm long ..... *P. havardii*  
Vasey ●Sandy plains and dunes on the eastern plains.

- 12 Spikelets 4-5(6) mm long

- 13 Panicles narrow, contracted ..... *P. amarum*  
Elliott ●Planted for erosion control near Zuni, Cibola County; native to the sandy beaches and plains of the Atlantic and Gulf coasts.

- 13 Panicles open, not contracted

- 14 Plants with stout scaly rhizomes; blades not curling ..... *P. virgatum*  
Linnaeus ●Moist plains, prairies, and meadows, roadsides, mostly in the eastern regions; also used in seed mixes for range restoration.
- 14 Plants tufted, lacking rhizomes; blades often curling ..... *P. hallii*  
Vasey ●Plains and rocky slopes, foothills, often on limestone, also clay swales and flats, up to about 7400 ft.
- 11 Spikelets less than 4 mm long
  - 15 Palea of the lower floret inflated, enlarged, obovate, forcing the spikelet to gape open ..... go to *Steinchisma*
  - 15 Palea of the lower floret not inflated as above, the spikelet closed (except open somewhat during anthesis)
    - 16 Stems hard and somewhat woody in age, becoming much-branched above; basal buds silky long-pubescent; spikelets 2.5-3 mm long..... *P. antidotale*  
Retzius ●Introduced for range restoration; native to India.
    - 16 Stems not hard and woody, or if so then not much-branched above; basal buds not silky long-pubescent
      - 17 Spikelets appressed and usually closely clustered on simple or nearly simple panicle branches or on short spur branches
        - 18 Lower floret staminate, producing anthers, which are usually visible; plant usually dark green, the blades rarely curling..... *P. coloratum*  
Linnaeus ●Introduced for irrigated pastures, escaping along roadsides; probably more common in the state than indicated by the collections; native to Africa.
        - 18 Lower floret neuter, anthers not produced; plants usually bluish green, the blades often curling..... *P. hallii*  
Vasey ●Plains and rocky slopes, foothills, often on limestone, also clay swales and flats, up to about 7400 ft.
      - 17 Spikelets not appressed on simple panicle branches, the pedicels and branches spreading and open
        - 19 Second glume and lower lemma 5-nerved; sheaths keeled; culms conspicuously swollen and bulb-like at the base in many (but not all) populations ..... go to *Zuloagaea*
        - 19 Second glume and lower lemma 7- to 11-nerved; sheaths not keeled; culms not swollen and bulb-like at the base, though they may be thickened in *Panicum virgatum*
          - 20 Plants with stout, scaly rhizomes; blades usually not curling ..... *P. virgatum*  
Linnaeus ●Moist plains, prairies, and meadows, roadsides, mostly in the eastern regions; also used in seed mixes for range restoration.
          - 20 Plants lacking rhizomes; blades often curling ..... *P. hallii*  
Vasey ●Plains and rocky slopes, foothills, often on limestone, also clay swales and flats, up to about 7400 ft.

**Pappophorum**

*P. vaginatum* Buckley ●Infrequent in the southern plains and foothills.

**Pappostipa**

*P. speciosa* (Trinius & Ruprecht) Romaschenko ●Desert canyons and rocky hills, known in New Mexico only from San Juan and Sandoval counties.

**Pascopyrum**

*P. smithii* (Rydberg) Barkworth & Dewey ●Widespread throughout the state on plains, swales, grassy hills and slopes, forming thick stands often with a bluish tint; expected in all counties.

**Paspalum**

- 1 Inflorescence branches 2 in number, attached less than 1 cm apart (1 or 2 additional branches occasionally present below)
  - 2 Second glume and lemma of lower floret pubescent (sometimes obscurely so); ditchbanks and sloughs ..... *P. distichum*  
Linnaeus ●Weedy along ditchbanks and ponds, slow-moving streams and sloughs; widespread, nearly throughout the state.
  - 2 Second glume and lemma of lower floret glabrous; in lawns and turf..... *P. vaginatum*  
Swartz ●Infrequently grown as a turf grass in southern communities; not known in the wild.
- 1 Inflorescences branches 1-numerous, when 2 in number then the branches more than 1 cm apart
  - 3 Spikelets 3-4 mm long, the margins conspicuously ciliate with soft hairs..... *P. dilatatum*  
Poiret ●Introduced as a pasture grass and persisting along roadsides and in old moist fields and waste places; expected in weedy sites in many counties.
  - 3 Spikelets 1.5-2.6 mm long, the margins glabrous or minutely pubescent..... *P. setaceum*  
Michaux ●Sandy plains and dunes, in scattered locales, but more frequent on the eastern plains.

**Pennisetum**

- 1 Panicles white to tawny, ovoid; longer bristles 3-5 cm long ..... *P. villosum*  
R. Brown ex Fresenius ●Cultivated as an ornamental landscape grass, but known as an escape from at least one site in Doña Ana County.
- 1 Panicles purplish or rosy, generally elongate; longer bristles 1-3 cm long
- 2 Blades generally reddish or purplish; plants cultivated ornamentals, not known in the wild ..... *P. advena*  
Wipff & Veldkamp ●Introduced as an ornamental landscape plant in the southern regions; native to the Old World; not yet known to escape to the wild.
- 2 Blades green; plants escaped to the wild, also known in cultivation
- 3 Blades convolute or folded, the midribs noticeably thickened; primary bristles 26-34 mm long; panicle rachis hairy proximally ..... *P. setaceum*  
(Forsskål) Chiovenda ●Introduced as an ornamental landscape plant in the southern regions; only recently known to escape to the wild in the southern desert regions.
- 3 Blades flat, the midribs not thickened; primary bristles 10-23 mm long; panicle rachis scabrous but not hairy ..... *P. ciliare*  
(Linnaeus) Link ●Adventive in a few places in the southern desert and foothill regions; native to Africa, Asia, India; widely introduced in semi-tropical regions for forage.

**Phalaris**

- 1 Plants perennial, with rhizomes ..... *P. arundinacea*  
Linnaeus ●Marshy ground, sloughs, wet meadows, widespread.
- 1 Plants annual, without rhizomes
- 2 Sterile floret (appearing as a scale) solitary, at the base and to one side of the large, fertile floret ..... *P. minor*  
Retzius ●Adventive weed escaping from agricultural fields in Doña Ana County where it has been grown for birdseed production, also Los Alamos County; native to the Mediterranean region and northwestern Asia.
- 2 Sterile florets (appearing as chaff or bristles) two, at the base and on both sides of the large, fertile floret
- 3 Glumes broadly winged, the wings obvious; sterile florets broad and chaffy, usually at least ½ as long as the fertile floret ..... *P. canariensis*  
Linnaeus ●Moist weedy ground near human habitation; widely used in birdseed mixes and found around bird feeders; native to southern Europe.
- 3 Glumes wingless or if slightly winged then the wings narrow and obscure; sterile florets needle-like, mostly less than ½ as long as the fertile floret
- 4 Sterile florets 1.5-2.5 mm long; grain 2-2.3 mm long; panicle ovate-lanceolate ..... *P. caroliniana*  
Walter ●Moist weedy ground.
- 4 Sterile florets 0.7-1.5 mm long; grain 1.4-1.6 mm long; panicle narrowly cylindrical ..... *P. angusta*  
Nees ex Trinius ●Known from a single old collection in Grant County (Mangas Spring), and probably no longer present in New Mexico; native to the Gulf Coast region and California.

**Phleum**

- 1 Panicles several times longer than wide, (3)4-16 cm long and 5-7.5(10) mm wide; awns of glumes 1-1.5 mm long ..... *P. pratense*  
Linnaeus ●Roadsides, fields, mountain meadows, introduced from Europe as a pasture grass.
- 1 Panicles only 2 or 3 times longer than wide, 1-5(6) cm long and (7)8-12 mm wide; awns of glumes (1.2)1.5-2.5 mm long ..... *P. alpinum*  
Linnaeus ●Subalpine meadows, moist grasslands, mossy rivulets and seeps, mostly in the northern mountains.

**Phragmites**

*P. australis* (Cavanilles) Trinius ex Steudel ●Forming dense thickets and fence-rows along streams, rivers, canals, and ditches and in wet ground of springs and seeps; expected in every county.

**Phyllostachys**

\**P. aurea* Carr ex A. & C. Rivière ●Introduced from Asia as an ornamental landscape plant, not common and not known in the wild; not known to flower in New Mexico.

**Piptatheropsis**

- 1 Florets 3-4 mm long, the lemma pubescent, the awn 1-2 mm long (when present) ..... *P. pungens*  
(Torrey) Romaschenko, Peterson, & Soreng ●Pine forests in the northern mountains, not common; as yet known only from Valles Caldera National Preserve in Sandoval County.
- 1 Florets 1.5-2.5 mm long, the lemma mostly glabrous (rarely pubescent), the awn 4-10 mm long (when present) ..... *P. micrantha*  
(Trinius & Ruprecht) Romaschenko, Peterson, & Soreng ●Moist, shaded, often rocky, ground in the mountains and foothills.

**Piptochaetium**

- 1 Glumes 3-4 mm long; awns 0.5-1 cm long (*P. micrantha*) ..... go to *Piptatheropsis*
- 1 Glumes 5-10 mm long; awns 1-3 cm long
- 2 Glumes about 5 mm long; blades rolled and thread-like, elongate and weeping ..... *P. fimbriatum*  
(Kunth) A.S. Hitchcock ●Shaded, moist sites in woodlands, widespread, commonly under piñon.
- 2 Glumes about 10 mm long; blades flat or loosely rolled, firm and somewhat erect ..... *P. pringlei*



(Beal) Parodi ●Pine and oak woodlands at medium elevations in the southern mountains.

## Poa

[Robert J. Soreng assisted with earlier versions of this key.]

- 1 Florets modified and forming small leafy plantlets; stems slightly to strongly bulb-like at the base .... *P. bulbosa*  
Linnaeus ●Moist hills and slopes in the mountains; native to Eurasia.
- 1 Florets not modified into small leafy plantlets; stems rarely somewhat bulb-like
  - 2 Anthers 1 mm long or less, nearly all of them well-developed; plants annual or perennial
    - 3 Callus without a tuft of long hairs (but the nerves of the lemma pubescent) ..... *P. annua*  
Linnaeus ●Lawns, flower beds, moist disturbed ground; native to Europe.
    - 3 Callus with a tuft of long, cobwebby hairs
      - 4 Panicles narrow, contracted; paleas pubescent on the keels; plants mostly annual or infrequently short-lived perennial ..... *P. bigelovii*  
Vasey & Scribner ●Rocky hills, arroyo bottoms, wooded slopes, widespread.
      - 4 Panicles open when mature; paleas glabrous or pubescent; plants perennial
        - 5 Sheath margins fused together  $\frac{1}{2}$  or less their length; first glume mostly 3-nerved ..... *P. palustris*  
Linnaeus ●Moist meadows, marshy ground, sloughs, at medium to high elevations; mostly in the northern regions.
        - 5 Sheath margins fused together  $\frac{1}{4}$  to  $\frac{3}{8}$  their length; first glume mostly 1-nerved
          - 6 Sheaths densely scabrous with downward pointing hairs, rarely glabrous; panicles (8)13-40 cm long, the internodes of the main axis mostly 4 cm or more long ..... *P. occidentalis*  
Vasey ●Forest clearings and moist woods, generally above 7,000 ft.
          - 6 Sheaths glabrous to sparsely scabrous with downward pointing hairs; panicle mostly less than 12 cm long, the internodes of the main axis shorter than 3.5 cm
            - 7 First glume linear-lanceolate, much narrower than the second; paleas glabrous to scabrous on the keels ..... *P. leptocoma*  
Trinius ●Alpine or subalpine springs, meadows, and boggy ground, generally above 8,000 ft, and often above 9,800 ft.
            - 7 First glume about the same shape and width as the second, both broadly lanceolate; paleas short-pubescent on the keels ..... *P. reflexa*  
Vasey & Scribner ex Vasey ●Alpine or subalpine meadows, ridges, and rocky ledges, in the northern mountains; infrequently collected.
  - 2 Anthers mostly longer than 1 mm, or vestigial and poorly developed; plants perennial
    - 8 Stems and nodes strongly flattened; plants strongly rhizomatous; sheath margins open to near the base
      - 9 Lemmas 5-6 mm long; spikelets unisexual, the plants dioecious with the sexes on separate plants; rare ..... *P. arachnifera*  
Torrey ●Known only from a single collection from the Bosque del Apache wildlife refuge (Socorro County), presumably brought in by wildfowl.
      - 9 Lemmas 2-3 mm long; spikelets bisexual, with both sexes in the same floret ..... *P. compressa*  
Linnaeus ●Forest clearings, disturbed meadows, roadsides; native to Europe, and not Canada.
    - 8 Stems and nodes round or nearly so; plants tufted or rhizomatous; sheath margins fused or open
      - 10 Callus of the floret with a tuft of cobwebby hairs, these short-kinky to long-sinuose, borne on the back surface of the lemma and distinct from any hairs on the lemma midnerve
        - 11 Plants dioecious, with unisexual spikelets and the sexes on separate plants; long, delicate rhizomes developed; panicles oblong, compact, the terminal branches densely-flowered from near the base; rare ..... *P. arachnifera*  
Torrey ●Known only from a single collection from the Bosque del Apache wildlife refuge (Socorro County), presumably brought in by wildfowl.
        - 11 Plants bisexual, or if female then the panicle more open and the branches sparsely flowered; rhizomes present or absent
          - 12 Sheath margins fused  $\frac{1}{2}$  their length or more; panicles mostly 13-29 cm long, the lower internodes of the main axis mostly longer than 3.5 cm; anthers averaging 2.2 mm long ..... *P. tracyi*  
Vasey ●Rich humus and moist loam of forests and woodlands in the mountains.
          - 12 Sheath margins fused  $\frac{1}{2}$  their length or less; panicles mostly less than 13 cm long (longer in *Poa palustris*), the internodes of the main axis rarely longer than 3.5 cm; anthers mostly less than 1.9 mm long
            - 13 Plants with strong rhizomes; sheath margins fused together  $\frac{1}{4}$  to  $\frac{1}{2}$  their length; panicle branches glabrous to moderately scabrous, round
              - 14 Glumes distinctly keeled, scabrous on the nerves, the second glume plainly shorter than the first lemma; panicles often with 4 or more branches at the lowermost node (some occasionally vestigial); ligules mostly 1-2 mm long ..... *P. pratensis*  
Linnaeus ●Common throughout the state in a wide variety of habitats, generally in the mountains, also disturbed ground along ditches and streams, lawns, moist open fields and meadows; very widespread and expected in all the counties.

- 14 Glumes weakly keeled, nearly glabrous, the second glume subequal to or longer than the first lemma; panicles usually with fewer than 4 branches at the lowermost node; ligules 2-4 mm long..... *P. arctica*  
R. Brown ●Forests and subalpine and alpine meadows in the northern mountains, usually in deep, rich soil.
- 13 Plants tufted, lacking rhizomes (in wet habitats occasionally producing decumbent stems that root at the nodes); sheath margins fused together  $\frac{1}{4}$  or less their length (to  $\frac{1}{2}$  in *P. trivialis*); panicle branches distinctly scabrous, mostly angled
- 15 Ligules 3-10 mm long; lemmas sparsely pubescent on the keel near the base and mostly glabrous on the marginal nerves and between the nerves; first glume very narrow, sickle-shaped, 1-nerved..... *P. trivialis*  
Linnaeus ●Known from shaded, moist sites in the south-central mountains, but expected in other disturbed mountain areas; native to Europe.
- 15 Ligules mostly less than 4 mm long; lemmas pubescent on the keel and marginal nerves and often between the nerves; first glume narrow to broad, not sickle-shaped, 1- to 3-nerved
- 16 Panicles mostly 10-30 cm long, abundantly rebranched; stems often decumbent and rooting at the nodes, stout and leafy well above the middle, 25-120 cm tall..... *P. palustris*  
Linnaeus ●Moist meadows, marshy ground, sloughs, at medium to high elevations; mostly in the northern regions.
- 16 Panicles mostly less than 12 cm long, sparingly rebranched if at all; stems never decumbent and rooting at the nodes, leafy or not, mostly less than 50 cm tall
- 17 Lemmas glabrous between the nerves; leaves green..... *P. interior*  
Rydberg ●Alpine and subalpine ledges, meadows, and forest clearings in the northern mountains.
- 17 Lemmas mostly pubescent between the nerves; leaves glaucous.. *P. glauca*
- 10 Callus not with cobwebby hairs as above, glabrous or with hairs similar to and continuous with those of the lemma keel, or in *P. secunda* with short, straight hairs around the top of the callus and not restricted to the back side of the lemma
- 18 Plants unisexual, all the spikelets of a plant either male or female
- 19 Plants rhizomatous; uppermost stem blade well-developed; rare in New Mexico. *P. wheeleri*  
Vasey ●Subalpine mountain slopes in rich soils in the northern mountains; known from only a few collections.
- 19 Plants mostly tufted; uppermost stem blade very reduced; common in New Mexico .....  
..... *P. fendleriana*  
(Stuedel) Vasey ●Woodlands, rocky hills, mountain slopes; very widespread.
- 18 Plants bisexual, the spikelets with both anthers and pistil in a single floret
- 20 Lemmas glabrous to scabrous; sheath margins not fused together..... *P. secunda*  
Presl ●Forest clearings, sagebrush plains, meadows, disturbed ground.
- 20 Lemmas prominently pubescent or puberulent; sheath margins fused together or not
- 21 Plants rhizomatous
- 22 Sheath margins fused together  $\frac{1}{2}$  to  $\frac{1}{2}$  their length; glumes weakly keeled; plants subalpine to alpine (subsp. *grayana*)..... *P. arctica*  
R. Brown ●Forests and subalpine and alpine meadows in the northern mountains, usually in deep, rich soil.
- 22 Sheath margins overlapping most of their length, fused  $\frac{1}{2}$  or less; glumes strongly keeled; plants of plains and valleys..... *P. arida*  
Vasey ●Prairies and floodplains, east of the Rio Grande and eastern slopes of the Rocky Mountains.
- 21 Plants tufted, not rhizomatous
- 23 Stem bases enclosed in persistent, thickened, closely overlapping sheaths; panicle branches widely spreading at maturity; spikelets ovate to subcordate; blades 2-4 mm wide..... *P. alpina*  
Linnaeus ●Alpine to subalpine slopes, meadows, talus, and moist ledges.
- 23 Stem bases not enclosed in persistent sheaths as above; panicle branches not widely spreading; spikelets ovate to more elongate, not at all cordate at the base; blades usually less than 2 mm wide
- 24 Lemmas keeled on the back, the pubescence on the nerves longer and more dense than between the nerves; ligules 1-3 mm long (subsp. *rupicola*).....  
..... *P. glauca*  
Vahl ●Alpine and subalpine ridges, grassy slopes, meadows, and mossy ledges in the mountains.

- 24 Lemmas rounded on the back, minutely pubescent all across the base, the hairs on nerves and between nerves similar; ligules 2-7 mm long.....*P. secunda* Presl ●Forest clearings, sagebrush plains, meadows, disturbed ground.

**Podagrostis**

*P. humilis* (Vasey) Bjorkman ●Reported for the state (Cronquist et al. 1977), but specimens are as yet unknown; if present, to be found in high elevation meadows and forest clearings in the northern mountains.

**Pogonarthria**

*P. falcata* (Hackel ex Shinz) Rendle was grown in experimental plots on the NMSU College Ranch in Doña Ana County in the 1940s, and some herbarium specimens exist; no plants remain in the wild.

**Polypogon**

- 1 Glumes awnless .....*P. viridis* (Gouan) Breistroffer ●Wet ground of springs, seeps, ponds, ditch banks, and the like, widespread, expected in all the counties; native to Europe.
- 1 Glumes awned
- 2 Awns 1-3(5) mm long; glumes acute and entire to minutely cleft at the tip .....*P. interruptus* Kunth ●Wet ground, ditches, seeps, and springs; rarely collected; native to South America.
- 2 Awns 4-12 mm long; glumes obtuse to shallowly lobed at the tip
- 3 Glumes deeply lobed, the lobes 1/6 to 1/3 the length of the glume body and evident.....*P. maritimus* Willdenow ●Disturbed wet places; known in New Mexico from a single collection in Eddy County; native to Europe.
- 3 Glumes not lobed or only very slightly so .....*P. monspeliensis* (Linnaeus) Desfontaines ●Ditch banks, seeps, wet disturbed ground, throughout the state; native to Europe.

**Psathyrostachys**

\**P. juncea* (Fischer) Nevski ●Introduced from northern Asia for range restoration and erosion control, scattered localities.

**Pseudoeriacoma**

*P. eminenis* (Cavanilles) Romaschenko ●Rocky foothills, upland plains, and bajadas across the southern region.

**Ptilagrostis**

*P. porteri* (Rydberg) W.A. Weber ●Mossy hummocks at very high elevations in the northern mountains; very uncommon.

**Puccinellia**

- 1 Plants annual, 3-10(15) cm tall .....*P. parishii* A.S. Hitchcock ●Alkali flats and seeps, in numerous scattered localities in the western half of the state.
- 1 Plants perennial (sometimes short-lived), 15 cm or more tall
- 2 Lemmas with conspicuous nerves; plants with creeping rhizomes; blades mostly flat, 4-15 mm wide; freshwater habitats (*T. pauciflora*)..... go to *Torreyochloa*
- 2 Lemmas with obscure or indistinct nerves; plants tufted, lacking rhizomes; blades rolled, or if flat then 1-3(4) mm wide; usually alkaline or saline habitats
- 3 Plants with yellow-green herbage and erect culms; lower panicle branches erect to divergent at maturity; lemmas 2-3.5 mm long; anthers 0.6-2 mm long .....*P. nuttalliana* (Schultes) A.S. Hitchcock ●Alkali flats and floodplains.
- 3 Plants with blue-green herbage and often geniculate-based culms; lower panicle branches divergent to reflexed at maturity; lemmas 1.5-2.2 mm long; anthers 0.4-0.8 mm long.....*P. distans* (Jacquin) Parlatore ●Alkali flats and floodplains; native to Eurasia.

**Redfieldia**

*R. flexuosa* (Thurber) Vasey ●Deep sand hills and dunes, blowout areas; rare.

**Schedonorus**

- 1 Auricles lacking cilia (10x or greater); two panicle branches borne at the lowermost node, together rarely bearing more than 6 spikelets; old sheaths brown, decaying to fibers; blades 3-6(7) mm wide.....*S. pratensis* (Hudson) P. Beauvois ●Introduced from Europe for lawns, improved pastures, and revegetation, widespread in scattered locales, but seemingly less common than tall fescue.
- 1 Auricles with minute cilia (10x or greater); two or three panicle branches borne at the lowermost node, together usually bearing 5-18(30) spikelets; old sheaths pale straw-colored, often remaining intact; blades 3-12 mm wide.....*S. arundinaceus* (Schreber) Dumortier ●Introduced from Europe for lawns, improved pastures, and revegetation, widespread.

**Schismus**

\**S. barbatus* (Loefling ex Linnaeus) Thellung ●Adventive in dry waste places, fields, roadsides, mostly in the southern desert region, but in scattered locales elsewhere; native to Africa and Asia.

**Schizachne**

*S. purpurascens* (Torrey) Swallen ●Moist woods, pine forests, streambanks, and meadows.

**Schizachyrium**

- 1 First glume of the sessile spikelet pubescent on the back .....*S. sanguineum*

(Retzius) Alston ●Woodlands and rocky hills in the southwestern mountains and foothills.

- 1 First glume of the sessile spikelet glabrous on the back, but this sometimes obscured by subtending hairs
- 2 Pedicelled spikelets about the same size as the sessile; internodes and pedicels nearly glabrous or short-ciliate with very short hairs to 1 mm that do not at all obscure the spikelets..... *S. cirratum* (Hackel) Wooton & Standley ●Woodlands and rocky hills in the southwest quarter of the state.
- 2 Pedicelled spikelets much shorter and narrower than the sessile; internodes and pedicels densely ciliate with hairs 1.5-6 mm long that often obscure the spikelets..... *S. scoparium* (Michaux) Nash ●Hills, plains, woodlands, rocky slopes, throughout the state.

**Sclerochloa**

\**S. dura* (Linnaeus) Beauvois ●Adventive in lawns, golf course, athletic fields, and other moist waste places, uncommon in scattered localities, and expected in more counties; native to Eurasia.

**Scleropogon**

*S. brevifolius* Philippi ●Grassy plains and clay flats, widespread.

**Secale**

\**Scereale* Linnaeus ●Introduced as a cultivated crop plant, and also widely used for erosion control along roadsides, occasionally escaping around fields, but not persisting long; native to Eurasia; expected in any of the counties.

**Setaria**

- 1 A single bristle usually present at the base of only the terminal spikelet of each branch ..... *S. reverchonii* (Vasey) Pilger ●Dry plains and scrublands in the southeastern region, uncommon.
- 1 Bristles present below all or nearly all the spikelets
  - 2 Bristles with downward-pointing barbs, thus the seedheads readily clinging to clothing and to each other
  - 3 Margins of the upper sheaths thin and translucent, glabrous, often with a slight auricle at the summit; blades stiff-pubescent on both surfaces..... *S. adhaerens* (Forsskål) Chiovenda ●Weedy sites, roadsides, lawns, widespread; native to tropical regions throughout the world.
  - 3 Margins of the upper sheaths not thin and translucent, pubescent, lacking an auricle at the summit; blades scabrous or stiff-pubescent on the upper surface only..... *S. verticillata* (Linnaeus) Beauvois ●Weedy ground, known only from a few old collections in Doña Ana County, perhaps no long present in the state; native to Europe.
- 2 Bristles with upward-pointing barbs, the seedheads not readily clinging
  - 4 Margins of the sheaths glabrous; bristles 4-13 below each spikelet; second glume ½ to ⅔ the length of the adjacent upper lemma
    - 5 Plants perennial from hard, knotty, nearly rhizomatous bases, the stems arising singly or in small tufts; spikelets 2-2.8 mm long ..... *S. parviflora* (Poiret) Kerguelen ●Open moist habitats in the foothills of the southern and central mountains, not common.
    - 5 Plants annual, the stems in large or small tufts; spikelets 2.8-3.4 mm long ..... *S. pumila* (Poiret) Roemer & Schultes ●Weedy ground along roads, fields, in lawns, widespread; native to Europe.
  - 4 Margins of the sheaths pubescent (rarely glabrous in *S. leucopila*); bristles 1-3 below each spikelet; second glume 3/4 to equaling the length of the adjacent upper lemma
  - 6 Plants annual, though often coarse and robust
    - 7 Panicles contracted, but relatively loose and often lobed or interrupted below, the main axis visible ..... *S. grisebachii* Fournier ●Canyon bottoms, rocky hills, and stream banks.
    - 7 Panicles dense, cylindrical and spike-like, lobed and interrupted in *S. italica*, otherwise the main axis obscured
      - 8 Terminal panicles 18 cm or more long, as much as 40 cm long; shoots 1.2-3 m tall..... *S. magna* Grisebach ●Marshy ground at the Bitter Lake Refuge in Chaves County, presumably introduced by water fowl, and moist roadsides in Curry and Quay counties; native to eastern and Gulf coasts of the United States.
      - 8 Terminal panicles 3-15 cm long; shoots mostly 0.2-0.7 m tall
        - 9 Panicles lobed; disarticulation above the glumes, the upper floret falling away from the spikelet ..... *S. italica* (Linnaeus) Beauvois ●Introduced as a cultivated crop in many parts of the world, also present in birdseed mixes, escaping but rarely persisting for long; native to Asia.
        - 9 Panicles not lobed, cylindrical; disarticulation below the glumes..... *S. viridis* (Linnaeus) Beauvois ●Common weed in disturbed ground, throughout the state; native to Europe.
    - 6 Plants perennial
      - 10 Palea of the lower floret nearly as long as the adjacent upper palea; spikelets mostly 2-2.3 mm long, appearing globose; blades, at least some, 7-15 mm wide ..... *S. macrostachya* Kunth ●Rocky hills of the southern mountains in the bootheel region and Guadalupe Mountains

of Eddy County; uncommon.

- 10 Palea of the lower floret  $\frac{1}{2}$  to  $\frac{3}{4}$  as long as the adjacent upper; spikelets 2.2-3 mm long, elliptic; blades typically 2-5(7) mm wide..... *S. leucopila* (Scribner & Merrill) K. Schumann ●Plains, rocky hills and slopes, widespread.

### Sorghastrum

- S. nutans* (Linnaeus) Nash ●Grasslands, open woods, prairies, and moist rocky hillsides, often included in reseeding mixes, widespread.

### Sorghum

- 1 Plants perennial, with strong rhizomes; rame segments breaking apart easily..... *S. halepense* (Linnaeus) Persoon ●An aggressive weed of fields, ditches, and moist waste places, widespread; expected in more counties than shown; native to the Mediterranean region.
- 1 Plants annual, lacking rhizomes; rame segments persistent or breaking apart tardily and inconsistently..... *S. bicolor* (Linnaeus) Moench ●Grown as a cultivated crop, infrequently escaping along fields but not persisting long; its distribution in New Mexico (as a crop) is much more than shown on the map; native to Africa and Asia.

### Spartina

- 1 Plants slender, the shoots 2-4 mm thick; most blades less than 5 mm wide; upper (longer) glume only slightly longer than the floret, 6-10 mm long, acute to attenuate but not awned..... *S. gracilis* Trinius ●Marshes and wet prairies, known only from San Miguel County and last found in 1945.
- 1 Plants robust, the shoots 3-11 mm thick; most blades more than 5 mm wide; upper (longer) glumes nearly twice as long as the floret, 10-25 mm long, including the awn..... *S. pectinata* Bosc ex Link ●Marshes and wet prairies on the eastern plains, uncommon.

### Sphenopholis

- 1 Plants annual; spikelets short-awned..... *S. interrupta* ●Dry, rocky, desert hills, mostly in the southern counties.
- 1 Plants perennial; spikelets awnless
- 2 Second glume rounded to broadly obovate, somewhat hood-shaped,  $\frac{1}{3}$  to  $\frac{1}{2}$  as wide as long; panicles dense, spike-like..... *S. obtusata* (Michaux) Scribner ●Moist or wet ground along streams, springs, canals, and ditches, low to medium elevations; widespread.
- 2 Second glume blunt to acute, oblanceolate, not hood-shaped  $\frac{1}{6}$  to  $\frac{1}{3}$  as wide as long; panicles loose, somewhat open..... *S. intermedia* (Rydberg) Rydberg ●Moist ground in the forests, shaded ground along streams; known from a few northern counties.

### Sporobolus

- 1 Plants annual
- 2 Sheaths prominently inflated; blades widely spreading to reflexed; inflorescence dense and head-like or spike-like, the base often included in the sheath (*Crypsis*)
- 3 Inflorescence at maturity 5-6 times longer than broad, spike-like, exerted beyond the sheath; spikelets often black-tinged..... *S. alopecuroides* (Piller & Mitterpacher) P.M. Peterson ●Shore lines of ponds and lakes; presently known from only a few counties; native to Europe, Africa, Asia.
- 3 Inflorescence at maturity 3-4 times longer than broad, head-like, often remaining partially within the sheath; spikelets pale to purple-tinged..... *S. schoenoides* (Linnaeus) P.M. Peterson ●Wet ground along ponds and marshes; presently known from only a few western counties; native to Europe, Africa, Asia, India.
- 2 Sheaths, blades, and panicles not all as above
- 4 Spikelets all less than 2 mm long; glumes very unequal; panicles narrow when in flower and open at maturity, the lower branches whorled..... *S. pyramidatus* (Lamarck) A.S. Hitchcock ●Sandy plains, clay flats, disturbed ground, widespread.
- 4 Spikelets, at least some, more than 2 mm long; glumes equal or nearly so; panicles narrow, the lower branches often included in the subtending sheath
- 5 Florets glabrous..... *S. neglectus* Nash ●Sandy fields, floodplains, stream banks, disturbed ground, scattered localities but not common; common in central and northeastern United States.
- 5 Florets pubescent..... *S. vaginiflorus* (Torrey ex Gray) Wood ●Sandy and disturbed ground, uncommon, known from a few old collections in Bernalillo and Doña Ana counties, and one fairly recent (1999) collection from Roosevelt County; native to central and northeastern United States, and considered adventive in New Mexico.
- 1 Plants perennial
- 6 Lemma with a prominent tuft of hairs at the base
- 7 Lemma and palea long-pubescent along the back above the callus hairs..... *S. arenicola* P.M. Peterson ●Sandy hills and dunes in the eastern plains; a not uncommon and valuable sand-binder.

- 7 Lemma and palea glabrous above the callus hairs ..... *S. rigidus*  
(Buckley) P.M. Peterson ●Sandy hills and dunes in the eastern plains; known from only a few collections, but common in the central plains northward.
- 6 Lemmas lacking a tuft of hairs at the base
  - 8 Lateral pedicels 5-25 mm long..... *S. texanus*  
Vasey ●Low wet plains and swales, uncommon.
  - 8 Lateral pedicels 4 mm or less long
  - 9 Spikelets 1-2(2.9) mm long
    - 10 Panicles dense and spike-like, the branches appressed
      - 11 Stems robust, 1-2 m tall, 3-8 mm thick at the base; anthers 0.6-1 mm long ..... *S. giganteus*
      - 11 Stems more slender, mostly less than 1 m tall, 1.5-3.5 mm thick at the base; anthers 0.3-0.5 mm long..... *S. contractus*  
A.S. Hitchcock ●Sandy hills and plains, widespread and expected in all the counties.
    - 10 Panicles open, the branches spreading at least from the middle and at the tip, the lower portion often enclosed in the subtending sheath
      - 12 Base of the plant knotty, nearly rhizomatous; blades stiff, spreading at right angles; stems mostly less than 30 cm tall..... *S. nealleyi*  
Vasey ●Sandy, alkaline, and mostly gypsiferous plains and flats.
      - 12 Base of plant loosely tufted, not knotty; blades erect or ascending; stems often taller than 30 cm (except *S. pyramidalis*)
        - 13 Primary panicle branches with sticky glandular streaks or patches; lowermost branches in definite whorls; stems 10-60 cm tall ..... *S. pyramidalis*  
(Lamarck) A.S. Hitchcock ●Sandy plains, clay flats, disturbed ground, widespread.
        - 13 Primary panicle branches lacking any sticky glandular patches; lowermost branches whorled or not, often in the sheath; stems often 40-120 cm or more tall
          - 14 Sheaths with many long hairs at the summit; plants more slender, the shoots easily pulled from the ground, the basal sheaths not shiny, often darkened, the roots thin
            - 15 Mature panicle branches and pedicels divaricate and flexuous, usually tangled with other branches or other panicles; branch pulvini pubescent; spikelets loosely arranged on the branches ..... *S. flexuosus*  
(Thurber ex Vasey) Rydberg ●Sandy plains and mesas, widespread.
            - 15 Mature panicle branches erect to spreading but not flexuous nor tangled; branch pulvini glabrous; spikelets crowded on the branches ..... *S. cryptandrus*  
(Torrey) A. Gray ●Sandy or gravelly plains, mesas, roadsides, waste places, throughout the state.
          - 14 Sheaths glabrous or with only a few long hairs at the summit; plants robust, the shoots difficult to pull from the ground, the basal sheaths shiny and cream-colored, the roots thick
            - 16 Panicles 10-45 cm long; branchlets naked below, the pedicels 0.5-2 mm long, often spreading..... *S. airoides*  
(Torrey) Torrey ●Sandy, gravelly, clayey plains, flats, mesas, playas, floodplains, throughout the state.
            - 16 Panicles 20-60 cm long; branchlets densely flowered to the base, the pedicels less than 0.5 mm long, appressed to the branchlets ..... *S. wrightii*  
Munro ex Scribner ●Swales, playas, ditches, often in hard-packed alkaline soil, widespread.
  - 9 Spikelets, at least some, 3 mm or more long
    - 17 Second glume shorter than the lemma, the floret extending beyond the glume ..... *S. compositus*  
(Poirot) Merrill ●Plains and grasslands, sometimes roadsides, in scattered localities.
    - 17 Second glume equal to or longer than the lemma, the floret not extending beyond the glume, but often surpassed by it
      - 18 Panicles usually spike-like; spikelets 2.5-3.5 mm long; grain not globe-shaped; blades as much as 10 mm wide ..... *S. giganteus*  
Nash ●Sandy hills and plains, widespread, expected in every county.
      - 18 Panicles usually loose, the branches spreading; spikelets 4-6 mm long; grain globe-shaped; blades 1-2 mm wide..... *S. heterolepis*  
(A. Gray) A. Gray ●Grasslands and woodlands in the northeastern region; currently known from only a few collections in Colfax County.

**Steinchisma**

\**S. hians* (Elliott) Nash ●Collected once in Las Cruces in 1895, undoubtedly an accidental introduction and not persisting; native to southeastern United States to Argentina.

**Stenotaphrum**

\**S. secundatum* (Walter) Kuntze ●Cultivated as a coarse-textured lawn grass for shaded areas in the southern counties, not known in the wild; native to southeastern United States and southward.

**Stipa**

- 1 Palea hardened, longitudinally grooved and slightly longer than the lemma, protruding from between the lemma margins as a small point; lemma margins involute, fitting into the grooves of the palea.....go to *Piptochaetium*
- 1 Palea usually membranous, not grooved, shorter than or equaling the lemma, not protruding as a small point; lemma margins flat
- 2 Lemma margins strongly overlapping; palea less than 1/3 the length of the lemma, glabrous, lacking veins .....go to *Nassella*
- 2 Lemma margins not or only slightly overlapping; palea 1/3 to equaling the length of the lemma, always pubescent when short, sometimes glabrous when longer, 2-veined
- 3 Awns 6-20 cm long or more; glumes longer than 1.8 cm
- d Membranous ligules of lower leaves densely hairy, with hairs 0.3-1 mm long..... go to *Pappostipa*
- d Membranous ligules of lower leaves glabrous or at most minutely ciliate..... go to *Hesperostipa*
- 3 Awns 0.5-7.5 cm long, if longer than 6 cm then the glumes 1-1.5 cm long
- 4 Palea pubescent, the apex flat, the veins terminating below the apex; lemma coriaceous at maturity but not strongly indurate
- 5 Glumes without evident nerves, the apices rounded to acute; plants alpine, growing on mossy hummocks in wet ground..... go to *Ptilagrostis*
- 5 Glumes with 1-5 evident nerves and/or the apices attenuate; plants growing in various habitats, but rarely as above
- 6 Plants with neither woody nor bamboo-like culms 3-6 mm thick, with mostly 2-3 nodes ..... *Eriocoma*
- 6 Plants with ± woody, bamboo-like culms 3-6 mm thick below, with 3-13 nodes *Pseudoeriacoma*
- 4 Palea glabrous or pubescent, the apex appearing prow-tipped or pinched, the veins extending to the apex; lemma indurate at maturity
- 7 Florets dorsally compressed; lemma margins not overlapping, the palea exposed, at least in part ..... go to *Piptatheropsis*
- 7 Florets terete; lemma margins slightly overlapping, the palea hidden ..... go to *Oryzopsis*

**Torreyochloa**

*T. pallida* (Torrey) Church ●Wet ground of high-mountain streams and fresh-water ponds, where it is eagerly grazed by elk.

**Trachypogon**

*T. spicatus* (Linnaeus f.) Kuntze ●Rocky hills and slopes in the mountains of the bootheel region.

**Tragus**

- 1 Second glume 5-nerved, with 5 longitudinal rows of hooked projections; branch (bur) mostly with 2 spikelets.... go to *T. berteronianus*
- Schultes ●Disturbed ground in desert plains, mesas, and bajadas.
- 1 Second glume 7-nerved, with 6-7 longitudinal rows of hooked projections; branch (bur) mostly with 3-5 spikelets.....*T. racemosus* (Linnaeus) Allioni ●Not yet known from New Mexico, but to be looked for in arid plains and foothills of the southwestern counties; it occurs in adjacent Arizona.

**Trichachne**

*T. californica* (Benth) Chase ●Rocky plains, foothills, and bajadas, mostly in the southern half of the state.

**Tridens**

- 1 Panicles open, loose, the branches spreading to drooping
- 2 Lemmas 2-3 mm long, only the midnerve projecting as a short point (*T. eragrostoides*)..... go to *Triplasiella*
- 2 Lemmas 3-5 mm long, the midnerve and lateral nerves projecting as short points ..... *T. flavus* (Linnaeus) A.S. Hitchcock ●Prairies and grassy hills; known from a single collection near Clines Corners in Torrance County and perhaps not persisting; native to central and eastern United States.
- 1 Panicles narrow, contracted, the branches erect
- 3 Nerves of the lemma glabrous or pubescent only at the base.....*T. albescens* (Vasey) Wootton & Standley ●Low swales and ditch banks in the plains, deserts, and prairies.
- 3 Nerves of the lemma plainly pubescent (*T. muticus*).....go to *Tridentopsis*

**Tridentopsis**

*T. mutica* (Torrey) P.M. Peterson ●Dry flat, hills, outcrops, often on limestone, widespread, more common in the southern regions.

**Tripidium**

\**T. ravennae* (Linnaeus) H. Scholz ●Increasingly cultivated as an ornamental landscape plant, and found more and more as an escape in scattered locales; native to northern Africa and the Mediterranean region.

**Triplasiella**

\**T. eragrostoides* (Vasey & Scribner) P.M. Peterson & Romaschenko ●Desert plains and bajadas in brushy country; known from a single collection in Luna County; native to Texas south into Mexico and Cuba.

**Triplasis**

*T. purpurea* (Walter) Chapman ●Sandy flats and plains, disturbed ground, in the southeastern region; rarely collected.

**Tripsacum**

*T. lanceolatum* Ruprecht ex Fournier ●Reported by W&S, and thence others, but the specimen in question (*E.C. Merton 2015*, US) was collected in the vicinity of Monument No. 73 on 27 Aug 1893, either in Arizona or Sonora, but certainly not in New Mexico (see Mearns [1907] for itinerary and dates). No other specimens or reports are known.

**Trisetum**

- 1 Lemmas awnless or with short awns less than 2 mm long, scarcely visible (*G. wolfii*) ..... go to *Graphephorum*
- 1 Lemmas with awns longer than 3 mm, easily visible
  - 2 Plants annual; spikelets eventually disarticulating below the glumes and falling as a unit (*S. interrupta*)..... go to *Sphenopholis*
  - 2 Plants perennial; spikelets disarticulating above the glumes and between the florets..... go to *Koeleria*

×**Triticosecale**

\*×*Triticosecale* Wittman ex A. Camus ●A rather common, though non-persistent, waif of agriculture, more frequent than collections indicate.

**Triticum**

\**T. aestivum* Linnaeus ●Cultivated crop in most regions of the state, and found sporadically along roadsides and old fields, not persisting.

**Urochloa**

- 1 Spikelets with conspicuous and dense villous hairs (easily visible without magnification) on the second glume and lemma of lower floret; plants perennial with short rhizomes ..... *U. ciliatissima* (Buckley) R.D. Webster ●Sandy plains and desert grasslands; uncommon in the southeastern region.
- 1 Spikelets glabrous or with short, inconspicuous hairs (hardly visible without magnification); plants annual, lacking rhizomes
  - 2 Leaf margins noticeably crinkled; lemma of upper floret with a stiff bristle projecting from an otherwise blunt apex..... *U. panicoides* Beauvois ●Weedy ground along sidewalks, in flower beds, waste ground; native to Africa.
  - 2 Leaf margins not crinkled, smooth; lemma of the upper floret without a bristle, the apex rounded to acute
    - 3 Spikelets 5-6 mm long; plants often 50 cm or more tall..... *U. texana* (Buckley) R.D. Webster ●Disturbed weedy ground; uncommon in the southern region; known only from Doña Ana County.
    - 3 Spikelets 2-4 mm long; plants rarely taller than 50 cm and usually much shorter (in ours)
      - 4 Spikelets glabrous or nearly so, mostly 2-3 mm long, the base ± truncate; upper lemma with deep transverse furrows..... *U. fusca* (Swartz) Hansen & Wunderlin ●Disturbed ground of the southwestern region.
      - 4 Spikelets definitely puberulent, mostly 3-4 mm long, the base drawn out somewhat and attenuate; upper lemma with minute bumps but lacking obvious transverse furrows..... *U. arizonica* (Scribner & Merrill) Morrone & Zuloaga ●Disturbed ground and rocky slopes in the deserts and woodlands of the southwestern region.

**Vulpia**

- 1 First glume less than ½ the length of the second glume, often nearly absent ..... *V. myuros* (Linnaeus) K.C. Gmelin ●Dry, disturbed ground, mostly in the southern regions.
- 1 First glume more than ½ the length of the second glume
  - 2 Panicle branches 1-2 per node; spikelets with 4-17 florets; rachilla internodes 0.5-0.7 mm long; awn of the lowermost lemma 0.3-9 mm long; caryopses 1.7-3.7 mm long..... *V. octoflora* (Walter) Rydberg ●Dry, disturbed ground, roadsides, rocky slopes and plains, widespread.
  - 2 Panicle branches solitary; spikelets with 1-8 florets; rachilla internodes 0.6-1.2 mm long; awn of the lowermost lemma 2-20 mm long; caryopses 3.5-6.5 mm long
    - 3 Panicle branches and pedicels erect at maturity, without swellings in the axils..... *V. bromoides* (Linnaeus) S.F. Gray ●Dry, disturbed ground; native to Europe.
    - 3 Panicle branches or pedicels spreading or reflexed at maturity, at least below, with swellings usually present in the axils..... *V. microstachya* (Nuttall) Munro ex Bentham ●Dry, disturbed ground in the southern regions.

**Zea**

\**Z. mays* Linnaeus ●Cultivated throughout the state, rarely found along old fields or roadsides but not persisting; grown in every county; the map indicating adventive plants.

**Zoysia**

- 1 Pedicels 1.6-3.5 mm long; spikelets ovate, 1-1.4 mm wide; culm internodes 2-10 mm long; blades ascending..... *Z. japonica* Steudel ●Occasionally planted as a lawn grass; not known outside of cultivation.
- 1 Pedicels 0.6-1.6 mm long; spikelets lanceolate, 0.6-1 mm wide; culm internodes 5-40 mm long; blades spreading ..... *Z. matrella* Merrill ●Occasionally planted as a lawn grass; not known outside of cultivation.

**Zuloagaia**

*Z. bulbosa* (Kunth) Bess ●Canyon bottoms and moist slopes in the mountains and foothills.



## PONTEDERIACEAE PICKEREL-WEED FAMILY

**Heteranthera**

- 1 Petiolate leaf blade round to oblong, the base cordate to truncate; vegetative stems commonly elongating unless plant is emergent from early age ..... *H. rotundifolia*  
(Kunth) Grisebach ●Shallow water and muddy ground of ponds, ditches, and ephemeral pools.
- 1 Petiolate leaf blade oblong to ovate, the base truncate to cuneate; vegetative stems short, elongating only on plants in over 5 cm of water ..... *H. limosa*  
(Swartz) Willdenow ●Shallow water of ponds and ditches; scattered locales.

## POTAMOGETONACEAE PONDWEED FAMILY

- 1 Leaves mostly opposite; flowers unisexual and borne in sessile cymose submersed clusters ..... *Zannichellia*
- 1 Leaves mostly alternate; flowers bisexual and borne on pedunculate emergent spikes
- 2 Submersed leaves linear, mostly more than 10 times as long as wide
- 3 Stipules free from the leaf or united less than ½ the length of the stipule (less than 4 mm), the petioles or blades directly attached at the nodes or close to them ..... *Potamogeton*
- 3 Stipules united with the base of the leaf more than ½ the length of the stipule (7 mm or more), the petioles or blades not directly attached at the nodes but diverging from the distal portion of the stipules
- 4 Plants with long-petioled floating leaves and sessile linear submersed leaves; if floating leaves absent then the fruiting spikes of submersed parts capitate and sessile or nearly so (*Potamogeton diversifolius*) ..... *Potamogeton*
- 4 Plants with submersed leaves only; fruiting spikes slender ..... *Stuckenia*

**Potamogeton**

- 1 Submersed leaves linear, mostly more than 10 times as long as wide
- 2 Stipules united with the base of the leaf for a distance of 7 mm or more, the petioles or blades not directly attached at the nodes but diverging from the distal portion of the stipules ..... *P. diversifolius*  
Rafinesque ●Known from a few scattered localities in the state.
- 2 Stipules free from the leaf or united for a distance of less than 6 mm, the petioles or blades directly attached at the nodes or close to them
- 3 Floating leaves absent
- 4 Dorsal keel of fruits prominent, thin, winged, undulate or toothed ..... *P. foliosus*  
Rafinesque ●Widespread. ●Our plants belong to subsp. *foliosus*.
- 4 Dorsal keel of fruits rounded or acute but never thin and winged ..... *P. pusillus*  
Linnaeus ●Mostly northern counties.
- 3 Floating leaves usually present, with broad blades and long petioles
- 5 Submersed leaves linear, usually bladeless and filiform, 10-30 cm long, 0.8-2 mm wide; blade (when present) linear-lanceolate and on a very long petiole; base of floating leaves subcordate ..... *P. natans*  
Linnaeus ●Northern and western mountain regions.
- 5 Submersed leaves linear to linear-obovate, often very unequal in size, usually tapering to tip and base, 3-12 cm long, 1-15 mm wide; base of floating leaves acute to rounded ..... *P. gramineus*  
Linnaeus ●Across the northern tier of counties.
- 1 Submersed leaves lanceolate to ovate or spatulate, mostly less than 10 times as long as wide
- 6 Leaves both submersed and floating, the floating leaves with broad blades and long petioles ..... *P. nodosus*  
Poiret ●Widespread in mountain regions.
- 6 Leaves all (or nearly all) submersed and essentially alike; petioles short or absent
- 7 Submersed leaves clasping the stem ..... *P. richardsonii*  
(Bennett) Rydberg ●Lakes, streams, and ponds in the northern mountains.
- 7 Submersed leaves petiolate or sessile but not clasping
- 8 Leaf margins conspicuously serrate; stem flattened ..... *P. crispus*  
Linnaeus ●Widespread in scattered sites, though not commonly collected; native to . This is the only species with serrate leaves in North America.
- 8 Leaf margins entire or slightly serrate only at the tip; stem terete
- 9 Floating leaves with 9-13 veins, mostly 10-25 mm wide (sometimes wider) ..... *P. alpinus*  
Balbis ●Northern mountains.
- 9 Floating leaves with 13-29 veins, 20-65 mm wide ..... *P. illinoensis*  
Morong ●Known from only a few collections from Colfax and Eddy counties.

**Stuckenia**

- 1 Leaf apices acute to apiculate (rarely rounded); proximal stipular sheaths not inflated; stems abundantly branched on the distal portion
- 2 Leaves 1-3 mm or more wide, the apices apiculate or cuspidate ..... *S. striata*  
(Ruiz & Pavon) Holub ●Known from only a few collections in Eddy and San Juan counties.
- 2 Leaves 0.2-1 mm wide, the apices acute to mucronate or apiculate ..... *S. pectinata*  
(Linnaeus) Boerner ●Widespread throughout the state, but nowhere very common (perhaps because of collecting deficiency?).
- 1 Leaf apices notched, obtuse, to rounded (rarely apiculate); proximal stipular sheaths often inflated; stems

sparingly branched on the distal portion

- 3 Distal stipules with distinct ligules 2-10 mm long; summit of mid-stem stipules tight around stem and about the same width as the stems..... *S. filiformia*  
(Persoon) Boerner ●Known from an early collection from a stock tank in Doña Ana County, and a few scattered localities in the northern and western mountains..
- 3 Distal stipules absent or to 2 mm long; summit of mid-stem stipules inflated at least 2 times the width of the stems..... *S. vaginata*  
(Turczaninow) Holub ●Known only from high mountain ponds in the Chuska Mountains.

**Zannichellia**

*Z. palustris* Linnaeus ●Streams, lakes, ponds, and sloughs; widespread, nearly throughout the state, and expected in most unrecorded counties.

**RUPPIACEAE DITCH-GRASS FAMILY**

**Ruppia**

*R. spiralis* Linnaeus ex Dumortier ●Lakes, rivers, and ponds with high concentrations of sulphur or calcium; widespread, but apparently less common in mountains.

**RUSCACEAE BUTCHER'S BROOM FAMILY**

- 1 Leaves in a basal rosette; plants shrubby
  - 2 Leaf margins with curved prickles; inflorescence on a long stalk raised high above the leaves; capsules 1-locular, 1-seeded..... *Dasyliirion*
  - 2 Leaf margins entire or serrulate; inflorescence on a short or long stalk; capsules 3-locular, 3-seeded... *Nolina*
- 1 Leaves alternate on stems; plants herbaceous
  - 3 Flowers borne in the axils of the leaves on long, hanging peduncles ..... *Polygonatum*
  - 3 Flowers borne in terminal clusters, not hanging or drooping..... *Maianthemum*

**Dasyliirion** [Key adapted from Bogler 2002]

- 1 Leaves bright green, not waxy or glaucous, smooth and shiny; marginal prickles pointed mostly toward the base, some otherwise..... *D. leiophyllum*  
Engelmann ex Trelease ●Gravelly slopes, bajadas, and canyons in the southeastern plains and foothills.
- 1 Leaves whitish or bluish green, waxy-glaucous, papillose and dull; marginal prickles pointed toward the apex ..... *D. wheeleri*  
S. Watson ex Rothrock ●Rocky slopes, bajadas, and canyons from the central to the southern desert plains and foothills.

**Maianthemum**

- 1 Lowermost pedicels 1-2 mm long; tepals 1-2 mm long; berry 4-5 mm in diameter..... *M. racemosum*  
(Linnaeus) Link ●Shaded woodlands and forests; widespread in the mountains. ♦Our plants belong to subsp. *amplexicaule* (Nuttall) LaFrankie.
- 1 Lowermost pedicels 4-5 mm long or more; tepals mostly 5-7 mm long; berry 8-9 mm in diameter. *M. stellatum*  
(Linnaeus) Link ●Riparian areas, meadows, shaded forest slopes; widespread in mountain areas.

**Nolina**

- 1 Bracts of the inflorescence deciduous, rarely persistent; inflorescence much exceeding the leaves ..... *N. microcarpa*  
S. Watson ●Rocky hillsides, desert grasslands and woodlands; mostly southern, but a few populations north and east.
- 1 Bracts of the inflorescence persistent; inflorescence not or only partly exceeding the leaves
  - 2 Inflorescence conspicuously tinged purple, diffuse, the main rachis and divisions slender and flexible; fruiting pedicels jointed near the middle, not noticeably dilated..... *N. micrantha*  
I.M. Johnston ●Southern grasslands and plains, limestone or sandy hills.
  - 2 Inflorescence not purplish, or only rarely so, dense, the main rachis and divisions thick and rigid; fruiting pedicels jointed near the base, noticeably dilated ..... *N. texana*  
S. Watson ●Rocky hillsides, open woodlands, and plains; scattered, through much of the state.

**Polygonatum**

*P. biflorum* (Walter) Elliott ●Infrequent in mountain forests and moist canyons.

**THEMIDACEAE BRODIAEA FAMILY**

- 1 Tepals free at the base, not forming a perianth tube ..... *Muilla*
- 1 Tepals united at least basally and forming a perianth tube
  - 2 Flowers single on the scape, white, with a very long floral tube..... *Milla*
  - 2 Flowers borne in clusters of at least 3-4, variously colored, the floral tube not much longer than the lobes
    - 3 Flowers bluish to purplish; plants 30-60 cm tall; capsules 4-6 mm long..... *Dipterostrom*
    - 3 Flowers whitish to greenish with purple veins; plants 10-30 cm tall; capsules 10-15 mm long..... *Androstephium*

**Androstephium**

*A. breviflorum* S. Watson ●Dry, rocky to sandy, deserty ground in the Four Corners region.

**Dipterostemon**

*D. capitatus* (Bentham) Rydberg •Arid regions in the southwestern plains and foothills. ♦Our plants belong to subsp. *pauciflorus* (Torrey) R.E. Preston.

**Milla**

*M. biflora* Cavanilles •Dry volcanic hillsides and ridges in the bootheel.

**Muilla**

*M. coronata* Greene •Loose sandy ground of the Chihuahuan Desert, among *Prosopis* coppice dunes; known from a single population in Luna County; otherwise Mojave Desert of southern California and Nevada.

**TYPHACEAE CATTAIL FAMILY**

- 1 Flowers in dense globose heads usually separated by naked internode segments ..... *Sparganium*
- 1 Flowers in dense continuous spikes, the distal staminate portion contiguous or separated from the proximal pistillate portion ..... *Typha*

**Sparganium**

- 1 Leaves and inflorescences usually floating
  - 2 Staminate heads single; pistillate heads 8-12 mm diam ..... *S. natans*  
 Linnaeus •Quiet waters of ponds, ditches, and wetlands; known in New Mexico from only a few collections in the Chuska Mountains.
  - 2 Staminate heads usually more than 1; pistillate heads 10-40 mm diam
    - 3 Leaves mostly 5-18 mm wide; staminate heads not contiguous; fruit beaks 2-5 mm long; leaves keeled toward the base..... *S. emersum*  
 Rehmman •Quiet eutrophic waters, mountains and foothills.
    - 3 Leaves mostly 2-5 mm wide; staminate heads nearly contiguous, often appearing as a single elongate head; fruit beaks 1-2 mm long; leaves keeled..... *S. angustifolium*  
 Michaux •Shallow oligotrophic waters of ponds, streams, and ditches, mostly in the northern mountains.
- 1 Leaves and inflorescences emergent, stiff and out of the water
  - 4 Inflorescences unbranched; stigmas 1 in all of the pistillate flowers; fruits fusiform and tapering at the apices, tightly constricted below the equator ..... *S. emersum*  
 Rehmman •Quiet eutrophic waters, mountains and foothills.
  - 4 Inflorescences usually branched; stigmas 2 in most or all of the pistillate flowers; fruits obpyramidal and truncate to rounded at the apices, not constricted..... *S. eurycarpum*  
 Engelmann ex Gray •Quiet waters of ponds and marshes; known from only a few collection sites from Otero and Santa Fe counties.

**Typha**

- 1 Staminate and pistillate portions of the inflorescence contiguous; leaves flat on the back ..... *T. latifolia*  
 Linnaeus •Widespread in wet ground.
- 1 Staminate and pistillate portions of the inflorescence separated by a naked interval; leaves commonly convex on the back
  - 2 Mucilage glands absent from the upper (adaxial) surface of the blade and generally from the central part of the sheath near the summit; summit of sheath with membranous auricles (disintegrating late in season) ..... *T. angustifolia*  
 Linnaeus •Widespread in wet ground, perhaps more common in the eastern half of the state.
  - 2 Mucilage glands present on the upper (adaxial) surface of the sheath and adjacent 1-10 cm of the blade; summit of sheath tapering to the blade and generally without auricles (but sometimes with auricles) ..... *T. domingensis*  
 Persoon •Widespread in wet ground.



## ANGIOSPERMS: DICOTYLEDONOUS PLANTS

[True dicots (eudicots) and other non-monocots]

## Key to Groups and Families

- 1 Plants parasitic or epiphytic on stems, branches, or roots of other plants, generally without chlorophyll and not green, or if green then clearly growing on and attached to a host plant
  - 2 Plants tiny, no more than 5 mm tall or wide, the vegetative parts embedded within the host plant with only small reddish-brown flowers and a few scale-like leaves evident on the surface of the host; parasitic on *Dalea* ..... APODANTHACEAE
  - 2 Plants larger and not as above
    - 3 Stems vine-like, not stiffly erect but elongate and twining over the host plant (*Cuscuta*) ..... CONVOLVULACEAE
    - 3 Stems not at all vine-like, mostly stiffly erect or woody, never twining
      - 4 Plants stem parasites or epiphytes, growing on the aerial portions of a host plant, not growing in the soil; mistletoes ..... VISACEAE
      - 4 Plants root parasites, growing in the soil and attached to the roots or decaying matter of a host plant
        - 5 Flowers actinomorphic (Monotropoideae) ..... ERICACEAE
        - 5 Flowers zygomorphic ..... OROBANCHACEAE
  - 1 Plants not obviously parasitic on other plants, but producing chlorophyll and greenish in color
    - 6 Plants vine-like, usually climbing or twining on other plants, often with tendrils or suckers ..... GROUP A
    - 6 Plants not vine-like, but other plants of various habits
      - 7 Plants well-developed trees or shrubs, woody throughout or nearly so ..... GROUP B
      - 7 Plants herbaceous (though some may be bush-like), if woody then only at the base and most of the plant herbaceous
        - 8 Sunflower Family: plants sunflower- or dandelion-like; flowers individually small but clustered on a common receptacle into dense heads and subtended by modified leaves (phyllaries) that often resemble sepals, the head sometimes resembling a single large flower; true sepals modified into a pappus of bristles, awns, or scales (or absent) arising at the tip of each individual ovary or achene; petals united into a tube (disk flower) or a strap (ray flower); ovaries inferior; leaves without stipules ..... ASTERACEAE
    - 8 Combination of features other than above
      - 9 Plants with whitish milky juice or orange-yellow sap ..... GROUP C
      - 9 Plants with clear juice or sap
        - 10 Perianth absent or consisting of a single whorl (appearing to be sepals or petals but not both) ..... GROUP D
        - 10 Perianth consisting of two whorls, both sepals and petals present
          - 11 Pistils two or more in each flower ..... GROUP E
          - 11 Pistils one in each flower
            - 12 Petals united at least at the base, forming a ring or tube and falling as a unit
              - 13 Ovary inferior or at least mostly so ..... GROUP F
              - 13 Ovary superior ..... GROUP G
            - 12 Petals free at the base and falling singly
              - 14 Ovary inferior or at least mostly so ..... GROUP H
              - 14 Ovary superior
                - 15 Stamens more than twice as many as the petals ..... GROUP I
                - 15 Stamens twice as many as the petals or fewer ..... GROUP J

**GROUP A: Plants Vine-like**

- 1 Leaves simple, sometimes lobed but not divided into leaflets
  - 2 Tendrils present
    - 3 Plants woody, the stems persisting through the winter ..... VITACEAE
    - 3 Plants herbaceous, the stems dying back each winter ..... CUCURBITACEAE
  - 2 Tendrils absent
    - 4 Leaves opposite, at least the lower ones
      - 5 Stems and foliage with milky-white juice; blades entire, linear to cordate to sagittate APOCYNACEAE
      - 5 Stems and foliage without milky-white juice; blades entire to lobed
        - 6 Leaves palmately veined and lobed (*Humulus*) ..... CANNABACEAE
        - 6 Leaves pinnately veined, entire to lobed
          - 7 Older stems gray to whitish, not exfoliating (*Commicarpus scandens*) ..... NYCTAGINACEAE
          - 7 Older stems reddish to brownish, exfoliating in long strips (*Lonicera*) ..... CAPRIFOLIACEAE
    - 4 Leaves alternate
      - 8 Leaf bases forming a definite sheath around the stems; plants annual ..... POLYGONACEAE
      - 8 Leaf bases not sheathing the stems; plants annual or perennial
        - 9 Leaves evergreen, thick, somewhat leathery, those of the flowering stems entire and lance-elliptic,

Dicotyledonous Plants - Keys

those of the climbing stems 5-lobed; flowers small and inconspicuous, in umbel-like clusters  
(*Hedera*).....ARALIACEAE

- 9 Leaves deciduous, not as above; flower quite showy
10 Flowers funnel-shaped; sepals and petals 5 in number, the corolla pleated.....CONVOLVULACEAE
10 Flowers shaped like an old-fashioned Dutch pipe; sepals 3, petals lacking (*Aristolochia*).....ARISTOLOCHIACEAE

- 1 Leaves compound, separated into leaflets
11 Leaves opposite (*Clematis*).....RANUNCULACEAE
11 Leaves alternate
12 Leaflets entire; stipules present; flowers papilionaceous, with a banner, wings, and keel (sweet pea type).....FABACEAE
12 Leaflets toothed or lobed, or sometimes entire; stipules absent; flowers various, but not as above
13 Leaves with 5-7 leaflets; tendrils produced opposite the leaves.....VITACEAE
13 Leaves with 3 leaflets; tendrils absent (though aerial rootlets sometimes produced); poison ivy (*Toxicodendron*).....ANACARDIACEAE

GROUP B: Woody Dicotyledonous Plants - Trees and Shrubs

- 1 Leaves tiny scales less than 3 mm long, nearly covering the twigs, which fall entire with the leaves attached (*Tamarix*).....TAMARICACEAE
1 Leaves larger and other than above
2 Leaves, buds, and young twigs covered by rusty colored, peltate scales (*Shepherdia*).....ELAEAGNACEAE
2 Leaves, buds, and young twigs otherwise, sometimes with rusty hairs, but lacking rusty peltate scales
3 Shrubs or half-shrubs; flowers individually small but clustered on a common receptacle into dense heads and subtended by modified leaves (phyllaries) that often resemble sepals, the head sometimes resembling a single large flower; remains of the head, at least the phyllaries, often present long after the flowers are withered and gone; sepals represented by a modified pappus borne at the top of the achene, this of bristles, awns, scales, or absent; individual flowers of two general types, strap-shaped ray flowers and tube-shaped disk flowers; leaves without stipules; sunflower family.....ASTERACEAE
3 Shrubs, woody vines, or trees; flowers other than above
4 Plants vines or vine-like.....go to GROUP A (above)
4 Plants not vine-like
5 Leaf arrangement opposite or whorled
6 Leaves compound, separated into leaflets.....GROUP B-1
6 Leaves simple, may be divided or lobed but not separated into leaflets.....GROUP B-2
5 Leaf arrangement alternate
7 Leaves absent most of the year; stems greenish, rigidly branching, ending in pernicious thorns (*Koerberlinia*).....KOEBERLINIACEAE
7 Leaves and/or stems not as above
8 Leaves compound, separated into leaflets.....GROUP B-3
8 Leaves simple, may be divided or lobed, but not separated into leaflets
9 Leaves entire, not toothed, notched, or lobed.....GROUP B-4
9 Leaves toothed, notched, or lobed, not entire.....GROUP B-5

GROUP B-1: Woody plants; leaves opposite or whorled, compound.

- 1 Leaflets 2, somewhat halfmoon-shaped, less than 1 cm long, leathery, evergreen, resinous (*Larrea*).....ZYGOPHYLLACEAE
1 Leaflets 3 or more, longer and not as above
2 Leaflets mostly 3; fruit a double samara, with a seed at one end of each wing (*Acer*).....SAPINDACEAE
2 Leaflets 5-7; fruit a single samara, capsule, or berry
3 Branchlets reed-like with a large hollow pith area; flowers small in showy terminal umbel-like cymes; fruit 1-seeded, berry-like; buds glabrous (*Sambucus*).....VIBURNACEAE
3 Branchlets woody with a small pith area; flowers single or paniculate; buds puberulent
4 Plants climbing or clambering vines, clinging by aerial rootlets (*Campsis*).....BIGNONIACEAE
4 Plants trees and shrubs, not vine-like and lacking aerial rootlets
5 Leaflets bright green on both sides, sharply serrate to incised; flowers 4-6 cm long, the corolla tubular, bright yellow; fruit a capsule with numerous comose seeds (*Tecoma*)...BIGNONIACEAE
5 Leaflets dull green, at least on one side, serrulate to serrate; flowers less than 3 cm long, the petals lacking or with 4 narrow corolla lobes and light yellow; fruit a single disc-shaped samara with a single seed in the center (*Fraxinus*).....OLEACEAE

GROUP B-2: Woody plants; leaves opposite or whorled, simple

- 1 Leaves palmately lobed (*Acer*).....SAPINDACEAE
1 Leaves not palmately lobed
2 Leaves mostly longer than 10 cm
3 Leaves long-petioled, the petioles 1/2 or more the length of the blades (*Catalpa*).....BIGNONIACEAE
3 Leaves nearly sessile to short-petioled, the petioles 1/3 or less the length of the blades

- 4 Leaves both opposite and whorled on the same plant (*Cephalanthus*) ..... RUBIACEAE
- 4 Leaves all opposite
- 5 Leaves linear to narrowly lanceolate; deserts (*Chilopsis*) ..... BIGNONIACEAE
- 5 Leaves broadly lanceolate to elliptic; mountains (*Lonicera*) ..... CAPRIFOLIACEAE
- 2 Leaves mostly less than 10 cm long
- 6 Leaf margins toothed or lobed
- 7 Leaves more than 5 cm long, including the petiole
- 8 Leaves glabrous, the blades only slightly toothed or crenate to entire, ovate to nearly orbicular (*Fraxinus anomala*) ..... OLEACEAE
- 8 Leaves markedly pubescent (sometimes glabrate in age), definitely toothed, lanceolate to ovate
- 9 Fruit a capsule; older bark reddish brown, exfoliating; leaf bases commonly wedge-shaped and entire on the proximal ¼ (*Jamesia*) ..... HYDRANGEACEAE
- 9 Fruit a berry; older bark grayish, not exfoliating; leaf bases commonly rounded and toothed nearly to the petiole (*Viburnum*) ..... VIBURNACEAE
- 7 Leaves less than 5 cm long
- 10 Leaves 2- or 3-toothed at the tip only, entire below, less than 1 cm long (*Apacheria*) ..... CROSSOSOMATAACEAE
- 10 Leaves toothed along the margin and/or more than 1 cm long
- 11 Leaves clustered on short lateral shoots, gray-green (*Forestiera*) ..... OLEACEAE
- 11 Leaves mostly single, not clustered
- 12 Twigs and foliage with rusty-colored tomentose hairs (*Buddleja*) ..... SCROPHULARIACEAE
- 12 Twigs and foliage glabrous or variously pubescent, but without rusty-colored tomentose hairs
- 13 Low compact mountain shrubs less than 60 cm tall; bark ± smooth; leaves thick, somewhat leathery, dark green (*Paxistima*) ..... CELASTRACEAE
- 13 Taller shrubs 1-2 m tall, bushy, bark exfoliating; leaves thin, green or gray
- 14 Leaves grayish or greenish gray; fruit a pair of small nutlets ... VERBENACEAE
- 14 Leaves green; fruit a berry or drupe-like
- 15 Flower tube and lobes shorter than 1 cm (*Lantana*) ..... VERBENACEAE
- 15 Flower tube and lobes longer than 1 cm (*Lonicera*) ..... CAPRIFOLIACEAE
- 6 Leaf margins entire
- 16 Leaves markedly leathery and stiff
- 17 Leaf veins easily noticeable, in a netted pattern; leaf apex with a stiff point or cusp; leaves glabrous, relatively thinner; plants monoecious, the flowers in drooping catkins ..... GARRYACEAE
- 17 Leaf veins scarcely noticeable; leaf apex rounded, not apiculate; leaves glabrous to minutely canescent, relatively thicker; plants dioecious, the flowers solitary (female) or in axillary clusters (male) ..... SIMMONDSIACEAE
- 16 Leaves not leathery and stiff
- 18 Petiole ¼ to equaling the length of the blade; fruit a winged samara (*Fraxinus anomala*) ..... OLEACEAE
- 18 Petiole less than ½ the length of the blade; fruit berry-, capsule-, or nut-like
- 19 Foliage and young twigs covered with a dense covering of wooly or velvety white hairs
- 20 Leaves ovate (*Tidestromia*) ..... AMARANTHACEAE
- 20 Leaves linear (*Poliomintha*) ..... LAMIACEAE
- 19 Foliage and young twigs lacking such a covering, pubescent to glabrous
- 21 Leaves (including the petiole) usually longer than 5 cm
- 22 Leaves both opposite and whorled on the same plant (*Cephalanthus*) ..... RUBIACEAE
- 22 Leaves all opposite
- 23 Fruit white, berry-like, numerous in rounded cymes; bark reddish, shiny, not exfoliating ..... CORNACEAE
- 23 Fruit a reddish berry, few in axillary clusters; bark gray to brown, often exfoliating in long strips (*Lonicera*) ..... CAPRIFOLIACEAE
- 21 Leaves (including the petiole) usually shorter than 5 cm
- 24 Older bark shredding, exfoliating in long strips
- 25 Fruit a berry; sepals and petals 5 ..... CAPRIFOLIACEAE
- 25 Fruit a capsule; sepals or at least the petals 4 in number
- 26 Petals whitish or pinkish, not united ..... HYDRANGEACEAE
- 26 Petals orange-red, yellowish, or bluish, united into a trumpet-shaped tube (*Anisacanthus*) ..... ACANTHACEAE
- 24 Older bark not shredding, not exfoliating in long strips
- 27 Leaf blades less than 1 cm long and less than 3 mm wide

- 28 Blades 1 mm wide or less, the margins inrolled (*Frankenia*)..... FRANKENIACEAE
- 28 Blades 1-4 mm wide, the margins flat
  - 29 Twigs glabrous or nearly so; some blades usually toothed at the tip (*Apacheria*)..... CROSSOSOMATACEAE
  - 29 Twigs finely puberulent; all blades entire, not toothed at the tip (*Menodora*)..... OLEACEAE
- 27 Leaf blades longer than 1 cm and/or wider than 3 mm
  - 30 Blades almost as wide as long, the bases almost truncate (*Salvia pinguifolia*)..... LAMIACEAE
  - 30 Blades definitely longer than wide, the bases at least acute
    - 31 Flowers bluish, bilabiate; fruit of nutlets hidden within the persistent calyx (*Salvia lycioides*)..... LAMIACEAE
    - 31 Flowers yellowish, orangish, whitish, radiate; fruit otherwise
      - 32 Twigs grayish to whitish; leaves elliptic to ovate (*Ceanothus*)..... RHAMNACEAE
      - 32 Twigs reddish; leaves linear to lanceolate..... MALPIGHIACEAE

**GROUP B-3: Plants woody; leaves compound, separated into leaflets**

- 1 Leaves twice compound
  - 2 Leaflets toothed; large trees..... MELIACEAE
  - 2 Leaflets entire; small trees and shrubs (large trees in *Gleditsia*)
    - 3 Flowers small and inconspicuous, actinomorphic, arranged in dense heads or clusters; stamens 5 or numerous, the filaments exerted beyond the corollas and often showy..... FABACEAE
    - 3 Flowers usually large and conspicuous, zygomorphic (at least somewhat), variously arranged; stamens 10 or fewer, the filaments not particularly evident or showy..... FABACEAE
- 1 Leaves once compound
  - 4 Prickles present on the stems and/or petioles..... ROSACEAE
  - 4 Prickles absent
    - 5 Leaves palmately compound, or with only 3 leaflets, or with leaflets clustered and appearing palmately arranged
      - 6 Leaflets 5-7 in number (*Dasiphora*)..... ROSACEAE
      - 6 Leaflets 3 in number
        - 7 Plants tree-like; leaflets entire or finely serrate; fruit a winged samara (*Ptelea*)..... RUTACEAE
        - 7 Plants shrubby; leaflets coarsely toothed or spiny to lobed; fruit berry-like
          - 8 Leaflets strongly spinose..... BERBERIDACEAE
          - 8 Leaflets toothed to lobed, but lacking any hint of spines..... ANACARDIACEAE
    - 5 Leaves pinnately compound and with more than 3 leaflets
      - 9 Plants armed with spines or thorns or leaves with prominent spiny teeth
        - 10 Leaflet margins spinose dentate; leaves evergreen..... BERBERIDACEAE
        - 10 Leaflet margins entire; leaves deciduous..... FABACEAE
      - 9 Plants not armed with spines or thorns and leaves not spiny-toothed
        - 11 Leaves less than 5 cm long
          - 12 Leaves with punctate glandular dots (*Dalea*)..... FABACEAE
          - 12 Leaves lacking punctate glandular dots
            - 13 Rachis winged between the leaflets; flowers less than 1 cm across (*Rhus*)..... ANACARDIACEAE
            - 13 Rachis not winged between the leaflets; flowers 3-4 cm across..... FABACEAE
    - 11 Leaves more than 5 cm long
      - 14 Plants shrubby
        - 15 Leaflets entire, bristle-tipped at the apex (*Amorpha*)..... FABACEAE
        - 15 Leaflets entire or toothed, not bristle-tipped at the apex
          - 16 Young twigs glabrous or nearly so; fruit a woody capsule splitting into 3 parts; leaflets coarsely serrate (*Ungnadia*)..... SAPINDACEAE
          - 16 Young twigs densely pubescent; fruit a berry or a legume splitting into 2 parts; leaflets serrate to entire
            - 17 Fruit a drupe; apex of leaflets acute; leaves deciduous..... ANACARDIACEAE
            - 17 Fruit a legume; apex of leaflets rounded to emarginate; leaves evergreen
              - 18 Flowers bright yellow (sometimes with dark markings); pods bladderly-inflated; leaflets 9-13 in number, 1-2 cm long (*Colutea*)..... FABACEAE
              - 18 Flowers bluish-purple (sometimes whitish); pods woody, not bladderly-inflated; leaflets 7-11 in number, 2-5 cm long (*Dermatophyllum*)..... FABACEAE



20 Leaves 30-60 cm long; fruit a twisted samara..... SIMAROUBACEAE

20 Leaves 12-30 cm long; fruit a waxy yellowish berry (*Sapindus*) .....SAPINDACEAE

19 Leaflets definitely toothed

21 Fruit a walnut; leaflets longer than 5 cm .....JUGLANDACEAE

21 Fruit a small reddish, berry-like pome; leaflets shorter than 5 cm (*Sorbus*)

..... ROSACEAE

**GROUP B-4: Plants woody; leaves simple, may be divided or lobed, but not separated into leaflets, entire, not toothed, notched, or lobed**

1 Plants armed with spines or thorns

2 Shrubs with several spiny, wand-like branches arising from the base to 2-4 m tall; spines formed by the hardening of the petiole and mid-vein of only the primary stem leaves, the axillary leaves in dense clusters and spine-less; flowers red, in showy clusters at the branch tips; ocotillo ..... FOUQUIERACEAE

2 Plants other than above

3 Leaves, at least most of them, with 3 main veins at the base of the blade

4 Thorns terminal at the ends of the branchlets, not paired; branches usually not prominently zig-zag ..... RHAMNACEAE

4 Thorns and spines usually paired and subtending the branchlets; branches often prominently zig-zag (*Celtis*) ..... CANNABACEAE

3 Leaves with only 1 main vein, or the veins obscure

5 Foliage and young stems covered with dense silvery scales; older stems reddish (*Elaeagnus*)..... ELAEAGNACEAE

5 Foliage and stems not both as above

6 Plants usually trees; fruit a globose aggregation of drupes about the size of a softball or larger (*Maclura*)..... MORACEAE

6 Plants usually shrubs or shrub-like; fruits otherwise

7 Leaves densely pubescent or covered with scurfy scales

8 Leaves and young twigs with scurfy scales; flowers inconspicuous, without petals (*Atriplex*) .. AMARANTHACEAE

8 Leaves and young twigs pubescent; flowers prominent

9 Leaves no more than 3 mm wide; plants usually less than 0.5 m tall; flowers with reddish-purplish petals..... KRAMERIACEAE

9 Leaves no less than 10 mm wide; plants usually 2-5 m tall; flowers with white petals ..... SAPOTACEAE

7 Leaves glabrous or nearly so

10 Young twigs bright green; leaves less than 1.3 cm long (*Glossopetalon*) ..... CROSSOSOMATAACEAE

10 Young twigs not bright green, or if so, then the leaves longer than 1.3 cm

11 Leaves sessile, filiform to linear, succulent, dark green; twigs whitish to tan and usually branching at right angles..... SARCOBATAACEAE

11 Leaves not as above; twigs various

12 Mature fruit a reddish berry with several seeds; leaves with decurrent lines at the nodes; flowers conspicuous with the petals united into a trumpet-shaped tube (*Lycium*)..... SOLANACEAE

12 Mature fruit a blackish or reddish drupe with a single seed; leaves lacking decurrent lines at the nodes; flowers small and inconspicuous, the petals separate or absent..... RHAMNACEAE

1 Plants lacking spines or thorns

13 Plants trees, or with tree-like growth

14 Foliage and young stems covered with dense silvery scales; older stems reddish (*Elaeagnus*)..... ELAEAGNACEAE

14 Foliage and young stems other than above

15 Leaves palmately veined, cordate to orbicular (*Cercis*) .....FABACEAE

15 Leaves pinnately veined, lanceolate to ovate

16 Bark pinkish to brown, peeling off in large papery sheets (*Arbutus*) .....ERICACEAE

16 Bark not as above

17 Leaves glaucous, with petioles about as long as the blades (*Nicotiana*)....SOLANACEAE

17 Leaves greenish, not glaucous, with petioles much shorter than the blades

18 Petioles with small glands at the base of the blade; flowers perigynous, the sepals, petals, and stamens borne on the edge of a disk or rim (*Prunus*) ..... ROSACEAE

18 Petioles lacking glands; flowers not perigynous

19 Leaves ovate to ovate-lanceolate, 1.5-4 cm wide, stiff and scabrous (*Celtis*) ..... CANNABACEAE

19 Leaves linear to narrowly lanceolate, less than 2 cm wide, supple and not scabrous (*Chilopsis*)..... BIGNONIACEAE

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13 Plants shrubs

- 20 Stems with conspicuous glandular dots; leaves early deciduous (*Psoralea*)..... FABACEAE
- 20 Stems not glandular dotted
  - 21 Leaves, including the petioles, usually longer than 8 cm
    - 22 Leaves ovate, more than 2 cm wide (*Nicotiana*)..... SOLANACEAE
    - 22 Leaves linear to lanceolate, less than 2 cm wide
      - 23 Leaves glabrous or nearly so below; flowers bilabiate, 5-merous (*Chilopsis*) ..... BIGNONIACEAE
      - 23 Leaves densely white-tomentose below; flowers actinomorphic, 4-merous (*Buddleja*)..... SCROPHULARIACEAE
  - 21 Leaves, including the petioles, usually shorter than 8 cm
    - 24 Leaves pubescent, often densely so
      - 25 Plants low and mat-forming, the stems mostly prostrate; leaves 0.5-3 cm long and 1-4 mm wide; flowers elevated in a dense raceme (*Petrophytum*)..... ROSACEAE
      - 25 Plants, leaves, and/or flowers not as above
        - 26 Leaf margins revolute; young stems and foliage lanate, with a dense covering of woolly hairs (*Krascheninnikovia*) ..... AMARANTHACEAE
        - 26 Leaf margins not revolute; young stems and foliage densely pilose-sericeous, stellate-tomentose or scurfy pubescent
          - 27 Leaves scurfy-pubescent; fruit a single seeded, winged utricle; flowers inconspicuous, lacking petals (*Atriplex*)..... AMARANTHACEAE
          - 27 Leaves densely pilose-sericeous or stellate-tomentose; fruit a nutlet or a capsule with 3-several seeds, lacking wings; flowers conspicuous or not
            - 28 Young stems silky pubescent and whitish, older stems glabrous and shiny red; branching conspicuously dichotomous (*Eriogonum*) ..... POLYGONACEAE
        - 28 Stems not as above
          - 29 Leaves narrowly elliptic or spatulate, 2-4 cm long and 4-10 mm wide, the pubescence obscure (*Peraphyllum*)..... ROSACEAE
          - 29 Leaves usually broadly lanceolate to ovate, the pubescence obvious
            - 30 Flowers lacking petals; leaves pale greenish on one side and yellowish tomentose on the other; lateral veins of the blades obvious (*Croton*)..... EUPHORBACEAE
            - 30 Flowers with conspicuous petals; leaves silvery gray on both sides; lateral veins of the blades obscure or absent
              - 31 Large shrubs 100 cm or more tall; calyx lobes not plumose-hairy (*Buddleja*, *Leucophyllum*)..... SCROPHULARIACEAE
              - 31 Small shrubs to 40 cm tall; calyx lobes densely plumose-hairy ..... EHRETIACEAE
      - 24 Leaves glabrous or scabrous
        - 32 Margins of leaves strongly revolute
          - 33 Leaves warty-scabrous, 4-8 mm wide (*Mortonia*)..... CELASTRACEAE
          - 33 Leaves smooth and glabrous, 1-2 mm wide (*Cercocarpus*)..... ROSACEAE
        - 32 Margins of leaves not revolute
          - 34 Leaves less than 1 cm long, crowded on the stem, the surfaces warty-scabrous; margins revolute (*Mortonia*)..... CELASTRACEAE
          - 34 Leaves more than 1 cm long, usually well-spaced, the surfaces glabrous; margins not revolute
            - 35 Leaves ovate to obovate, flat, leathery (*Arctostaphylos*)..... ERICACEAE
            - 35 Leaves linear, terete or nearly so ..... SARCOBATAACEAE

**GROUP B-5: Plants woody; leaves toothed, notched, or lobed, not entire**

- 1 Leaves lobed to divided
  - 2 Plants trees or with tree-like growth
    - 3 Leaves usually longer than 15 cm; margins entire or nearly so; fruits in globose clusters hanging from an elongate peduncle; bark whitish, smooth, peeling off in brown plates ..... PLATANACEAE
    - 3 Leaves usually shorter than 15 cm; margins entire or toothed; fruits and bark otherwise
      - 4 Leaves with ± palmate lobing; sap cloudy; both leaf surfaces scabrous (*Morus*)..... MORACEAE
      - 4 Leaves with pinnate lobing; sap clear; both leaf surfaces not scabrous ..... FAGACEAE
  - 2 Plants shrubs
    - 5 Plants armed with prickles or spines
      - 6 Stipules present (*Rubus*)..... ROSACEAE
      - 6 Stipules absent..... GROSSULARIACEAE
    - 5 Plants unarmed
      - 7 Lobes or leaf segments narrow, less than 3 mm wide, usually filiform to lanceolate (*Cowanina*,

- Falugia, Dasiphora, Purshia*..... ROSACEAE
- 7 Lobes or leaf segments wider than 3 mm, obovate to deltoid
- 8 Lobing pinnate..... FAGACEAE
- 8 Lobing palmate or nearly so
- 9 Leaves scabrous on both surfaces; often only some of the leaves lobed (*Morus*)..... MORACEAE
- 9 Leaves not scabrous on either surface, but variously pubescent or glabrous; all the leaves lobed
- 10 Stipules present; bark peeling in strips (*Physocarpus*)..... ROSACEAE
- 10 Stipules absent; bark not peeling
- 11 Young flowering twigs velutinous, the hairs brown or tan; herbage foul-smelling..... ANACARDIACEAE
- 11 Young flowering twigs glabrous to variously pubescent but not velutinous; herbage not foul-smelling..... GROSSULARIACEAE
- 1 Leaves toothed or notched, but not lobed
- 12 Plants trees
- 13 Leaves scabrous on one or both surfaces; blades usually with 3 main veins at the base
- 14 Sap milky or cloudy; fruit a cluster of fleshy drupes (*Morus*)..... MORACEAE
- 14 Sap clear; fruit a single drupe, not very fleshy (*Celtis*)..... CANNABACEAE
- 13 Leaves not scabrous, but glabrous to variously pubescent; blades with 1 main vein
- 15 Teeth on the leaf margins double (*Alnus, Betula*)..... BETULACEAE
- 15 Teeth on the leaf margins single
- 16 Each bud with a single scale; leaves often linear to narrowly lanceolate (but some broader) (*Salix*)..... SALICACEAE
- 16 Each bud with 2 or more scales; leaves lanceolate to deltoid or elliptic
- 17 Petioles flattened, at least on one side; leaves usually ovate to deltoid (lanceolate in one species) (*Populus*)..... SALICACEAE
- 17 Petioles rounded; leaves lanceolate to elliptic
- 18 Leaf margins with only a few well-spaced teeth, tending toward lobed; flowers not showy; fruit an acorn..... FAGACEAE
- 18 Leaf margins serrate their total length, the teeth close together; flowers showy or not; fruit a small drupe or circular winged samara
- 19 Two or more small glands present on the petiole or base of blade; fruit a small drupe; flowers showy with conspicuous petals (*Prunus*)..... ROSACEAE
- 19 No glands on the petiole or base of blade; fruit a circular winged samara; flowers not showy and lacking petals (*Ulmus*)..... ULMACEAE
- 12 Plants shrubs
- 20 Twigs armed with spines or thorns
- 21 Spines 3- or more parted; branches usually simple and wand-like; teeth on leaf margins minutely spinose..... BERBERIDACEAE
- 21 Spines simple, borne singly or in pairs but not 3-parted; branches usually rebranched and not wand-like; teeth on leaf margins not spinose
- 22 Spines paired on often zig-zag branches; fruit a yellowish-red drupe (*Celtis*)..... CANNABACEAE
- 22 Thorns single on usually straight branches; fruit a reddish to dark-crimson drupe (*Crataegus*)..... ROSACEAE
- 20 Twigs unarmed
- 23 Leaves 3-toothed at the apex only (*Purshia*)..... ROSACEAE
- 23 Leaves toothed along the margins, or if only at the apex then with several teeth
- 24 Plants creeping, very low, seldom taller than 30 cm (*Vaccinium*)..... ERICACEAE
- 24 Plants erect, taller than 30 cm
- 25 Each bud with only a single scale; branches often long and supple, the internodes well-spaced (*Salix*)..... SALICACEAE
- 25 Each bud with 2 or more scales; branches usually otherwise
- 26 Leaf margins toothed on the upper 2/3 or less (*Amelanchier, Cercocarpus, Holodiscus*)..... ROSACEAE
- 26 Leaf margins toothed their entire length
- 27 Leaf margins undulate-dentate; lower surface and margins of blades stellate-pubescent with rather long hairs (to 0.5 mm); flowers lacking petals, inconspicuous; fruit a 3-celled capsule (*Bernardia*)..... EUPHORBACEAE
- 27 Combination of characters other than above
- 28 Leaf margins minutely serrulate; leaves narrowly oblanceolate, 1-4 cm long (*Peraphyllum*)..... ROSACEAE
- 28 Leaf margins definitely serrate or notched; leaves usually longer than 4 cm
- 29 Leaves persistent (except *Quercus gambelii* and *Q. havardii*), often

- stiff and leathery; fruit an acorn..... FAGACEAE
- 29 Leaves deciduous, usually thin and supple; fruit a berry or drupe
  - 30 Petioles with glands near the base of the blades (*Prunus*)..... ROSACEAE
  - 30 Petioles without glands near the base of the blades
    - 31 Upper leaf surface scabrous like sandpaper; fruit a tight cluster of drupes (*Morus*) ..... MORACEAE
    - 31 Upper leaf surface glabrous to pubescent but not scabrous like sandpaper; fruit a berry, in loose clusters.... RHAMNACEAE

**GROUP C: Herbaceous Dicotyledonous Plants - Plants with Whitish Milky Juice or Orange-yellow Sap**

- 1 Sunflower Family: plants sunflower- or dandelion-like; flowers individually small but clustered on a common receptacle into dense heads and subtended by modified leaves (phyllaries) that often resemble sepals, the head sometimes resembling a single large flower; true sepals modified into a pappus of bristles, awns, or scales (or absent) arising at the tip of each individual ovary or achene; petals united into a tube (disk flower) or a strap (ray flower); ovaries inferior; leaves without stipules..... ASTERACEAE
- 1 Combination of features other than above
  - 2 Stems with orange-yellow sap; plants spiny-prickly ..... PAPAVERACEAE
  - 2 Stems with whitish milky sap; plants usually not spiny-prickly
    - 3 Flowers unisexual, borne within a cup-like structure (cyathium); true petals absent but whitish petal-like glands 1-3 mm long often present on the lip of the cup; fruit a 3-lobed capsule, often hanging out of the cup at maturity; seeds glabrous (*Euphorbia*)..... EUPHORBIACEAE
    - 3 Flowers bisexual, not borne within a cup-like structure; true petals present and obvious; fruit a pod-like follicle, usually in pairs; seeds with a tuft of hair at one end
      - 4 Plants prostrate, mat-forming; flowers minute, axillary, usually concealed by the leaves (*Dichondra*) ... CONVULVACEAE
      - 4 Plants prostrate to erect to twining, not mat-forming; flowers large and usually conspicuous, not concealed by the leaves ..... APOCYNACEAE

**GROUP D: Herbaceous Dicotyledonous Plants - Perianth Absent or of a Single Whorl**

- 1 Perianth absent completely, no sepals or petals present
    - 2 Leaves deeply lobed, divided, or compound..... RANUNCULACEAE
    - 2 Leaves entire ..... SAURURACEAE
  - 1 Perianth present, consisting of either sepals or petals in 1 whorl
    - 3 Ovary inferior or partly so
      - 4 Plants with tendrils..... CUCURBITACEAE
      - 4 Plants lacking tendrils
        - 5 Leaves opposite or whorled
          - 6 Leaves pinnately lobed or divided; fruits with a pappus of plumose bristles (*Valeriana*) ..... CAPRIFOLIACEAE
          - 6 Leaves entire to toothed, but not lobed or divided; fruits without a pappus of plumed bristles
            - 7 Leaves markedly fleshy and succulent; plants usually prostrate; fruit a circumscissile capsule..... AIZOACEAE
          - 7 Leaves not succulent; plants erect to prostrate; fruit not a circumscissile capsule
            - 8 Leaves whorled (*Galium*) ..... RUBIACEAE
            - 8 Leaves opposite
              - 9 Plants semi-aquatics of wet meadows, ponds, and marshes; flowers solitary (*Ludwigia*)..... ONAGRACEAE
              - 9 Plants of dry, terrestrial habitats, often deserts; flowers usually clustered into dense heads .. NYCTAGINACEAE
      - 5 Leaves alternate or basal
        - 10 Leaves compound, separated into leaflets
          - 11 Flowers in spikes; stipules large and conspicuous (*Alchemilla, Poterium*)..... ROSACEAE
          - 11 Flowers in umbels or panicles; stipules absent or inconspicuous
            - 12 Styles 2; flowers in umbels or umbel-like heads..... APIACEAE
            - 12 Styles 1; flowers in panicles ..... ARALIACEAE
        - 10 Leaves simple, not separated into leaflets
          - 13 Leaves simple, cordate-sagittate; flowers shaped like an old-fashioned Dutch pipe; perianth of 3 segments ..... ARISTOLOCHIACEAE
          - 13 Leaves compound or deeply divided, if simple, then not at all cordate-sagittate
            - 14 Leaves simple, elliptic, 1-3 cm long, the margins entire..... COMANDRACEAE
            - 14 Leaves compound or deeply divided, or if simple, than not as above..... APIACEAE
- 3 Ovary superior
  - 15 Pistils more than 1 in each flower
    - 16 Stipules present, usually large and conspicuous (*Alchemilla, Poterium*)..... ROSACEAE
    - 16 Stipules absent ..... RANUNCULACEAE

- 15 Pistils 1 in each flower
- 17 Stamens more than twice as many as the perianth segments
- 18 Perianth small, inconspicuous, pale or greenish
- 19 Leaves compound, alternate; flowers in terminal racemes (*Actaea*)... RANUNCULACEAE
- 19 Leaves simple, opposite; flowers in axillary clusters (*Sesivium*)..... AIZOACEAE
- 18 Perianth well-developed, colored
- 20 Leaves entire, simple (*Talinum*)..... TALINACEAE
- 20 Leaves toothed, lobed, dissected, or compound
- 21 Perianth segments 4 or 8; leaves dissected..... PAPAVERACEAE
- 21 Perianth segments 5; leaves twice pinnately compound (*Mimosa*)..... FABACEAE
- 17 Stamens twice as many as the perianth segments or fewer
- 22 Leaves opposite or whorled
- 23 Ovary with 2 or more locules (chambers)
- 24 Flowers unisexual ..... EUPHORBACEAE
- 24 Flowers bisexual
- 25 Flowers in a terminal, pedunculate cluster (*Talinum*) ..... TALINACEAE
- 25 Flowers axillary and sessile
- 26 Leaves opposite; fruit circumscissile ..... AIZOACEAE
- 26 Leaves whorled; fruit splitting lengthwise..... MOLLUGINACEAE
- 23 Ovary with a single locule (chamber)
- 27 Ovules and seeds 3-many; fruit a capsule
- 28 Leaves succulent; fruit circumscissile..... AIZOACEAE
- 28 Leaves not succulent; fruit splitting lengthwise
- 29 Perianth segments 5 ..... CARYOPHYLLACEAE
- 29 Perianth segments 4 (*Ammannia*) ..... LYTHRACEAE
- 27 Ovules and seeds 1; fruit an achene, a 1-seeded capsule, or utricle
- 30 Style and stigma 1
- 31 Perianth segments petal-like, colored, fused into a tube; leaves entire or slightly lobed..... NYCTAGINACEAE
- 31 Perianth segments sepal-like, green, small and inconspicuous; leaves toothed or entire
- 32 Leaves entire; herbage thickly covered with woolly or silky branched hairs (*Tidestromia*)..... AMARANTHACEAE
- 32 Leaves entire or toothed; herbage glabrous or sparsely pilose with unbranched hairs..... URTICACEAE
- 30 Styles and stigmas 2 or more
- 33 Leaves palmately compound or lobed ..... CANNABACEAE
- 33 Leaves simple, entire or toothed
- 34 Perianth segments 6; fruit a triangular achene ..... POLYGONACEAE
- 34 Perianth segments 5 or fewer; fruit not triangular
- 35 Leaves with stipules ..... CARYOPHYLLACEAE
- 35 Leaves lacking stipules..... AMARANTHACEAE
- 22 Leaves alternate or basal
- 36 Leaves with stipules, generally well-developed and obvious (sometimes obscure or absent in *Croton*, Euphorbiaceae)
- 37 Style and stigma 1
- 38 Ovule 1 per ovary; fruit an achene..... ROSACEAE
- 38 Ovules several-many; fruit a capsule..... VIOLACEAE
- 37 Styles and stigmas 2 or more
- 39 Leaves palmately compound or lobed..... CANNABACEAE
- 39 Leaves simple, not lobed
- 40 Stipules fused into a sheath around the stem ..... POLYGONACEAE
- 40 Stipules distinct, not fused into a sheath
- 41 Locules with two ovules..... PHYLLANTHACEAE
- 41 Locules with one ovule..... EUPHORBACEAE
- 36 Leaves without stipules, or the stipules reduced to scale-like bracts
- 42 Perianth segments 6, somewhat petal-like (*Eriogonum*)..... POLYGONACEAE
- 42 Perianth segments 5 or fewer, generally not petal-like
- 43 Ovule 1 per ovary; inflorescence various
- 44 Herbage densely covered with woolly or silky branched hairs (*Tidestromia*) ..... AMARANTHACEAE
- 44 Herbage glabrous or variously pubescent, but the hairs not branched
- 45 Style and stigma 1 (*Parietaria*)..... URTICACEAE
- 45 Styles and stigmas 2 or more..... AMARANTHACEAE

- 43 Ovules 2-many per ovary; inflorescence a raceme
  - 46 Perianth segments 4
    - 47 Fruit a fleshy berry; stamens 4..... PETIVERIACEAE
    - 47 Fruit a dry silique or silicle; stamens 6..... BRASSICACEAE
  - 46 Perianth segments 5
    - 48 Flowers actinomorphic; stamens free; fruit a berry..... PHYTOLACCACEAE
  - 48 Flowers zygomorphic; stamens fused; fruit a capsule..... POLYGALACEAE

**GROUP E: Herbaceous Dicotyledonous Plants - Perianth of Two or More Whorls, Pistils Two or More in Each Flower**

- 1 Stamens more than twice as many as the petals
  - 2 Stipules present, often large and conspicuous; flower parts borne on a dish or outgrowth of the receptacle (hypanthium)..... ROSACEAE
  - 2 Stipules absent; flower parts borne directly on the receptacle, an hypanthium absent.... RANUNCULACEAE
- 1 Stamens twice as many as the petals or fewer
  - 3 Flowers zygomorphic
    - 4 Flowers bluish to whitish, spurred; leaves deeply and finely dissected (*Consolida*).. RANUNCULACEAE
    - 4 Flowers reddish to whitish, not spurred; leaves sometimes lobed but not dissected (*Feuchera*)..... SAXIFRAGACEAE
  - 3 Flowers actinomorphic
    - 5 Petals fused together, at least at the base
      - 6 Pistils 3 or more; leaves fleshy, sap clear..... CRASSULACEAE
      - 6 Pistils 2; leaves generally not fleshy; sap often cloudy or milky when fresh
        - 7 Plants prostrate, mat-forming; flowers minute, axillary, usually concealed by the leaves (*Dichondra*)..... CONVULVULACEAE
        - 7 Plants prostrate to erect to twining, not mat-forming; flowers large and usually conspicuous, not concealed by the leaves..... APOCYNACEAE
    - 5 Petals free from each other, but sometimes attached to a disc or tube
      - 8 Leaves and usually the stems thick and fleshy, succulent..... CRASSULACEAE
      - 8 Leaves and stems not succulent
        - 9 Hypanthium absent; sepals separate to the base..... RANUNCULACEAE
        - 9 Hypanthium present, apparent as a tube or an expanded disk bearing the perianth at its outer edge
          - 10 Leaves compound; stipules present, sometimes deciduous (*Agrimonia*, *Potentilla*). ROSACEAE
          - 10 Leaves simple, sometimes shallowly lobed; stipules absent
            - 11 Flowers solitary, showy, with 5 fertile stamens and 5 sterile toothed staminodes..... PARNASSIACEAE
            - 11 Flowers borne 2 or more together or not showy; all stamens fertile, staminodes absent..... SAXIFRAGACEAE

**GROUP F: Herbaceous Dicotyledonous Plants - Perianth of Two Whorls, Pistil Single, Petals United, Ovary Inferior**

- 1 Tendrils present; flowers unisexual; plants monoecious..... CUCURBITACEAE
- 1 Tendrils absent; flowers bisexual or unisexual
  - 2 Stamens numerous, more than 10 per flower..... LOASACEAE
  - 2 Stamens 10 or fewer per flower
    - 3 Leaves alternate or basal
      - 4 Leaves basal, or if some leaves cauline then these 3-foliolate and opposite in a single pair; sepals 2 or 3..... VIBURNACEAE
    - 4 Leaves alternate, cauline, simple, generally with more than 2 stem leaves; sepals 5
      - 5 Stamens borne opposite the mid-veins of the petals (*Samolus*)..... PRIMULACEAE
      - 5 Stamens borne alternate with the mid-veins of the petals..... CAMPANULACEAE
  - 3 Leaves opposite or whorled
    - 6 Stems prickly (*Dipsacus*)..... CAPRIFOLIACEAE
    - 6 Stems not prickly
      - 7 Leaves all basal except for one pair borne on the stem, these 3-foliolate..... VIBURNACEAE
      - 7 Leaves with at least 2 pairs borne on the stem and these simple
        - 8 Leaves whorled (*Galium*)..... RUBIACEAE
        - 8 Leaves opposite
          - 9 Leaves lobed; stamens 1-3 and fewer than the corolla lobes in number; calyx pappus-like, of plumose bristles attached at the top of the ovary and fruit (*Valeriana*)...CAPRIFOLIACEAE
          - 9 Leaves entire, toothed, or wavy-margined; stamens 5 and equal to the corolla lobes in number
            - 10 Leaves of a pair often unequal in size; ovary actually superior, surrounded by but not fused to the hardened or winged base of the perianth; stamens free from the corolla..... NYCTAGINACEAE

- 10 Leaves of a pair equal in size; ovary truly inferior, fused to the base of the surrounding perianth; stamens attached to the corolla  
 11 Leaves lacking stipules; plants mat-like; flowering stems with a single pair of flowers at the tip of a forked peduncle; ovary with 3-5 locules (*Linnaea*).....  
 .....CAPRIFOLIACEAE
- 11 Leaves with stipules; plants generally not mat-like; flowering stems with several to numerous flowers; ovary with 2 locules ..... RUBIACEAE

**GROUP G: Herbaceous Dicotyledonous Plants - Perianth of Two Whorls, Pistil Single, Petals United,****Ovary Superior**

- 1 Stamens more numerous than the corolla lobes  
 2 Leaves compound  
 3 Corolla markedly zygomorphic, papilionaceous with banner, wings, and keel ..... FABACEAE  
 3 Corolla actinomorphic  
 4 Leaflets 3 in number; petals 5; stamens 10 ..... OXALIDACEAE  
 4 Leaflets many; petals 4; stamens 6 ..... PAPAVERACEAE
- 2 Leaves simple  
 5 Flower parts in 3's; fruit a triangular achene ..... POLYGONACEAE  
 5 Flower parts in 5's; fruit a capsule or berry  
 6 Flowers zygomorphic; stamens 8 ..... POLYGALACEAE  
 6 Flowers actinomorphic; stamens various, but usually not 8  
 7 Leaves markedly succulent ..... CRASSULACEAE  
 7 Leaves not succulent  
 8 Leaves opposite  
 9 Leaf pairs usually unequal in size; style 1 ..... NYCTAGINACEAE  
 9 Leaf pairs usually equal in size; styles 3-5 ..... CARYOPHYLLACEAE  
 8 Leaves alternate  
 10 Stamens 10 (5 fertile alternating with 5 sterile staminodes); petals with long coiled thread-like stalks and united at the broadened tips over the stamens (*Ayeria*) ..... MALVACEAE  
 10 Stamens numerous, more than 10; petals without such thread-like stalks, united at the base ..... MALVACEAE
- 1 Stamens the same number as the corolla lobes or fewer  
 11 Fertile stamens (with well-developed anthers) 2 or 4, usually fewer in number than the corolla lobes (1 or more sterile stamens sometimes present)  
 12 Perianth parts 6; flowers actinomorphic; stigmas 3 ..... POLYGONACEAE  
 12 Perianth parts in 4's or 5's; flowers actinomorphic or zygomorphic; stigmas 1 or 2  
 13 Corolla scarious (thin, dry, transparent); plants annual with all leaves basal (*Plantago*) .....  
 ..... PLANTAGINACEAE
- 13 Corolla not scarious; plants annual to perennial, the leaves variously arranged  
 14 Corolla actinomorphic, yellow; fruit a bilobed capsule, each half pea-shaped, opening by a horizontal cap (*Menodora*) ..... OLEACEAE  
 14 Corolla zygomorphic, variously colored; fruit not as above  
 15 Fruit composed of 2-4 nutlets; leaves opposite or whorled  
 16 Style 2-cleft at the apex; corolla strongly zygomorphic; plants often with mint-like odor ..... LAMIACEAE  
 16 Style entire at the apex; corolla weakly zygomorphic; plants lacking a mint-like odor...  
 ..... VERBENACEAE
- 15 Fruit a capsule, usually 2-chambered  
 17 Ovary 1-chambered; capsule 12 cm or more long, separating into 2 divergent horns or claws at maturity; plants viscid ..... MARTYNIACEAE  
 17 Ovary 2-chambered; capsule less than 8 cm long, not claw-like; plants generally not viscid  
 18 Corolla lobes rolled up length-wise in the bud; capsule usually splitting open to the base, often elastically so ..... ACANTHACEAE  
 18 Corolla lobes not rolled up length-wise in the bud; capsule rarely splitting open below the middle, never elastically so (this is the old Scrophulariaceae: now a difficult mixture of Orobanchaceae, Plantaginaceae, and Scrophulariaceae s.s.)  
 19 Leaves opposite or whorled  
 20 Stems prostrate on the ground or floating, rooting at the nodes .....  
 ..... PLANTAGINACEAE  
 20 Stems erect to ascending, generally not rooting at the nodes  
 21 Fertile stamens 2 ..... PLANTAGINACEAE  
 21 Fertile stamens 4  
 22 Corolla yellow or yellowish  
 23 Sepals united into a 5-angled or 5-pleated tube, the tube

- cleft less than half its length (*Erythranthe*)..... PHRYMACEAE
      - 23 Sepals separate nearly to the base and a calyx tube not produced, or if a tube present, then not 5-angled or 5-pleated and often cleft more than half its length
        - 24 Calyx 4-toothed; leaves sharply serrate (*Rhinanthus*).... OROBANCHACEAE
        - 24 Calyx 5-toothed or lobed; leaves toothed or entire
          - 25 Leaves serrate; sepals distinct or nearly so (*Mecardonia*)..... PLANTAGINACEAE
          - 25 Leaves entire; sepals united into a short tube (*Brachystigma*) ..... OROBANCHACEAE
    - 22 Corolla bluish, reddish, purplish, greenish, or white, not yellowish
      - 26 Plants annual
        - 27 Flowers with a 5th sterile stamen; corolla gibbous or sac-like on one side at the base, also papilionaceous with an upper lip (banner) and lower lip of 2 lateral wings and a central keel that encloses the stamens (*Collinsia*) ..... PLANTAGINACEAE
        - 27 Flowers lacking a 5th sterile stamen; corolla not gibbous and not papilionaceous
          - 28 Calyx strongly 5-angled or 5-pleated (*Erythranthe*) ..... PHRYMACEAE
          - 28 Calyx not 5-angled or 5-pleated
            - 29 Leaves pinnatifid, the lobes often toothed; corolla with yellow tube and violet limb (*Schistophragma*) ..... PLANTAGINACEAE
            - 29 Leaves mostly entire; corolla usually purple or pinkish purple throughout (*Agalinis*) ..... OROBANCHACEAE
      - 26 Plants perennial
        - 30 Sterile stamen absent; leaves often palmately veined (but pinnate in some species); calyx strongly 5-angled or 5-pleated (*Erythranthe*) .... PHRYMACEAE
        - 30 Sterile stamen present (may be scale-like); leaves rarely palmately veined; calyx not 5-angled or 5-pleated
          - 31 Corolla urn-shaped, 6-20 mm long; sterile stamen flattened, scale-like, appressed to the wall of the corolla throat; stems 4-angle ..... SCROPHULARIACEAE
          - 31 Corolla campanulate to tubular, 10-40 mm long; sterile stamen slender, usually elongate-filiform; stems usually round (*Penstemon*) ..... PLANTAGINACEAE
  - 19 Leaves alternate or mostly all basal
    - 32 Leaves mostly all basal and petiolate, the cauline reduced and sessile or absent ..... PLANTAGINACEAE
    - 32 Leaves both basal and cauline or mostly cauline, the cauline well-developed
      - 33 Leaves crenate-toothed or pinnately cleft to compound with more than 7 pairs of lobes or divisions (*Pedicularis*) ..... OROBANCHACEAE
      - 33 Leaves entire or pinnately 3- to 7-lobed or divided
        - 34 Flowers with a prominent basal spur ..... PLANTAGINACEAE
        - 34 Flowers lacking a spur ..... OROBANCHACEAE
- 11 Fertile stamens the same number as the corolla lobes, usually 5
  - 35 Stamens opposite the petals, sometimes with additional sterile stamens (staminodes) alternate with the petals
    - 36 Plants annual with a single pair of perfoliate-clasping leaves at mid-stem (*Montia*) ..... MONTIACEAE
  - 36 Plants and/or leaves otherwise
    - 37 Styles and stigmas 4-5; fruit an achene or utricle; ovule 1 ..... PLUMBAGINACEAE



- 37 Style and stigma 1; fruit a capsule; ovules several to numerous ..... PRIMULACEAE
- 35 Stamens alternate with the petals; sterile stamens none (obscure flowers usually key here)
- 38 Filaments (at least 3 of the 5) woolly; corolla barely zygomorphic, almost always yellow; flowers in racemes (*Verbascum*) ..... SCROPHULARIACEAE
- 38 Plants not as above in all respects
- 39 Leaves primarily cauline, all opposite or whorled, simple, entire ..... GENTIANACEAE
- 39 Leaves not as above in all respects
- 40 Ovary 4-lobed or grooved and 4-chambered; fruit of 4 nutlets or mericarps, or 1-3 of the 4 nutlets abortive; style 1, rarely branched; flowers usually in coiled, 1-sided cymes, sometimes solitary in the leaf axils
- 41 Ovary subdivided in flower into 4 uni-ovulate lobes separated by deep folds, developing into corresponding number of individual nutlets (sometimes fewer by abortion); style gynobasic and through the ovary ..... BORAGINACEAE
- 41 Ovary entire or simply 4-grooved in flower, fruit schizocarpic, separating into 2-4 individual mericarps (nutlets) at maturity (sometimes fewer by abortion); style insertion apical
- 42 Style undivided with a conical or discoid stigmatic head .. HELIOTROPIACEAE
- 42 Style with two branches, each with a capitate stigma ..... EHRETIACEAE
- 40 Ovary entire, 1-3-chambered; fruit a capsule or berry; styles and flowers various, sometimes coiled
- 43 Style with 3 lobes; ovary 3-chambered; fruit a 3-valved capsule ..... POLEMONIACEAE
- 43 Style not with 3 lobes; ovary 1- to 2-chambered; fruit not as above
- 44 Sepals coalescent into a cup or tube, except the tips, which appear as teeth or lobes; style 1 and entire ..... SOLANACEAE
- 44 Sepals separate or coalescent only basally, the separate portion usually at least as long as the coalescent portion; styles more than 1, if single then cleft or branched
- 45 Plants trailing or twining, vine-like, rarely erect; corolla plaited in the bud; flowers never in coiled 1-sided cymes ..... CONVULVACEAE
- 45 Plants erect or spreading, not twining and rarely trailing; corolla not plaited in the bud; flowers in coiled 1-sided cymes or not
- 46 Leaves basal and cauline, rarely all cauline, simple or variously divided to bipinnate; flowers usually in coiled 1-sided cymes; style 1 with 2 stigmatic branches ..... HYDROPHYLLACEAE
- 46 Leaves all cauline, entire; flowers solitary and axillary, or in terminal non-scorpoid cymes; stylochia 2, distinct to base ..... NAMACEAE
- GROUP H: Herbaceous Dicotyledonous Plants - Perianth of Two Whorls, Pistil Single, Petals Free, Ovary Inferior**
- 1 Stipules present
- 2 Fruit an achene, drupe, or pome ..... ROSACEAE
- 2 Fruit a capsule
- 3 Sepals 2; petals numerous ..... go to PORTULACACEAE
- 3 Sepals 5; petals 5 ..... SAXIFRAGACEAE
- 4 Flowers solitary, showy, with 5 fertile stamens and 5 sterile toothed staminodes; ovary nearly superior ..... PARNASSIACEAE
- 4 Flowers borne 2 or more together or not showy; all stamens fertile, staminodes absent; ovary evidently inferior ..... SAXIFRAGACEAE
- 1 Stipules none
- 5 Foliage with clinging Velcro-like hooked hairs, or with stinging hairs ..... LOASACEAE
- 5 Foliage lacking clinging hooked hairs or stinging hairs
- 6 Styles 2-5, separate
- 7 Fruit fleshy, berry-like; leaflets broad, ovate; styles 5 (*Aralia*) ..... ARALIACEAE
- 7 Fruit dry, the 2 carpels separating at maturity; leaflets various; styles 3 ..... APIACEAE
- 6 Style 1, may be lobed or cleft
- 8 Flowers in involucrate heads, the involucre simulating the calyx; floral tube constricted above the ovary and enclosing the 1-seeded fruit (thus appearing inferior) ..... NYCTAGINACEAE
- 8 Flowers not in involucrate heads; both calyx and corolla present; fruit 2- to several-seeded
- 9 Stamens 8, more numerous than the sepals ..... ONAGRACEAE
- 9 Stamens 4-5, the same number as the sepals ..... CORNACEAE
- GROUP I: Herbaceous Dicotyledonous Plants - Perianth of Two Whorls, Pistil Single, Petals Free, Ovary Superior, Stamens Numerous**
- 1 Sepals 2
- 2 Sepals deciduous; plants not succulent ..... PAPAVERACEAE

Dicotyledonous Plants - Keys

- 2 Sepals persistent; plants somewhat succulent
  - 3 Plants shrubby, the base and older stems woody and dry; stems with tufts of hair at the swollen nodes (*Talinopsis*)..... ANACAMPSEROTACEAE
  - 3 Plants herbaceous; stems generally otherwise ..... go to PORTULACACEAE
- 1 Sepals more than 2
  - 4 Filaments united into a tube around the pistil ..... MALVACEAE
  - 4 Filaments not united into a tube around the pistil
    - 5 Flowers zygomorphic
      - 6 Plants annual; leaves lanceolate, entire; flowers small and inconspicuous, borne in slender terminal spikes ..... RESEDACEAE
      - 6 Plants perennial; leaves palmately lobed or parted; flowers large and conspicuous, with orange petals, borne in a terminal raceme ..... COCHLOSPERMACEAE
    - 5 Flowers actinomorphic (or nearly so in Cochlospermaceae); maturing ovary remaining closed until dehiscence; plants annual or perennial
      - 7 Petals 3; sepals 5, the 2 outer different in size and shape than the 3 inner; flowers tiny (*Lechea*)..... CISTACEAE
    - 7 Petals and sepals other than above; flowers larger
      - 8 Leaves opposite
        - 9 Leaves compound, with two large fleshy leaflets (*Zygophyllum*) ..... ZYGOPHYLLACEAE
        - 9 Leaves simple and not fleshy (*Hypericum*) ..... HYPERICACEAE
      - 8 Leaves alternate
        - 10 Stamens attached at the base of the ovary and not on the margin of a rim (hypanthium)
          - 11 Leaves palmately compound, with 3-5 leaflets; petals yellow, purplish, or pinkish; anthers splitting lengthwise; ovary and fruit borne on a stalk ..... CLEOMACEAE
          - 11 Leaves simple, but palmately lobed or parted; petals orange with red spots; anthers opening by terminal pores; ovary and fruit sessile ..... COCHLOSPERMACEAE
        - 10 Stamens attached on the margin of the receptacle, which grows to form a rim or cup (hypanthium)
          - 12 Fruit an achene or drupe ..... ROSACEAE
          - 12 Fruit a capsule ..... LYTHRACEAE
- GROUP J: Herbaceous Dicotyledonous Plants - Perianth of Two Whorls, Pistil Single, Petals Free, Ovary Superior, Stamens Less than Twice as Many as the Petals**
- 1 Styles 2-5, separate to near the base
  - 2 Leaves compound
    - 3 Leaflets with entire margins; leaves alternate ..... OXALIDACEAE
    - 3 Leaflets with scalloped or toothed margins; leaves opposite (*Erodium*) ..... GERANIACEAE
  - 2 Leaves simple, but may be lobed or dissected
    - 4 Leaves opposite
      - 5 Plants low half-shrubs; sepals and petals 4-7..... FRANKENIACEAE
      - 5 Plants herbs; sepals and petals 4-5..... CARYOPHYLLACEAE
    - 4 Leaves alternate or basal
      - 6 Sepals 2; leaves succulent ..... go to PORTULACACEAE
      - 6 Sepals more than 2; leaves not succulent
        - 7 Flowers zygomorphic, the petals unequal in size and the stamens borne to one side. RESEDACEAE
        - 7 Flowers actinomorphic
          - 8 Fruit elongated into long beaks; leaf blades toothed or lobed, with palmate venation (*Geranium*) ..... GERANIACEAE
          - 8 Fruit not elongated into long beaks; leaf blades entire, with pinnate venation ..... CARYOPHYLLACEAE
- 1 Style 1
  - 9 Sepals 2-3
    - 10 Leaves succulent ..... go to PORTULACACEAE
    - 10 Leaves not succulent
      - 11 Leaves opposite; plants annual ..... ELATINACEAE
      - 11 Leaves alternate or basal; plants annual or perennial
        - 12 Flowers zygomorphic, bright yellow, leaves dissected (*Corydalis*) ..... PAPAVERACEAE
        - 12 Flowers actinomorphic, variously colored; leaves various
          - 13 Flowers 2 cm or more long ..... PAPAVERACEAE
          - 13 Flowers 1 cm or less long ..... POLYGONACEAE
  - 9 Sepals 4, 5, or more
    - 14 Flowers zygomorphic
      - 15 Plants densely stipitate-glandular; flowers with a obvious nectiferous gland inserted between corolla and stamens; fruit borne on a stipe; leaves palmately compound ..... CLEOMACEAE
      - 15 Plants not as above in all features

- 16 Petals mostly 3; stamens commonly 8.....POLYGALACEAE
- 16 Petals mostly 5; stamens typically 5 or 10
  - 17 Flowers papilionaceous, with petals differentiated into banner, wings, and keel; fruit a legume of some sort.....FABACEAE
  - 17 Flowers not papilionaceous; fruit a capsule or legume
    - 18 Leaves twice pinnately compound; fruit a legume (*Caesalpinia*).....FABACEAE
    - 18 Leaves simple; fruit a capsule
      - 19 Leaves typically evergreen; fruit 4- to 5-chambered; plants rhizomatous (Pyroloideae).....ERICACEAE
      - 19 Leaves deciduous each season; fruit 1-chambered; plants tufted, rhizomatous, or stoloniferous .....VIOLACEAE
- 14 Flowers actinomorphic
  - 20 Leaves compound with leaflets
    - 21 Leaves opposite
      - 22 Petals yellow; fruit with hardened spiny segments (*Tribulus*).....ZYGOPHYLLACEAE
      - 22 Petals bluish or purplish; fruit elongated into long beaks, but not spiny (*Erodium*) .....GERANIACEAE
    - 21 Leaves alternate
      - 23 Fruit borne on a stalk; stamens 2-8 .....CLEOMACEAE
      - 23 Fruit sessile; stamens 10.....OXALIDACEAE
  - 20 Leaves simple, but may be lobed or dissected
    - 24 Flowers unisexual; fruit an achene; leaves opposite and with stinging hairs or alternate and without stinging hairs.....URTICACEAE
  - 24 Plants various, but not as above
    - 25 Leaves opposite; plants annual .....ELATINACEAE
    - 25 Leaves alternate or basal; plants annual or perennial
      - 26 Sepals and petals 4; stamens 6, 4, or rarely 2 .....BRASSICACEAE
      - 26 Sepals and petals mostly 5; stamens 5-10, or 15
        - 27 Leaves palmately lobed or veined, with stipules; carpels elongated into long beaks which separate from the base at maturity (*Geranium*) .....GERANIACEAE
        - 27 Leaves pinnately lobed or veined, at least not obviously palmately so, with or without stipules; carpels not as above
          - 28 Plants rhizomatous; leaves evergreen (Pyroloideae) .....ERICACEAE
          - 28 Plants tufted, tap-rooted; leaves seasonally deciduous
            - 29 Leaves all basal; ovary 1-chambered with a single seed.....PLUMBAGINACEAE
            - 29 Leaves cauline; ovary 5-chambered with numerous seeds
              - 30 Flowers whitish; leaves dissected into linear segments.....NITRARIACEAE
              - 30 Flowers yellow to orange; leaves simple, entire .....LINACEAE

ACANTHACEAE ACANTHUS FAMILY

[Key adapted from Daniel 1984]

- 1 Fertile stamens 4
  - 2 Plants low herbs to 10 cm tall and with leaves clustered near the ground; anthers 1-celled, villous ..... *Stenandrium*
  - 2 Plants herbs or subshrubs much taller than 10 cm and with leafy stems
    - 3 Flowers borne in sessile axillary clusters; corolla 15-25 mm long; anther cells with small white mucronate point at the basal end ..... *Dyschoriste*
    - 3 Flowers solitary and pedicelled at the upper nodes; corolla 25-45 mm long; anther cells rounded at the basal end..... *Ruellia*
- 1 Fertile stamens 2
  - 4 Inflorescence a spike borne on long scaly peduncles, the scales coriaceous, imbricate, and covering the peduncle; bracts of the spike indurate, 3-toothed at the tip ..... *Elytraria*
  - 4 Inflorescence a spike or not, but not borne on long scaly peduncles as above; bracts of the inflorescence (if present) not indurate nor 3-toothed
    - 5 Stems 6-sided; flowers and bractlets subtended by 2 conspicuous cordate, deltoid, or reniform bracts; lower lip of corolla entire..... *Dicliptera*
    - 5 Stems terete or 4-sided; flowers and bractlets not subtended as above; lower lip of corolla shallowly to deeply 3-lobed
      - 6 Stamens ± appressed to upper lip of corolla, the anthers opening toward the lower lip..... *Justicia*
      - 6 Stamens ± appressed to lower lip of corolla, the anthers opening toward the upper lip
        - 7 Corolla somewhat fleshy, red, orange, or pinkish, 30-57 mm long..... *Anisacanthus*
        - 7 Corolla not fleshy, white, blue, or purplish, 5-18 mm long

- 8 Inflorescence a densely bracteate spike; bracts of the spike 3-5 mm wide, hirsute-ciliate on the margins; calyx 4-lobed ..... *Tetramerium*
- 8 Inflorescence not in dense spikes and lacking bracts as above; calyx 5-lobed ..... *Carlowrightia*

**Anisacanthus**

*A. thurberi* (Torrey) Gray • Arroyos, canyon bottoms, desert scrub, southwestern.

**Carlowrightia**

- 1 Leaves sessile, the blades linear; corolla blue, nearly actinomorphic ..... *C. linearifolia* (Torrey) Gray • Gravelly soils of bajadas and washes mostly in Chihuahuan Desert areas.
- 1 Leaves petiolate, the larger blades broadly ovate to orbicular; corolla white with maroon veins, bilabiate ..... *C. texana* Hendrickson & Daniel • Limestone flats and hills or calcareous alluvium in Eddy County; uncommon.

**Dicliptera**

*D. resupinata* (Vahl) Jussieu • To be looked for in dry wooded slopes of the bootheel region.

**Dyschoriste**

*D. schiedeana* (Nees) Kuntze • Rocky slopes in grassland and woodland communities in the southern counties.

**Elytraria**

*E. imbricata* (Vahl) Persoon • Rocky hillsides and washes in the bootheel region.

**Justicia**

- 1 Corolla tube slender and cylindric, expanded only at the apex if at all ..... *J. pilosella* (Nees) Hilsenbeck • Rocky ledges and slopes among brush and boulders in the Guadalupe Mountains of Eddy county.
- 1 Corolla tube not cylindric, expanded from below the middle ..... *J. wrightii* Gray • Limestone slopes and flats; known only from Eddy County.

**Ruellia**

*R. parryi* Gray • Chihuahuan Desert on limestone ledges and hillsides, arroyo beds.

**Stenandrium**

*S. barbatum* Torrey & Gray • Throughout the Chihuahuan Desert region in New Mexico, on limestone slopes and gravel.

**Tetramerium**

*T. nervosum* Nees • Rocky slopes, washes, arroyos in desert shrub; known only from Socorro county.

**AIZOACEAE FIG-MARIGOLD FAMILY**

- 1 Plants perennial; styles 3-5 ..... *Sesuvium*
- 1 Plants annual; style 1 ..... *Trianthema*

**Sesuvium**

*S. verrucosum* Rafinesque • Floodplains, playas, saline or alkaline habitats along the Rio Grande and Pecos rivers.

**Trianthema**

*T. portulacastrum* Linnaeus • Permanent and ephemeral wetlands, flats and playas, floodplains, disturbed ground; southwestern, occasional elsewhere.

**AMARANTHACEAE AMARANTH-CHENOPOD FAMILY**

- 1 Perianth and subtending bracts dry and scarious; herbage neither fleshy nor with mealy nor powdery surfaces; habitats various, but generally not saline
  - 2 Stem leaves alternate; plants ± glabrous ..... *Amaranthus*
  - 2 Stem leaves opposite; plants generally pubescent
    - 3 Stems and leaves with branched, usually stellate, hairs ..... *Tidestromia*
    - 3 Stems and leaves variously pubescent with simple, unbranched hairs
      - 4 Flowers borne in a terminal, solitary, globose spike that is elevated on a naked peduncle; bracteoles longer than and folded around the flowers ..... *Gomphrena*
      - 4 Flowers not so arranged, the flower clusters either sessile and axillary, or in panicles; bracteoles shorter than the flowers
        - 5 Stems erect or ascending; inflorescence mostly terminal
          - 6 Plants rhizomatous and mostly dioecious; leaves nearly glabrous, somewhat fleshy; flowers unisexual ..... *Iresine*
          - 6 Plants lacking rhizomes; leaves silky villous, at least beneath, not fleshy; flowers bisexual ..... *Froelichia*
        - 5 Stems prostrate to decumbent; inflorescence mostly axillary
          - 7 Bracts and tepals with spinose tips about 0.5 mm long; tepals strongly 3-veined at the base, with straight hairs to about 1 mm long on the outer surface ..... *Alternanthera*
          - 7 Bracts and tepals without spinose tips; tepals weakly 1- or 3-veined at the base, with densely wooly hairs 1-3 mm long on the outer surface
            - 8 Leaves of the basal rosette persistent at flowering time, 3-9 cm long; tepals distinct to the

- base, 2.5-3 mm long, green except for the narrow scarious margin ..... *Gossypianthus*
- 8 Leaves of the basal rosette early deciduous and not present during flowering; tepals united in lower half, the free lobes less than 1.5 mm long, scarious throughout except for the mid-vein ..... *Guilleminea*
- 1 Perianth and subtending bracts herbaceous or membranous; herbage often fleshy or with a mealy or powdery surface; native habitats often saline
- 9 Leaves scale-like; stems succulent, jointed into segments
- 10 Branching and leaf arrangement alternate; plants woody-based perennials ..... *Allenrolfea*
- 10 Branching and leaf arrangement opposite; plants herbaceous annuals or perennial shrubs ..... *Salicornia*
- 9 Leaves not scale-like, generally with blade and/or petiole differentiated; stems not succulent nor jointed into segments
- 11 Leaves opposite
- 12 Leaves sessile and united at the base, somewhat clasping; plants rhizomatous (often reported but not known from New Mexico) ..... *Nitrophila*
- 12 Leaves petiolate, not united nor clasping; plants lacking rhizomes ..... *Atriplex*
- 11 Leaves alternate
- 13 Leaves or bracts of inflorescence bristle- or spine-tipped
- 14 Leaves sausage-like, succulent at maturity, abruptly bristle-tipped; flowers embedded in hair ..... *Halogeton*
- 14 Leaves linear to subulate, not sausage-like, somewhat succulent when young but not when mature, gradually narrowed to a bristle or spine-tip; flowers not embedded in hair
- 15 Plants markedly prickly when mature, the leaves becoming stiff and spinose (semi-succulent when young in common species); each flower subtended by 2 bractlets. *Salsola*
- 15 Plants not at all prickly; each flower subtended by a single bractlet. .... *Corispermum*
- 13 Leaves or bracts of inflorescence not bristle- or spine-tipped
- 16 Leaves cylindric to linear, generally fleshy or semi-succulent
- 17 Herbage villous; plants low half-shrubs ..... *Neokochia*
- 17 Herbage glabrous or inconspicuously puberulent; plants taller herbs or shrubs ..... *Suaeda*
- 16 Leaves with flattened blades and/or not fleshy or succulent
- 18 Densely stellate-tomentose subshrubs with some hairs turning golden brown in age. .... *Krascheninnikovia*
- 18 Shrubs or herbs, hairy or glabrous, but not as above
- 19 Flowers unisexual (rarely bisexual); pistillate flowers without a perianth (except *Atriplex hortensis* and *Proatriplex pleiantha*), most enclosed in paired accrescent or connate bracts in fruit
- 20 Leaves toothed, hastately lobed, or repand-dentate
- 21 Stems prostrate or nearly so, with decurrent ridges running downward from the nodes; blades rhombic to orbicular, repand-dentate, nearly glabrous when mature, with conspicuous red veins; petioles as long as or longer than blades; bracts of pistillate flowers ovate-rhombic, with wavy-edged ridges or keels on each flattened surface. .... *Suckleya*
- 21 Stems mostly ascending to erect and lacking decurrent ridges; blades variously shaped but generally with scurfy pubescence, the veins not reddish; petioles usually shorter than the blades; bracts of pistillate flowers lacking ridges or keels on the flattened surfaces ..... *Atriplex*
- 20 Leaves entire
- 22 Fruiting bracteoles laterally compressed (folded along midrib); pubescence of simple or branched hairs. .... *Grayia*
- 22 Fruiting bracteoles dorsally compressed; pubescence of inflated hairs or none
- 23 Paired bracts containing 2-6 pistillate flowers with perianth; leaves glabrous to sparsely scurfy. .... *Proatriplex*
- 23 Paired bracts containing 1 pistillate flower without perianth; leaves glabrous to densely scurfy ..... *Atriplex*
- 19 Flowers bisexual or some also pistillate; perianth present; flowers not enclosed in paired bracts
- 24 Tepals horizontally winged or with hooked appendages
- 25 Fruiting calyx with a broad, fused, membranous, toothed or lobed wing ..... *Cycloloma*
- 25 Each calyx lobe with a distinct horizontal wing or a hooked appendage ..... *Bassia*
- 24 Tepals without horizontal wings or hooked appendages
- 26 Plants aromatic, leaves and often perianth and stems with stalked glandular hairs and/or subsessile glands ..... *Dysphania*
- 26 Plants not aromatic (but sometimes fetid), farinose or glabrous;

- inflorescences in dense glomerules in spikes or panicles with few to many flowers
- 27 Stems not or few branched; basal leaves often forming a rosette; perianth often becoming succulent or hardened in fruit; stigmas 2-4; seeds vertical..... *Blitum*
- 27 Stems usually branched; basal leaves not in a rosette; perianth unchanged in fruit; stigmas 2(3); seeds vertical and/or horizontal
- 28 Flowers often dimorphic, in lateral flowers tepals 3(-5), seeds mostly vertical or sometimes horizontal; stamens 1-3 ..... *Oxybasis*
- 28 Flowers not dimorphic; tepals 5; seeds exclusively horizontal; stamens almost always 5
- 29 Young stems and leaves densely covered with vesicular, globose trichomes, becoming cup-shaped when dry and mostly persistent at maturity; tepals without prominent midvein visible inside; seeds smooth or striate and somewhat rugulose or almost smooth ..... *Chenopodium*
- 29 Young stems and leaves with vesicular trichomes becoming totally collapsed when dry, mostly caducous or rarely present at maturity; tepals with prominent mid-vein visible inside; seeds pitted to sometimes rugulose or almost smooth ..... *Chenopodiastrum*

**Allenrolfea**

*A. occidentalis* (S. Watson) Kuntze ●Salt playas and mudflats nearly throughout the central and western regions of the state.

**Alternanthera**

1 Tepals 5-7 mm long, sparsely villous; leaf blades usually as long as broad; pseudostaminode margins dentate ..... *A. pungens*  
 Kunth ●Waste areas, limestone areas; southern; native to Central and South America.

1 Tepals 3-5 mm long, densely villous; leaf blades longer than broad; pseudostaminode margins usually entire ..... *A. caracasana*  
 Kunth ●Lawns, sidewalks, roadsides, and similar disturbed areas in the southern region; native to Central and South America.

**Amaranthus**

1 Plants dioecious, either staminate or pistillate

2 Plants in hand pistillate

3 Bracts deltate or rhombic-deltate, leaflike, rigid, completely enclosing the flower, margins crenate or denticulate, becoming much enlarged in fruit, midrib spine-like, exceeding leaf apex ..... *A. acanthochiton*

3 Bracts ovate to narrowly lanceolate, not leaflike, not enclosing flower, margins entire to somewhat undulate

4 Pistillate flowers with 0-2 tepals, these 1-3 mm long ..... *A. tuberculatus*

4 Pistillate flowers with 5 tepals, these longer than 2 mm

5 Bracts 4-6 mm long, longer than the tepals ..... *A. palmeri*

5 Bracts 2-2.5 mm long, equaling or shorter than the tepals ..... *A. arenicola*

2 Plants in hand staminate

6 Leaves linear to narrowly lanceolate, mostly less than 1.5 cm wide, margins distinctly crisped, often conduplicate ..... *A. acanthochiton*

J.D. Sauer ●Sandy, open, naturally disturbed sites in the western half of the state below 6500 ft.

6 Leaves narrowly ovate to lanceolate, mostly wider than 1.5 cm, margins entire, plane to somewhat undulate

7 Bracts 4 mm long, equaling or exceeding tepals; midrib excurrent as a spine ..... *A. palmeri*

S. Watson ●Disturbed ground, roadsides, waste places, widespread.

7 Bracts shorter than tepals

8 Bracts acuminate to short-subulate at the apex; tepals sometimes spinose ..... *A. tuberculatus*

(Moquin-Tandon) J.D. Sauer ●Wet, disturbed habitats, and known from only a few scattered collections, but expected elsewhere; native to the Great Plains, considered exotic in New Mexico.

8 Bracts acute at the apex; tepals not spinose ..... *A. arenicola*

I.M. Johnston ●Sandy hills and flats, dunes, gravelly washes, mostly in the southern half of the state.

1 Plants monoecious, both sexes present

9 Inflorescences composed of axillary clusters or glomerules, subtended by leaves or leaf-like bracts

10 Tepals of pistillate flowers fan-shaped, the margins fimbriate ..... *A. fimbriatus*

10 Tepals of pistillate flowers spatulate to narrowly ovate, the margins entire to minutely erose

11 Pistillate flowers with 3 tepals ..... *A. albus*

Linnaeus ●Widespread in sandy disturbed ground, roadsides, fields; native to the tropical

- Americas.
- 11 Pistillate flowers with 5 tepals
- 12 Axis of the inflorescence, pedicels, and bracts much-thickened and becoming indurate.....*A. crassipes*  
Schlechtendal ●Disturbed ground and waste places in the southern region. ♦Our plants are  
var. *warnockii* (I.M. Johnston) Henrickson.
- 12 Axis of the inflorescence, pedicels, and bracts not thickened nor becoming indurate
- 13 Plants generally prostrate, sometimes ascending; leaves 1-4 cm long, pale green and often  
with whitish splotches.....*A. blitoides*  
S. Watson ●Widespread in disturbed roadsides, weedy fields, waste places; native to the  
Central or Eastern United States.
- 13 Plants ascending to erect (branches sometimes prostrate in *A. polygonoides*); leaves 1-7 cm  
long, bright to pale green but lacking white splotches
- 14 Pistillate tepals prominently 3-veined, connate in basal one-third.....*A. polygonoides*  
Linnaeus ●Known in New Mexico only from waste places in Luna County, around  
abandoned buildings.
- 14 Pistillate tepals distinct, not prominently 3-veined.....*A. torreyi*
- 9 Inflorescences composed of terminal spikes and/or panicles, leafless in the terminal portions
- 15 Tepals of pistillate flowers fan-shaped to spatulate, bases contracted into a claw, terminal spikes  
unbranched or nearly so and interrupted
- 16 Utricles indehiscent.....*A. obcordatus*  
(A. Gray) Standley ●Dry desert habitats, washes, naturally disturbed sites; uncommon.
- 16 Utricle dehiscence circumscissile
- 17 Tepals of pistillate flowers fan-shaped, longer than bracts, margins fimbriate.....*A. fimbriatus*  
(Torrey) Bentham ex S. Watson ●Sandy ground, washes, disturbed sites, mostly in the  
southern Rio Grande Valley.
- 17 Tepals of pistillate flowers spatulate, shorter than bracts, margins entire or rarely minutely  
erose.....*A. torreyi*  
(Gray) Bentham ex S. Watson ●Sandy washes, flats, slopes, and other naturally disturbed  
habitats; mostly in the western half of the state.
- 15 Tepals of pistillate flowers spatulate to lanceolate, bases never contracted into a claw; terminal spikes  
usually branched and somewhat interrupted
- 18 Utricles indehiscent; tepals of pistillate flowers 3 in number; bracts of the inflorescence shorter than  
the tepals.....*A. viridis*  
Linnaeus ●Fields, roadsides, other disturbed places, mostly in the southwestern region.
- 18 Utricles dehiscent; tepals of pistillate flowers 5 in number (3-5 on the same plant in *A. powellii*);  
bracts of the inflorescence longer than the tepals (equal in some ornamentals)
- 19 Mature inflorescences large and robust, usually brightly colored, reddish, purplish, or  
yellowish; plants cultivated and escaping to nearby open ground, but not persistent for very  
long
- 20 Inflorescences stiff, erect.....*A. hypochondriacus*  
Linnaeus ●Widely cultivated as a garden ornamental, sometimes escaping, but not  
persisting long; native to Mexico.
- 20 Inflorescences lax, some erect to most drooping
- 21 Tepals of pistillate flowers oblong to lanceolate, broadest at the middle or base, the  
apices acute; style branches erect or slightly reflexed.....*A. cruentus*  
Linnaeus ●Widely cultivated as a garden ornamental and occasionally escaping, but  
not persisting long; known in the wild from Doña Ana, Sandoval and Socorro  
counties; native to the tropical Americas.
- 21 Tepals of pistillate flowers, at least the inner, broadest at the apex, the apices obtuse to  
emarginate; style branches spreading or reflexed.....*A. caudatus*  
Linnaeus ●Cultivated for ornament (from whence a few reports), but not known to  
escape to the wild; native to the tropical Americas.
- 19 Mature inflorescences less robust, usually green; plants wild, often weedy
- 22 Plants densely viscid-pubescent; inflorescence usually unbranched.....*A. viscidulus*  
Greene ●Open dry slopes, naturally occurring disturbed ground, central and southern  
regions.
- 22 Plants not viscid (occasionally slightly so in *A. retroflexus*); inflorescence branched
- 23 Tepals of pistillate flowers obtuse, rounded, or emarginate at the apex
- 24 Plants glabrous or nearly so; tepals of pistillate flowers 1.5-2 mm long.....  
.....*A. wrightii*  
S. Watson ●Naturally disturbed habitats in canyons and deserts; central and  
western areas.
- 24 Plants densely to moderately pubescent; tepals of pistillate flowers 2.5-4 mm long

- (rarely shorter) ..... *A. retroflexus*  
 Linnaeus ●Widespread throughout much of the state in open disturbed ground, roadsides, stream banks, fields; native to the tropical Americas.
- 23 Tepals of pistillate flowers acute or acuminate to aristate at the apex
- 25 Bracts 2-4 mm long; inflorescence often soft and lax, with spreading branches .....  
 ..... *A. hybridus*  
 Linnaeus ●Widespread in the state, open disturbed areas, roadsides, cultivated fields; native to eastern North America.
- 25 Bracts 4-7 mm long; inflorescence usually stiff, with erect branches .... *A. powellii*  
 S. Watson ●Disturbed ground; widespread.

**Atriplex**

- 1 Plants perennial shrubs, woody at least at the base
  - 2 Leaves sinuate, sinuate-dentate, or subhastate, the herbage silvery-white; fruits appendaged with flattened to horn-like tubercles to 8 mm long ..... *A. acanthocarpa*  
 (Torrey) S. Watson ●Alkaline soils, playas, and roadsides in the southwestern region. ♦Our plants belong to var. *acanthocarpa*.
  - 2 Leaves entire to merely hastately lobed, or if sinuate-dentate, the herbage green or gray
    - 3 Bracteoles of the fruits conspicuously 4-winged
      - 4 Leaves 3-8 mm wide; shrubs mainly 50 cm or more tall (when mature); widespread throughout the state ..... *A. canescens*  
 (Pursh) Nuttall ●Throughout the state in a variety of habitats, common in desert shrublands, mountain brush and piñon-juniper woodlands.
      - 4 Leaves mostly 15-32 mm wide; shrubs mostly 20-60 cm tall; only in the Four Corners region .....  
 ..... *A. garrettii*  
 Rydberg ●Talus slopes near Shiprock, San Juan County; known only from two specimens and apparently quite rare in the state.
    - 3 Bracteoles of the fruits lacking wings, entire to densely tubercled
      - 5 Plants definitely thorny; bracteoles foliose, entire, united only at the base, the surfaces lacking appendages; leaves ovate to orbicular ..... *A. confertifolia*  
 (Torrey & Frémont) S. Watson ●Salt-desert shrub communities from the Four Corners region to Socorro and Torrance counties.
      - 5 Plants not definitely thorny, or if somewhat so then the bracteoles united at least 1/3, the surfaces appendaged or not; leaf shape various
        - 6 Stems slender, sharply angled, striate; leaves 1-nerved ..... *A. torreyi*  
 (S. Watson) S. Watson ●Saline flats, entering New Mexico in southwestern region of the bootheel. ♦Our plants belong to var. *griffithsii* (Standley) G.D. Brown.
        - 6 Stems stout, terete or obscurely angled; leaves 1- to 3-nerved
          - 7 Stems stiffly erect or widely spreading; bush or clump about as tall as wide; fruiting bracteoles fused only at the base ..... *A. obovata*  
 Moquin-Tandon ●Salt-desert shrub and piñon-juniper communities mostly in the northwestern and southwestern quarters of the state.
          - 7 Stems prostrate to ascending; bush or clump much wider than tall; fruiting bracteoles fused at least half their length
            - 8 Leaves 2-6 mm wide ..... *A. corrugata*  
 S. Watson ●Usually shale substrates in saltbush communities in the Four Corners region, often with *Atriplex gardneri*.
            - 8 Leaves 6-25 mm wide ..... *A. gardneri*  
 (Moquin-Tandon) D. Dietrich ●Usually shale substrates in salt bush communities in the Four Corners region, often with *A. corrugata*. ♦Our plants belong to var. *cuneata* (A. Nelson) S.L. Welsh.
  - 1 Plants annual or perennial herbs, not woody even at the base
    - 9 Leaves usually green on both surfaces, glabrous or only finely scurfy
      - 10 Blades ovate to oblong and sinuate-dentate (rarely some entire) ..... *A. rosea*  
 Linnaeus ●Moist disturbed sites, roadsides, along irrigation canals in scattered locales, growing as rounded bushes; native to Eurasia.
      - 10 Blades not both ovate to oblong and sinuate-dentate, generally lanceolate to triangular-hastate and entire to variously irregularly toothed
        - 11 Bracteoles strongly flattened, orbicular to ovate; pistillate flowers of two kinds: some with horizontal seeds and some with vertical seeds ..... *A. hortensis*  
 Moquin-Tandon ●Grown as a potherb, sometimes escaping; known from two collections in northern New Mexico; native to Asia and Europe.
        - 11 Bracteoles variously compressed, orbicular only in *A. micrantha*; pistillate flowers of only one kind, or if dimorphic then seeds vertical in both kinds
          - 12 Bracteoles thickened with spongy tissue



- 13 Blades thick, strongly 3-veined, the ones near the base lanceolate.....*A. dioica*  
Rafinesque ●Saline areas in the Four Corners region.
- 13 Blades thin, not conspicuously 3-veined, the ones near the base triangular ..... *A. prostrata*  
Bouché ex A.P. de Candolle ●Saline areas in the Four Corners region.
- 12 Bracteoles not so thickened
- 14 Bracteoles ovate to widely triangular, the surfaces often with 2 tubercles, the margin toothed; leaves usually thickened and finely scurfy ..... *A. dioica*  
Rafinesque ●Saline areas in the Four Corners region.
- 14 Bracteoles orbicular-ovate, the surfaces smooth and lacking tubercles, the margin entire; leaves usually thin, not or scarcely scurfy ..... *A. micrantha*  
Ledebour ●Riparian areas, moist ground, waste areas, scattered locations; native to Eurasia.
- 9 Leaves white to gray, markedly scurfy, especially on the lower surface; blades variously shaped
- 15 Plants annual
- 16 Fruiting bracteoles enclosing 2-6 pistillate flowers; Mancos Shale in the Four Corners region.....  
.....go to *Proatriplex*
- 16 Fruiting bracteoles enclosing a single flower; distribution various
- 17 Blades thick and moist to the touch when fresh, thin and brittle when dry; bracteoles on stipes 2-8 mm long or more, the body of the bracteole 5-6 mm thick, globose, with horn-like appendages on both faces (some bracteoles sessile with smooth faces) ..... *A. saccaria*  
S. Watson ●Salt-desert shrub communities in the Four Corners region
- 17 Blades not thick and moist/thin and brittle as above; bracteoles sessile, or if stipitate then the body other than above
- 18 Stems terete; leaf blades ovate to rhombic-ovate or oval, sinuate-dentate or rarely entire.....  
.....*A. rosea*  
Linnaeus ●Moist disturbed sites, roadsides, along irrigation canals in scattered locales, growing as rounded bushes; native to Eurasia.
- 18 Stems angled; leaves various but not both ovate and toothed
- 19 Blades strongly 3-veined from the base with long ascending lateral nerves, entire, thick and firm.....*A. powellii*  
S. Watson ●Clay and sandy ground in the northwest quarter.
- 19 Blades not all as above, mostly not 3-veined
- 20 Leaf blades commonly broadest below the middle, ovate to lance-ovate, broadly cuneate to truncate or even cordate at the base, the margin toothed or entire, the lower and upper surfaces similar in color or the upper light, 1- 3- or 5-nerved; fruiting bracteoles dimorphic .....*A. argentea*  
Nuttall ●Mancos shale and desert scrub in the Four corners region, south to Socorro County.
- 20 Leaf blades usually broadest at or above the middle, oblong to elliptic-spatulate or obovate, cuneate or attenuate at the base, the margin usually sinuate-dentate, the lower surface lighter than the upper, 1-nerved; fruiting bracteoles not dimorphic
- 21 Plants usually taller than 30 cm, sparsely branched or unbranched. *A. wrightii*  
S. Watson ●Streams and arroyos in arid grasslands and woodlands in the southwestern border region.
- 21 Plants usually shorter than 30 cm, sometimes up to 60 cm, much-branched from the base.....*A. elegans*  
(Moquin-Tandon) D. Dietrich ●Arid grassland and desert shrub areas in the southern region.
- 15 Plants perennial
- 22 Plants nearly prostrate, low-growing and forming mats.....*A. semibaccata*  
R. Brown ●Playas, roadsides, along canals in southern desert areas; native to Australia.
- 22 Plants erect, bushy
- 23 Petioles (at least some) as much as ½ as long as the blades.....*A. argentea*  
Nuttall ●Mancos shale and desert scrub in the Four corners region, south to Socorro County.
- 23 Petioles nearly absent.....*A. elegans*  
(Moquin-Tandon) D. Dietrich ●Arid grassland and desert shrub areas in the southern region.

**Bassia**

- 1 Fruiting calyx lobes with hooked spines.....*B. hyssopifolia*  
(Pallas) Kuntze ●Disturbed ground, roadsides, fields, along irrigation canals; widespread; native to Asia and Eastern Europe.
- 1 Fruiting calyx lobes with horizontal wings
- 2 Plants annual herbs.....*B. scoparia*  
(Linnaeus) A.J. Scott ●Disturbed ground, roadsides, fields, throughout the state, rivaling *Salsola tragus* in ubiquity; native to Eurasia.

- 2 Plants perennial subshrubs ..... *B. prostrata*  
 (Linnaeus) Beck ●Established in reseeded programs for mine reclamation in the Four Corners region; also reported for Los Alamos County; native to Eurasia.

**Blitum**

- 1 Tepal 1, small, bract-like ..... *B. nuttallianum*  
 Schultes ●Scattered throughout the state in clayey, alkaline soil, disturbed ground.

1 Tepals 3(-4)

- 2 Glomerules subtended by leaf-like bracts throughout the spike; flowers maturing from base of plant to apex ..... *B. virgatum*  
 Linnaeus ●Waste ground, disturbed sites, mostly in the northwestern region; native to Eurasia.  
 2 Glomerules not subtended by leaf-like bracts, at least in the terminal half of the spike; flowers maturing from apex to the base of the plant ..... *B. capitatum*  
 Linnaeus ●In forests among aspens, ponderosa pine, and piñon.

**Chenopodiastrum**

- 1 Leaf blades glabrous, principal leaves 4-15 cm long, margins sinuate-dentate; glomerules few-flowered in very open panicles; flowers in different stages of development ..... *C. simplex*  
 (Torrey) S. Fuentes, Uotila & Borsch ●Shady, moist places in wooded areas or along roadsides; uncommon, known only from two specimens.  
 1 Leaf blades farinose, principal leaves 1-5 cm long, margins irregularly dentate; glomerules in somewhat congested panicles; flowers in nearly the same stage of development ..... *C. murale*  
 (Linnaeus) S. Fuentes, Uotila & Borsch ●Waste places, disturbed areas, roadsides; uncommon in west central areas; native to Eurasia and northern Africa.

**Chenopodium**

- 1 Herbage stinking like rotten fish; pericarps honeycomb-pitted (faintly so in *C. hircinum*)  
 2 Blades prominently sinuate-dentate and usually also lobed; plants stout, yellowish ..... *C. hircinum*  
 Schrader ●Reported in the early 1900s from southern New Mexico, but specimens are unknown; native to South America; awaits verification.  
 2 Blades mostly entire above the base, which may be lobed or expanded; plants slender, generally not yellowish  
 3 Leaves densely farinose on both surfaces, whitish; blades broadest very near the base; fruits completely enclosed by the tepals at maturity, the pericarp slightly to markedly whitened; seeds subglobose ..... *C. watsonii*  
 A. Nelson ●Woodlands and shrublands of various kinds, often with piñon and juniper, disturbed ground.  
 3 Leaves sparsely farinose to nearly glabrous, at least above; blades often with hastate lobes above the base; fruits partially exposed by the spreading tepals at maturity, the pericarp black; seeds ± flattened ..... *C. neomexicanum*  
 Standley ●Disturbed ground in woodlands pine forests, and roadsides.  
 1 Herbage not malodorous; pericarps smooth or roughened, honeycomb-pitted in *C. berlandieri*  
 4 Primary leaf blades evidently toothed to sinuate-dentate above any basal lobes, at least those of the main stem  
 5 Glomerules large, (3)4-7 mm in diameter; pericarp honeycomb-pitted; style base persistent on the fruit; tepals keeled ..... *C. berlandieri*  
 Moquin-Tandon ●Disturbed sites, fields, roadsides; widespread.  
 5 Glomerules smaller, 1.5-4 mm in diameter; pericarp not honeycomb-pitted; style base deciduous from the fruit; tepals keeled or not; pericarp closely investing the seed and scarcely separable from it; blades mostly ovate to rhombic in outline, or lanceolate and nearly entire, variously farinose beneath but often less than densely so; tepals keeled, covering or exposing the fruit at maturity ..... *C. album*  
 Linnaeus ●Disturbed ground in open sites.  
 4 Primary leaf blades entire above the base, which may have 1-2 lobes  
 6 Leaves with a single vein from the base and no pinnate veins, mostly linear; pericarp adherent  
 7 Blades 8-12 mm wide or more, broadly linear to narrowly lanceolate ..... *C. album*  
 Linnaeus ●Disturbed ground in open sites.  
 7 Blades less than 5 mm wide  
 8 Blades densely farinose below; fruits 1.1 mm or less in diameter; fruit exposed by the spreading tepals at maturity ..... *C. leptophyllum*  
 (Nuttall ex Moquin-Tandon) S. Watson ●Widespread in the western half of the state in disturbed areas, often in the mountains, and scattered localities elsewhere.  
 8 Blades sparsely farinose below; fruits 1.3-1.6 mm in diameter; fruit exposed or covered by the tepals  
 9 Tepals enlarging slightly and spreading to expose the fruit, fused for more than half their length, with an undulate collar from the sinuses; leaves 1-2 mm wide; pericarp sometimes markedly red, especially when young, but also brownish to nearly black ..... *C. cycloides*  
 A. Nelson ●Open sandy areas and blowouts in the eastern plains and a few other areas;

uncommon.

- 9 Tepals not enlarging, enclosing the fruit, fused for half their length or less, lacking an undulate collar from the sinuses; leaves 1-6 mm wide; pericarp brownish to black..... *C. pallescens*  
Standley ●Open ground mostly in the southeastern region; uncommon.
- 6 Leaves with 3 or more veins from the base and/or pinnately veined, generally broader than linear; pericarp adherent or free from the seed
  - 10 Blades triangular to broadly rhombic-ovate, with lobes at midlength or below, 1-2 times longer than broad
    - 11 Pericarp adherent or mostly so, honeycomb-pitted ..... *C. lenticulare*  
Aellen ●Scattered localities, thin soil, rocky ledges, ravines, plains and foothills.
    - 11 Pericarp free, smooth
      - 12 Tepals tightly covering the fruit at maturity, weakly keeled; blades relatively thick; glomerules crowded; seeds 0.9-1.1 mm in diameter ..... *C. incanum*  
(S. Watson) Heller ●In a variety of habitats, deserts to woodlands in the foothills, but tending to be at lower elevations.
      - 12 Tepals spreading to expose the fruits at maturity, strongly keeled; blades relatively thick or thin; glomerules spaced; seeds 1-1.3 mm in diameter
      - 13 Most primary leaf blades elliptic to ovate-oblong; seeds generally reddish brown.....  
..... *C. atrovirens*  
Rydberg ●Open spaces in mountain areas from 6000-12,000 ft; widespread, scattered locales.
      - 13 Most primary leaf blades deltate, triangular, or elliptic with basal lobes; seeds black .....  
..... *C. fremontii*  
S. Watson ●Found in a variety of habitats nearly throughout the state, from deserts to forests, but typically more of a montane species.
  - 10 Blades narrowly ovate, oblong, or narrower, never broadly rhombic or triangular, sometimes with basal lobes, 2-5 times longer than broad
    - 14 Flowering shoots virgate, narrow and spike-like; inflorescence bracts leaf-like ..... *C. hians*  
Standley ●Open prairies, sand hills, roadsides.
    - 14 Flowering shoots mostly branching, not virgate; inflorescence bracts absent or tiny, not leaf-like
      - 15 Pericarp free from the seed, separating nearly in its entirety; blades 3-5 times longer than broad; plants usually shorter than 30 cm ..... *C. desiccatum*  
A. Nelson ●Disturbed ground generally below 7500 ft (up to 8000).
      - 15 Pericarp adherent to the seed, or coming off in small patches; blades 2-3 times longer than broad; plants commonly taller than 50 cm..... *C. incognitum*  
Wahl ●Pine woods, moist canyons, mountain habitats.

**Corispermum**

- 1 Fruits 1.8-3.2 mm long, wingless or with a scarcely visible wing; style base protruding beyond the wing .....  
..... *C. villosum*  
Rydberg ●Sandy, disturbed areas in the northwestern quarter of the state; probably originally native to eastern Asia.
- 1 Fruits 2.5-4.6 mm long, with a visible wing 0.2-0.6 mm wide
  - 2 Wings of fruits 0.4-0.6 mm wide; inflorescence usually compact and dense ..... *C. welshii*  
Mosyakin ●Sand dunes, sandy stream margins; mostly in the northwestern portion of the state, scattered elsewhere.
  - 2 Wings of fruits 0.2-0.4 mm wide; inflorescence usually lax and interrupted ..... *C. americanum*  
(Nuttall) Nuttall ●Sandy fields, dunes waste places. ♦We have two varieties:

**Cycloloma**

*C. atriplicifolium* (Sprengel) Coulter ●Disturbed sandy soils, washes, deserts, fields, roadsides; widespread.

**Dysphania**

- 1 Inflorescence of small sessile clusters along straight, elongate spikes; leaves often 10 cm long or more, generally entire or sinuate-toothed; tepals not glandular..... *D. ambrosioides*  
(Linnaeus) Mosyakin & Clemants ●Disturbed ground in a variety of communities, often seasonally moist areas such as river bottoms and lake beds; native to southern Mexico, Central America, and South America.
- 1 Inflorescence open, cymosely branched; leaves less than 4 cm long, generally pinnatifid; tepals glandular
  - 2 Cymes with the sessile central flower developed, the lateral pedicellate ones abortive and their pedicels naked and becoming spine-like..... *D. graveolens*  
(Willdenow) Mosyakin & Clemants ●Open, shady sites in the mountains and foothills; our native species.
  - 2 Cymes with all flowers equally developed..... *D. botrys*  
(Linnaeus) Mosyakin & Clemants ●Disturbed areas in sandy or gravelly ground; native to the Mediterranean region.

**Froelichia**

- 1 Plants perennial from enlarged woody taproots; flowers mostly 4-6 mm long; fruiting perianth with dentate wings..... *F. arizonica*

Dicotyledonous Plants - Amaranthaceae

Thornber ex Standley ●Open rocky or gravelly hillsides and washes in the southern deserts.

- 1 Plants annual or short-lived perennial, the taproots slender and at most semi-woody; flowers 2-6 mm long; fruiting perianth with dentate to spiny wings
- 2 Larger leaves 2-12 mm wide; flowers in 3-ranked spiral, 2-4 mm long; bracteoles investing the flower glabrous; fruiting perianth with irregularly and deeply cut (spiny) lateral wings; common and widespread....  
..... *F. gracilis*  
(Hooker) Moquin-Tandon ●Roadsides, washes, rocky hillsides, waste places; widespread throughout the state.
- 2 Larger leaves 5-42 mm wide; flowers in 5-ranked spiral, 4-6 mm long; bracteoles investing the flower pubescent distally; fruiting perianth with irregularly crenulate to dentate lateral wings; not yet known in the state ..... *F. floridana*  
(Nuttall) Moquin-Tandon ●To be looked for in sandy soil in the far eastern prairie region; not known definitely in the state. ♦All plants called this that we have seen belong to *Froelichia gracilis*.

**Gomphrena**

- 1 Bracts of the inflorescence cristate-keeled along the midnerve, at least the upper part of the bract
- 2 Plants perennial; heads 20-28 mm in diameter; blades to 1 cm wide ..... *G. haageana*  
Klotsch ●Rocky banks and hillsides; reported by Clemants (2003), but specimens in the wild are unknown.
- 2 Plants annual; heads 12-16 mm in diameter; blades 0.4-2.5 cm wide ..... *G. nitida*  
Rothrock ●Canyon bottoms and rocky slopes in the southwestern quarter of the state.
- 1 Bracts of the inflorescence not cristate-keeled along the midnerve
- 3 Stems with several pairs of leaves, to 40 cm high.....*G. sonorae*  
Torrey ●Sandy ground open woodlands, dry stream bottoms in the bootheel region.
- 3 Stems with 1-2 pairs of leaves, 3-15 cm high
- 4 Leaf blades green, very sparsely villous and becoming glabrous; blades of cauline leaves longer than broad..... *G. viridis*  
Wootton & Standley ●Dry hills in the bootheel region.
- 4 Leaf blades gray, densely villous; blades of cauline leaves as broad as long ..... *G. caespitosa*  
Torrey ●Oak-juniper-piñon woodlands, rocky hillsides; southwestern.

**Gossypianthus**

*G. lanuginosus* (Poiret) Moquin-Tandon ●Sandy or clayey waste ground in the eastern plains; known in New Mexico only from Roosevelt County.

**Grayia**

- 1 Shrubs with divaricate, often thorny branches; mature fruiting bracteoles 7.5-14 mm long, margins thickened, spongy within, pubescence of branched hairs ..... *G. spinosa*  
(Hooker) Moquin-Tandon ●Valleys and foothills in dry alkaline or scarcely alkaline soils; northwestern.
- 1 Subshrubs with erect thornless branches; mature fruiting bracteoles 2.2-6.5 mm long, margins not spongy-thickened; pubescence of scurfy or unbranched hairs
- 2 Leaves mostly less than 6 mm wide, linear to narrowly oblanceolate, conduplicate or often involute.....  
..... *G. brandegeei*  
Gray ●Alkaline or saline substrates in the northwestern portion of the state; reports from Eddy County are misidentifications.
- 2 Leaves mostly wider than 6 mm, spatulate, obovate, or oblanceolate, flat ..... *G. plummeri*  
(Stutz & Sanderson) Zacharias ●Alkaline or saline substrates; northwestern.

**Guilleminea**

*G. densa* (Humboldt & Bonpland ex Schultes) Moquin-Tandon ●Dry, open disturbed areas mostly in the southern portions of the state, but scattered elsewhere. ♦Our plants belong to var. *aggregata* Uline & Bray.

**Halogeton**

\**H. glomeratus* (Bieberstein) C.A. Mayer ●Barren and disturbed alkaline soils; mostly northwestern, but occasional elsewhere; native to Asia.

**Iresine**

*I. heterophylla* Standley ●Dry ravines and canyons in the southwestern region.

**Krascheninnikovia**

*K. lanata* (Pursh) Meeuse & Smit ●Throughout the state in a variety of communities, usually low hills and flats, providing valuable winter feed for cattle.

**Neokochia**

*N. americana* (S. Watson) G.L. Chu & S.C. Sanderson ●Dry alkaline sites, barren hillsides; scattered plains areas, uncommon.

**Nitrophila**

*N. occidentalis* (Moquin-Tandon) S. Watson ●Perhaps to be found in moist alkaline soil in the northwestern region; frequently reported from the state, but specimens so far belong to *Blitum nuttallianum*, *Eriogonum* species, or *Lysimachia maritima*.

**Oxybasis**

1 Leaf blades lanceolate to oblong, grayish farinose below.....*O. glauca*  
(Linnaeus) S. Fuentes, Uotila & Borsch ●Disturbed ground, waste places, nearly throughout the state in

scattered locales.

- 1 Leaf blades triangular to rhombic, green and glabrate below..... *O. rubra*  
(Linnaeus) S. Fuentes, Uotila & Borsch ●Moist open areas, alkali flats and playas.

#### **Proatriplex**

*P. pleiantha* (W.A. Weber) Stutz & G.L. Chu ●Mancos shale mostly in San Juan County, with a few outliers.

#### **Salicornia**

- 1 Plants annual..... *S. rubra*  
A. Nelson ●Seasonally wet low ground and playas in the eastern plains.  
1 Plants perennial..... *S. utahensis*  
Tidestrom ●Marshes and playa flats in the south-central region and eastern plains.

#### **Salsola**

- 1 Bracts appressed along the flowering shoot, strongly imbricate, gradually narrowed into a spinose apex; spikes dense, not interrupted..... *S. collina*  
P.S. Pallas ●Scattered locales in waste areas and disturbed sites; central and northern areas, apparently expanding its range.  
1 Bracts reflexed at maturity, not imbricate, abruptly narrowed to the spinose apex; spikes interrupted at least at the base  
2 Leaves mostly 1-2 mm wide; fruiting wings 7-12 mm in diameter..... *S. paulsenii*  
Litvinov ●Only recently found in the Four Corners region in disturbed areas.  
2 Leaves less than 1 mm wide; fruiting wings 4-6 mm in diameter, occasionally to 9 mm..... *S. tragus*  
Linnaeus ●Found throughout the state in a wide variety of disturbed habitats.

#### **Suaeda**

- 1 Plants shrubby..... *S. nigra*  
(Rafinesque) J.F. Macbride ●Wet saline, alkaline, or gypseous soils, clay flats, and playas; our common seepweed.  
1 Plants herbaceous  
2 Flowers zygomorphic (bilateral), 1 or 3 calyx lobes larger than the others; calyx lobes horned and ± keeled and wing-margined; cross-section of fresh leaves appearing uniformly green at 10x magnification.....  
..... *S. calceoliformis*  
(Hooker) Moquin-Tandon ●Wet, saline or alkaline soils, clay flats, and playas; scattered locales throughout the state. ♦Plants are uniformly annual herbs.  
2 Flowers actinomorphic (radial), all the lobes ± alike; calyx lobes not horned, keeled, nor wing-margined; cross-section of fresh leaves with a dark green ring of chlorenchyma just below the epidermis..... *S. nigra*  
(Rafinesque) J.F. Macbride ●Wet saline, alkaline, or gypseous soils, clay flats, and playas; our common seepweed.

#### **Suckleya**

*S. suckleyana* (Torrey) Rydberg ●Dry lake bottoms, swales, fields, ditches; scattered locales.

#### **Tidestromia**

- 1 Plants perennial, the stems erect or ascending..... *T. suffruticosa*  
(Torrey) Standley ●Desert hills and bajadas, mostly southern.  
1 Plant annual, the stems prostrate to widely spreading..... *T. lanuginosa*  
(Nuttall) Standley ●Dry plains, foothills, sandy ground chiefly in desert regions.

### **ANACAMPSEROTACEAE ANACAMPSEROS FAMILY**

#### **Talinopsis**

*T. frutescens* Gray ●Gravelly, often limestone slopes of the desert mountains and foothills of Doña Ana and Otero counties.

### **ANACARDIACEAE SUMAC FAMILY**

- 1 Orchard or ornamental trees..... *Pistacia*  
1 Wild plants (shrubby *Rhus* species are infrequently used as ornamentals, but they are never tree-like)  
2 Leaflets mostly 3 in number; inflorescence loose, axillary; flowers white to cream, not glandular.....  
..... *Toxicodendron*  
2 Leaflets 3-25 in number; inflorescence dense, terminal or lateral; fruit reddish to orange, glandular pubescent..... *Rhus*

#### **Pistacia**

- 1 Leaves even-pinnate (occasional leaves with a terminal leaflet), with 8-16 pointed leaflets..... *P. chinensis*  
Bunge ●Not known in the wild, but commonly grown as an ornamental tree in the southern half of the state.  
1 Leaves usually odd-pinnate with a terminal leaflet, with 3 rounded leaflets (occasionally up to 7)..... *P. vera*  
Linnaeus ●Not known in the wild, but commercially grown in southern New Mexico, particularly in the vicinity of Alamogordo and Tularosa.

#### **Rhus**

- 1 Leaves unlobed, simple, glossy, evergreen (rarely 3-foliolate)..... *R. ovata*  
Watson ●Shaded canyons and rocky slopes; known from the Peloncillo and Big Hatchet mountains, Hidalgo

Dicotyledonous Plants - Apiaceae

County.

- 1 Leaves lobed to compound, glossy or dull, evergreen or deciduous
- 2 Leaves with 1-3 leaflets ..... *R. trilobata*  
Nuttall ●Widespread throughout the state from desert regions to mid-elevations in the mountains.
- 2 Leaves with 5 leaflets or more
- 3 Rachis of leaf winged
- 4 Leaflets less than 2 cm long; flowers appearing before the leaves; stems intricately branched.....  
..... *R. microphylla*  
Engelmann ex Gray ●Widely distributed in the deserts, plains, and lower foothills, generally absent from the northwestern quarter of the state.
- 4 Leaflets usually 3 cm long or more; flowers appearing after the leaves; stems not intricately branched ..  
..... *R. lanceolata*  
(Gray) Britton ●Infrequent in desert canyons of the south-central and southeastern mountain foothills.
- 3 Rachis of leaf not winged
- 5 Leaflets 9-25 in number, deciduous, not leathery ..... *R. glabra*  
Linnaeus ●Scattered throughout the mountain regions, usually at 6500-8500 ft.
- 5 Leaflets 3-9 in number, evergreen and leathery ..... *R. virens*  
Lindheimer ex Gray ●Desert canyons in extreme southern New Mexico.

**Toxicodendron**

*T. rydbergii* (Small ex Rydberg) Greene ●In all mountain ranges of the state up to nearly 9000 ft and extending into moist canyons and river drainages on the plains, frequently on washed out sites along rivers and streams.

**APIACEAE (UMBELLIFERAE) CELERY or CARROT FAMILY**

- 1 Leaves or leaf segments often stiffly spiny-toothed; flowers sessile in dense heads terminating the branches.....  
..... *Eryngium*
- 1 Leaves or leaf segments not spiny-toothed; flowers variously arranged
- 2 Leaves entire or very shallowly lobed, simple
- 3 Leaf blades entire ..... *Bupleurum*
- 3 Leaf blades crenate to lobed ..... *Bowlesia*
- 2 Leaves dissected, deeply cleft, or divided to compound
- 4 Ovary and fruit armed with numerous stiff barbs, hooks, bristles, teeth, or tubercles..... **KEY A**
- 4 Ovary and fruit unarmed
- 5 Ovary and fruit pubescent
- 6 Principle leaves once-compound with 3 leaflets 10-30 cm long and wide, the leaflets sometimes again cleft; robust perennials 1-3 m tall ..... *Heracleum*
- 6 Principle leaves twice- to multi-compound, leaflets seldom as wide as 10 cm; annuals or perennials of various heights..... *Lomatium*
- 5 Ovary and fruit glabrous
- 7 Leaves organized into distinct and easily recognized leaflets ..... **KEY B**
- 7 Leaves dissected or irregularly divided into numerous segments, distinctive leaflets not immediately obvious ..... **KEY C**
- KEY A: Ovary and fruit armed with numerous stiff barbs, hooks, bristles, tubercles, or teeth**
- 1 Leaves with well-defined, distinct leaflets; fruits elongate, narrow, clavate to fusiform, bristly-hispid but lacking hooks or true barbs ..... *Osmorhiza*
- 1 Leaves dissected or cleft into numerous segments, only with difficulty interpreted as having distinct leaflets; fruits ovoid to oblong with evident hooks, barbs or teeth
- 2 Fruit tuberculate or toothed, not barbed or hooked
- 3 Fruit ribs sparsely to densely scaberulous with tooth-like projections ..... *Ammoselinum*
- 3 Fruit ribs and intervals tuberculate ..... *Spermolepis*
- 2 Fruit with barbed or hooked prickles, not tuberculate
- 4 Prickles scattered over the surface of the fruit
- 5 Leaf segments filiform and entire ..... *Spermolepis*
- 5 Leaf segments broadened, toothed or lobed
- 6 Plants perennial; leaflets palmately arranged ..... *Sanicula*
- 6 Plants annual; leaflets or segments pinnately arranged ..... *Torilis*
- 4 Prickles in definite rows on the fruit
- 7 Involucral bracts scarcely different from the foliage leaves; prickles hooked (curved) at the tips . *Yabea*
- 7 Involucral bracts noticeably different from the foliage leaves; prickles straight but barbed at the tips.....  
..... *Daucus*

**KEY B: Leaves organized into distinct and easily recognized leaflets**

- 1 Larger, principal leaves once-compound
- 2 Leaflets 10-30 cm wide; upper leaf sheaths conspicuously expanded ..... *Heracleum*

- 2 Leaflets less than 10 cm wide; upper leaf sheaths not much expanded
- 3 Leaflets entire; plants low scapose perennials from a tuberous thickened root (*O. linearifolium*) **Lomatium**
- 3 Leaflets toothed to cleft; plants generally otherwise
- 4 Lateral veins of the leaflets tending to end in the sinus between the teeth; leaflets serrate, never cleft; stem bases thickened, hollow, with transverse partitions; **CAUTION:** Plants extremely toxic if ingested..... **Cicuta**
- 4 Lateral veins of the leaflets not ending in the sinus; leaflets toothed and sometimes also cleft; stem bases without transverse partitions
- 5 Plants perennial from fibrous or fleshy-thickened fascicled roots
- 6 Involucre and involucre absent..... **Oxypolis**
- 6 Involucre and involucre well-developed
- 7 Blades simply toothed, not lobed, cleft, or incised..... **Sium**
- 7 Blades lobed, cleft, or divided..... **Berula**
- 5 Plants annual to perennial from a taproot
- 8 Leaves, at least some, cauline
- 9 Flowers white..... **Apium**
- 9 Flowers yellow..... **Pastinaca**
- 8 Leaves all basal
- 10 Bracts of the involucre separate, toothed..... **Podistera**
- 10 Bracts of involucre united, entire
- 11 Lateral leaf lobes linear, mostly entire; primary rays of the umbel reflexed, giving the inflorescence a ball-shaped appearance..... **Neoparrya**
- 11 Lateral leaf lobes broad, mostly pinnatifid; primary rays of the umbel spreading to ascending, the inflorescence not ball-shaped..... **Aletes**
- 1 Larger, principal leaves 2- or 3-times compound
- 12 Plants flowering
- 13 Leaf segments narrow to filiform, long and thread-like
- 14 Flowers white..... **Perideridia**
- 14 Flowers yellow
- 15 Plants acaulescent..... **Cymopterus**
- 15 Plants caulescent..... **Aletes**
- 13 Leaf segments expanded, flattened, blade-like
- 16 Flowers yellow
- 17 Leaflets leaflets coarsely toothed, not lobed or cleft; involucre absent..... **Pastinaca**
- 17 Leaflets lobed or cleft
- 18 Involucre well-developed..... **Levisticum**
- 18 Involucre mostly lacking
- 19 Plants of high alpine meadows; bractlets of the involucre deeply 3-fid distally..... **Oreoxis**
- 19 Plants not of high altitude; bractlets of the involucre not divided distally. **Cymopterus**
- 16 Flowers white to pink or purple
- 20 Plants caulescent, flowers white
- 21 Upper leaf sheaths noticeably expanded..... **Angelica**
- 21 Upper leaf sheaths not much expanded if at all
- 22 Leaflets serrate, never cleft; lateral veins of the leaflets tending to end in the sinuses between the teeth; **CAUTION:** Plants extremely toxic if ingested..... **Cicuta**
- 22 Leaflets toothed and usually also cleft; lateral veins of the leaflets not ending in the sinuses..... **Ligisticum**
- 20 Plants acaulescent, flowers white to pink or purple..... **Vesper**
- 12 Plants fruiting
- 23 Fruit noticeably winged
- 24 All ribs winged
- 25 Plants stoutly caulescent
- 26 Involucre prominent..... **Levisticum**
- 26 Involucre  $\neq$  absent..... **Ligisticum**
- 25 Plants acaulescent or subcaulescent
- 27 Involucral bractlets 3-fid distally..... **Oreoxis**
- 27 Involucral bractlets not divided distally
- 28 Leaf segments filiform
- 29 Plants acaulescent..... **Cymopterus**
- 29 Plants caulescent..... **Aletes**
- 28 Leaf segments expanded, flattened, blade-like
- 30 Involucral bracts narrow, mostly foliose..... **Cymopterus**
- 30 Involucral bracts white to purple, scarious, or with broad white-scarious

- margins ..... *Vesper*
- 24 Some of the ribs wingless (the dorsal)
  - 31 Plants acaulescent or subcaulescent, stylopodium absent ..... *Cymopterus*
  - 31 Plants distinctly caulescent, stylopodium present
    - 32 Upper leaf sheaths noticeably expanded and sheathing ..... *Angelica*
    - 32 Upper leaf sheaths not much expanded if at all ..... *Pastinaca*
- 23 Fruit scarcely or not at all winged
  - 33 Leaflet segments linear or filiform ..... *Perideridia*
  - 33 Leaflet segments expanded, blade-like
    - 34 Lateral veins of the leaflets tending to end in the sinus between the teeth; leaflets serrate, never cleft; **CAUTION:** Plants extremely toxic if ingested ..... *Cicuta*
    - 34 Lateral veins of the leaflets not ending in the sinus; leaflets toothed and usually also cleft ..... *Ligusticum*

**KEY C: Leaves dissected or irregularly divided into numerous segments, distinctive leaflets not immediately obvious**

- 1 Keying by flower color and other features
  - 2 Flowers yellow (rarely red or purple)
    - 3 Stylopodium conic, well-developed
      - 4 High elevation plants less than 10 cm tall; leaves basal ..... *Podistera*
      - 4 Leafy-stemmed plants of lower elevation much taller than 10 cm; leaf segments filiform .. *Foeniculum*
    - 3 Stylopodium scarcely developed or obsolete
      - 5 Fruits tuberculate-roughened with prominent obtuse ribs ..... *Harbouria*
      - 5 Fruits with winged ribs
        - 6 Fruits with only the lateral ribs winged ..... *Lomatium*
        - 6 Fruits with lateral and one or more dorsal ribs winged ..... *Cymopterus*
  - 2 Flowers white to pink or purple
    - 7 Stems purple-spotted; **CAUTION:** Plants extremely toxic if ingested ..... *Conium*
    - 7 Stems not purple-spotted
      - 8 Plants annual or biennial
        - 9 Outer flowers of the umbel enlarged and radiate ..... *Coriandrum*
        - 9 Outer flowers of the umbel not enlarged nor radiate, similar to the other flowers
          - 10 Involucre present ..... *Eurytaenia*
          - 10 Involucre absent (sometimes with a few bracts in *Carum*)
            - 11 Involucel present
              - 12 Ultimate divisions of the leaves, at least some, ovate ..... *Chaerophyllum*
              - 12 Ultimate divisions of the leaves linear ..... *Ammoselinum*
            - 11 Involucel  $\pm$  absent
              - 13 Leaflets broad and leaf-like, not highly dissected or filiform and thread-like ..... *Apium*
              - 13 Leaflets, at least the upper, not broad and leaf-like, but highly dissected to filiform and thread-like
                - 14 Fruits cylindrical, elongate; carpophore bifid to the base ..... *Carum*
                - 14 Fruits ovoid; carpophore shortly bifid ..... *Cycospermum*
    - 8 Plants perennial
      - 15 Plants small, seldom more than 20 cm tall at maturity or during anthesis; leaves mostly basal
        - 16 Plants pubescent ..... *Lomatium*
        - 16 Plants mostly glabrous
          - 17 Fruits with only the lateral ribs winged ..... *Lomatium*
          - 17 Fruits with all ribs winged ..... *Vesper*
      - 15 Plants taller, generally well over 20 cm tall at maturity or during anthesis; leafy-stemmed
        - 18 Ultimate segments of the cauline leaves linear, mostly entire ..... *Perideridia*
        - 18 Ultimate segments of the cauline leaves lanceolate to oblong, often toothed or lobed
          - 19 Involucel absent ..... *Apium*
          - 19 Involucel present ..... *Conioselinum*
  - 1 Keying by fruiting and vegetative features
    - 20 Fruit dorsally compressed
      - 21 Plants annual ..... *Eurytaenia*
      - 21 Plants perennial
        - 22 Stylopodium well-developed, conic ..... *Conioselinum*
        - 22 Stylopodium absent or obsolete
          - 23 Dorsal ribs of fruit not winged ..... *Lomatium*
          - 23 One or more dorsal ribs winged
            - 24 Bractlets of the involucre green, linear or narrowly lanceolate, sometimes with narrow scarious margins ..... *Cymopterus*
            - 24 Bractlets of the involucre broad, with wide scarious margins or completely scarious



- ..... *Vesper*
- 20 Fruit laterally compressed or not noticeably compressed
- 25 Stems purple-spotted; **CAUTION:** Plants extremely toxic if ingested ..... *Conium*
- 25 Stems not purple-spotted
- 26 Plants distinctly perennial
- 27 Involucel absent
- 28 Ultimate segments of the leaflets filiform, mostly well under 1 mm wide ..... *Foeniculum*
- 28 Ultimate segments of the leaflets wider than 1 mm ..... *Apium*
- 27 Involucel present
- 29 Fruit prominently ribbed and tuberculate-roughened; ultimate leaf segments filiform  
..... *Harbouria*
- 29 Fruit prominently ribbed and smooth
- 30 Involucel bractlets entire; flowers white ..... *Perideridia*
- 30 Involucel bractlets toothed; flowers yellow ..... *Podistera*
- 26 Plants annual or biennial
- 31 Upper leaflets somewhat broad and leaf-like, the segments 1 cm or more wide ..... *Apium*
- 31 Upper leaflets narrow, the segments linear to filiform and mostly less than 5 mm wide
- 32 Calyx teeth present ..... *Coriandrum*
- 32 Calyx teeth absent; fruit halves readily separating at maturity
- 33 Involucel present
- 34 Bractlets linear ..... *Ammoselinum*
- 34 Bractlets ovate, ciliate ..... *Chaerophyllum*
- 33 Involucel ± absent
- 35 Fruit cylindrical, elongate; carpophore bifid to the base ..... *Carum*
- 35 Fruit ovoid; carpophore shortly bifid ..... *Cyclosperrum*

**Aletes**

- 1 Leaves 1-pinnate to pinnate-pinnatifid; leaf ultimate segments lanceolate to narrowly oblong, 5-15 mm long, 1.5-3.5 mm wide ..... *A. acaulis*  
(Torrey) Coulter & Rose •Forested and often rocky slopes and canyons of the central and southern mountains to over 10,000 ft.
- 1 Leaves ternately-pinnately decompose; leaf ultimate segments filiform, 5-70 mm long, 0.5-1 mm wide ..... *A. filifolius*  
Mathias, Constance, & Theobald •Rocky foothills and mountain slopes, mostly in the central and southern mountains, generally on limestone.

**Ammoselinum**

*A. popei* Torrey & Gray •Sandy and often calcareous soils primarily in the southeastern plains and deserts.

**Angelica**

- 1 Course, stout plants of stream banks at middle elevations, over 2 m tall, with very large umbels ..... *A. ampla*  
A. Nelson •Forest margins, grassy mountain slopes, wet meadows, known only from Colfax and Otero counties.
- 1 Smaller plants, less than 2 m tall
- 2 Involucel absent ..... *A. pinnata*  
S. Watson •Moist woods and wet meadows in the northern mountains.
- 2 Involucel present, bractlets often longer than the pedicels ..... *A. grayi*  
(Coulter & Rose) Coulter & Rose •High elevation meadows in the northern mountains.

**Apium**

\**A. graveolens* Linnaeus •Moist waste places around the southern mountains and foothills, adventive and expected elsewhere.

**Berula**

*B. erecta* (Hudson) Coville •Widespread in wet ground in or near streams and creeks.

**Bowlesia**

*B. incana* Ruiz & Pavon •Dry desert canyons and drainages of the southwestern foothills.

**Bupleurum**

*B. americanum* Coulter & Rose •Known in New Mexico only from piñon-juniper plains in Lincoln County.

**Carum**

\**C. carvi* Linnaeus •Disturbed moist ground in the northern counties (Taos, Colfax).

**Chaerophyllum**

*C. tainturieri* Hooker •Rocky prairies, open woodlands; Known only from a single collection from Eddy County.

**Cicuta** WATER-HEMLOCK – extremely POISONOUS.

- 1 Abaxial leaflet surfaces scabrous, the areoles (veinlet reticulations) elongate; mericarps circular to transversely elliptic, dorsal corky-thickened ribs wider than oil ducts ..... *C. douglasii*  
(A.P. de Candolle) Coulter & Rose •Montane wetlands, riparian areas; reported by various works, but authentic specimens are unknown and not likely to occur in New Mexico.

1 Abaxial leaflet surfaces glabrous, the areoles (veinlet reticulations) rounded or square; mericarps widely elliptic to circular; dorsal corky-thickened ribs usually narrower than or equaling oil ducts ..... *C. maculata* Linnaeus • Locally common along and in streams and ditches, edges of ponds, mostly in the mountains.

**Conioselinum**

*C. scopolorum* (Gray) Coulter & Rose • Along streams and seeps, wet meadows and ponds in moist, forested mountain areas.

**Conium** POISON HEMLOCK – extremely POISONOUS.

\**C. maculatum* Linnaeus • Widespread in the all mountainous areas of the state, along ditches and streams, moist roadsides, wet low ground, often in weedy spots; much more common than the other hemlock (*Cicuta maculata*)

**Coriandrum**

\**C. sativum* Linnaeus • An escapee from herb gardens in scattered weedy spots in the state, and expected in almost any county; native to Eurasia.

**Cyclospermum**

\**C. leptophyllum* (Persoon) Sprague ex Britton & Wilson • An aggressive weed in grassy areas and moist weedy ground, occurring in parks, lawns, and athletic fields in scattered locations.

**Cymopterus**

1 Plants low and mat-forming, from a branching caudex, alpine and subalpine (*Oreoxis*) ..... *C. alpinus* Gray • Mountain slopes and rock outcrops at higher elevations in the northern counties.

1 Plants of various habits and habitats, sometimes densely tufted, but not mat-forming

2 Umbels conspicuously granular-pubescent (10-x magnification) at the bases of the rays and the summit of the peduncle, sometimes also just below the nodes

3 Plants acaulescent ..... *C. spellenbergii* R.L. Hartman & J.E. Larson • Endemic to basalt ridges, bluffs, and ledges of the Rio Grande drainage in Taos and Rio Arriba counties, rarely also on metamorphic rock.

3 Plants caulescent

4 Rays usually 1-2 cm long, ascending; fruit 3-5 mm long ..... *C. lemmonii* (Coulter & Rose) Dorn • Widespread in wooded areas.

4 Rays usually 1.8-5.5 cm long, spreading; fruit 6-9 mm long ..... *C. longiradiatus* (Mathias, Constance & Theobald) B.L. Turner • Sandy to rocky ground, often on limestone substrates, central to southeast areas.

2 Umbels glabrous or scabrous at the base or below the nodes, not as above

5 Calyx teeth well-developed, 0.5-2 mm long

6 Fruits subterete (rarely slightly flattened laterally), the carpophore lacking ..... *C. sessiliflorus* (Theobald & Tseng) R.L. Hartman • Rocky places in mesas and canyons of the northwestern and central regions.

6 Fruits dorsally flattened, the carpophore well-developed

7 Plants of high elevations in the Sangre de Cristo mountain range, commonly acaulescent, all leaves basal ..... *C. hendersonii* (Coulter & Rose) Cronquist • Sangre de Cristo Mountains, 10,000 ft and above.

7 Plants of moderate elevations in the Four Corners region or the southwestern mountains, commonly caulescent, some leaves on the stems

8 Fruit 3-4 mm long; plants of the southwestern mountains ..... *C. davidsonii* (Coulter & Rose) R.L. Hartman • Rocky ground in lower elevation woodlands and forests, uncommon in the southwestern corner of the state.

8 Fruit 4-7 mm long; plants of the Four Corners region ..... *C. petraeus* M.E. Jones • Gravelly and rocky slopes and hills in San Juan and McKinley counties.

5 Calyx teeth minute or obsolete, seldom as much as 0.5 mm long

9 Bractlets of the involucre inconspicuous, linear, not foliaceous; flowers purplish or yellow ..... *C. purpureus* S. Watson • Shale and piñon-juniper areas in the northwestern region.

9 Bractlets of the involucre conspicuous, linear to oblong-ovate, foliaceous; flowers yellow ..... *C. glomeratus* (Nuttall) A.P. de Candolle • Rocky, gravelly areas of the northwest to south-central foothills and plains.

**Daucus**

1 Bracts pinnately divided into elongate filiform divisions; central flower of umbel often pink or purple. *D. carota* Linnaeus • An escapee from gardens and adventive elsewhere in moist sites in plains and mountains.

1 Bracts pinnately divided into short linear or lanceolate divisions; central flower of umbel white ..... *D. pusillus* Michaux • Rocky soils in the southwestern deserts.

**Eryngium**

1 Leaves parallel-veined, linear, usually entire ..... *E. sparganophyllum* Hemsley • Wet soils of arid land cienagas; known only from a specimen in 1851 from the type locality at Las Playas Spring in Hidalgo County.

- 1 Leaves pinnately-veined, oblanceolate and spinose-serrate below, becoming broader and more dissected above  
 2 Lower cauline leaves deeply toothed, the sinuses extending less than half of the distance to the midrib; bracts subtending the heads 1-3(-4) mm wide, with 0-2 teeth; heads never with a tuft of acerose bracts extending from the apex (not comate)..... *E. lemmonii*  
 Coulter & Rose ●Damp meadows in the Animas and Peloncillo Mountains, Hidalgo County, rarely collected.
- 2 Lower cauline leaves pinnatifid, the sinuses extending 2/3 or more of the distance to the midrib; bracts subtending the heads 3.5-6 mm wide, with 2-4 teeth; heads usually with a tuft of acerose bracts extending from the apex (comate) ..... *E. heterophyllum*  
 Engelman ●Along washes, Peloncillo and Animas Mountains, Hidalgo County.

**Eurytaenia**

*E. hinckleyi* Mathias & Constance ●Sandy areas in the southeastern corner of the state.

**Foeniculum**

\**F. vulgare* Miller ●A culinary herb, occasionally escaping to roadsides and waste ground.

**Harbouria**

*H. trachypleura* (A. Gray) Coulter & Rose ●Disturbed and broken ground of plains, foothills and slopes of the central and northern mountains.

**Heracleum**

*H. maximum* Bartrum ●Wet ground of marshes, streamsides, and pond edges in the northern mountains.

**Levisticum**

\**L. officinale* W.O.J. Koch ●Cultivated for culinary and decorative uses; not known from the wild in New Mexico (the only known herbarium collection is from a garden in Albuquerque), but perhaps yet to be found in weedy moist sites near herb gardens.

**Ligusticum**

- 1 Ultimate leaf segments linear, entire, 1-3 mm wide ..... *L. filicinum*  
 S. Watson ●Open or wooded mountain slopes and ridges; uncommon, only known from two collections in the northern mountains.
- 1 Ultimate leaf segments elliptic or broader, toothed, and/or lobed..... *L. porteri*  
 Coulter & Rose ●Damp woods in nearly all the mountainous regions.

**Lomatium**

- 1 Plants glabrous to granular-scaberulous
- 2 Flowers white..... *L. linearifolium*  
 (S. Watson) ●Juniper woodlands, open slopes and ridges; known only from a single collection in northern Rio Arriba County.
- 2 Flowers yellow
- 3 Plants mostly 50-200 cm tall; wings of the fruit narrow, about ¼ as wide as the body, corky-thickened.....  
 ..... *L. multifidum*  
 (Nuttall) R.P. McNeil & Darrach ●Open rocky slopes, sagebrush plains; known only from Rio Arriba and Catron counties.
- 3 Plants mostly 15-50 cm tall; wings of the fruit broader, ⅔ to nearly as wide as the body, not corky-thickened ..... *L. grayi*  
 (Coulter & Rose) Coulter & Rose ●Piñon-juniper and ponderosa pine forests in the northern mountains.
- 1 Plants definitely pubescent-hirtellous
- 4 Flowers yellow
- 5 Leaf segments elongate, mostly 1-10 cm long or more, entire ..... *L. simplex*  
 (Nuttall ex S. Watson) J.F. Macbride ●Sagebrush plains, piñon-juniper and ponderosa pine woodlands, northwestern.
- 5 Leaf segments shorter, rarely as much as 1 cm long, coarsely toothed ..... *L. foeniculaceum*  
 (Nuttall) Coulter & Rose ●Dry open, rocky slopes and plains, uncommon; known only from Grant, Hidalgo, and San Juan counties.
- 4 Flowers white
- 6 Bractlets of involucre connate..... *L. nevadense*  
 (S. Watson) Coulter & Rose ●Desert scrub, piñon-juniper and ponderosa pine forests, mostly western.  
 ●Our plants belong to var. *parishii* (Coulter & Rose) Jepson.
- 6 Bractlets of involucre wholly distinct..... *L. orientale*  
 Coulter & Rose ●Rocky hills and plains in the southwestern region.

**Neoparrya**

*N. lithophila* Mathias ●Known in New Mexico only from rocky outcrops of the South Piñon Hills in Taos county; otherwise restricted to the southern Rocky Mountains of Colorado.

**Oreoxis**

*O. bakeri* Coulter & Rose ●Meadows and ridges at high elevation in the northern counties.

**Osmorhiza**

- 1 Involucre present at the base of the umbel, bracts well-developed, green; styles 2-3 mm long ..... *O. longistylis*  
 (Torrey) A.P. de Candolle ●Woodlands and canyons in the northeastern mountains; known only from Colfax

and Union Counties.

- 1 involucre absent or very poorly developed; styles 0.4-1 mm long
  - 2 Rays and pedicels divaricate-spreading; fruit club-shaped, apex obtuse ..... *O. depauperata*  
Philippi ●Widespread in forests and woodlands.
  - 2 Rays and pedicels spreading-ascending; fruit linear-oblong, apex narrowly beaked..... *O. berteroi*  
A.P. de Candolle ●Woodlands and along streams in the northern mountains.

**Oxypolis**

*O. fendleri* (Gray) Heller ●Widespread in the state in damp meadows, marshes, and stream sides in the mountains.

**Pastinaca**

\**P. sativa* Linnaeus ●Adventive in the moist foothills and lower slopes of the northern mountains.

**Perideridia**

- 1 Basal leaves 1-2-ternate or 1-2 pinnate with 1-3 pairs of primary leaflets ..... *P. parishii*  
(Coulter & Rose) Nelson & MacBride ●Moist meadows and woods in the west central mountains.
- 1 Basal leaves ± pinnate with 3-5 pairs of primary leaflets, lower leaflets sometimes lobed or ternately dissected  
..... *P. gairdneri*  
(Hooker & Arnott) Mathias ●Moist soils of meadows, stream sides, grassland; known only from Catron County.

**Podistera**

*P. eastwoodiae* (Coulter & Rose) Mathias & Constance ●Wet meadows and slopes at high elevations in the northern mountains.

**Sanicula**

*S. marilandica* Linnaeus ●Mixed conifer woods in the northern mountains.

**Sium**

*S. suave* T. Walter ●Stream banks, edges of ponds, and other wet places in central and northern mountains.

**Spermolepis**

- 1 Fruit densely echinate-bristly with sharp-pointed, apically hooked hairs
  - 2 Distal umbels sessile, proximal umbels sometimes pedunculate ..... *S. lateriflora*  
G.L. Nesom ●Sandy, gravelly, and rocky soil, desert grassland.
  - 2 All umbels distinctly pedunculate..... *S. echinata*  
(Nuttall ex A.P. de Candolle) Heller ●Rocky slopes, desert scrub, sandy roadsides and flats, known in New Mexico only from Doña Ana County; common in the states eastward.
- 1 Fruit tuberculate, lacking hooked hairs
  - 3 Tubercles irregularly scattered, some with short, erect hairs; peduncles 1-3.5 cm long ..... *S. organensis*  
G.L. Nesom ●Granitic gravelly loam, oak-juniper slopes; endemic to the Organ Mountains.
  - 3 Tubercles densely arranged, without hairs; peduncles 2-7 cm long ..... *S. inermis*  
(Nuttall ex A.P. de Candolle) Mathias & Constance ●Sand, gravelly soil, rocky ridges, uncommon; known only from Chaves and Eddy counties.

**Torilis**

\**T. arvensis* (Hudson) Link ●Adventive in weedy ground, currently known from the southeastern plains and wooded slopes in the western mountains.

**Vesper**

- 1 Fruiting peduncles shorter than or equaling the leaves; mericarp wings conspicuously enlarged at the base .....  
..... *V. montanus*  
(Nuttall ex Torrey & Gray) R.L. Hartman & G.L. Nesom ●Grassland plains and hillsides, mostly in the central and northern mountains, and in the eastern plains.
- 1 Fruiting peduncles equaling or longer than the leaves; mericarp wings not conspicuously enlarged at the base
  - 2 Involucre bractlets with lacerate-fringed distal margins ..... *V. macrorhizus*  
(Buckley) R.L. Hartman & G.L. Nesom ●Rocky and sandy prairies sandy roadsides; on the eastern plains.
  - 2 Involucre bractlets with entire or irregularly toothed or lobed margins
    - 3 Involucre mostly a low hyaline sheath; involucre bractlets commonly purplish to rosy, 5-8-nerved; pedicels 0-1 mm long ..... *V. multinervatus*  
(Coulter & Rose) R.L. Hartman & G.L. Nesom ●Foothills, gravelly slopes, wooded bajadas, often at the edge of grasslands, scattered locales mostly in the western half of the state.
    - 3 Involucre of 1-8, oblong to obovate, often variously lobed bracts; involucre bractlets greenish-white to white 1-3(-5)-nerved; pedicels 1-12 mm long
      - 4 Involucre bractlets connate for 1/3 – 2/3 or more of length, the free portion usually abruptly enlarged distally, broadly ovate to orbicular, with mostly 1 vein, occasionally with 1-2 pairs of shorter lateral veins, parallel to divergent or branched..... *V. bulbosus*  
(A. Nelson) R.L. Hartman & G.L. Nesom ●Dry hills and plains, mostly in the northern half of the state.
      - 4 Involucre bractlets connate to 1/3 of length, the free portion gradually expanding distally, obovate to spatulate, with mostly 3 veins arising from the base, parallel below, flaring distally equal or nearly so  
..... *V. constancei*

(R.L. Hartman) R.L. Hartman & G.L. Nesom •Pine, juniper, and oak woodlands of the northern, northwestern, and mountains and plains.

**Yabea**

*Y. microcarpa* (Hooker & Arnott) Koso-Poljansky •Southwestern desert slopes and hills.

**APOCYNACEAE DOGBANE and MILKWEED FAMILY**

- 1 Flowers with extra petal-like structures (the hood or corona) developed interior to the petals; corolla usually valvate in the bud, with edges touching but not overlapping; pollen in coherent masses (loosely coherent in *Periploca*)
- 2 Stems mostly erect, occasionally decumbent, but not twining or vine-like ..... *Asclepias*
- 2 Stems twining and vine-like, at least the terminal portions
- 3 Leaves linear, not hastate or sagittate at the base; crown of the corolla absent ..... *Metastelma*
- 3 Leaves linear to cordate, if linear then hastate or sagittate at the base; crown of the corolla present
- 4 Stems conspicuously hirsute to stiffly short-pilose, the hairs spreading in all directions ..... *Mateleia*
- 4 Stems glabrous to appressed-pubescent with short recurved inconspicuous hairs
- 5 Summit of staminal column with 5 inflated, rounded vesicles; stems only woody at base ..... *Funastrum*
- 5 Summit of staminal column without vesicles; stems woody nearly throughout ..... *Periploca*
- 1 Flowers without any extra petal-like structures; corolla twisted in bud with edges overlapping; pollen granular, not in coherent masses
- 6 Leaves whorled; common in cultivation, known rarely in the wild; CAUTION, plants and sap toxic if ingested ..... *Nerium*
- 6 Leaves opposite or alternate; mostly wild plants (*Vinca* a common ornamental also)
- 7 Leaves opposite; seeds with a tuft of hairs at one end only
- 8 Corolla bluish ..... *Vinca*
- 8 Corolla whitish or pinkish
- 9 Flowers 3-4 cm long ..... *Mandevilla*
- 9 Flowers less than 1 cm long ..... *Apocynum*
- 7 Leaves alternate or mostly alternate; seeds glabrous or with a tuft of hairs at both ends
- 10 Corolla bright yellow; seeds with a tuft of hairs at both ends ..... *Haplophyton*
- 10 Corolla blue or whitish; seeds glabrous ..... *Amsonia*

**Amsonia**

- 1 Follicles markedly constricted between the seeds; corolla tube short, 7-12 mm long, distinctly constricted at the apex ..... *A. tomentosa*  
Torrey & Frémont •Sandy or gravelly plains and canyons in desert scrub; mostly south-central. ♦Our plants belong to var. *stenophylla* Kearney & Peebles.
- 1 Follicles not markedly constricted between the seeds; corolla tube either longer (10-45 mm) or not distinctly constricted at the apex
- 2 Lower leaves linear to linear-lanceolate, 1-5 mm wide; corolla tube 23-45 mm long, constricted at the apex ..... *A. longiflora*  
Torrey •Grassy slopes and limestone hills and canyons in Chihuahuan Desert scrub.
- 2 Lower leaves lanceolate to elliptic or ovate, 5-30 mm wide; corolla tube 6-20 mm long
- 3 Leaves ovate, 14-30 mm wide; corolla tube 7-10 mm long, only slightly constricted at the apex; foliage glabrous ..... *A. jonesii*  
Woodson •Sagebrush and pifon/juniper communities; known only from San Juan County.
- 3 Leaves narrower, 3-15 mm wide; corolla tube 10-20 mm long; foliage glabrous or pubescent
- 4 Plants low-growing, generally less than 25 cm tall; leaves noticeably dimorphic, the lower elliptic-lanceolate, the upper linear; leaves hirtellous ..... *A. tharpii*  
Woodson •Low limestone or gypsum hills in Chihuahuan Desert scrub; known only from Eddy County, rare.
- 4 Plants taller, generally more than 30 cm tall; leaves gradually narrowed above, not noticeably dimorphic; leaves glabrous or hirtellous
- 5 Leaves glabrous; corolla tube 16-20 mm long; corolla lobes 7-10 mm long ..... *A. fugatei*  
S.P. McLaughlin •Limy conglomerate ridges and associated outwash slopes in desert scrub; known only from Socorro County, endemic to New Mexico.
- 5 Leaves hirtellous (sometimes glabrate); corolla tube 10-18 mm long; corolla lobes 3-6 mm long ..... *A. palmeri*  
Gray •Sandy or rocky arroyos and small canyons, low hills; southwestern corner of the state.

**Apocynum**

- 1 Leaves ascending, corolla less than 5 mm long, greenish white to white, usually less than twice the length of the calyx, the lobes erect to slightly spreading ..... *A. cannabinum*  
Linnaeus •Roadsides, stream banks, forest openings and moist disturbed sites throughout the state.
- 1 Leaves mostly drooping to spreading; corolla usually at least 5 mm long, pinkish, often more than twice the length of the calyx, the lobes spreading or reflexed

- 2 Leaves evidently drooping; corolla usually about 3 times as long as the calyx.....*A. androsaemifolium*  
Linnaeus ●Widespread in mountain canyons and woodlands throughout the state.
- 2 Leaves spreading; corolla usually about twice as long as the calyx ..... *A. ×floribundum*  
Greene ●Mixed open woodlands, moist soils along streams and rivers.

**Asclepias**

- 1 Corolla lobes erect or spreading at anthesis .....*A. asperula*  
(Decaisne) Woodson ●Desert swales, sandy or rocky hillsides and plains; oak and juniper communities, and openings in pine forests; widespread.
- 1 Corolla lobes reflexed at anthesis
  - 2 Horn absent from hoods or reduced to a small crest
    - 3 Leaves linear or filiform
      - 4 Hoods containing a small (sometimes horn-like) crest; anther wings with a spur at the base ....*A. rusbyi*  
(Vail) Woodson ●Rocky soil in pine/oak, piñon/juniper woodlands, known from a few scattered locations.
      - 4 Hoods lacking horn or crest; anther wings without a spur at the base ..... *A. engelmanniana*  
Woodson ●Prairies and swales, open sandy hillsides, draws, washes, widespread from the northeast to the southwest.
    - 3 Leaves narrowly lanceolate or broader
      - 5 Leaves opposite, ovate to oval; flowers dark red ..... *A. hypoleuca*  
(Gray) Woodson ●Oak woodlands and open ponderosa pine forests, known from Catron and Grant counties.
      - 5 Leaves opposite to irregularly approximate; oval to narrowly lanceolate; flowers pale green .....  
.....*A. viridiflora*  
Rafinesque ●Glades, prairies, grasslands, rocky or sandy hillsides; mostly in the northern and eastern part of the state, but also in Grant and Luna counties.
  - 2 Horn well developed
    - 6 Hoods or apical portion widespread from anther head
      - 7 Leaves filiform; hoods narrowly acuminate, 3-6 mm long .....*A. macrotis*  
Torrey ●Dry hills and mesas, limestone ridges, grasslands, widespread.
      - 7 Leaves ovate to ovate-lanceolate or oval; hoods narrowly attenuate, 10-14 mm long ..... *A. speciosa*  
Torrey ●Moist meadows, riparian areas, roadsides, open coniferous forests, widespread except in the southwest and southeast.
    - 6 Hoods erect to suberect, not spreading away from anther head
      - 8 Corolla lobes and hoods orange, rarely reddish or yellow .....*A. tuberosa*  
Linnaeus ●Prairies, thickets, open woods, canyons; widespread. ♦Our plants belong to subsp. *interior* Woodson.
      - 8 Corolla lobes whitish, pinkish, greenish or purplish
        - 9 Hoods not longer than 2.5 mm
          - 10 Leaves filiform or linear
            - 11 Leaves whorled, occasionally opposite above .....*A. subverticillata*  
(Gray) Vail ●Plains, mesas, moist areas, piñon/juniper or ponderosa communities, roadsides; widespread.
            - 11 Leaves approximate to alternate or spiral, occasionally verticillate below ..... *A. pumila*  
(Gray) Vail ●Sandy soil, plains and low hills, mesquite prairies, mostly in the northeastern part of the state.
          - 10 Leaves narrowly lanceolate or broader (distal cauline leaves sometimes linear in *A. uncialis*)
            - 12 Plants low, mostly less than 10 cm above ground, prostrate to somewhat ascending
              - 13 Hoods reddish-violet .....*A. sanjuanensis*  
Heil, Porter & Welsh ●Sandy or sandy loam soils, usually in disturbed areas.
              - 13 Hoods pale
                - 14 Corolla lobes purple or purplish rose; hoods white .....*A. uncialis*  
Greene ●Sandy or rocky plains, high deserts; northeastern areas but also in Torrance, Lincoln, and Grant counties.
                - 14 Corolla lobes pale yellow or yellowish green; hoods yellowish....*A. macrosperma*  
Eastwood ●Dry sandy places in the northwesternmost portion of the state.
        - 12 Plants taller, erect or strongly ascending
          - 15 Stems (branches) 40-150 cm tall ..... *A. incarnata*
          - 15 Stems (branches) 10-30 cm tall
            - 16 Corolla lobes 4-6 mm long, reddish purple to violet .....*A. brachystephana*
            - 16 Corolla lobes 3-4 mm long, bright pink to rarely white ..... *A. scaposa*  
Vail ●Dry gravelly openings in oak scrub, mountainsides and flats. ♦This species has been attributed to New Mexico based on a single specimen collected by Charles Wright sometime in 1851-52, assumed to be from New Mexico, but almost certainly from Texas, where the species is well-known.

- 9 Hoods longer than 2.5 mm
- 17 Hoods longer than 7 mm
- 18 Horn reduced to an apiculate wing-like crest adnate for its entire length to hood .....  
 ..... *A. nyctaginifolia*  
 Gray ●Plains and mesas, swales, arroyos; southwest corner and eastern plains.
- 18 Horn adnate to near the hood tip, free portion falciform, arching over anther head.....  
 ..... *A. oenotheroides*  
 Chamisso & Schlectendal ●Mesas, hills, thickets, roadsides in chiefly rocky clay or calcareous soils, widespread in the eastern and southern portions of the state.
- 17 Hoods shorter than 7 mm
- 19 Leaves linear to filiform, plants suffrutescent to shrubby
- 20 Stems (branches) 10-50 cm tall, hoods dentate or lobed at the apex, leaves opposite, few.....  
 ..... *A. quinqueidentata*  
 Gray ●Rocky hills and arroyos, open oak or pine woodlands; southwestern.
- 20 Stems (branches) 40-150 cm tall, hoods entire, leaves alternate to subverticillate, crowded.....  
 ..... *A. linaria*  
 Cavanilles ●Dry rocky hills and slopes; open oak, pine, juniper woodlands, canyons and arroyos; known only from Hidalgo County.
- 19 Leaves narrowly lanceolate or broader
- 21 Leaves sessile or subsessile
- 22 Leaves narrowly lanceolate, somewhat conduplicate..... *A. involucrata*  
 Engelmann ex Torrey ●Dry plains, mesas, sandy or gravelly hills, chaparral and arroyos.
- 22 Leaves oblong, oval, ovate-lanceolate or suborbicular
- 23 Stems 4-10 cm long ..... *A. nummularia*  
 Torrey ●Dry mesas and slopes, rocky hillsides, arid grassland, dry ravines in gravel or clay; southwestern.
- 23 Stems 30-70 cm long ..... *A. elata*  
 Bentham ●Dry rocky slopes in pine, juniper, or oak woods, roadsides, washes, known only from Hidalgo County.
- 21 Leaves with petioles at least 1.5 mm long
- 24 Corollas pink, rose, or purplish..... *A. hallii*  
 Gray ●Scarcely known from the state, and to be looked in canyons and mountainsides of piñon, pine, and aspen belts; it is known from a single old (1896) collection in Colfax County, and is likely no longer part of our flora.
- 24 Corollas pale green, pale yellow, or greenish yellow
- 25 Stems ascending to decumbent or prostrate, generally less than 20 cm long ....  
 ..... *A. macrosperma*  
 Eastwood ●Dry sandy places in the northwesternmost portion of the state.
- 25 Stems stoutly erect, longer than 25 cm
- 26 Herbage densely tomentulose; horns adnate to hoods for approximately half their length, narrowly falciform ..... *A. arenaria*  
 Torrey ●Sandy areas, mostly on the eastern plains.
- 26 Herbage minutely puberulent when young, soon glabrate; horns adnate to hoods for almost entire length, broadly falciform ..... *A. latifolia*  
 (Torrey) Rafinesque ●Mixed prairies, plains, roadsides; widespread.

### **Funastrum**

- 1 Corolla lobes glabrous adaxially; inflated corona segments oblong with medial constriction; leaf margins typically crisped (sometimes plane).....  
 ..... *F. crispum*  
 (Bentham) Schlechter ●Rocky hills and drainages, mostly in the southern tier of counties, but scattered elsewhere.
- 1 Corolla lobes inconspicuously hispidulous adaxially; corona segments ovoid without constrictions; leaf margins plane
- 2 Leaf blades lanceolate to ovate, 7-45 mm wide, the bases typically cordate (sometimes sagittate or hastate) ...  
 ..... *F. cynanchoides*  
 (Decaisne) Schlechter ●Arroyos, dry hills, and plains in scattered locales across mostly the southern half of the state.
- 2 Leaf blades linear to linear-lanceolate, 1-15 mm wide, the bases typically hastate, sagittate, or truncate (sometimes cordate).....  
 ..... *F. heterophyllum*  
 (Engelmann ex Torrey) Standley ●Desert shrubland, arroyos, along watercourses, plains; scattered locations.

### **Haplophyton**

- H. crooksii* (L. Benson) L. Benson ●Southwestern rocky slopes and arroyos.

**Mandevilla**

*M. brachysiphon* (Torrey) Pichon • Rocky slopes and drainages in southwestern desert areas.

**Matelea**

1 Corollas light green to yellowish, tubular-campanulate, the tube about the same length as lobes; corona cuplike, shallowly lobed surrounding the anther head base ..... *M. producta* (Torrey) Woodson • Dry rocky ground in scattered locales, mostly in the southern 2/3 of the state.

1 Corollas white, rotate or if campanulate, the tube much shorter than the lobes; corona with five slender lobes arching over the anther head ..... *M. chihuahuensis* (Gray) Woodson • Dry grasslands, rocky slopes, sandy-silty hillsides; known only from Hidalgo County, extending south into Mexico.

**Metastelma**

*M. mexicanum* (Brandegee) Fishbein & R.A. Levin • Open rocky slopes in pine/oak woodlands; known only from Hidalgo County.

**Nerium**

\**N. oleander* Linnaeus • A common and valuable ornamental plant, infrequently escaping to the wild; native to southeast Asia.

**Periploca**

\**P. graeca* Linnaeus • Open woods or thickets along water courses; known only from a single site in the Albuquerque Bosque beside the Rio Grande.

**Vinca**

1 Calyx lobes ciliate ..... *V. major* Linnaeus • Widely cultivated and occasionally escaping.

1 Calyx lobes glabrous ..... *V. minor* Linnaeus • Widely cultivated and occasionally escaping.

**APODANTHACEAE STEM-SUCKER FAMILY**

**Pilostyles**

*P. thurberi* Gray • Parasitic on stems of the leguminous shrub, *Dalea formosa*.

**ARALIACEAE GINSENG FAMILY**

1 Low herbs; leaves suborbicular, peltate ..... *Hydrocotyle*

1 Woody shrubs or vines; leaves not peltate

2 Plants shrubby; leaves multi-compound ..... *Aralia*

2 Plants ivy-like, twining or climbing; leaves simple ..... *Hedera*

**Aralia**

*A. bicrenata* Wooton & Standley • Wooded hillsides, canyons, and ravines in mountain areas, often along streams.

**Hedera**

\**H. helix* Linnaeus • ENGLISH IVY is a cultivated ornamental growing on walls and utility poles, sometimes escaping; native to Europe and western Asia.

**Hydrocotyle**

*H. verticillata* Thunberg • Wet ground of marshes, ponds, and slow streams; central and southern regions, uncommon.

**ARISTOLOCHIACEAE DUTCHMAN'S-PIPE FAMILY**

**Aristolochia**

1 Young stems glabrous to minutely puberulent; blades narrowly lance-ovate in outline, much longer than wide, the venation pinnate-appearing ..... *A. watsonii* Wooton & Standley • Rocky slopes in the southwestern desert mountains and slopes.

1 Young stems notably velutinous; blades ovate-cordate in outline, about as wide as long, the venation palmate-appearing ..... *A. wrightii* Seemann • Rocky slopes in the southwestern desert mountains.

**ASTERACEAE (COMPOSITAE) SUNFLOWER FAMILY**

Contributed by Timothy Lowrey

1 Involucres conspicuously armed with hooked prickles, stout spines, or prominent wings ..... KEY A

1 Involucres unarmed and not as above, lacking prickles, spines, or wings

2 Leaves and/or phyllaries obviously dotted with translucent oil glands ..... KEY B

2 Leaves and phyllaries not as above, occasionally glandular-pitted, but these tiny and not translucent

3 Corollas all ray-like or bilabiate; tubular (actinomorphic) disk flowers absent ..... KEY C

3 Corollas not all ray-like; tubular (actinomorphic) disk flowers present

4 Corollas all tubular; ray flowers absent, or the rays vestigial, minute, and scarcely evident

5 Pappus of capillary bristles wholly or in part, sometimes plumose as well ..... KEY D

5 Pappus of scales (sometimes setiform, resembling bristles, e.g. *Grindelia*), awns, very short chaffy



- bristles, or absent, not capillary nor plumose ..... KEY E
- 4 Corollas not all tubular; ray flowers present and evident ..... KEY F
  - 6 Pappus of capillary bristles, at least in part ..... KEY F
  - 6 Pappus of awns or scales, or absent ..... KEY G
    - 7 Pappus of awns or scales ..... KEY G
    - 7 Pappus absent ..... KEY H

**KEY A: Involucres with prickles, spines, fringed appendages or wings.**

- 1 Involucre covered with numerous hooked prickles
  - 2 Plant monoecious with separate male and female heads; bur (involucre) completely enclosing the flowers, none protruding or visible at the apex ..... *Xanthium*
  - 2 Plant not monoecious, heads similar and bisexual; bur (involucre) vase-like, the flowers exposed at the apex ..... *Arctium*
- 1 Involucre lacking hooked prickles
  - 3 Plants shrubs, with filiform leaves; fruiting involucre with conspicuous hyaline wings (*A. monogyra*) ..... *Ambrosia*
  - 3 Plants herbaceous, the leaves not filiform; fruiting involucre lacking wings, the phyllaries with fringed appendages, modified into spines, or with prominent spine-tips
    - 4 Phyllaries fringed with slender, spine-like teeth
      - 5 Heads radiant, peripheral florets elongate and expanded ..... *Plectocephalus*
      - 5 Heads discoid ..... *Centaurea*
    - 4 Phyllaries modified into sharp spines or with prominent spine-tips
      - 6 Heads unisexual and of two kinds, the staminate unarmed and in terminal racemes, the pistillate spinose and borne below in the leaf axils ..... *Ambrosia*
      - 6 Heads bisexual, all essentially the same on a single plant
        - 7 Leaves lacking spiny margins ..... *Centaurea*
        - 7 Leaves with spiny margins
          - 8 Flowers yellow to red
            - 9 Pappus absent or of narrow overlapping scales ..... *Carthamus*
            - 9 Pappus of plumose bristles ..... *Cirsium*
          - 8 Flowers white, purple, or pink
            - 10 Leaves with conspicuous white marbling along the main veins ..... *Silybum*
            - 10 Leaves lacking white marbling
              - 11 Pappus plumose, the bristles feathery; receptacle densely bristly ..... *Cirsium*
              - 11 Pappus not plumose, the bristles simple; receptacle bristly or not
                - 12 Peduncles of the heads prominently spiny-winged; heads stiffly erect; receptacle fleshy and honeycombed, not densely bristly ..... *Onopordum*
                - 12 Peduncles of the heads not winged; heads abruptly nodding; receptacle not fleshy nor honeycombed, densely bristly ..... *Carduus*

**KEY B: Leaves and/or phyllaries obviously dotted with translucent oil glands.**

- 1 Leaves simple, bristly-ciliate at the base; style branches of disk flowers very short, much less than 1 mm long ..... *Pectis*
- 1 Leaves pinnately parted, or if simple, not bristly-ciliate at the base; style branches of disk flowers about 1 mm long
  - 2 Phyllaries separate to the base or nearly so
    - 3 Involucres subtended by an additional series of tiny bracts (calyculate); pappus with at least some small scales in addition to bristles
      - 4 Leaves opposite below, becoming alternate above; ray flowers yellowish; pappus single, of about 20 scales each dissected into several bristles ..... *Dyssodia*
      - 4 Leaves mostly alternate below as well as above; ray flowers white to pinkish; pappus double, the inner series of 5 awn-tipped scales, the outer of numerous bristles ..... *Nicolletia*
    - 3 Involucres lacking an additional basal series of tiny bracts (not calyculate); pappus lacking any scales, entirely of separate bristles
      - 5 Ray flowers present ..... *Chrysactinia*
      - 5 Ray flowers absent ..... *Porophyllum*
  - 2 Phyllaries united at least one-third their length
    - 6 Involucres not calyculate, lacking an additional basal series of tiny bracts; pappus of 2 awns and 2 scales ..... *Tagetes*
    - 6 Involucres calyculate, subtended by an additional series of tiny bracts; pappus of several awns and scales
      - 7 Plants perennial ..... *Thymophylla*
      - 7 Plants annual
        - 8 Receptacle glabrous or nearly so; phyllaries strongly united  $\frac{3}{4}$  or more their length ..... *Thymophylla*
        - 8 Receptacle with fine bristles; phyllaries weakly united about  $\frac{1}{2}$  their length ..... *Adenophyllum*

**KEY C: Corollas all ray-like or bilabiate.**

- 1 Corollas all bilabiate, the outer lobe 3-toothed, the inner lobe 2-toothed; juice watery, not milky

- 2 Plants shrubs, woody at least in the lower half; corollas yellow ..... *Trixis*
- 2 Plants herbaceous; corollas whitish or purplish
- 3 Flowering stems evidently leafy; leaves spiny-toothed or spinulose-dentate ..... *Acourtia*
- 3 Flowering stems scapose, lacking leaves; leaves entire, not at all spiny-toothed
- 4 Heads nodding in bud and fruit, erect in flower; outer florets creamy-white, rarely purple tinged ..... *Chaptalia*
- 4 Heads erect in bud, flowering, and fruiting; outer florets pinkish to purplish, inner florets white ..... *Leibnitzia*
- 1 Corollas ligulate, not bilabiate; juice usually milky
- 5 Pappus of plumose bristles, at least in part
- 6 Florets white, pink or lavender
- 7 Basal leaves not withered at flowering, cauline leaves well developed; florets 15-30, white, sometimes with rose or purple veins abaxially ..... *Rafinesquia*
- 7 Basal leaves withered at flowering (except in late spring/early summer flowering forms of *S. thurberi*), cauline leaves mostly reduced to subulate scales; florets 4-14, pink to lavender (sometimes white) ..... *Stephanomeria*
- 6 Florets yellow or purple
- 8 Phyllaries 5-16 in one series; basal leaves with margins entire, not lobed ..... *Tragopogon*
- 8 Phyllaries 18-30 in 3-5 series; basal leaves usually pinnately lobed or toothed ..... *Scorzonera*
- 5 Pappus of simple bristles, awns, scales or lacking
- 9 Flowering stems scapose, lacking leaves or bracts, and terminated by a single head
- 10 Achenes obviously beaked at summit
- 11 Pappus of bristle-tipped scales on all florets or of scales on outer florets and bristles on inner florets
- 12 Leaves oblanceolate or oblong; pappus of scales on outer florets and plumose bristles on inner florets ..... *Leontodon*
- 12 Leaves linear to narrowly lanceolate, grass-like; pappus of 5-6 bifid scales tipped with bristles 2-6 mm long ..... *Uropappus*
- 11 Pappus of slender capillary bristles
- 13 Corollas whitish to purplish ..... *Chaptalia*
- 13 Corollas yellow to orange
- 14 Phyllaries in 3-4 graduated series; achenes 10-ribbed, not at all spinulose ..... *Agoseris*
- 14 Phyllaries in 2 unequal series, the lower very short and usually reflexed, the upper longer and erect; achenes 4- or 5-ribbed, spinulose-roughened on the upper half
- 15 Calyculi 8 in number, shorter, 3-8 mm long; pappus bristles 10-12 mm long ..... *Pyrrhopappus*
- 15 Calyculi 12-18 in number, longer, 6-12 mm; pappus bristles 5-6(8) mm long ..... *Taraxacum*
- 10 Achenes not beaked at summit
- 16 Leaves oblanceolate or oblong ..... *Leontodon*
- 16 Leaves linear-lanceolate ..... *Nothocalais*
- 9 Flowering stems with leaves or bracts, and/or bearing 2 or more heads
- 17 Pappus absent ..... *Lapsana*
- 17 Pappus present of bristles, scales or both
- 18 Peduncles inflated distally; phyllaries enfolding outer achenes ..... *Hedypnois*
- 18 Peduncles not inflated; phyllaries not enfolding outer achenes
- 19 Pappus of numerous unawned scales, lacking bristles entirely; flowers blue (white in aberrant forms) ..... *Cichorium*
- 19 Pappus of bristles, at least in part; flowers other than blue (bluish in some *Lactuca*)
- 20 Receptacle chaffy or bristly
- 21 Flowers yellow ..... *Malacothrix*
- 21 Flowers reddish, pinkish, or whitish
- 22 Upper stems and heads with tack-like, stalked glands; receptacle bristly ..... *Calycoseris*
- 22 Upper stems and heads lacking glands; receptacle chaffy ..... *Pinaropappus*
- 20 Receptacle naked
- 23 Achenes obviously beaked at the summit
- 24 Achenes flattened in cross-section; beak lacking a ring of reflexed hairs at the summit, just beneath the pappus ..... *Lactuca*
- 24 Achenes terete or scarcely flattened; beak with a ring of reflexed hairs at the summit, just beneath the pappus ..... *Pyrrhopappus*
- 23 Achenes not beaked, occasionally narrowed at the apex
- 25 Achenes flattened in cross-section ..... *Sonchus*
- 25 Achenes not flattened

- 26 Flowers white, pinkish, or purplish when fresh
- 27 Rays white to cream-colored; achenes about 10-ribbed ..... *Hieracium*
- 27 Rays pinkish or purplish; achenes about 5-ribbed
- 28 Plants annual; involucre 4-5 mm high ..... *Prenanthes*
- 28 Plants perennial; involucre 10-25 mm high or more. *Lygodesmia*
- 26 Flowers yellow or orange when fresh (sometimes white in *Malacothrix*)
- 29 Pappus composed of an outer series of small scales and an inner series of bristles..... *Krigia*
- 29 Pappus composed entirely of bristles, lacking scales
- 30 Pappus bristles  $\pm$  united at the base and falling as a unit, leaving 1-8 persistent stiffer bristles on the achene..... *Malacothrix*
- 30 Pappus bristles not united, all persistent on the achene
- 31 Plants fibrous-rooted; pappus mostly tan to brown; phyllaries not thickened; heads often nodding..... *Hieracium*
- 31 Plants tap-rooted; pappus whitish; phyllaries somewhat thickened at the base or on the midrib; heads seldom nodding..... *Crepis*
- KEY D: Ray flowers absent; pappus of capillary bristles, wholly or in part, sometimes plumose.**
- 1 Plants obvious shrubs or subshrubs
- 2 Heads unisexual, the plants dioecious and the sexes borne on different plants ..... *Baccharis*
- 2 Heads bisexual, the plants perfect with both sexes in the same head
- 3 Flowers yellow
- 4 Phyllaries 4-6 in number, in a single series ..... *Tetradymia*
- 4 Phyllaries more numerous, in 2 or more series
- 5 Phyllaries tending to be aligned in vertical ranks, the midrib of one  $\pm$  overlapping the midrib of the next
- 6 Disc florets 4-63; achenes cylindrical ..... *Lorandersonia*
- 6 Disc florets 2-7; achenes oblong or top-shaped ..... *Chrysothamnus*
- 5 Phyllaries not aligned vertically
- 7 Pappus of plumose bristles ..... *Bebbia*
- 7 Pappus of smooth or merely barbellate bristles
- 8 Florets 3; stems with silvery hairs and glandular blisters..... *Lepidospartum*
- 8 Florets more than 3; stems glabrous or variously hairy but glandular blisters absent
- 9 Stems densely tomentose, without glandular hairs..... *Ericameria*
- 9 Stems not tomentose, but with glandular dots or with stalked glandular hairs;
- 10 Leaves entire, never toothed; stems resinous ..... *Ericameria*
- 10 Leaves usually toothed, sometimes entire; stems never resinous
- 11 Plants tufted, often mound-forming; heads mostly 1 per branch tip, not in corymbiform clusters..... *Xanthisma*
- 11 Plants not tufted, stems elongate; heads in terminal corymbiform clusters ..... *Isocoma*
- 3 Flowers bluish to purplish, or white to cream
- 12 Flowers blue or purple ..... *Pluchea*
- 12 Flowers white or cream
- 13 Phyllaries 4-6; florets 5 ..... *Stevia*
- 13 Phyllaries 8-45, florets 10-25
- 14 Achenes 8-10 ribbed
- 15 Leaves linear; leaf margins always entire..... *Asanthus*
- 15 Leaves not linear, rather deltoid, lanceolate, or ovate; leaf margins toothed or lobed ..... *Brickellia*
- 14 Achenes 4-5 ribbed
- 16 Phyllaries equal in length..... *Ageratina*
- 16 Phyllaries unequal in length, the outer shorter..... *Brickelliastrum*
- 1 Plants herbaceous or woody only at the base
- 17 Receptacles paleate (some or all florets subtended by a palea, a bract on the receptacle)
- 18 Pappus bristles 1-10, hidden in head ..... *Stylocline*
- 18 Pappus bristles 13-28+, visible in heads..... *Logfia*
- 17 Receptacles lacking paleae
- 19 Leaves opposite or whorled (with 3 or more leaves per node)
- 20 Corollas yellow to orange..... *Arnica*
- 20 Corollas white or pink to purplish
- 21 Phyllaries 5-6 in 1-2 series..... *Stevia*
- 21 Phyllaries 7-45 in 2-8 series
- 22 Achenes 8-10 ribbed ..... *Brickellia*

- 22 Achenes 4-5 ribbed
  - 23 Plants annual; pappus bristles plumose ..... *Carminatia*
  - 23 Plants perennial; pappus bristles not plumose
    - 24 Phyllaries  $\pm$  equal in length
      - 25 Receptacles conic ..... *Conoclinium*
      - 25 Receptacles flat or convex
        - 26 Phyllaries 7-16 in 1-2 series; florets 3-13 ..... *Koanophyllon*
        - 26 Phyllaries 30 in 2-3 series; florets 10-60 ..... *Ageratina*
    - 24 Phyllaries unequal in length, the outer shorter
      - 27 Leaves whorled ..... *Eutrochium*
      - 27 Leaves opposite
        - 28 Florets 10-25 ..... *Fleischmannia*
        - 28 Florets 25-50
          - 29 Corollas white to yellowish-white; phyllaries 2-4 nerved ..... *Brickelliastrum*
          - 29 Corollas blue, lavender, or pinkish (rarely white); phyllaries 3 nerved ..... *Koanophyllon*
- 19 Leaves alternate
  - 30 Phyllaries in 1-2 series, equal in length and often subtended by smaller calyx-like bracts (calyculi)
    - 31 Corollas white or purplish, sometimes yellowish; leaves 3-4 times pinnately compound ..... *Psacalium*
    - 31 Corollas yellow; leaves at most 1-2 pinnatifid and not compound (*Packera* and *Senecio*) ..... go to *Senecio*
  - 30 Phyllaries in 3-10 series, unequal in length, calyculi lacking
    - 32 Phyllaries striate with prominent nerves, generally 5-6 in number but sometimes more ..... *Brickellia*
    - 32 Phyllaries not obviously striate
      - 33 Corollas white, blue, pink, or purple
        - 34 Pappus of plumose bristles
          - 35 Leaves gland dotted; heads in spikes or racemes ..... *Liatris*
          - 35 Leaves not gland dotted; heads in panicles or corymbs ..... *Rhaponticum*
        - 34 Pappus not plumose
          - 36 Phyllaries wholly scarious or with the margins obviously scarious .... *Gnaphalium*
          - 36 Phyllaries not scarious nor scarious margined
            - 37 Leaves and stem densely arachnoid-tomentose; plants 2-25 cm tall ..... *Gamochaeta*
            - 37 Leaves and stems puberulent or glandular-pubescent, not arachnoid-tomentose; plants 30-200 or more cm tall
              - 38 Heads discoid, all florets similar and bisexual; plants strictly perennial ..... *Vernonia*
              - 38 Heads disciform, florets of two kinds: the outer florets filiform and pistillate, the inner florets expanded and staminate; plants annual or perennial ..... *Pluchea*
    - 33 Corollas cream, yellow, or orange
      - 39 Phyllaries wholly scarious
        - 40 Plants not dioecious; all heads with a similar number of florets
          - 41 Florets yellowish or reddish ..... *Pseudognaphalium*
          - 41 Florets purplish ..... *Gamochaeta*
        - 40 Plants dioecious; male and female heads with different numbers of florets
          - 42 Basal leaves present at flowering; plants 4-25 cm high ..... *Antennaria*
          - 42 Basal leaves withered at flowering; plants 20-80 cm high ..... *Anaphalis*
      - 39 Phyllaries not wholly scarious
        - 43 Plants annual or biennial
          - 44 Leaves gland-dotted or with stalked glandular hairs ..... *Laennecia*
          - 44 Leaves not gland-dotted nor with glandular hairs, variously hairy otherwise ..... *Conyza*
        - 43 Plants perennial
          - 45 Leaves mostly basal, stem scapose ..... *Psathyrotopsis*
          - 45 Leaves basal and cauline, not scapose
            - 46 Phyllary midnerves translucent and swollen ..... *Solidago*
            - 46 Phyllary midnerves not translucent nor swollen
              - 47 Heads 1-3, not in flat-topped clusters; plants 2-20cm tall .... *Erigeron*
              - 47 Heads greater than 5 in flat-topped clusters; plants 20-120 cm tall ..... *Isocoma*

**KEY E: Ray flowers absent; pappus of scales, awns, very short chaffy bristles, or absent, not capillary nor plumose.**

- 1 Receptacles paleate (some or all inner florets subtended by a palea, a receptacular bract)
- 2 Pappus absent
- 3 Leaves opposite throughout or at least on lower stem
- 4 Stems, leaves, and phyllaries villous with stipitate-glandular black or yellow hairs ..... *Madia*
- 4 Stems, leaves, and phyllaries glabrous or variously hairy but without stipitate-glandular hairs
- 5 Florets without showy corollas; plants wind-pollinated
- 6 Achenes strongly flattened with corky wings ..... *Dicoria*
- 6 Achenes not strongly flattened and corky wings absent
- 7 Heads in racemes or spikes ..... *Iva*
- 7 Heads in panicles ..... *Cyclachaena*
- 5 Florets with showy corollas; plants not wind-pollinated
- 8 Phyllaries strongly united; leaves simple but pinnately lobed ..... *Thelesperma*
- 8 Phyllaries not or only weakly united; leaves compound with 3-5 leaflets ..... *Bidens*
- 3 Leaves alternate
- 9 Plants annual
- 10 Leaves 1-3 pinnately lobed ..... *Hedosyne*
- 10 Leaves entire
- 11 Stems, leaves and heads villous with stipitate-glandular black or yellow hairs ..... *Madia*
- 11 Stems, leaves, and heads lanuginose, whitish or grayish, not glandular
- 12 Leaves subulate to lanceolate; outer female florets enclosed by saccate paleae .. *Stylocline*
- 12 Leaves oblanceolate to obovate; outer female florets not enclosed by paleae ..... *Diaperia*
- 9 Plants perennial, biennial or annual
- 13 Leaves deeply pinnately lobed, lobes linear or filiform; strictly perennial ..... *Oxytenia*
- 13 Leaves entire, or if lobed, lobes not linear; perennial, biennial or annual ..... *Parthenium*
- 2 Pappus present, of awns or scales
- 14 Involucres with distinct calyculi (a separate outer set of bracts subtending the main phyllaries, resembling a calyx)
- 15 Phyllaries fused  $\frac{1}{3}$  to  $\frac{2}{3}$  of their lengths; pappus of scales or smooth awns ..... *Thelesperma*
- 15 Phyllaries free or fused only up to  $\frac{1}{10}$  of their lengths; pappus of barbellate or ciliate awns ..... *Bidens*
- 14 Involucres without calyculi
- 16 Phyllaries falling together with an outer achene and adjacent two disc florets ..... *Parthenium*
- 16 Phyllaries persistent, not falling with achenes
- 17 Pappus plumose, of bristle-like scales ..... *Bebbia*
- 17 Pappus not plumose, the scales not bristle-like
- 18 Plants woody shrubs ..... *Flourensia*
- 18 Plants herbaceous
- 19 Corollas brownish-red, brownish-purple, or red; pappus scales aristate ..... *Gaillardia*
- 19 Corollas white, pinkish, cream or pale yellow; pappus scales not aristate .... *Chaenactis*
- 1 Receptacles without paleae
- 20 Pappus absent or nearly so
- 21 Leaves mostly or all opposite
- 22 Corollas yellow
- 23 Florets 1-5 per head; heads in tightly packed clusters ..... *Flaveria*
- 23 Florets 20-100 per head; heads borne singly or in open clusters, not in head-like or tightly packed arrays
- 24 Leaf blades usually 3-lobed or sometimes up to 5-lobed, not triangular hastate, apices not long-tailed; phyllaries 8-16 in 2-3 series, not fused ..... *Perityle*
- 24 Leaf blades triangular hastate, entire, dentate or shallowly lobed, apices long-tailed; phyllaries 15-21, fused together in one series ..... *Pericome*
- 22 Corollas white, blue, lavender, pink or purple
- 25 Fruits flattened, margins with corky wings ..... *Dicoria*
- 25 Fruits mostly prismatic or columnar, margins without corky wings
- 26 Florets 20-125 per head ..... *Ageratum*
- 26 Florets 5 to 15 per head
- 27 Involucres cylindric; heads in flat-topped corymbs ..... *Stevia*
- 27 Involucres not cylindric, but campanulate or hemispheric; heads in spikes, racemes, or panicles
- 28 Heads in spikes or racemes ..... *Iva*
- 28 Heads in panicles ..... *Cyclachaena*
- 21 Leaves alternate
- 29 Corollas mostly white, sometimes blue, lavender, pink, or purple
- 30 Plants annual ..... *Chaenactis*

- 30 Phyllaries in 6+ series, with fringed appendages ..... *Centaurea*
- 31 Phyllaries in 1-3 series, without fringed appendages
  - 32 Involucres cylindrical; heads in flat-topped corymbs ..... *Stevia*
  - 32 Involucres campanulate or hemispheric; heads in elongate panicles ..... *Leuciva*
- 29 Corollas yellow
  - 33 Stems winged by decurrent leaf bases; phyllary margins herbaceous ..... *Helenium*
  - 33 Stems not winged; phyllary margins scarious
    - 34 Plants annual or biennial
      - 35 Plants 30-80 cm tall ..... *Artemisia*
      - 35 Plants 2-30 cm tall
        - 36 Foliage aromatic (with pineapple odor) when bruised; florets all with corollas ..... *Matricaria*
        - 36 Foliage not aromatic; peripheral florets lacking corollas ..... *Cotula*
    - 34 Plants perennial
      - 37 Plants herbaceous perennials ..... *Tanacetum*
      - 37 Plants shrubs or subshrubs
        - 38 Heads in panicles, racemes or spikes ..... *Artemisia*
        - 38 Heads borne singly or in flat-topped corymbs ..... *Pentzia*
- 20 Pappus present
  - 39 Leaves mostly opposite or whorled, the upper cauline leaves may be alternate
    - 40 Corollas yellow
      - 41 Corollas 5-lobed; fruits not flattened, strongly 4-angled
        - 42 Phyllaries hairy (hirsutulous) and gland-dotted; disc florets 15-30 ..... *Picradeniopsis*
        - 42 Phyllaries gland-dotted, otherwise glabrous; disc florets 2-8 ..... *Schkuhria*
      - 41 Corollas 4-lobed; achenes strongly flattened or weakly 3-4 angled
        - 43 Leaf blades usually 3-lobed or sometimes up to 5-lobed, not triangular hastate, apices not long-tailed; phyllaries 8-16 in 2-3 series, not fused ..... *Perityle*
        - 43 Leaf blades triangular hastate, entire, dentate or shallowly lobed, apices long-tailed; phyllaries 15-21 in 1 series, fused together in one series ..... *Pericome*
    - 40 Corollas white to cream, or blue, lavender, pink, or purple
      - 44 Corollas 4-lobed ..... *Perityle*
      - 44 Corollas 5-lobed
        - 45 Phyllaries 5, in one series ..... *Stevia*
        - 45 Phyllaries 8-45, in 2-8 or more series
          - 46 Achenes 4-angled, not ribbed, densely hairy ..... *Palafoxia*
          - 46 Achenes 4-10 ribbed, not densely hairy
            - 47 Achenes 8-10 ribbed ..... *Carphochaete*
            - 47 Achenes 4-5 ribbed ..... *Ageratum*
  - 39 Leaves alternate throughout
    - 48 Corollas mostly white or blue, lavender, pink or purple
      - 49 Phyllaries toothed or fringed ..... *Centaurea*
      - 49 Phyllaries not toothed or fringed
        - 50 Phyllaries 35-70 in 3-8 series ..... *Vernonia*
        - 50 Phyllaries 5-21 in 1-2 series
          - 51 Phyllary margins membranous or scarious
            - 52 Pappus scales aristate ..... *Hymenothrix*
            - 52 Pappus scales rounded, not aristate ..... *Hymenopappus*
          - 51 Phyllary margins herbaceous throughout
            - 53 Phyllaries 5 in 1 series; florets 5 ..... *Stevia*
            - 53 Phyllaries 5-21 in 1-2 series; florets 8-70 ..... *Chaenactis*
    - 48 Corollas yellow to orange
      - 54 Primary leaves forming recurved spines ..... *Tetradymia*
      - 54 Primary leaves not spiny
        - 55 Phyllary margins scarious or membranous
          - 56 Foliage not aromatic when crushed; pappus of orbicular scales or absent ..... *Hymenopappus*
          - 56 Foliage aromatic when crushed; pappus coroniform or absent
            - 57 Plants annual; plants 4-40 cm tall ..... *Matricaria*
            - 57 Plants perennial; plants 40-150 cm ..... *Tanacetum*
        - 55 Phyllary margins not scarious
          - 58 Phyllary apices usually looped, hooked or curved at anthesis; involucre notably resinous ..... *Grindelia*
          - 58 Phyllary apices erect at anthesis; involucre not resinous

- 59 Stems winged by decurrent leaf bases ..... *Helenium*  
 59 Stems not winged  
 60 Pappus of outer scales and inner, longer bristles ..... *Erigeron*  
 60 Pappus wholly of scales  
 61 Corollas white, cream or pinkish; receptacles without stout bristles  
 (setae) ..... *Chaenactis*  
 61 Corollas brown-purple or red-brown; receptacles with stout bristles  
 ..... *Gaillardia*
- Key F: Ray Flowers Present; Pappus of Capillary Bristles, at least in part.**
- 1 Ray corollas white, pink, or purple  
 2 Shrubs and subshrubs  
 3 Plants thorny, thorns green; leaves reduced; branches often wand-like ..... *Chloracantha*  
 3 Plants not thorny; leaves not reduced; branches not wand-like  
 4 Leaves cordate and clasping the stem, margin spinulose-serrate ..... *Herrickia*  
 4 Leaves not cordate nor clasping the stem, margin not spinulose-serrate, if serrate, the teeth bristle-tipped  
 5 Achenes dimorphic (ray achenes 3-sided, disc achenes compressed), each with 6-18 ribs .....  
 ..... *Xanthisma*  
 5 Achenes all similar, not dimorphic, with 2-3 ribs ..... *Ionactis*
- 2 Annuals, biennials or herbaceous perennials  
 6 Plants annuals or biennial  
 7 Heads solitary, sessile or pedunculate  
 8 Achenes turbinate or cylindrical, not compressed, sometimes slightly flattened  
 9 Leaves deeply 1-2 pinnatifid, lobes bristle-tipped ..... *Machaeranthera*  
 9 Leaves entire or toothed, if pinnatifid then lobes not bristle-tipped  
 10 Ray florets with prominent pappus; leaves entire or toothed ..... *Dieteria*  
 10 Ray pappus absent or present; if pappus present then leaves pinnatifid or bipinnatifid  
 throughout ..... *Leucosyris*
- 8 Achenes oblanceolate or oblong, compressed or clearly flattened  
 11 Phyllaries usually equal in height; phyllary nerves golden resinous ..... *Erigeron*  
 11 Phyllaries strongly unequal in height; phyllary nerves not golden resinous ..... *Townsendia*
- 7 Heads in clusters, either in panicles or corymbs  
 12 Ray florets with reduced lamina 0.5-1mm long or lamina nearly absent  
 13 Leaf faces and achenes stipitate-glandular or gland-dotted; phyllaries lacking orange to brown  
 midnerves ..... *Laennecia*  
 13 Leaf faces and achenes not glandular; phyllaries with orange to brown midnerves ..... *Conyza*
- 12 Ray florets with lamina greater than 1 mm long  
 14 Pappus of ray florets absent ..... *Psilactis*  
 14 Pappus of ray florets present, composed of bristles similar to those of disk florets  
 15 Stems and leaves usually hairy and sometimes glandular but glabrous in *Dieteria*  
*canescens* var. *glabra*; plants of grasslands, woodlands, or dry streambeds ..... *Dieteria*  
 15 Stems and leaves usually glabrous; plants usually of marshy habitats, moist soils, wet  
 swales, and streambanks ..... *Symphotrichum*
- 6 Plants perennial  
 16 Stems thorny (thorns green) or if not thorny, then wand-like with reduced leaves ..... *Chloracantha*  
 16 Stems not thorny or wand-like  
 17 Achene margins ribbed; achene faces 1-2 nerved or nerves absent  
 18 Phyllaries keeled ..... *Ionactis*  
 18 Phyllaries not keeled  
 19 Phyllaries unequal in length; pappus of 12-35 narrow scales (sometimes bristle-like)  
 ..... *Townsendia*  
 19 Phyllaries equal in length; pappus of outer shorter bristles or scales plus 5-40 inner  
 longer bristles, sometimes absent ..... *Erigeron*
- 17 Achene margins not ribbed; achene faces 3-12 nerved  
 20 Pappus of relatively coarse bristles, bases flattened; achenes dimorphic, ray 3-sided, disc  
 flattened  
 21 Subshrubs; pappus bristles coarsely barbed ..... *Xanthisma*  
 21 Herbaceous perennials; pappus bristles finely barbed ..... *Leucosyris*
- 20 Pappus of fine bristles, not basally flattened; achenes monomorphic, ray and disc achenes  
 similar  
 22 Phyllaries equal or subequal in length; leaf blades linear or narrowly lanceolate  
 ..... *Almutaster*  
 22 Phyllaries unequal in length; leaf blades lanceolate or broader  
 23 Plants taprooted ..... *Dieteria*

- 23 Plants rhizomatous
  - 24 Leaf bases clasping the stems
    - 25 Pappus of yellowish to cinnamon or tawny stiff bristles ..... *Herrickia*
    - 25 Pappus of white or brownish soft bristles ..... *Symphotrichum*
  - 24 Leaf bases not clasping the stems
    - 26 Heads borne singly and terminally on branches; cauline leaves densely overlapping, coriaceous ..... *Chaetopappa*
    - 26 Heads in corymbs, panicles, or racemes (except in *S. foliaceum*, occurring in alpine or subalpine meadows); cauline leaves not densely overlapping or coriaceous ..... *Symphotrichum*
- 1 Ray corollas yellow, orange, or red
  - 27 Leaves opposite or subopposite, if some alternate, then leaves mostly basal (*Bartlettia*)
    - 28 Leaves succulent, filiform to linear ..... *Haploësthes*
    - 28 Leaves not succulent, triangular, oblanceolate, elliptic, or cordate-ovate
      - 29 Plants perennial ..... *Arnica*
      - 29 Plants annual ..... *Bartlettia*
  - 27 Leaves alternate
    - 30 Phyllaries in 1-2 series, equal in length, often subtended by smaller calyculi
      - 31 Annuals, herbaceous perennials, or low sub-shrubs (woody only at base)
        - 32 Leaves, at least the larger, (7)8-17 cm wide and suborbicular to ovate ..... *Roldana*
        - 32 Leaves less than 8 cm wide and not suborbicular or ovate (*Packera* and *Senecio*) go to *Senecio*
      - 31 Shrubs, obviously woody well above the base
        - 33 Leaves linear and evenly distributed on stem ..... *Senecio*
        - 33 Leaves lance-elliptic, lanceolate or lance-linear, clustered at ends of stems ..... *Barkleyanthus*
    - 30 Phyllaries in 3 or more series, unequal in length, calyculi absent
      - 34 Shrubs or subshrubs
        - 35 Phyllaries in obvious vertical ranks
          - 36 Leaves with 3-5 raised parallel veins; leaf blades gland-dotted ..... *Petradoria*
          - 36 Leaves without raised parallel veins, 1 nerved; leaf blades not gland-dotted ..... *Lorandersonia*
        - 35 Phyllaries in spirals, not in vertical ranks
          - 37 Basal leaves pinnatifid, lobes bristle-tipped; pappus bristles flattened at base ... *Xanthisma*
          - 37 Basal leaves not pinnatifid, entire or shallowly toothed; pappus bristles not flattened at base
            - 38 Plants rhizomatous; stems glaucous, woody only at base; moist to wet soils in streambeds, lake shores, or marshes ..... *Euthamia*
            - 38 Plants not rhizomatous, stems not glaucous, obviously woody; dry habitats ..... *Ericameria*
    - 34 Annuals, biennials, or herbaceous perennials
      - 39 Receptacle with scales ..... *Xanthisma*
      - 39 Receptacle naked, without scales
        - 40 Pappus of ray and disk florets of small outer scales and larger inner bristles, ray floret pappus sometimes absent ..... *Heterotheca*
        - 40 Pappus of ray and disk florets entirely of bristles, ray pappus always present
          - 41 Lamina of ray floret, when present, 0.5-1 mm long, otherwise disciform... *Laennecia*
          - 41 Lamina of ray floret 2 mm or longer, never disciform
            - 42 Plants annual; achenes dimorphic, ray achenes 3-angled, disc achenes compressed ..... *Rayjacksonia*
            - 42 Plants perennial; achenes all similar
              - 43 Pappus brownish ..... *Pyrrocoma*
              - 43 Pappus white
                - 44 Heads generally 1 per stem, occasionally 2-6
                  - 45 Peduncles 10-130 mm long; phyllaries unequal in length, the outer not foliaceous ..... *Stenotus*
                  - 45 Peduncles 3-8 mm long; phyllaries equal or subequal in length, the outer foliaceous ..... *Tonestus*
        - 44 Heads numerous on stems
          - 46 Cauline leaves clasping or subclasping; stems and leaves obviously stipitate glandular; achenes 12-16 nerved, the nerves whitish and raised ..... *Oreochrysum*
          - 46 Cauline leaves not clasping; stems and leaves generally not stipitate glandular, but leaves sometimes stipitate-glandular; achenes 5-8 nerved, the nerves not whitish nor raised ..... *Solidago*



**Key G: Ray Flowers Present; Pappus of Awns or Scales**

- 1 Receptacles paleate
- 2 Phyllaries, stems, and leaves with black glandular hairs; phyllaries in one series ..... *Layia*
- 2 Phyllaries, stems, and leaves lacking black glandular hairs; phyllaries in 2-7 series
- 3 Phyllaries and paleae nearly transparent and striate with longitudinal brown stripes
- 4 Ray florets 1-3, pale yellow to orange; pappus absent or present of 2-3 retrorsely barbed awns  
..... *Heterosperma*
- 4 Ray florets 3-6, yellow; pappus of 2 awns not retrorsely barbed ..... *Dicranocarpus*
- 3 Phyllaries and paleae not transparent and striate
- 5 Calyculi present, 1-8+ bractlets subtending the phyllaries
- 6 Phyllaries united greater than  $\frac{1}{2}$  of their length ..... *Thelesperma*
- 6 Phyllaries free or united less than  $\frac{1}{10}$  of their length
- 7 Achenes compressed
- 8 Pappus of barbellate awns; achenes not winged (except for *B. polylepis*) ..... *Bidens*
- 8 Pappus of scales or bristly cusps; achenes winged ..... *Coreopsis*
- 7 Achenes not compressed, 4-angled or terete
- 9 Achenes with 1 groove on each face; ray corollas pink, purple, rose-pink, violet or white ...  
..... *Cosmos*
- 9 Achenes without grooves or if present, 2 on each face; ray corollas yellow or white, never  
pink, purple, or violet ..... *Bidens*
- 5 Calyculi absent
- 10 Phyllaries usually falling with ray achenes and adjacent fruit, not persistent in fruit
- 11 Leaves alternate ..... *Parthenium*
- 11 Leaves opposite ..... *Galinsoga*
- 10 Phyllaries persistent in fruit
- 12 Receptacles obviously columnar or cone-shaped
- 13 Ray florets purple or pink ..... *Echinacea*
- 13 Ray florets yellow (sometimes whitish) or maroon
- 14 Ray floret laminae persistent and becoming papery in fruiting heads ..... *Sanvitalia*
- 14 Ray floret laminae not persistent and papery in fruiting heads
- 15 Phyllaries equal or sub-equal in length; achenes 4-angled not compressed .....  
..... *Rudbeckia*
- 15 Phyllaries unequal in length (outer much longer than inner); achenes strongly  
compressed ..... *Ratibida*
- 12 Receptacles not columnar or strongly cone-shaped
- 16 Ray florets persistent in fruit, becoming papery
- 17 Leaf margins serrate to coarsely toothed ..... *Heliosis*
- 17 Leaf margins entire
- 18 Subshrubs, obviously woody at base; ray floret lamina 7-18 mm long ..... *Zinnia*
- 18 Annuals or herbaceous perennials, ray floret lamina 1.5-2.5 mm long ..... *Sanvitalia*
- 16 Ray florets not persistent in fruit and not papery
- 19 Inner phyllaries broadly obovate or orbicular ..... *Berlandiera*
- 19 Inner phyllaries not broadly obovate or orbicular
- 20 Ray florets 2-4; leaves linear to filiform ..... *Pseudocappia*
- 20 Rays 5 or more; leaves not linear to filiform, broader
- 21 Ray florets sterile, not producing fruits
- 22 Achenes flattened with thin margins ..... *Simsia*
- 22 Achenes convex or 3-4 angled
- 23 Shrubs; leaves often lobed ..... *Sidneya*
- 23 Annuals or herbaceous perennials; leaves not lobed
- 24 Pappus falling readily, not persistent in fruit ..... *Helianthus*
- 24 Pappus persistent in fruit
- 25 Petioles less than 1 cm long; phyllary apices gradually  
narrowed ..... *Aldama*
- 25 Petioles 1-2 cm long; phyllary apices abruptly narrowed  
..... *Viguiera*
- 21 Ray florets fertile
- 26 Ray florets white
- 27 Ray florets 8; leaves pinnately lobed or compound, alternate .....  
..... *Hymenopappus*
- 27 Ray florets 20-40; leaves entire or serrate, opposite ..... *Eclipta*
- 26 Ray florets yellow, orange, or brown
- 28 Disk florets female-sterile, only ray florets produce fruits
- 29 Ray florets 8-9 ..... *Engelmannia*

- 29 Ray florets 12-38..... *Silphium*
- 28 Disk florets bisexual and fertile
  - 30 Leaves alternate, basal and/or cauline
    - 31 Achenes 3-4 angled ..... *Wyethia*
    - 31 Achenes compressed or flattened, not 3-4 angled
      - 32 Achenes winged
        - 33 Pappus of 2+ subulate awns or scales only; achene margins glabrous ..... *Verbena*
        - 33 Pappus of 2+ subulate scales plus up to 4 shorter scales; achene margins usually ciliate ..... *Helianthella*
      - 32 Achenes not winged
        - 34 Plants glabrous; outer phyllaries longer than inner phyllaries (*F. pringlei*)..... *Flourensia*
        - 34 Plants variously pubescent; outer phyllaries shorter than inner phyllaries ..... *Encelia*
  - 30 Leaves mostly opposite, all cauline
    - 35 Achenes winged, wings membranous or corky
      - 36 Leaves gland-dotted; pappus in 2 series, of 2-3 scales or awns plus 2-8 shorter scales and awns ..... *Jefea*
      - 36 Leaves not gland-dotted; pappus in 1 series of 2-3 awns or scales..... *Verbena*
    - 35 Achenes not winged
      - 37 Phyllaries 5 in 1 series; involucre 3-8 mm in diameter ..... *Calyptocarpus*
      - 37 Phyllaries 12-35 in 2-5 series; involucre 10-50 mm in diameter
        - 38 Leaf margins entire ..... *Helianthella*
        - 38 Leaf margins coarsely serrate ..... *Lasiantha*

1 Receptacles without paleae

- 39 Leaves all opposite or opposite below and alternate above
  - 40 Achenes compressed with ciliate margins ..... *Perityle*
  - 40 Achenes not compressed, 4-5 angled or 10-15 ribbed, the margins not ciliate
    - 41 Achenes 10-15 ribbed, not 4-5 angled
      - 42 Heads borne singly ..... *Pseudocappia*
      - 42 Heads in compact flat-topped clusters
        - 43 Rays 3-5, pappus 10, of 5 scales and 5 bristles ..... *Sartwellia*
        - 43 Rays 1 (rarely absent); pappus of 2-4 scales ..... *Flaveria*
    - 41 Achenes 4-5 angled, not ribbed
      - 44 Ray florets 1-8
        - 45 Plants perennial ..... *Picradeniopsis*
        - 45 Plants annual or biennial
          - 46 Ray florets (0)1-2; ray corollas yellow or white ..... *Schkuhria*
          - 46 Ray florets 3-8; ray corollas pinkish to purplish ..... *Palafoxia*
      - 44 Ray florets 8-13
        - 47 Ray florets white with red veins ..... *Eriophyllum*
        - 47 Ray florets yellow ..... *Picradeniopsis*
- 39 Leaves all alternate
  - 48 Pappus mixed, of scales and bristles
    - 49 Rays white, sometimes blue, purple, lilac, maroon, or pink
      - 50 Phyllary margins prominently white scarious margined ..... *Chaetopappa*
      - 50 Phyllary margins not white scarious although they may be scarious or not
        - 51 Phyllaries equal in height, generally not imbricate ..... *Erigeron*
        - 51 Phyllaries unequal in height, imbricate
          - 52 Pappus of scales subtending an inner set of longer bristles, bristles terete not flattened ..... *Ionactis*
          - 53 Pappus of lanceolate, subulate, or setiform (flattened bristles) scales ..... *Townsendia*
    - 49 Rays mostly yellow to orange
      - 53 Pappus of bristles subtending subulate scales ..... *Grindelia*
    - 53 Pappus of scales subtending bristles
      - 54 Achenes 2-ribbed with thickened margins; heads borne singly or in 2s or 3s ..... *Erigeron*
      - 54 Achenes 4-12 ribbed; heads in compound clusters, rarely borne singly ..... *Heterotheca*
- 48 Pappus wholly of scales
  - 55 Rays white; sometimes blue, pink, purple or violet

- 56 Rays 5-8 ..... *Hymenopappus*  
 56 Rays 10-67  
   57 Achenes strongly compressed to flattened ..... *Townsendia*  
   57 Achenes not strongly flattened, often terete  
     58 Leaves gland-dotted, glabrous or minutely hairy ..... *Gutierrezia*  
     58 Leaves not gland-dotted, obviously hairy, strigose or hirsute ..... *Aphanostephus*  
 55 Rays yellow to orange  
   59 Phyllaries united  $\frac{1}{2}$  to  $\frac{3}{4}$  their lengths; rays with dark basal blotch or spot on upper surface ..... *Gazania*  
   59 Phyllaries not united, or if united, less than  $\frac{1}{2}$  their length; rays without dark basal blotch or spot  
     60 Ray corollas becoming reflexed, dry, and persisting past flowering  
       61 Heads in flat-topped or spherical clusters ..... *Psilostrophe*  
       61 Heads borne singly at tips of stems  
         62 Shrubs or sub-shrubs ..... *Psilostrophe*  
         62 Herbaceous annuals or perennials  
           63 Leaves and stems woolly, not gland-dotted ..... *Baileya*  
           63 Leaves glabrous or hairy but not woolly, gland-dotted ..... *Tetraneris*  
     60 Ray corollas withering and falling after flowering  
       64 Disk florets female-sterile, not producing fruits  
         65 Annuals; ray florets 5-15 ..... *Amphichyris*  
         65 Perennials; ray florets 1-5 ..... *Hymenoxys*  
       64 Disk florets bisexual, producing fruits  
         66 Disk corollas brown-purple or red-brown or tipped with brown-purple or red-brown  
           67 Stems winged by decurrent leaf bases (except in *H. amarum*); receptacles naked ..... *Helium*  
           67 Stems not winged; receptacles bristly ..... *Gaillardia*  
         66 Disk corollas usually yellow or cream  
           68 Phyllaries mostly unequal in length, imbricate ..... *Gutierrezia*  
           68 Phyllaries mostly equal to sub-equal in length, not imbricate  
             69 Achenes not strongly 4-angled, lengths 3+ times the diameters ..... *Hymenoxys*  
             69 Achenes strongly 4-angled, lengths usually 1-2 times the diameters ..... *Platyschukria*

**Key H: Ray Flowers Present; Pappus Absent**

- 1 Receptacles paleate (receptacular bracts or paleae present)  
 2 Phyllaries with scarious margins  
   3 Ray florets 5-8, fertile, producing fruits; heads in compact, flat-topped clusters ..... *Achillea*  
   3 Ray florets 10-15, sterile; heads borne singly or in loose clusters ..... *Anthemis*  
 2 Phyllaries not with scarious margins, herbaceous or margins narrowly membranous  
   4 Heads with calyculi, 1-8+ bractlets subtending the phyllaries  
     5 Phyllaries united greater than  $\frac{1}{2}$  of their total length ..... *Thelesperma*  
     5 Phyllaries free or united less than  $\frac{1}{10}$  of their total length  
       6 Achenes 3-4 angled or linear fusiform  
         7 Achenes with 1 groove on each face; ray corollas pink, purple, rose-pink, violet or white ..... *Cosmos*  
         7 Achenes without grooves or if present, 2 on each face; ray corollas yellow or white, never pink, purple, or violet ..... *Bidens*  
       6 Achenes compressed  
         8 Inner achenes beaked; ray floret lamina 1-2 mm long ..... *Heterosperma*  
         8 Inner achenes not beaked; ray floret lamina 4-30+mm long ..... *Coreopsis*  
   4 Heads without calyculi  
     9 Ray floret corollas white or pale yellow fading to white  
       10 Plants annual, occasionally perennial in *Eclipta*  
         11 Ray florets 5-8 ..... *Galinsoga*  
         11 Ray florets 20-40 ..... *Eclipta*  
       10 Plants perennial  
         12 Leaves basal, alternate ..... *Hymenopappus*  
         12 Leaves cauline, opposite  
           13 Ray corollas persistent in fruit, becoming papery; phyllaries persistent in fruit ..... *Zinnia*  
           13 Ray corollas not persistent in fruit, not becoming papery; phyllaries shed together with ray achenes ..... *Melampodium*  
     9 Ray floret corollas yellow or orange  
       14 Inner phyllaries broadly ovate or orbicular ..... *Berlandiera*

- 14 Inner phyllaries not broadly ovate or orbicular, narrower
  - 15 Ray corollas persistent in fruit, becoming papery
    - 16 Leaves petiolate, margins serrate or toothed ..... *Heliopsis*
    - 16 Leaves sessile, margins entire ..... *Zinnia*
  - 15 Ray corollas not persistent in fruit and not papery
    - 17 Phyllaries enfolding ray florets shed together with ray achenes ..... *Melampodium*
    - 17 Phyllaries not enfolding ray florets, persistent in fruit
      - 18 Receptacles columnar or cone-shaped, 8-20 mm high
        - 19 Phyllaries equal or subequal in length; achenes 4-angled, not compressed ..... *Rudbeckia*
        - 19 Phyllaries unequal in length (outer much longer than inner); achenes strongly compressed ..... *Ratibida*
      - 18 Receptacles flat to convex, 0-5 mm high
        - 20 Ray florets sterile, not producing fruits
          - 21 Achenes flattened, thin margined ..... *Simsia*
          - 21 Achenes biconvex or 3-4 angled, not strongly flattened
            - 22 Plants annual ..... *Heliomeris*
            - 22 Plants perennial
              - 23 Plants shrubs
                - 24 Leaves petiolate, the petioles 2-7 mm ..... *Encelia*
                - 24 Leaves sessile or subsessile, the petioles up to 1 mm long if present ..... *Viguiera*
              - 23 Plants herbaceous perennials or subshrubs
                - 25 Leaves sessile ..... *Heliomeris*
                - 25 Leaves petiolate ..... *Zaluzania*
          - 20 Ray florets fertile, producing fruits
            - 26 Disk florets female-sterile, not producing fruits ..... *Silphium*
            - 26 Disk florets bisexual, producing fruits
              - 27 Achenes 3-4 angled ..... *Wyethia*
              - 27 Achenes compressed to strongly flattened
                - 28 Achenes winged ..... *Verbesina*
                - 28 Achenes not winged ..... *Helianthella*
  - 1 Receptacles not paleate, without receptacular bracts
    - 29 Shrubs with thorny stems; disc achenes winged ..... *Osteospermum*
    - 29 Annual or perennial herbs, if woody only at base, thorns absent; disc achenes not winged
      - 30 Phyllaries with prominent scarious margins
        - 31 Phyllaries equal or subequal; perennials or biennial, never rhizomatous ..... *Hymenopappus*
        - 31 Phyllaries in 2-5 unequal series; annuals or rhizomatous perennials
          - 32 Perennials with rhizomes; achenes 10 ribbed ..... *Leucanthemum*
          - 32 Annuals, never rhizomatous; achenes with 3-5 ribs or none.
            - 33 Leaves 2-3 pinnately lobed, lobes filiform ..... *Tripleurospermum*
            - 33 Leaves entire or with a pinnatifid margin, lobes not filiform ..... *Aphanostephus*
      - 30 Phyllaries herbaceous, without prominent scarious margins
        - 34 Leaves opposite; ray florets one ..... *Flaveria*
        - 34 Leaves alternate: ray florets 2 or more
          - 35 Shrubs or subshrubs ..... *Gymnosperma*
          - 35 Annuals, biennials, or herbaceous perennials
            - 36 Ray florets 3-5 ..... *Hymenoxys*
            - 36 Ray florets 10-55
              - 37 Leaves densely white-woolly, not gland-dotted ..... *Baileya*
              - 37 Leaves not white-woolly, green, usually gland-dotted ..... *Hymenothrix*

**Achillea**

**A. millefolium** Linnaeus •Moist to dry ground along roadsides, meadows, streams, disturbed areas largely in montane areas throughout the state.

**Acourtia**

- 1 Plants low, 2-25 cm tall (rarely more); blades about as wide as long, the margins holly-like with stiff spiny teeth ..... *A. nana*  
(A. Gray) Reveal & R.M. King •Desert grassland, bajadas, and desert scrub from Bernalillo County southward.
- 1 Plants taller, mostly 30-100 cm or more; blades usually longer than wide, the margins not holly-like, entire to denticulate
  - 2 Leaf blades ovate to broadly elliptic; florets 3-6 in number; pappus 8-9 mm long ..... *A. thurberi*  
(A. Gray) Reveal & R.M. King •Dry slopes or flats in gravelly or caliche soils; Hidalgo and Grant counties.

- 2 Leaf blades lanceolate to elliptic; florets 8-12 in number; pappus 9-12 mm long.....*A. wrightii*  
(A. Gray) Reveal & R.M. King ●Rocky and gravelly soils on hillsides and bajadas throughout the southernmost third of the state from Hidalgo to Eddy counties.

**Adenophyllum**

*A. wrightii* A. Gray ●Known from open grasslands and juniper foothills of the western forests, Catron, Grant and Sierra counties.

**Ageratina**

- 1 Plants shrubs; blades mostly 1-2 cm long and nearly as wide.....*A. wrightii*  
(Gray) R.M. King & H.E. Robinson ●Limestone ledges and slopes, washes; foothills and lower slopes of the southern desert mountains.
- 1 Plants herbaceous or woody at the base; blades mostly 2-7 cm long and about ½ as wide
- 2 Leaves mostly sessile; heads in open, loose arrays, the peduncles 1-6 cm long.....*A. lemmonii*  
(B.L. Robinson) R.M. King & H.E. Robinson ●Rocky slopes in pine-oak woodlands; recently found in the western mountains, Catron County.
- 2 Leaves petiolate; heads in compact clusters, the peduncles 0.1-1.5 cm long
- 3 Leaf bases truncate to cordate; phyllaries glandular-puberulent; corolla lobes glabrous.....*A. herbacea*  
(A. Gray) R.M. King & H.E. Robinson ●Slopes, arroyos, and riparian areas usually in pine-oak or piñon-juniper woodlands.
- 3 Leaf bases obtuse to truncate; phyllaries glabrous, lacking glands; corolla lobes short-villous.....  
.....*A. rothrockii*  
(Gray) R.M. King & H.E. Robinson ●Rocky slopes and ledges in mixed conifer woodlands in southern mountains from the central mountain chain westward.

**Ageratum**

*A. corymbosum* Zuccagni ●Rocky arroyo banks; known only from southwestern Hidalgo County.

**Agoseris**

- 1 Plants annual.....*A. heterophylla*  
(Nuttall) Greene ●Margins of streams and springs or in grasslands and woodlands.
- 1 Plants perennial
- 2 Corollas orange, pink, red, or purplish.....*A. aurantiaca*  
(Hooker) Greene ●Montane habitats including wooded slopes, mountain meadows and alpine meadows.
- 2 Corollas yellow, the outermost often with purplish stripes on the lower surface
- 3 Beak of achene ½ or less the length of the body, 1-4 mm long (sometimes more); inner phyllaries not elongating in fruit
- 4 Leaf margins usually lobed; peduncles and phyllaries hairy.....*A. parviflora*  
(Nuttall) Dietrich ●Dry to moist soils in sagebrush, grassland and woodland/forest habitats; mainly northwestern New Mexico. ●Dry to moist soils in sagebrush, grassland and woodland/forest habitats; mainly northwestern New Mexico.
- 4 Leaf margins usually entire; peduncles and phyllaries usually glabrous, the peduncles sometimes hairy above.....*A. glauca*  
(Pursh) Rafinesque ●Dry to wet montane habitats including wet meadows, stream margins, roadside swales, and forest slopes.
- 3 Beak of achene about as long as the body, or longer, 5-10 mm long; inner phyllaries elongating in fruit
- 5 Ligules 4-12 mm long; inner phyllaries elongating in fruit; leaf margins entire or lobed with 2-4 pairs of lobes; montane forests to alpine tundra.....*A. aurantiaca*  
(Hooker) Greene ●Montane habitats including wooded slopes, mountain meadows and alpine meadows.
- 5 Ligules 10-20 mm long; inner phyllaries not elongating in fruit; leaf margins lobed with 5-8 pairs of lobes; plains, foothills, and lower montane forests.....*A. parviflora*  
(Nuttall) Dietrich ●Dry to moist soils in sagebrush, grassland and woodland/forest habitats; mainly northwestern New Mexico.

**Aldama**

*A. cordifolia* (A. Gray) E.E. Schilling & Panero ●Mountain slopes, ponderosa/oak woodlands, desert scrub, dry washes; southcentral to southwestern regions.

**Almutaster**

*A. pauciflorus* (Nuttall) A. & D. Löve ●Damp soils in arroyos, ditches, alkaline or salty seeps and streams throughout the state.

**Ambrosia**

- 1 Shrubs.....*A. monogyra*  
(Torrey & Gray ex Gray) Strother and Baldwin ●Arroyos, mesas, and Piñon-Juniper woodland from Bernalillo County southward.
- 1 Herbs
- 2 Leaves palmately parted or divided, or undivided, opposite.....*A. trifida*  
Linnaeus ●Disturbed ground, waste places, roadsides, often in moist ground; scattered localities
- 2 Leaves pinnately parted or divided, opposite or alternate

- 3 Leaves whitish-tomentose or pubescent, at least on the lower surface; plants perennial
- 4 Leaves finely dissected, the blades dark green above and whitish-tomentose below ..... *A. tomentosa* Nuttall ●Disturbed ground along streams, roadsides, and riparian areas; largely found in the northern counties.
- 4 Leaves broadly lobed, the blades and stems uniformly silvery-gray pubescent or irregularly glabrate in age ..... *A. grayii* (A. Nelson) Shinnars ●Swales, moist cultivated fields, pond margins; a western Great Plains native with invasive tendencies; known from only a few collections in Colfax, Union, and Curry counties.
- 3 Leaves greenish above and below, sparsely hairy; plants annual or perennial
- 5 Plants perennial from deep-seated underground rootstocks
- 6 Leaves alternate throughout; blades 2- to 3-times pinnatifid; pistillate involucre with 10-20 hooked spines ..... *A. confertiflora* A.P. de Candolle ●Waste ground and disturbed habitats throughout the state.
- 6 Leaves opposite below, alternate above; blades mostly 1-pinnatifid; pistillate involucre with 2-6 tubercles or unarmed ..... *A. psilostachya* A.P. de Candolle ●Disturbed sites, often in wet soils; widespread.
- 5 Plants annual from taproots
- 7 Lower stems and leaves with pustule-based, stiff, multicellular hairs; burs with spines in more than one series, the spines 2-5 mm long; staminate involucre wide open, becoming rotate, evidently lobed, with 1 or more thickened black nerves ..... *A. acanthicarpa* Hooker ●Sandy soils in arroyos, riparian areas, and mesas; widespread.
- 7 Lower stems and leaves lacking pustule-based hairs as above; burs with spines in a single series, the spines to 1 mm long; staminate involucre cup-shaped, only shallowly or scarcely lobed, without thickened black nerves ..... *A. artemisifolia* Linnaeus ●Disturbed habitats throughout the state. ●Our plants belong to var. *elatior* (Linnaeus) Descourtils.

**Amphiachyris**

*A. dracunculoides* (A.P. de Candolle) Nuttall ●Sandy, disturbed soils in pastures and along roadsides; uncommon in eastern New Mexico.

**Anaphalis**

*A. margaritacea* (Linnaeus) Benth & Hooker ●Woods, trails, slopes, streams, and canyon bottoms in our mountains.

**Antennaria** [Key adapted from Bayer 2006]

- 1 Heads borne singly, rarely in 2s or 3s
- 2 Plants dwarf, 0.5-2 cm tall, the heads sessile among the leaves; basal leaves 2-5 mm wide..... *A. rosulata* Rydberg ●Piñon-juniper and ponderosa pine woodlands; predominately in northwestern counties.
- 2 Plants small but taller, mostly 1-4 cm tall, the heads raised above the leaves; basal leaves about 1 mm wide... ..... *A. dimorpha* (Nuttall) Torrey & Gray ●Piñon-juniper woods of the far northern mountain foothills; known only from a few collections in Rio Arriba County
- 1 Heads borne in clusters of 3-15 or more, rarely single
- 3 Phyllaries dark brown or black at the tips; alpine tundra ..... *A. media* Greene ●Alpine and subalpine meadows from Santa Fe county northward.
- 3 Phyllaries light brown, cream, gray, green, ivory, pinkish, or white at the tips; various habitats
- 4 Basal leaves glabrous and green on the upper surface (margins white-wooly); phyllaries white at the tips.. ..... *A. marginata* Greene ●Ponderosa pine and mixed conifer forests, slopes, and ridgetops from central mountain chain westward.
- 4 Basal leaves pubescent on the upper surface; phyllaries white, pink, green, red, yellow, or brown at the tips
- 5 Plants mostly 2-10 cm tall; involucre 8-12 mm long ..... *A. parvifolia* Nuttall ●Washes, piñon-juniper woodlands, ponderosa pine forests, wooded slopes, mostly in montane habitats.
- 5 Plants mostly 9-30 cm tall; involucre 4-10 mm long
- 6 Basal leaves spatulate; phyllaries white or light brown at the tips; willow thickets and similar moist habitats at high elevations ..... *A. corymbosa* E. Nelson ●Willow thickets and similar moist habitats at high elevations. Known from a few collections in Taos, Rio Arriba and Colfax counties.
- 6 Basal leaves oblanceolate, spatulate, or linear; phyllaries various colors at the tips; habitats various
- 7 Plants dioecious, the pistillate and staminate heads on different plants; basal leaves spatulate; stems stipitate-glandular below ..... *A. microphylla* Rydberg ●Moist open ground, flood plains of streams, and woodland understory from lower montane to alpine habitat; northern mountains.
- 7 Plants gynoeious, all plants with only pistillate heads, staminate heads unknown; basal leaves

- linear; stems not stipitate-glandular ..... *A. rosea*  
 Greene ●Dry to moist habitats in the northern mountains.

**Anthemis**

- \**A. cotula* Linnaeus ●Disturbed ground, roadsides; presently known from 3 collections in Sandoval and Colfax counties; native to Eurasia.

**Aphanostephus**

- 1 Plants perennial; phyllary tips long acuminate ..... *A. riddelli*  
 Torrey & Gray ●Dry open ground, calcareous soils in the southern portion of the state.  
 1 Plants annual or biennial; phyllary tips acute or short acuminate  
 2 Hairs on the achene coiled ..... *A. skirrhobasis*  
 (A. P. de Candolle) Trelease ●Dry sandy soils or sand dunes, grassland or shinnery oak communities;  
 eastern New Mexico from De Baca County southward.  
 2 Hairs on the achene straight ..... *A. ramosissimus*  
 A. P. de Candolle ●Sandy or gravelly soils often on limestone in creosote bush, mesquite savannas, and  
 roadside habitats; from Bernalillo County southward.

**Arctium**

- \**A. minus* (Hill) Bernhardt ●In disturbed habitats; largely northern but also found in the Sacramento Mountains.

**Arnica**

- 1 Heads discoid ..... *A. parryi*  
 A. Gray ●Conifer forests for moist alpine meadows. Known from two collections, one in the Chuska Mtns. in McKinley County and one from Rio Arriba County.  
 1 Heads radiate  
 2 Leaves mostly basal or crowded toward the base, the blades with 3-5 prominent nearly parallel veins .....  
 ..... *A. fulgens*  
 Pursh ●Gravel washes or rocky slopes; known only from a few collections in the Chuska Mountains.  
 2 Leaves mostly cauline, the blades lacking prominent, nearly parallel veins  
 3 Upper stem leaves obviously petiolate ..... *A. cordifolia*  
 Hooker ●Conifer forests in the western and northern mountains.  
 3 Upper stem leaves sessile  
 4 Pappus white, bristles barbellate ..... *A. latifolia*  
 Bongard ●Spruce-fir forests in northern mountains.  
 4 Pappus light brownish or yellowish, bristles subplumose or plumose  
 5 Cauline leaves with 2-3 pairs; pappus bristles with deep, amberlike deposits towards the tips .....  
 ..... *A. mollis*  
 Hooker ●Moist meadows and conifer forests; known from two specimens in the Sangre de Cristo Mountains in Taos County.  
 5 Cauline leaves with 4-10 pairs; pappus bristles without amberlike deposits ..... *A. chamissonis*  
 Lessing ●Wet meadows, stream banks, conifer forests; northern and west-central mountains.

**Artemisia**

- 1 Plants shrubs or subshrubs, woody at least below  
 2 Leaves filiform, elongate and thread-like, 1-8 cm long and less than 1.5 mm wide, entire or the lower ternate; sandy places at low elevations ..... *A. filifolia*  
 Torrey ●Highly sandy soils or dunes in grasslands and prairies; widespread.  
 2 Leaves not filiform nor as above  
 3 Leaf margins (lower leaves) entire, rarely irregularly lobed; moist habitats ..... *A. cana*  
 Pursh ●Stream banks, wet meadows; Rio Arriba and Sandoval Counties.  
 3 Leaf margins (lower leaves) usually lobed or deeply toothed, rarely entire; dry habitats  
 4 Leaves pinnately lobed with 3-7 lobes, rigid, bright green, sparingly pubescent to glabrous; plants mostly 5-10 cm tall; gypsum or shale ..... *A. pygmaea*  
 A. Gray ●Gypsum, sandy-clay, or shale soils in Colorado Plateau shrub habitats; known only from McKinley, San Juan, and Rio Arriba counties.  
 4 Leaves 3-toothed or palmately to ternately lobed, not pinnately lobed, not rigid, mostly grayish to some extent; plants 10-150 cm or more tall; various soils  
 5 Leaves palmately or ternately lobed with 5-7 or more ultimate lobes  
 6 Branches thorny; plants flowering in the spring ..... *A. spinescens*  
 D. C. Eaton ●Clay soils in shadscale scrub, piñon-juniper, and sagebrush communities in northwestern counties.  
 6 Branches not thorny; plants flowering in the summer and fall ..... *A. frigida*  
 Willdenow ●Meadows, fields, dry grasslands, mixed-conifer woodlands; widespread.  
 5 Leaves 3-toothed or 3-lobed at the tip  
 7 Phyllaries sparsely hairy to glabrous; leaves gland-dotted ..... *A. nova*  
 A. Nelson ●Sandy or shaley soils in piñon-juniper and shrubland communities; northwestern counties.

- 7 *Phyllaries canescent to tomentose*
  - 8 Plants mostly 20-40 cm tall, the stems silvery canescent; heads usually nodding, with both ray (2-lipped) and disk florets ..... *A. bigelovii*  
A. Gray ●Sandy or alkaline soils on plains, bajadas, slopes in desert scrub and piñon-juniper woodland, from southern deserts northward.
  - 8 Plants 30-300 cm tall, the stems glabrate; heads usually erect, with disk florets only .....  
..... *A. tridentata*  
Nuttall ●Mountain meadows, woodlands, valley bottoms, drainages, river terraces, mesas; mostly northern counties.
- 1 Plants herbaceous (but may be twiggy or bushy)
  - 9 Leaves mostly entire or coarsely toothed to very shallowly lobed
    - 10 Leaves glabrous or nearly so, green above and beneath ..... *A. dracunculus*  
Linnaeus ●Fields, open meadows, trails, desert scrub, and roadsides; widespread.
    - 10 Leaves white-tomentose, at least below ..... *A. ludoviciana*  
Nuttall ●Sandy drainages, dry plains disturbed sites, open meadows, rocky mountain slopes and foothills.
  - 9 Leaves mostly evidently lobed to pinnatifid
    - 11 Plants annual or biennial, glabrous; leaves in the inflorescence scarcely if at all reduced, pinnately lobed, the ultimate lobes coarsely toothed; inflorescence spike-like, the heads nearly sessile ..... *A. biennis*  
Willdenow ●Mostly clayey or silty soils in disturbed ground, arroyos, and mud flats; uncommon; native to the northwestern United States.
    - 11 Plants biennial or perennial, variously pubescent or glabrous; leaves in the inflorescence reduced, smaller than the lower, mostly unlobed, or if lobed then never toothed; inflorescence various
  - 12 Receptacle markedly villous
    - 13 Flowering stems arising from short, prostrate to ascending woody offshoots; below alpine .....  
..... *A. frigida*  
Willdenow ●Meadows, fields, dry grasslands, mixed-conifer woodlands; widespread.
    - 13 Flowering stems arising from a simple or branched caudex; mostly alpine
      - 14 Heads borne 1-5 together in a raceme-like or globose cluster 1-5 cm long; corolla lobes glabrous; leaves mostly once-pinnatifid ..... *A. pattersonii*  
A. Gray ●Alpine meadows and rocky slopes; Sangre de Cristo Mountains.
      - 14 Heads borne 5-22 together in a rather dense spike-like cluster 5-9 cm long; corolla lobes hairy; leaves mostly twice-pinnatifid ..... *A. scopulorum*  
A. Gray ●Alpine meadows and talus; Sangre de Cristo Mts.
  - 12 Receptacle glabrous
    - 15 Leaves 2- to 3-times pinnatifid or palmatifid; stems usually reddish; plants rhizomatous or not
    - 16 Leaf lobes 0.5-2 mm wide, linear to linear-spatulate; leaves densely sparsely whitish-pubescent on both surfaces ..... *A. campestris*  
Linnaeus ●Meadows, open woodlands, roadsides.
    - 16 Leaf lobes 2-6 mm wide; leaves pubescent to glabrous
      - 17 Plants 10-40 cm tall, lacking rhizomes; leaves pubescent and not glandular above; inflorescence 2-5 cm long (subsp. *parryi*) ..... *A. laciniata*  
Willdenow ●Subalpine to alpine meadows and rocky slopes.
      - 17 Plants 30-100 cm tall, rhizomatous; leaves ± glabrous and glandular above; inflorescence 10-35 cm long ..... *A. franserioides*  
Greene ●Mid- to high-elevation forests.
  - 15 Leaves once-pinnatifid (multi-lobed in some *A. ludoviciana*); stems usually not reddish; plants rhizomatous
    - 18 Main leaves mostly 3-11 cm long, the margins revolute or plane ..... *A. ludoviciana*  
Nuttall ●Sandy drainages, dry plains disturbed sites, open meadows, rocky mountain slopes and foothills.
    - 18 Main leaves mostly 1-2.5(3) cm long, the margins revolute
      - 19 Central portion of the blade surrounding the midvein mostly wider than 1 mm; branches of inflorescence spreading (subsp. *albula*) ..... *A. ludoviciana*  
Nuttall ●Sandy drainages, dry plains disturbed sites, open meadows, rocky mountain slopes and foothills.
      - 19 Central portion of the blade surrounding the midvein 0.3-1 mm wide; branches of mature inflorescences erect ..... *A. carruthii*  
Wood ex Carruthers ●Open sandy soils in grasslands, woodlands, roadsides.

**Asanthus**

*A. squamulosus* (A. Gray) R.M. King & H.E. Robinson ●Arroyo bottoms, stream sides, flats, open woodlands; known from Sierra, Grant and Hidalgo counties.

**Baccharis** [Key adapted from Sundberg & Bogler 2006]

- 1 Stems hispidulous near the heads ..... *B. brachyphylla*



- A. Gray ● Arroyos, canyons, rocky slopes, desert scrub; southwestern deserts and mountains.
- 1 Stems glabrous or glabrate throughout
- 2 Subshrubs woody at the base and herbaceous above, usually dying back to the base, 15-80 cm tall
- 3 Phyllaries keeled, the midribs dilated; leaves finely undulate and entire; pistillate involucre 7-9 mm long  
..... *B. texana*  
(Torrey and Gray) A. Gray ● Dry ground on mesas, prairies and hillsides.
- 3 Phyllaries not keeled; leaves entire or toothed but not undulate; pistillate involucre 4-5 or 9-14 mm long
- 4 Leaf margins often irregularly toothed; pistillate involucre 4-5 mm long; pappus bristles about 4 mm long; flowering in late summer-fall..... *B. havardii*  
A. Gray ● Dry hills on limestone; Eddy and Otero counties.
- 4 Leaf margins entire or finely serrate; pistillate involucre 9-14 mm long; pappus bristles 15-20 mm long; flowering in the spring..... *B. wrightii*  
A. Gray ● Dry sandy plains, piñon-juniper woodlands, and grasslands; widespread.
- 2 Well-developed shrubs, woody well above the base, not dying back, mostly 60-200 cm or more tall
- 5 Plants broom-like, the stems strongly striate, green, and densely parallel; leaves sparse or absent at flowering time..... *B. sarothroides*  
A. Gray ● Gravelly and sandy soils in arroyos, roadsides, stream margins, creosote flats; southwestern deserts.
- 5 Plants not broom-like and not otherwise as above
- 6 Leaves mostly 5-15 mm long, clustered in fascicles; heads in raceme-like clusters or glomerules on short spur branches; stems often whitish..... *B. pteronioides*  
A.P. de Candolle ● Arroyos, piñon-juniper woodlands, roadsides, grasslands; central and southern; common.
- 6 Leaves, heads, and stems other than above
- 7 Leaves obovate to spatulate
- 8 Leaves among the heads reduced to bracts with entire margins; stem leaves not thickened, the margins coarsely serrate; pappus 3-4.5 mm long..... *B. bigelovii*  
A. Gray ● Dry ground in pine-oak woodland; Luna and Hidalgo counties with a disjunct distribution in Torrance County in the Manzano Mountains; uncommon.
- 8 Leaves among the heads scarcely reduced, often toothed; stem leaves thickened, the margins entire or coarsely dentate; pappus 6-9 mm long (subsp. *consanguinea*)..... *B. pilularis*  
A.P. de Candolle ● A West Coast species with one report from New Mexico, either cultivated or a garden escape. ♦ Our plants belong to subsp. *consanguinea* (A.P. de Candolle) C.B. Wolf
- 7 Leaves linear to elliptic
- 9 Leaves broader, 5-6 times longer than wide, the margins entire or coarsely and irregularly toothed, the toothing lobe-like, more than 1 mm deep; pappus 8-12 mm long..... *B. salicina*  
Torrey & Gray ● Stream banks, flood plains, gypsum flats, moist roadsides; common.
- 9 Leaves narrower, 6-12 times longer than wide, the margins entire to finely toothed, the toothing less than 1 mm deep
- 10 Leaves 30-150 mm long, the margins entire or serrate with blunt-tipped teeth; achenes 0.8-1.5 mm long..... *B. salicifolia*  
(Ruiz & Pavon) Persoon ● Stream banks, arroyos, sandy flood plains, roadsides, and ditchbanks; mostly southwestern.
- 10 Leaves mostly 20-40 mm long, the margins serrate with spinulose teeth; achenes 1.5-2.2 mm long..... *B. thesioides*  
Kunth ● Lower mountain slopes, canyon bottoms, pine-oak woodlands; Socorro County southward.

**Baileya**

*B. multiradiata* Harvey & Gray ex Gray ● Sandy or gravelly soils on mesas, roadsides, desert plains, dry rocky slopes; central and southern; common.

**Barkleyanthus**

*B. salicifolius* (Kunth) H. Robison & Brettell ● Desert riparian scrub; known only from Peloncillo Mountains in Hidalgo County.

**Bartlettia**

*B. scaposa* A. Gray ● Sandy flats and playas; uncommon, known in New Mexico from only a few collections from Luna and Hidalgo counties; flowering August to October after monsoonal rains.

**Bebbia**

*B. juncea* (Bentham) Greene ● Rocky and sandy soils on dry slopes and desert washes in the Florida, Tres Hermanas, and Organ mountains in Luna and Doña Ana counties. ♦ Our plants belong to var. *aspera* Greene.

**Berlandiera**

- 1 Leaf blades lyrate to pinnatifid..... *B. lyrata*  
Bentham ● Roadsides and grasslands; widely distributed. ♦ Our plants belong to var. *purpurea* B.L. Turner.
- 1 Leaf blades elongate-deltate, lanceolate, ovate or linear-lanceolate, never lyrate or pinnatifid
- 2 Leaves mostly basal; disc florets yellow..... *B. macvaughii*

B.L. Turner ●Limestone soils on montane slopes; known only from a few collections in the Guadalupe Mtns. in Eddy County; more common in the southern portion of the Guadalupe Mtns. in Culberson County, Texas.

- 2 Leaves cauline; disc florets red to maroon ..... *B. texana*  
 A.P. de Candolle ●Calcareous or sandy soils on the far eastern plains; currently known from Quay, Chaves, and Roosevelt counties.

**Bidens** [Key adapted from Strother & Weedon 2006]

- 1 Leaves mostly entire or merely toothed
- 2 Leaves petiolate, the petioles 3-25 mm long and wing-margined ..... *B. tripartita*  
 Linnaeus ●Wetlands from Socorro County northward.
- 2 Leaves sessile
- 3 Bractlets subtending the heads 7-35 mm long or more ..... *B. tripartita*  
 Linnaeus ●Wetlands from Socorro County northward.
- 3 Bractlets subtending the heads mostly 3-12 mm long, sometimes longer
- 4 Ray flowers 2-15 mm long; chaff of the receptacle yellowish at the tips; margins of achenes noticeably thickened or winged ..... *B. cernua*  
 Linnaeus ●Wetlands; widespread.
- 4 Ray flowers 15-25 mm long; chaff of the receptacle reddish at the tips; margins of achenes not noticeably thickened or winged ..... *B. laevis*  
 (Linnaeus) Britton, Sterns, & Poggenburg ●Wetlands; uncommon.
- 1 Leaves mostly pinnatisect to pinnately compound
- 5 Achenes flattened, oblanceolate, thickest toward the tips ..... *B. frondosa*  
 Linnaeus ●Stream banks, flood plains, wetlands, roadsides, and ditches, mainly in the Rio Grande Valley.
- 5 Achenes 4-angled, linear-fusiform, thickest near the middle
- 6 Heads narrow, 1-3(4) mm wide; disk flowers 5-10 in number
- 7 Leaf lobes 5-15 mm wide ..... *B. bigelovii*  
 A. Gray ●Dry or wet soils along streams; mostly southern half of the state.
- 7 Leaf lobes 0.5-5 mm wide
- 8 Bractlets subtending the heads spatulate to linear, sometimes lobed and foliaceous, 3-20 mm long, usually surpassing the phyllaries ..... *B. lemmonii*  
 A. Gray ●Wet spots on rocky slopes or along streams; known from Lincoln, Grant, and Hidalgo counties.
- 8 Bractlets subtending the heads linear, 1-4 mm long, not surpassing the phyllaries
- 9 Ultimate leaf lobes 2-3 mm or more wide; achenes hairy, at least toward the apex ..... *B. leptoccephala*  
 Sherff ●Along streams or margins of springs, largely in the southwestern quarter of the state with one record in the Manzano Mountains.
- 9 Ultimate leaf lobes 0.5-2 mm wide; achenes usually glabrous ..... *B. heterosperma*  
 A. Gray ●Rocky slopes in south-central and southwestern mountains.
- 6 Heads broader, (3)4-8 mm wide; disk flowers 10-50 in number
- 10 Ultimate leaf lobes linear, 5-15 mm long and 1-3 mm wide ..... *B. tenuisecta*  
 A. Gray ●Wet meadows and along streams in montane habitats, largely in the central mountain chain and the Gila National Forest.
- 10 Ultimate leaf lobes larger, 10-30 mm or more long and 5-25 mm or more wide
- 11 Leaves 1-pinnately lobed, the lobes or leaflets mostly 10-40 mm wide ..... *B. pilosa*  
 Linnaeus ●Disturbed habitats, semi-wet sites; occasional.
- 11 Leaves mostly 2-3-pinnately lobed, the ultimate lobes mostly 5-20 mm wide
- 12 Outer achenes 6-7 mm long, the inner 10-14 mm long; pappus of 2-3 awns ..... *B. bigelovii*  
 A. Gray ●Dry or wet soils along streams; mostly southern half of the state.
- 12 Outer achenes 7-15 mm long, the inner 12-18 mm long; pappus of 3-4 awns ..... *B. bipinnata*  
 Linnaeus ●Disturbed wetland sites; native to eastern Asia.

**Brickellia** [Key adapted from Scott 2006]

- 1 Pappus bristles plumose
- 2 Phyllaries puberulent, often densely gland-dotted ..... *B. eupatorioides*  
 (Linnaeus) Shinnery ●Wide range of dry habitats throughout the state.
- 2 Phyllaries glabrous or puberulent, not gland-dotted ..... *B. brachyphylla*  
 (A. Gray) A. Gray ●Limestone and rhyolite soils, cliffs, rocky ridges, hillsides throughout the state.
- 1 Pappus bristles smooth or barbellate
- 3 Petioles 4-70 mm long
- 4 Leaf apices acuminate to long-acuminate
- 5 Plants herbaceous; heads nodding in flower and fruit ..... *B. grandiflora*  
 (Hooker) Nuttall ●Canyon bottoms, dry slopes, woodlands, and forests; widespread.
- 5 Plants woody-based or above; heads erect
- 6 Leaves opposite; plants full-shrubs ..... *B. coulteri*

- A. Gray ●Rocky slopes and desert canyons, Luna, Grant, Doña Ana, and Hidalgo counties.
- 6 Leaves alternate; plants woody at the base ..... *B. rusbyi*  
A. Gray ●Montane habitats including rocky slopes, stream margins, and forests and woodlands;  
central and western mountains.
- 4 Leaf apices acute to rounded
- 7 Plants woody shrubs
- 8 Leaf bases cuneate, the margins lacinate-dentate; peduncles 5-40 mm long ..... *B. baccharidea*  
A. Gray ●Limestone or sandy soils; slopes and cliffs in desert scrub in Doña Ana, Luna, and  
Hidalgo counties.
- 8 Leaf bases cordate to truncate, the margins crenate to serrate; peduncles 1-5 mm long *B. californica*  
(Torrey & Gray) A. Gray ●Arroyos, canyons, dry and forested slopes, ridges, and cliffs;  
widespread.
- 7 Plants herbaceous or subshrubs with semi-woody bases or caudices
- 9 Florets numerous, about 60 or so in number ..... *B. simplex*  
A. Gray ●Oak woodlands, canyon bottoms, dry slopes in Hidalgo and Eddy counties.
- 9 Florets fewer, 15-30 in number
- 10 Leaf bases rounded to cuneate; petioles 4-10 mm long ..... *B. chenopodina*  
(Greene) Robinson ●Canyon bottom near stream; known only from one collection in Grant  
county in 1903.
- 10 Leaf bases truncate to cordate; petioles 8-35 mm long
- 11 Stems puberulent (*B. fendleri*) ..... go to *Brickelliastrum*
- 11 Stems stipitate-glandular ..... *B. floribunda*  
A. Gray ●Cliffs, canyons, arroyos, desert washes; mostly southwestern but also known  
from southern end of the Manzano Mountains.
- 3 Petioles 0-5 mm long
- 12 Leaves opposite
- 13 Plants shrubs; leaf blades 4-15 mm long ..... *B. veronicifolia*  
(Kunth) A. Gray ●Perhaps moist soils in canyon bottoms; southern regions.
- 13 Plants herbaceous (subshrub in *Asanthus*); leaf blades various, but often longer than 15 mm
- 14 Leaf blades narrowly oblong to linear, 4-10 mm wide
- 15 Blades 1-nerved at the base; style bases not enlarged, glabrous (*A. squamulosus*) .....  
..... go to *Asanthus*
- 15 Blades 3-nerved at the base; style bases enlarged and hairy ..... *B. venosa*  
(Wooton and Standley) Robinson ●Granite and limestone soils, dry hills and canyon  
sides in southwestern portion of the state.
- 14 Leaf blades oblong to ovate, mostly wider than 10 mm
- 16 Peduncles densely stipitate-glandular; not pubescent or tomentose ..... *B. amplexicaulis*  
B. Robinson ●Dry, rocky slopes in Hidalgo county.
- 16 Peduncles not stipitate-glandular (may be gland-dotted); variously hairy
- 17 Blades 1-3 cm long; plants 12-30 cm tall ..... *B. parvula*  
A. Gray ●Canyons in the Organ and Florida Mountains.
- 17 Blades 2-8 cm long; plants 30-90 cm tall
- 18 Leaf bases cordate or truncate; peduncles hispid-hirsute; florets purplish .....  
..... *B. betonicifolia*  
A. Gray ●Wooded slopes and canyons in the southwestern portion of the state.
- 18 Leaf bases cuneate; peduncles tomentose; florets pale yellow ..... *B. lemmonii*  
A. Gray ●Arroyos and rocky slopes in southwestern mountains
- 12 Leaves alternate
- 19 Florets numerous, 25-50; leaf blades entire, linear to narrowly oblong ..... *B. oblongifolia*  
Nuttall ●Sandstone slopes and mesas in northwestern region. ♦Our plants belong to var. *linifolia*  
(D.C. Eaton) Robinson
- 19 Florets fewer, 8-30; leaf blades entire or toothed, broadly lanceolate to ovate-orbicular
- 20 Leaf blades 2-7 cm long ..... *B. lemmonii*  
A. Gray ●Arroyos and rocky slopes in southwestern mountains
- 20 Leaf blades 0.2-2 cm long
- 21 Peduncles 0-2.5 mm long; phyllaries 15-25 in number ..... *B. laciniata*  
A. Gray ●Arroyos and dry slopes in central and southwestern counties.
- 21 Peduncles 2-10 mm long; phyllaries 30-48 in number ..... *B. microphylla*  
(Nuttall) A. Gray ●Sandstone slopes, rocky ridges, and mesas in western counties. ♦Our  
plants belong to var. *scabra* A. Gray.

**Brickelliastrum**

*B. fendleri* (A. Gray) King & H.E. Robinson ●Shaded slopes, rock crevices, conifer woodlands, canyons;  
widespread.

**Calycoseris**

*C. wrightii* A. Gray •Desert scrub and shrublands; southcentral and southwestern counties. ♦A look-alike is *Rafinesquia neomexicana*, but that species lacks tack-like glands.

**Calyptocarpus**

\**C. vialis* Lessing •Weedy in lawns or dry disturbed sites; known only from Doña Ana and Eddy Counties; native to Texas and Mexico, but considered adventive here.

**Carduus**

1 involucre 14-20 mm high and wide; peduncles rather short, spiny winged; outer phyllaries not conspicuously spreading or reflexed ..... *C. acanthoides*  
 Linnaeus •Aggressive weed of pastures, roadsides, and disturbed ground; currently known only from Otero County near Mayhill; native to Europe and Asia.

1 involucre 20-70 mm high and wide; peduncles elongate and not spiny winged; outer phyllaries conspicuously spreading-reflexed ..... *C. nutans*  
 Linnaeus •An aggressive weed of pastures, roadsides, and disturbed ground; essentially throughout the state; native to Eurasia.

**Carminatia**

*C. tenuiflora* A.P. de Candolle •Canyons and slopes in oak woodlands; southwestern counties.

**Carphochaete**

*C. bigelovii* A. Gray •Slopes in pine-oak woodlands and rock outcrops in desert grasslands; southwestern.

**Carthamus**

\**C. tinctorius* Linnaeus •Occasional escape from cultivation; native to Europe.

**Centaurea**

1 Flower heads strongly and conspicuously spiny, the spines 5-25 mm long  
 2 Stems not winged; flowers purplish; seeds without a crown of bristles at one end ..... *C. calcitrapa*  
 Linnaeus •Adventive along roadsides and in disturbed ground of farms and cropland, in the southern counties.

2 Stems winged; flowers yellow; at least the seeds in the center with a crown of bristles at one end  
 3 Terminal spine of the bracts of the flower heads (phyllaries) 5-10 mm long; both marginal and central florets with a pappus 1.5-3 mm long ..... *C. melitensis*  
 Linnaeus •Adventive in southern New Mexico along roadsides, abandoned crop fields, and along ditches.

3 Terminal spine of the bracts of the flower heads (phyllaries) 10-25 mm long; marginal florets lacking a pappus, the central florets with a pappus 3-5 mm long ..... *C. solstitialis*  
 Linnaeus •Roadsides and disturbed ground mostly in Grant County with one record in San Miguel County.

1 Flower heads lacking spines, or if slightly spiny, the spines less than 5 mm long  
 4 Plants rhizomatous; bracts of the flower heads (phyllaries) entire with translucent margins, not toothed or fringed (*R. repens*) ..... go to *Rhaponticum*

4 Plants lacking rhizomes; bracts of the flower heads (phyllaries) toothed, fringed or slightly spiny  
 5 Leaves, at least the lower ones, dissected  
 6 Bracts of the flower heads (phyllaries) both fringed and with a short terminal spine or lobe 1-4 mm long; pappus absent ..... *C. diffusa*  
 Lamarck •Roadsides, in a few localities in the state.

6 Bracts of the flower heads (phyllaries) fringed but without a terminal spine or lobe; pappus 2-3 mm long ..... *C. stoebe*  
 Linnaeus •Roadsides, not common.

5 Leaves entire or only toothed  
 7 Flower heads 1-2 cm wide ..... *C. cyanus*  
 Linnaeus •Occasionally found as a garden escape, but not persisting.

7 Flower heads 2-5 cm wide ..... go to *Plectocephalus*

**Chaenactis**

1 Lower herbage farinose, not cobwebby (arachnoid) or woolly pubescent; receptacles paleate ..... *C. carphoclinia*  
 A. Gray •Open rocky or gravelly soils on bajadas; currently known from the Pyramid Mountains in Hidalgo county.

1 Lower herbage cobwebby or woolly pubescent; receptacles naked, lacking palea  
 2 Plants annual; leaves not gland-dotted; pappus scales 4-5 ..... *C. stevioides*  
 Hooker & Arnott •Desert scrub in southwestern counties, also San Juan County.

2 Plants biennial to perennial; leaves gland-dotted beneath the hairs; pappus scales 10-20 ..... *C. douglasii*  
 (Hooker) Hooker & Arnott •Sandy or shale soils in open ground or piñon-juniper woodlands; San Juan and Rio Arriba counties, with one report from Taos County.

**Chaetopappa**

1 Stems 6-12 cm tall; pappus of 20-30 ± equal capillary bristles; rays 2-3 mm long, white ..... *C. ericoides*  
 (Torrey) Nesom •Widespread in dry, open plains and roadsides.

1 Stems 1-5 cm tall; pappus of about 5 awns and the same number of very minute ciliate or erose scales; rays

- about 5 mm long, bluish fading to white ..... *C. hersheyi*  
 Blake ●Guadalupe Mountains in Eddy County.
- Chamaechaenactis**  
*C. scaposa* (Eastwood) Rydberg ●Shale or clay soils; San Juan and McKinley counties.
- Chaptalia**  
*C. texana* Greene ●Moist wooded slopes in the Sacramento Mountains and the Black Range.
- Chloracantha**  
*C. spinosa* (Bentham) Nesom ●Ditchbanks, riparian zones, and saline flats; central and eastern counties.
- Chrysactinia**  
*C. mexicana* A. Gray ●Limestone soils in southern desert scrub habitats.
- Chrysothamnus**
- 1 Stems covered with a tomentose felt ..... go to *Ericameria*
  - 1 Stems glabrous, gland-dotted
    - 2 Achenes glabrous to glandular, sometimes sparsely hairy on the ridges
      - 3 Involucres 6-8 mm long; phyllaries weakly ranked vertically ..... *C. vaseyi*  
 (A. Gray) Greene ●Piñon-juniper woodlands and mixed conifer forests; from Rio Arriba county southward to mountains of Socorro county.
      - 3 Involucres 9-15 mm long; phyllaries strongly ranked vertically
        - 4 Stems densely puberulent; blades 2-7 mm wide ..... *C. depressus*  
 Nuttall ●Clay and sandy soils in piñon-juniper woodlands, sagebrush flats, grasslands, and open slopes and swales; Rio Arriba and San Juan counties southward to Bernalillo and Cibola counties.
        - 4 Stems glabrous; blades 1-2.5 mm wide (*L. pulchella*)..... go to *Lorandersonia*
    - 2 Achenes densely pubescent (sometimes sparsely so in *L. spatulata*, but then the achenes not ridged)
      - 5 Leaves 3- to 5-nerved, at least the wider ones at the base
        - 6 Ray florets present; plants half-shrubs, mat-forming, 5-20 cm tall (*L. microcephalus*)..... go to *Lorandersonia*
      - 6 Ray florets absent; plants well-developed shrubs, 25-150 cm tall
        - 7 Leaves often twisted..... *C. viscidiflorus*  
 (Hooker) Nuttall ●Piñon-juniper woodlands, sagebrush flat, foothill slopes, roadsides, generally northwestern counties, but extending south to Otero Co.
        - 7 Leaves rarely twisted..... go to *Lorandersonia*
    - 5 Leaves 1-nerved
      - 8 Ray florets present ..... go to *Ericameria*
      - 8 Ray florets absent
        - 9 Leaves 2-16 mm wide (*E. cuneata*)..... go to *Ericameria*
        - 9 Leaves 0.5-3 mm wide
          - 10 Involucres 5-8 mm long ..... *C. greenii*  
 (A. Gray) Greene ●Sandy washes and arroyos, sagebrush flats, piñon-juniper woodland, mainly in northwestern counties southward to Cibola and Torrance Counties.
          - 10 Involucres 10-15 mm long (*L. baileyi*)..... go to *Lorandersonia*
- Cichorium**  
 \**C. intybus* Linnaeus ●Disturbed and waste ground, often along roadsides.
- Cirsium** [Key adapted from Keil 2006]
- 1 Involucres large, 3-5 cm long
    - 2 Upper leaf surface with appressed bristle-like spines ..... *C. vulgare*  
 (Savi) Tenore ●Noxious weed in disturbed ground and pastures; native to Eurasia.
    - 2 Upper leaf surface lacking appressed spines
      - 3 Middle and outer phyllaries with an elongate glutinous ridge
        - 4 Corolla lobes much longer than the tube; style tips 1-4 mm long ..... *C. arizonicum*  
 (Gray) Petrak ●Pine-oak woodlands in southwestern and southern mountains, canyons, meadows, Four Corners region.
        - 4 Corolla lobes shorter than to equaling the tube; style tips 2-8 mm long
          - 5 Herbage and heads tomentose with septate hairs, usually lacking fine non-septate hairs.... *C. eatonii*  
 (A. Gray) B.L. Robinson ●Alpine tundra and meadows in the Sangre de Cristo Mountains. ♦Our plants belong to var. *eriocephalum* (A. Gray) Keil.
      - 5 Herbage and heads tomentose with fine, non-septate hairs
        - 6 Stem leaves evidently decurrent, the spiny wings to 5 cm long ..... *C. ochrocentrum*  
 Gray ●Roadsides, grasslands, desert grasslands, sagebrush flats, piñon-juniper woodlands throughout the state.
        - 6 Stem leaves not or scarcely decurrent
          - 7 Corollas red, pink, or reddish purple; main leaf spines 5-20 mm long..... *C. ochrocentrum*  
 Gray ●Roadsides, grasslands, desert grasslands, sagebrush flats, piñon-juniper woodlands throughout the state.
          - 7 Corollas lavender or purple; main leaf spines 3-5 mm long..... *C. undulatum*

(Nuttall) Sprengel ●Mixed conifer and ponderosa pine forests down to the high plains, often on disturbed roadsides; widespread throughout the state.

- 3 Middle and outer phyllaries lacking a glutinous ridge
  - 8 Corollas pink, red, or reddish purple..... *C. arizonicum* (Gray) Petrak ●Pine-oak woodlands in southwestern and southern mountains, canyons, meadows, Four Corners region.
  - 8 Corollas white to lavender or purple
    - 9 Middle and outer phyllaries appressed, the apices erect, the spines 1-5 mm long ..... *C. scariosum* Nuttall ●Meadows, streams, and spring seeps at mid- to high elevations in the northern mountains; uncommon. ♦Our plants belong to var. *coloradense* (Rydberg) Keil.
    - 9 Middle and outer phyllaries appressed at the base but spreading outward above, the spines 3-35 mm long ..... *C. eatonii* (A. Gray) B.L. Robinson ●Alpine tundra and meadows in the Sangre de Cristo Mountains. ♦Our plants belong to var. *eriocephalum* (A. Gray) Keil.
- 1 Involucres smaller, 1-3 cm long
  - 10 Heads unisexual; plants forming spreading colonies from deep-seated roots with adventitious buds..... *C. arvensis* (Linnaeus) Scopoli ●Disturbed habitats in northern counties and the Sacramento mountains; native to Eurasia.
  - 10 Heads bisexual; plants not forming colonies
    - 11 Stem leaves long-decurrent more than 5 cm, with spiny wings..... *C. wrightii* A. Gray ●Uncommon to rare in scattered springs, seeps, ciénegas, and marshy ground in the southern half of the state; listed as an endangered species by the state of New Mexico.
    - 11 Stem leaves not decurrent or decurrent less than 5 cm
      - 12 Heads nodding
        - 13 Involucres densely tomentose; stem leaves tomentose or villous abaxially ..... *C. eatonii* (A. Gray) B.L. Robinson ●Alpine tundra and meadows in the Sangre de Cristo Mountains. ♦Our plants belong to var. *eriocephalum* (A. Gray) Keil.
        - 13 Involucres glabrous; stem leaves glabrous abaxially ..... *C. vinaceum* (Wootton & Standley) Wootton & Standley ●Wet soil in travertine springs and seeps, montane meadows, riparian habitats; endemic to the Sacramento Mountains; of conservation concern.
  - 12 Heads usually erect
    - 14 Margins of outer phyllaries hispid-ciliate, spiny-fringed, or with scarious appendages
      - 15 Heads not closely subtended by clustered leafy bracts
        - 16 Middle and outer phyllaries with an elongate glutinous ridge; corollas deep purple .... *C. grahamii* Gray ●Riparian canyon bottoms and moist meadows in pine forests; in New Mexico, only known from three collections, all from the West and Middle Forks of the Gila River, Catron County; very rare in New Mexico; also Arizona.
        - 16 Middle and outer phyllaries lacking a ridge; corollas usually white ..... *C. scariosum* Nuttall ●Meadows, streams, and spring seeps at mid- to high elevations in the northern mountains; uncommon. ♦Our plants belong to var. *coloradense* (Rydberg) Keil.
      - 15 Heads closely subtended by clustered leafy bracts
        - 17 Corollas yellowish
          - 18 Perennials; basal and lower stem leaves present at anthesis; leaves pinnatifid with closely-spaced, overlapping lobes; involucres concealed by the wooly hairs ..... *C. eatonii* (A. Gray) B.L. Robinson ●Alpine tundra and meadows in the Sangre de Cristo Mountains. ♦Our plants belong to var. *eriocephalum* (A. Gray) Keil.
          - 18 Biennials; basal and lower stem leaves absent at anthesis; leaves unlobed or pinnatifid with widely-spaced, non-overlapping lobes; involucres tomentose but not concealed by the hairs..... *C. parryi* (A. Gray) Petrak ●Montane meadows, stream banks, and conifer forests in high mountains in the north and south.
  - 17 Corollas white to purple
    - 19 Involucres glabrous to thinly cobwebby-pubescent ..... *C. scariosum* Nuttall ●Meadows, streams, and spring seeps at mid- to high elevations in the northern mountains; uncommon. ♦Our plants belong to var. *coloradense* (Rydberg) Keil.
    - 19 Involucres concealed by the dense wooly hairs ..... *C. eatonii* (A. Gray) B.L. Robinson ●Alpine tundra and meadows in the Sangre de Cristo Mountains. ♦Our plants belong to var. *eriocephalum* (A. Gray) Keil.

- 14 Margins of outer phyllaries usually entire
- 20 Corolla lobes much longer than the throat..... *C. arizonicum*  
(Gray) Petrak ●Pine-oak woodlands in southwestern and southern mountains, canyons, meadows, Four Corners region.
- 20 Corolla lobes shorter than to equaling the throat
- 21 Middle and outer phyllaries spreading to reflexed ..... *C. neomexicanum*  
Gray ●Roadsides, dry habitats including grasslands, piñon-juniper woodlands, desert slopes; throughout the state.
- 21 Middle and outer phyllaries appressed to stiffly ascending (the spines may be spreading)
- 22 Spines of the phyllaries 10-20 or more mm long..... *C. ochrocentrum*  
Gray ●Roadsides, grasslands, desert grasslands, sagebrush flats, piñon-juniper woodlands throughout the state.
- 22 Spines of the phyllaries mostly less than 10 mm long
- 23 Middle and outer phyllaries lacking a glutinous ridge
- 24 Involucres glabrous to thinly arachnoid-pubescent..... *C. scariosum*  
Nuttall ●Meadows, streams, and spring seeps at mid- to high elevations in the northern mountains; uncommon. ♦Our plants belong to var. *coloradense* (Rydberg) Keil.
- 24 Involucres concealed by the dense wooly hairs ..... *C. eatonii*  
(A. Gray) B.L. Robinson ●Alpine tundra and meadows in the Sangre de Cristo Mountains. ♦Our plants belong to var. *eriocephalum* (A. Gray) Keil.
- 23 Middle and outer phyllaries with an elongate glutinous ridge
- 25 Corollas 25-50 mm long
- 26 Main leaf spines 5-20 mm long..... *C. ochrocentrum*  
Gray ●Roadsides, grasslands, desert grasslands, sagebrush flats, piñon-juniper woodlands throughout the state.
- 26 Main leaf spines 3-5 mm long
- 27 Involucres of some heads exceeding 3 cm long; corolla lobes 6.5-13 mm long, averaging 10 mm..... *C. undulatum*  
(Nuttall) Sprengel ●Mixed conifer and ponderosa pine forests down to the high plains, often on disturbed roadsides; widespread throughout the state.
- 27 Involucres of larger heads less than 3 cm long; corolla lobes 5.5-9.5 mm long, averaging 7 mm..... *C. tracyi*  
(Rydberg) Petrak ●Disturbed habitats in sagebrush flats, piñon-juniper woodland, fields, roadsides, mixed-conifer forests; northwestern.
- 25 Corollas 20-25(28) mm long
- 28 Plants annual or biennial; corolla tube 7-10 mm long, the lobes 4-7 mm long; achenes 3-5 mm long; pappus 15-16 mm long.....  
..... *C. texanum*  
Buckley ●Roadsides, floodplains, pastures, and swales; southeastern.
- 28 Plants perennial, with deep-seated root sprouts; corolla tube 9-14 mm long, the lobes 5-10 mm long; achenes 6-7 mm long; pappus 15-20 mm long ..... *C. wheeleri*  
(A. Gray) Petrak ●Meadows, coniferous forests, pine-oak forests; central and western mountains and foothills.

**Conoclinium**

- C. dissectum* A. Gray ●Rocky slopes and mesquite flats, southwestern counties.

**Conyza**

- 1 Stems, foliage, and heads glandular, sometimes sparingly so; midveins of phyllaries green to yellowish, but not orange-resinous..... go to *Laennecia*
- 1 Plants lacking glands; midveins of phyllaries orange-resinous
- 2 Involucre markedly pubescent-hirsute ..... *C. bonariensis*  
(Linnaeus) Cronquist ●Adventive weed from South America, as yet only known from Doña Ana County and possibly McKinley County, but expected elsewhere.
- 2 Involucre glabrous or nearly so
- 3 Stems branched throughout, somewhat reclining, very slender, nearly all less than 1 mm wide, 10-20(30) cm long; heads few per stem ..... *C. ramosissima*  
Cronquist ●Disturbed sites; uncommon and represented by only a few collections.
- 3 Stems mostly single below and only branched well above the base, erect, stout and thicker, most wider

- than 1.5 mm, (10)20-150 cm tall or more; heads several per stem ..... *C. canadensis*  
*canadensis* (Linnaeus) Cronquist •Very common throughout the state in weedy sites.
- Coreopsis**
- 1 Leaves mostly entire or with a few lobes ..... *C. lanceolata*  
 Linnaeus •Washes, slopes in mixed-conifer forests, roadsides; scattered occurrence.
- 1 Leaves pinnatifid
- 2 Ray florets pistillate, with styles ..... *C. californica*  
 (Nuttall) Sharsmith •Known from one collection in Hidalgo county in desert scrub.
- 2 Ray florets neuter, lacking styles
- 3 Plants perennial; rays and disk flowers usually yellow throughout, the face of the head thus appearing yellow, or at least the rays yellow ..... *C. grandiflora*  
 Hogg ex Sweet •Disturbed soils and roadsides; scattered occurrence in montane habitats.
- 3 Plants annual; rays usually with a reddish spot or band toward the base; disk flowers purplish or reddish brown; the face of the head thus appearing yellow toward the perimeter and reddish toward the center
- 4 Disk corollas with 4 lobes ..... *C. tinctoria*  
 Nuttall •Moist soils along roadsides, ditches, and alkaline flats.
- 4 Disk corollas with 5 lobes ..... *C. basalis*  
 (A. Dietrich) S.F. Blake •Sandy soils in disturbed sites; of questionable occurrence and needs verification.
- Cosmos**
- 1 Rays large and very conspicuous, 15-50 mm long ..... *C. bipinnatus*  
 Cavanilles •Roadsides and disturbed sites; Grant and Hidalgo Counties; native to Mexico.
- 1 Rays smaller, though noticeable, 7-12 mm long ..... *C. parviflorus*  
 (Jacquin) Persoon •Forested slopes, roadsides, and canyons; widespread.
- Cotula**
- \**C. australis* (Siebold ex Sprengel) Hooker f. •Weed in moist soils such as on golf courses; a recent introduction; native to Australia.
- Crepis** [Key adapted from Bogler 2006]
- 1 Leaves entire or weakly dentate, sometimes weakly lobed ..... *C. runcinata*  
 •Moist meadows, seeps, streams, and low wet habits.
- 1 Leaves pinnately lobed
- 2 Phyllaries 5-8 in number; calyculi bractlets 1-2 mm long ..... *C. acuminata*  
 Nuttall •Ridge tops and open pine woods in Cibola, San Juan and Rio Arriba counties.
- 2 Phyllaries 7-18 in number; calyculi bractlets 2-6 mm long
- 3 Phyllaries stipitate-glandular, 10-13 in number; florets 18-30 in number ..... *C. occidentalis*  
 Nuttall •Clay or sandy soils in piñon-juniper woodlands, sagebrush flats in Colfax, San Juan, McKinley, Union, and Rio Arriba counties.
- 3 Phyllaries eglanular, 7-10 in number; florets 7-12 in number ..... *C. intermedia*  
 A. Gray •Canyons and slopes in piñon-juniper woodland in Rio Arriba County.
- Cyclachaena**
- C. xanthiifolia* (Nuttall) Fresenius •Disturbed habitats in moist ground, wet hillsides, streams, and flood plains; widespread.
- Diaperia**
- 1 Heads ± campanulate, 2-3.3 mm long, about as wide as long; leaves among the heads hidden by and surpassed by the heads ..... *D. verna*  
 (Rafinesque) Morefield •Roadsides, open slopes, playas, arroyos; widespread.
- 1 Heads ellipsoid to cylindrical, 3.5-4.5 mm long, 2-3 times longer than wide; leaves among the heads visible and surpassing the heads ..... *D. prolifera*  
 (Nuttall ex A.P. de Candolle) Nuttall •Sandy, gypsum, or limestone soils in desert scrub and grasslands; southeastern.
- Dicoria**
- D. canescens* A. Gray •Sandy soils in washes and flats in San Juan, McKinley, and Sandoval counties. ♦Our plants belong to var. *brandegeei* (Gray) Cronquist.
- Dicranocarpus**
- D. parviflorus* A. Gray •Gypsum soils and outcrops in southern counties.
- Dieteria** [Key adapted from Morgan & Hartman 2003]
- 1 Phyllaries and peduncles with prominent stipitate-glandular hairs
- 2 Leaves covered with stiff glandular hairs ..... *D. asteroides*  
 Torrey •Streams, washes, and slopes in creosote bush scrub, piñon-juniper, or pine-oak woodlands, central and southern.
- 2 Leaves glabrous to variously hairy, but not covered with stiff glandular hairs
- 3 Mid-stem leaves lanceolate to oblanceolate and 5-15 mm wide, or herbaceous phyllary apices long-acuminate, 2-6 mm long, or both ..... *D. bigelovii*  
 Morgan & Hartman •Forested slopes, roadsides grasslands, canyons, creosote bush scrub; widespread.



- 3 Mid-stem leaves linear-lanceolate to linear or linear-oblancoolate, 1.5-5 mm wide; herbaceous phyllary apices acute to acuminate, 1-3 mm long ..... *D. canescens* (Pursh) Nuttall ●Pine forests and grasslands, piñon-juniper woodlands, grasslands, sagebrush flats, often in arroyos and streambeds.
- 1 Phyllaries and peduncles variously hairy, but not both with glandular hairs
- 4 Phyllaries usually pubescent throughout, with pubescence on both herbaceous apices and the indurate bases, the apices 1-6 mm long; mid-stem leaves 6-20 mm wide ..... *D. asteroides* Torrey ●Streams, washes, and slopes in creosote bush scrub, piñon-juniper, or pine-oak woodlands; central and southern.
- 4 Phyllaries mostly pubescent only on the herbaceous apices, these 1-3 mm long; mid-stem leaves 1.5-6(8) mm wide ..... *D. canescens* (Pursh) Nuttall ●Pine forests and grasslands, piñon-juniper woodlands, grasslands, sagebrush flats, often in arroyos and streambeds.
- Dyssodia**
- D. papposa* (Ventenat) Hitchcock ●Disturbed sites, roadsides, grassland, fields; widespread.
- Echinacea**
- E. angustifolia* A.P. de Candolle ●Grasslands and roadsides in prairie habitat, known from Torrance, Union, and Quay counties.
- Eclipta**
- \**E. prostrata* (Linnaeus) Linnaeus ●Moist ground around lakes, ponds, river banks, and disturbed sites.
- Encelia**
- 1 Herbaceous perennials; leaves mostly basal ..... *E. scaposa* (A. Gray) A. Gray ●Rocky, desert slopes.
- 1 Shrubs; leaves well-distributed on the stem ..... *E. virginensis* A. Nelson ●Desert scrub, rocky slopes, and creosote bush communities in Hidalgo, Grant, and Luna counties.
- Engelmannia**
- E. peristenia* (Rafinesque) Goodman & Lawson ●Roadsides, piñon-juniper woodlands, grasslands, and desert scrub; widespread.
- Ericameria** [Key adapted from Urbatsch et al. 2006]
- 1 Stems glabrous, gland-dotted
- 2 Ray florets absent; blades 4-16 mm wide, the apices obtuse to retuse ..... *E. cuneata* (A. Gray) McClatchie ●Granite or rhyolite slopes or outcrops in Hidalgo county. ♦Our plants belong to var. *spatulata* (A. Gray) H.M. Hall.
- 2 Ray florets 3-18 per head; blades 1-3 mm wide, the apices acute to acuminate
- 3 Heads borne in clusters, the heads on peduncles 3-15 mm long, with leaf-like bracts; involucre 3-5 mm long; phyllaries 1-3.5 mm long ..... *E. laricifolia* (Gray) Shinnery ●Slopes of desert mountains, desert pavement, canyons, juniper-oak woodlands, southwestern counties.
- 3 Heads borne singly on peduncles 20-70 mm long, mostly ebracteate; involucre 8-14 mm long; phyllaries 4-10 mm long ..... *E. linearifolia* (A.P. de Candolle) Urbatsch & Wussow ●To be looked for in the western mountain slopes, creek beds, desert plains, and foothills.
- 1 Stems densely tomentose
- 4 Phyllaries usually subequal in length, the outer ones nearly equaling or longer than the inner ones ... *E. parryi* (A. Gray) Nesom & Baird ●Open meadows, slopes, mesas, lava flows, woodlands, ponderosa forests.
- 4 Phyllaries unequal in size ..... *E. nauseosa* (Pallas ex Pursh) Nesom & Baird ●Widespread throughout the state, springs, floodplains, valleys, clay flats, mesas, cliffs, and roadsides often in alkaline soils.
- Erigeron** [Key adapted from Nesom 2006]
- 1 Ray flowers absent ..... *E. aphanactis* (Gray) Greene ●Shale or clay soils in salt-desert scrub and piñon-juniper, known only from San Juan County.
- 1 Ray flowers present, though they may be quite small
- 2 Plants producing herbaceous, leafy runners or stolons
- 3 Stem leaves with clasping bases
- 4 Stems glabrous or sparsely stiff-pilose near the heads; basal leaves usually persistent, mostly spatulate; phyllaries minutely glandular, otherwise glabrous ..... *E. eximius* Greene ●Slopes of montane coniferous forests and subalpine meadows; widespread.
- 4 Stems retrorsely short pilose; basal leaves usually withering by flowering, elliptic to spatulate; phyllaries stiff-pilose, sometimes glandular ..... *E. rybius* G.L. Nesom ●Meadows and forest openings in the Sacramento and White Mountains of southern New Mexico; endemic to New Mexico.
- 3 Stem leaves lacking clasping bases
- 5 Stems hirsutulous (hairs spreading); stolon-like branches usually lacking terminal plantlets ... *E. tracyi* Greene ●Grasslands, slopes of oak-pine and mixed conifer forests, creek beds, and desert scrub;

- widespread.
- 5 Stems strigose (hairs appressed); stolon-like branches usually with terminal plantlets ..... *E. flagellaris*  
Gray ● Meadows, grasslands, open sites in piñon-juniper woodlands, mixed-conifer forests, and  
spruce-fir forests; widespread.
- 2 Plants lacking runners or stolons
- 6 Leaves obviously pinnately lobed or parted
- 7 Plants annual ..... *E. divergens*  
Torrey and A. Gray ● Diverse habitats throughout the state.
- 7 Plants perennial
- 8 Rays bluish or pale-pink purplish; pappus bristles persistent
- 9 Plants 4-12 cm tall; ray florets 40-70, reflexing ..... *E. pinnatisectus*  
(A. Gray) A. Nelson ● Subalpine meadows and alpine tundra in the Sangre de Cristo  
Mountains.
- 9 Plants 12-40 cm tall; ray florets 75-150, not reflexing ..... *E. divergens*  
Torrey and A. Gray ● Diverse habitats throughout the state.
- 8 Rays white; pappus bristles deciduous
- 10 Stems, leaves, and phyllaries densely glandular, the glands large and capitate, otherwise nearly  
glabrous ..... *E. oreophilus*  
Greenman ● Rocky habitats in chaparral, piñon-juniper, mixed-conifer forests, pine-oak  
woodlands; southwestern mountains.
- 10 Stems, leaves, and phyllaries lacking glands or the glands minute and non-capitate, otherwise  
with appressed hairs ..... *E. neomexicanus*  
A. Gray ● Pine-oak woodland, canyon bottoms, rocky slopes in montane habitats from  
Manzano Mountains to southwestern mountains.
- 6 Leaves entire or toothed, rarely with 1-2 pairs of coarse lobes
- 11 Plants annual to short-lived perennial
- 12 Pappus bristles absent on the ray or disk achenes
- 13 Pappus bristles absent on both the ray and disk achenes ..... *E. versicolor*  
(Greenman) Nesom ● Montane meadows, aspen groves, and ciénegas in Catron, Taos, and  
Rio Arriba Counties; uncommon and known from few collections.
- 13 Pappus bristles absent on the ray achenes, present on the disk achenes ..... *E. strigosus*  
Muhlenberg ex Willdenow ● Disturbed sites; native to eastern half of the U.S.; known in  
New Mexico from only two collections, Taos and Mora counties.
- 12 Pappus bristles present on the achenes
- 14 Rays nearly filiform, erect
- 15 Heads in loose, raceme-like arrays; pistillate florets in a single series, all with filiform  
rays; pappus bristles not elongating on the achene ..... *E. lonchophyllus*  
Hooker ● Stream margins and wet meadows in northern mountains.
- 15 Heads in corymb-like arrays; pistillate florets in 2 series, the outer with nearly filiform  
rays, the inner tubular; pappus bristles elongating on the achene
- 16 Plants 20-80 cm tall; heads 1 or numerous; phyllaries glabrous or sparsely hirsute  
and glandular; leaves 3-16 mm wide ..... *E. acris*  
Linnaeus ● Roadsides, stream margins, and disturbed sites; Jemez and Sangre de  
Cristo mountains, uncommon. ♦ Our plants belong to var. *kamtschaticus* (A.P. de  
Candolle) Herder
- 16 Plants 5-30 cm tall; heads 1-6; phyllaries sparsely villous or glabrous and  
glandular; leaves 2-6(8) mm wide ..... *E. nivalis*  
Nuttall ● Talus slopes and spruce-fir forests, northern mountains; uncommon.
- 14 Rays broader, strap-shaped, usually spreading
- 17 Plants fibrous-rooted
- 18 Heads mostly single on the flowering stem (sometimes 2-3)
- 19 Stems usually reddish toward the base ..... *E. modestus*  
A. Gray ● Rocky slopes, often on limestone, in desert shrublands; southern  
mountains.
- 19 Stems greenish toward the base
- 20 Stems with spreading-reflexed hairs ..... *E. tracyi*  
Greene ● Grasslands, slopes of oak-pine and mixed conifer forests, creek  
beds, and desert scrub; widespread.
- 20 Stems with appressed hairs ..... *E. flagellaris*  
Gray ● Meadows, grasslands, open sites in piñon-juniper woodlands,  
mixed-conifer forests, and spruce-fir forests; widespread.
- 18 Heads usually 3-100 or more on the flowering stem
- 21 Roots and basal caudex branches woody ..... *E. modestus*  
A. Gray ● Rocky slopes, often on limestone, in desert shrublands; southern

- mountains.
- 21 Roots and caudex branches not woody
- 22 Leaves usually entire, sometimes shallowly lobed; rays tardily coiling; disk corollas 4-5.5 mm long..... *E. glabellus*
- 22 Leaves toothed; rays not coiling; disk corollas 2-3 mm long.....  
..... *E. philadelphicus*  
Linnaeus ●Fields, roadsides, levees, ditchbanks and other disturbed sites; Sacramento Mountains northward.
- 17 Plants tap-rooted
- 23 Stems with straight, appressed hairs, at least toward the tips
- 24 Stem hairs appressed throughout.....*E. flagellaris*  
Gray ●Meadows, grasslands, open sites in piñon-juniper woodlands, mixed-conifer forests, and spruce-fir forests; widespread.
- 24 Stem hairs appressed toward the tips, spreading toward the base....*E. modestus*  
A. Gray ●Rocky slopes, often on limestone, in desert shrublands; southern mountains.
- 23 Stems with spreading hairs
- 25 Leaf margins lobed, often pinnatifid .....*E. bellidiastrum*  
Nuttall ●Open habitats in deep sand, deserts, sagebrush, woodlands.
- 25 Leaf margins entire to toothed, rarely with 1-2 pairs of coarse, rounded lobes
- 26 Stems hairs all spreading-reflexed and about the same length; heads mostly solitary ..... *E. tracyi*  
Greene ●Grasslands, slopes of oak-pine and mixed conifer forests, creek beds, and desert scrub; widespread.
- 26 Stems hairs not all spreading-reflexed and not all the same length; heads 5-numerous
- 27 Stems lacking glands; outer pappus a thick crown.....*E. bellidiastrum*  
Nuttall ●Open habitats in deep sand, deserts, sagebrush, woodlands.
- 27 Stems minutely glandular (use a lens); outer pappus of scales or bristles ..... *E. divergens*  
Torrey and A. Gray ●Diverse habitats throughout the state.
- 11 Plants well-developed perennials
- 28 Pistillate florets in 2 series, the outer with nearly filiform rays, the inner tubular; pappus bristles elongating on the achene..... go to lead 14, above
- 28 Pistillate florets and pappus not as above
- 29 Plants fibrous-rooted, often with rhizomes
- 30 Rhizomes or caudex branches slender; rays strap-shaped
- 31 Leaves all or mostly cauline, the basal ones withering by flowering time.....*E. rhizomatus*  
Cronquist ●Piñon-juniper woodlands on detrital clay hillsides and benches of the western mountains and plains; endemic to New Mexico.
- 31 Leaves mostly basal or both basal and cauline
- 32 Plants mat-forming; leaves all basal; plants growing on cliffs and crevices .....  
..... *E. scopulinus*  
Nesom and Roth ●Known only from the western mountains of New Mexico and adjacent Chiricahua Mountains of Arizona; rare.
- 32 Plants not mat-forming; leaves both basal and cauline; plants growing in various habitats ..... *E. ursinus*  
D.C. Eaton ●Grassy openings and conifer forests. Uncommon from Otero county northward.
- 30 Rhizomes thickened; rays filiform or strap-shaped
- 33 Plants 2-25 cm tall; leaves mostly basal, the bases of any stem leaves not clasping; heads 1-3
- 34 Hairs on phyllaries with black cross-walls, imparting a dark color to the heads.....  
..... *E. melanocephalus*  
(A. Nelson) A. Nelson ●Alpine meadows and tundra in northern mountains.
- 34 Hairs on phyllaries with clear or sometimes reddish cross-walls.....*E. grandiflorus*  
Hooker ●Alpine meadows and spruce-fir forests at timberline in northern mountains.
- 33 Plants 15-90 cm tall; leaves both basal and cauline or mostly cauline, the bases of the cauline leaves usually clasping; heads 1-21
- 35 Phyllaries villous, the hairs with noticeable black or reddish-purple cross-walls
- 36 Hairs on the phyllaries with black cross-walls..... *E. coulteri*  
Porter ●Spruce-fir forest, subalpine and alpine meadows, and alpine riparian habitats; northern mountains, with one additional report from the Magdalena Mountains.
- 36 Hairs on the phyllaries with reddish-purple cross-walls..... *E. elatior*

- (A. Gray) Greene ●Alpine wet meadows, lake and pond margins, subalpine forest; northern mountains.
- 35 Phyllaries glandular or variously hairy, but the hairs lacking distinctly colored cross-walls
- 37 Phyllaries densely hairy, any glands present obscured by the hairs
- 38 Phyllaries usually purplish; plants caespitose..... *E. hessii*  
G.L. Nesom ●Crevice of andesitic dikes at high elevations in the Mogollon Mountains in Catron County; endemic to New Mexico.
- 38 Phyllaries greenish; plants not caespitose, with branched caudices or rhizomes
- 39 Plants appearing fibrous-rooted, but with short, thickened caudices or rhizomes; phyllaries lacking glands ..... *E. glabellus*  
Nuttall ●Moist meadows, slopes, and streamsides in northern mountains; uncommon.
- 39 Plants with evident rhizomes; phyllaries minutely glandular
- 40 Stems lacking glands, hairy; basal leaves shallowly toothed; rays white, 25-80 in number ..... *E. arizonicus*  
A. Gray ●Roadsides and openings in ponderosa pine-Douglas fir forest, spruce-fir forests, and oak-pine forest; central and western mountains.
- 40 Stems minutely glandular to stipitate-glandular, hairy or glabrous; basal leaves entire; rays mostly blue to purple, 75-150 in number.....  
..... *E. formosissimus*
- 37 Phyllaries sparsely hairy to glabrous, glandular, the glands not obscured by the hairs
- 41 Leaves often prominently 3-nerved, the margins coarsely dentate to shallowly serrate, or entire ..... *E. arizonicus*  
A. Gray ●Roadsides and openings in ponderosa pine-Douglas fir forest, spruce-fir forests, and oak-pine forest; central and western mountains.
- 41 Leaves 1- to 3-nerved, the margins usually entire
- 42 Stems with crinkly hairs, or glabrous below, eglandular or nearly so; phyllaries glabrous to sparsely hairy, densely stipitate-glandular
- 43 Stems with crinkly hairs below; rays 1.5-3 mm wide ..... *E. glacialis*
- 43 Stems glabrous below; rays about 1 mm wide..... *E. speciosus*
- 42 Stems with straight hairs below or throughout, glandular or eglandular; phyllaries glabrous to villous, glandular, often stipitate-glandular.
- 44 Rays 1.5-3 mm wide; achenes 2.5-3 mm long, mostly 5-nerved .....  
..... *E. glacialis*  
(Nuttall) A. Nelson ●Moist or wet montane meadows, streamsides, and dry slopes in subalpine forests; northern mountains.
- 44 Rays about 1 mm wide; achenes 1-2 mm long, mostly 2- to 3-nerved
- 45 Stems ascending; stem leaves gradually reduced upwards .....  
..... *E. formosissimus*  
Greene ●Rocky slopes and meadows in forests, roadsides.
- 45 Stems erect; stem leaves usually even-sized upwards
- 46 Peduncles distinct, 1.5-9 cm long; rays white... *E. arizonicus*  
A. Gray ●Roadsides and openings in ponderosa pine-Douglas fir forest, spruce-fir forests, and oak-pine forest; central and western mountains.
- 46 Peduncles very short, less than 1.5 cm long; rays mostly blue to purple
- 47 Stems and leaves prominently and densely stipitate-glandular, the stems sometimes sparsely pilose as well; pappus of outer scales and inner bristles... *E. vreelandii*  
Greene ●Moist or dry meadows, talus slopes, ponderosa pine and spruce-fir forests, streamsides; widespread in montane habitats.
- 47 Stems and upper leaves eglandular to minutely glandular, the stems glabrous to hirsute; pappus of outer setae and inner bristles
- 48 Stems moderately to densely hirsute, eglandular; leaves evenly hairy, usually eglandular.....  
..... *E. subtrinervis*  
Rydberg ex Porter & Britton ●Montane habitats, ponderosa pine, pine-fir, spruce-fir, and aspen-

- spruce communities; common in northern mountains, scattered in southern high mountains.
- 48 Stems glabrous to sparsely hirsute, often minutely glandular upwards; leaves glabrous to sparsely hairy, the upper ones minutely glandular ..... *E. speciosus*  
(Lindley) A.P. de Candolle ●Widespread in montane wet or moist meadows, streams, mixed-conifer forest, spruce-fir forest.
- 29 Plants tap-rooted, sometimes also with a branched caudex
- 49 Caudices usually not branched, the stems and leaves arising near the roots
- 50 Stems much-branched and brittle; involucre 4-5 mm high; phyllaries glabrous or the outer sparsely hispid; disk corollas 3.5-4 mm long ..... *E. bigelovii*  
A. Gray ●Dry limestone and sandstone slopes and ledges in desert scrub in southwestern mountains.
- 50 Stems little-branched and not brittle; involucre 2-4.5 mm high; phyllaries variously hairy or sometimes glabrous; disk corollas 1.5-3 mm long
- 51 Stems with spreading-ascending hairs ..... *E. divergens*  
Torrey and A. Gray ●Diverse habitats throughout the state.
- 51 Stems with appressed hairs ..... *E. modestus*  
A. Gray ●Rocky slopes, often on limestone, in desert shrublands; southern mountains.
- 49 Caudices usually branched, the stems and leaves separated from the roots by the caudices
- 52 Lower leaves loosely clustered, not in persistent rosettes, usually with evident internodes ..... *E. neomexicanus*  
A. Gray ●Pine-oak woodland, canyon bottoms, rocky slopes in montane habitats from Manzano Mountains to southwestern mountains.
- 52 Lower leaves tightly clustered in persistent rosettes, the internodes not readily evident
- 53 Petioles prominently ciliate, the hairs spreading and thick-based
- 54 Hairs of stems and leaves appressed ..... *E. engelmannii*  
A. Nelson ●Sagebrush and juniper habitats in San Juan County; uncommon.
- 54 Hairs of stems and leaves spreading, not appressed, or lacking (glabrous)
- 55 Throats of disk corollas tubular, not indurate nor inflated; phyllaries greenish at the midnerve region ..... *E. vetensis*  
Rydberg ●Open rocky slopes, ridges, and dry meadows in subalpine, spruce-fir, and ponderosa pine forests; Manzano Mountains northward.
- 55 Throats of disk corollas indurate and inflated; phyllaries orange to yellowish at the midnerve region
- 56 Disk corollas glabrous to slightly puberulent with glandular-viscid, blunt hairs ..... *E. pumilus*  
Nuttall ●Sagebrush and piñon-juniper habitats; northern.
- 56 Disk corollas evidently pubescent with sharp hairs ..... *E. concinnus*  
(Hooker & Arnott) Torrey & Gray ●Piñon-juniper woodland, sagebrush flats, mixed conifer forest.
- 53 Petioles not prominently ciliate, or if so, then the hairs ascending to loosely appressed and thin-based
- 57 Stems and leaves glabrous or glabrate; phyllaries glabrous and sometimes minutely glandular as well, often purplish
- 58 Leaves 5-12 mm long, 1-4 mm wide ..... *E. scopulinus*  
Nesom and Roth ●Known only from the western mountains of New Mexico and adjacent Chiricahua Mountains of Arizona; rare.
- 58 Leaves 15-70 mm long, 2-11 mm wide
- 59 Phyllaries minutely glandular (use a lens); rays reflexing; pappus bristles 15-25 in number ..... *E. leiomerus*  
A. Gray ●Boulder fields, talus slopes, rocky subalpine and alpine meadows in northern mountains with one report from the San Mateo Mountains (needs verification).
- 59 Phyllaries glabrous; rays spreading; pappus bristles 10-16 in number ..... *E. subglaber*  
Cronquist ●Rocky subalpine meadows in Mora and San Miguel counties; rare, endemic to New Mexico.
- 57 Stems and/or leaves variously hairy; phyllaries hairy, sometimes glandular, rarely purplish
- 60 Stems with spreading hairs
- 61 Leaf tips acute; rays spreading, not coiling ..... *E. eatonii*

- A. Gray ●Cliffs and subalpine meadows in San Juan and Rio Arriba counties; uncommon.
- 61 Leaf tips rounded; rays coiling, sometimes only weakly so
  - 62 Leaves 3-nerved; rays 5-15 mm long.....*E. caespitosus*  
Nuttall ●Subalpine dry meadows and rocky slopes, pine-oak woodland; San Juan, Cibola, and Colfax counties.
  - 62 Leaves 1-nerved; rays 5-6 mm long.....*E. abajensis*  
Cronquist ●Rock crevices and sandstone cliffs in San Juan county and one collection in Catron County.
- 60 Stems with appressed hairs
  - 63 Stems ascending to decumbent..... go to lead 56, above
  - 63 Stems erect
    - 64 Plants mat-forming; leaves spatulate ..... *E. acomanus*  
Spellenberg & Knight ●Sandy slopes and benches beneath sandstone cliffs of the Entrada Sandstone Formation in piñon-juniper woodland, McKinley and Cibola counties; endemic to New Mexico.
    - 64 Plants not mat-forming; leaves linear to oblanceolate
      - 65 Leaves both basal and cauline; the basal mostly withering by flowering time
        - 66 Stem leaves gradually reduced upwards, ending well below the heads; involucre 5-7 mm high; rays 20-40 in number, 10-20 mm long ..... *E. utahensis*  
A. Gray ●Juniper woodlands on sandy soils or sandstone in San Juan and Rio Arriba Counties.
        - 66 Stem leaves reduced to linear bracts by about mid-stem, and continuing to very near the heads; involucre 3-5 mm high; rays 10-20 in number, 4-8 mm long .....*E. sparsiflorus*  
Eastwood ●Rocky or sandy soils in canyon and stream bottoms. ♦Its occurrence in the state is based on a single specimen from San Juan County; this warrants further verification.
      - 65 Leaves mostly basal or basal and cauline, but the basal leaves persistent
        - 67 Achenes glabrous; achenes (8) 10-14 nerved..... *E. canus*  
A. Gray ●Grassland and piñon-juniper woodland in northern half of the state.
        - 67 Achenes hairy, if faces glabrous then nerves hairy; achenes 2 to 8 nerved
          - 68 Stems, leaves, and phyllaries greenish, loosely hairy .....  
..... *E. sivinskii*  
Nesom ●Chinle shale in piñon-juniper woodland and Great Basin desert scrub, McKinley County.
          - 68 Stems, leaves, and phyllaries gray, gray-green, or silvery, densely hairy
            - 69 Achene faces glabrous, margins sparsely to densely ciliate.....*E. consimilis*  
Cronquist ●Salt desert shrublands and piñon-juniper woodlands in the Four Corners region.
            - 69 Achene faces hairy, margins not ciliate but hairy
              - 70 Stems and leaves silvery to gray-green; achenes 6- to 8-nerved.....*E. argentatus*  
A. Gray ●Known in New Mexico only from juniper woodlands in San Juan County; rather common in the Intermountain region.
              - 70 Stems and leaves gray-green; achenes mostly 2- to 5-nerved ..... *E. pulcherrimus*  
Heller ●Gypsum, shale, clay, and sandy soils in piñon-juniper and shrubland habitats; northwestern, from Sandoval county northward.

**Eriophyllum**

*E. lanosum* (A. Gray) A. Gray ●Desert scrub in Hidalgo county.

**Euthamia**

1 Stems both glabrous and glaucous; inflorescences elongate ..... *E. occidentalis*

Nuttall ●Moist soils along ditchbanks, streams, ponds, and marshy areas; largely along Rio Grande and in northwestern counties.

- 1 Stems glabrous or densely hairy, but not glaucous; inflorescences flat-topped ..... *E. graminifolia* (Linnaeus) Nuttall ♦Reported from the Burro Mountains (Grant County), but no specimens are known; awaits verification.

### Eutrochium

*E. maculatum* (Linnaeus) E.E. Lamont ●Stream banks and springs; scattered locations from the Jemez Mountains southward to the Gila, White, and Sacramento mountains. ♦Our plants belong to var. *bruneri* (Gray) E.E. Lamont.

### Flaveria

- 1 Leaves connate-perfoliate, the margins entire; pappus scales present ..... *F. chlorifolia* A. Gray ●Chihuahuan Desert and plains of the Pecos River drainage, irrigation canals, roadside ditches, marshes, and springs.
- 1 Leaves not connate-perfoliate, or only slightly so, the margins weakly serrate to sharply spinose-serrate; pappus scales absent
- 2 Heads clustered into dense axillary glomerules subtended by smaller cauline leaves, the receptacle of the glomerule with prominent setose bracts ..... *F. trinervia* (Sprengel) C. Mohr ●Limestone or gypsum soils near springs, roadsides, and washes; southern.
- 2 Heads clustered together but not into dense glomerules as above, setose bracts absent ..... *F. campestris* J.R. Johnston ●Floodplains, river margins, ponds, and pastures usually in saline soils; central and southern, generally in major river systems.

### Fleischmannia

*F. sonora* (A. Gray) King & Robinson ●Along streams or on rocky slopes; known from the Peloncillo and Sacramento mountains; uncommon.

### Flourensia

- 1 Well-developed shrubs; leaves 10-30 mm long, 4-18 mm wide; ray florets absent ..... *F. cernua* A.P. de Candolle ●Widespread in the Chihuahuan Desert. ♦This species is considered one of the co-dominate species of the Chihuahuan Desert.
- 1 Half-shrubs; leaves 30-100 mm long, 10-40 mm wide; ray florets present ..... *F. pringlei* (Gray) Blake ●Rocky disturbed slopes in Hidalgo County.

### Gaillardia

- 1 Plants annual; rays usually reddish toward the base and yellow to orange toward the tip, rarely concolorous ..... *G. pulchella* Fougeroux ●Sandy soils in disturbed or open habitats throughout the state.
- 1 Plants perennial; rays usually all yellow, sometimes tinged with purple or red
- 2 Leaf blades all linear or narrowly spatulate, 3-5(8) mm wide; leaf margins entire ..... *G. multiceps* Greene ●Gypsum soils in grasslands, pastures, and rocky slopes; southcentral and southwest.
- 2 Leaf blades mostly lanceolate, oblanceolate or spatulate, rarely all linear, 3-30 mm wide; leaf margins pinnatifid, toothed, or entire (in *G. aristata*)
- 3 Setae on the receptacle 1-3 mm long; achenes 1-3 mm long, hairy at the bases and on the faces ..... *G. pinnatifida* Torrey ●Widespread in disturbed habitats, grasslands, desert scrub and, piñon-juniper woodlands.
- 3 Setae on the receptacle 2-6 mm long; achenes 2.5-6 mm long, hairy at the bases, glabrous on the faces ..... *G. aristata* Pursh ●Open habitats on mountain slopes, meadows, and sagebrush flats; uncommon in northcentral and northeast.

### Galinsoga

\**G. parviflora* Cavanilles ●Rocky slopes and clearings in forested slopes; south central and southwestern mountains; native to South America. ♦Our plants belong to var. *semicalva* A. Gray.

### Gamochoaeta

*G. stagnalis* (L.M. Johnston) Anderberg ●Desert grasslands and rocky slopes; known from a single collection in the Peloncillo Mountains (Hidalgo County).

### Gazania

\**G. linearis* (Thunberg) Druce ●An infrequent escape from cultivation, mostly the southern part of the state; native to southern Africa.

### Gnaphalium

- 1 Leaf blades spatulate to oblanceolate-oblong, 3-10 mm wide; bracts subtending the heads obovate, 1.5-4 mm wide, shorter than to slightly surpassing the glomerules (dense clusters of small heads) ..... *G. palustre* Nuttall ●Pond and lake margins, stream banks, moist meadows; central and western.
- 1 Leaf blades linear to narrowly oblanceolate, 0.5-3 mm wide; bracts subtending the heads linear to oblanceolate, 0.5-2 mm wide, surpassing the glomerules
- 2 Leaf blades linear; heads in axillary (rather than terminal) arrays of spike-like glomerules ..... *G. exilifolium* A. Nelson ●Pond and lake margins, stream banks, moist meadows; central and western.
- 2 Leaf blades oblanceolate; heads in terminal, rounded glomerules ..... *G. uliginosum*

Linnaeus •Stream banks; known from one collection in Taos County; native to Eurasia.

**Grindelia** [Key adapted from Strother & Wetter 2006]

- 1 Pappus of 25-40 barbellate bristles subtending 8-15 or more barbellate awns or subulate scales ..... *G. ciliata* (Nuttall) Sprengel •Roadsides, disturbed sites in prairies; uncommon in scattered locales.
- 1 Pappus of 2-8 smooth to barbellate bristles, awns, or scales
  - 2 Stems glabrous
    - 3 Leaf margins crenate to rounded-serrate, the teeth rounded to obtuse, usually resin-tipped
      - 4 Leaf blades of cauline leaves (5)10-15 mm long; phyllary apices slightly recurved to nearly straight ..... *G. oxylepis* Greene •Known only from a recent collection in Doña Ana County near the Mexican border.
      - 4 Leaf blades of cauline leaves 15-70 mm long; phyllary apices looped to hooked or recurved ..... *G. squarrosa* (Pursh) Dunal •Widespread throughout the state, with numerous forms and expressions; known to hybridize with *Grindelia arizonica*.
    - 3 Leaf margins serrate to dentate, the teeth sharp, apiculate to setose
      - 5 Apices of phyllaries (at least the outer) looped to hooked or widely spreading
        - 6 Phyllary apices strongly resinous; pappus of contorted to curled, sometimes straight, setiform awns or scales ..... *G. hirsutula* Hooker & Arnott •Roadsides, forest clearings, hillsides, disturbed habitats; Colfax, Union, and west central counties.
        - 6 Phyllary apices slightly resinous; pappus of straight or slightly contorted, setiform awns or scales ..... *G. decumbens* Greene •Dry hillsides and slopes, stream banks, roadsides; uncommon in western half of state from Rio Arriba County southward.
      - 5 Apices of phyllaries mostly slightly incurved, straight, or slightly recurved
        - 7 Rays 10-25 mm long; heads broadly vase-shaped to globose ..... *G. hirsutula* Hooker & Arnott •Roadsides, forest clearings, hillsides, disturbed habitats; Colfax, Union, and west central counties.
        - 7 Rays 5-10 mm long; heads campanulate, sometimes hemispheric ..... *G. arizonica* Gray •Rocky slopes and ledges in piñon-juniper woodland and lower montane coniferous forest, roadsides, mesas, fields, streambanks.
  - 2 Stems variously hairy and/or glandular
    - 8 Leaf margins crenate to rounded-serrate, the teeth rounded to obtuse, usually resin-tipped ..... *G. havardii* Steyermark •Dry washes, alluvial fans, and dry limestone slopes in Lincoln and Eddy counties.
    - 8 Leaf margins serrate to dentate, the teeth sharp, apiculate to setose
      - 9 Pappus of straight, usually barbellate bristles ± equaling the disk flowers ..... *G. scabra* Greene •Roadsides in montane areas, rocky slopes, and mesas; central mountain chain from Sandia Mtns. southward, also known from the Black Range.
      - 9 Pappus of contorted to curled, sometimes straight, setiform awns or scales ..... *G. hirsutula* Hooker & Arnott •Roadsides, forest clearings, hillsides, disturbed habitats; Colfax, Union, and west central counties.

**Gutierrezia**

- 1 Leaves not glutinous; heads in panicle-like or corymb-like arrays; phyllaries glutinous; disc florets functionally staminate; plants annual ..... go to *Amphiachyris*
- 1 Leaves glutinous; heads borne singly or in cluster of 3-6; phyllaries not glutinous; disc florets bisexual, fertile; plants annual or perennial
  - 2 Plants shrubs, woody well above the base ..... go to *Gymnosperma*
  - 2 Plants herbaceous annuals or perennial half-shrubs, woody only at the base if at all
    - 3 Plants annual, often much-branched in the upper half but not below
      - 4 Stem leaves mostly 3- to 5-nerved, the lower ones usually present at flowering time; phyllary apices folded, swollen, appearing keeled; achenes glabrous ..... *G. wrightii* A. Gray •Meadows and clearings in pine and pine-oak woodlands, largely montane; southcentral and southwestern.
      - 4 Stem leaves 1-nerved, the lower ones usually absent at flowering time; phyllary apices flat; achenes hairy
        - 5 Stems smooth, glabrous; achene hairs acute at the apex; pappus of scales or essentially absent ..... *G. texana* (A.P. de Candolle) Torrey & Gray •Grasslands from Socorro County eastward plus Hidalgo and Dona Ana counties; known from only a few collections. ♦Our plants belong to var. *glutinosa* (S. Schauer) M.A. Lane.
        - 5 Stems papillate-scabrous; achene hairs clavate at the apex; pappus of scales ..... *G. sphaerocephala* Gray •Calcareous, gypsum, and sandy soils in grasslands, along roadsides, piñon-juniper woodlands, and alkaline flats; southcentral and southeastern.
    - 3 Plants perennial, mostly branched below or throughout



- 6 Heads cylindrical, 1-1.5 mm wide, with 1-2 ray florets and 1-2 disk florets ..... *G. microcephala* (A.P. de Candolle) Gray ●Rocky or gravelly soils in grasslands, piñon-juniper woodlands, and pine-oak woodlands, widespread.
- 6 Heads turbinate, 1.5-3 mm wide, with 3-8 ray florets and 3-9 disk florets ..... *G. sarothrae* (Pursh) Britton & Rusby ●Grasslands and pastures throughout the state; very abundant on overgrazed rangelands.

**Gymnosperma**

- G. glutinosum* (Sprengel) Lessing ●Streambeds, alluvial fans, desert scrub, pine-juniper woodlands; southern.

**Haploësthes**

- H. greggii* Gray ●Limestone and gypsum outcrops and rubble in the central and southern plains regions. ♦Our plants belong to var. *texana* (Coulter) I.M. Johnson.

**Hedosyne**

- H. ambrosiifolia* (A. Gray) Strother ●Dry mesas and plains, arroyos and washes; southern half of the state, as far north as Bernalillo County.

**Hedypnois**

- \**H. cretica* (Linnaeus) Dumortier ●Lawns, disturbed ground; native to Europe; known only from a lawn in Las Cruces.

**Helenium**

- 1 Stems not winged

- 2 Plants perennial; leaves 5-50 mm wide; heads 3-10 cm wide (*H. hoopesii*) ..... go to *Hymenoxys*
- 2 Plants annual; leaves or leaf divisions 1-3 mm wide; heads 1-2 cm wide ..... *H. amarum* (Rafinesque) H. Rock ●Disturbed shortgrass prairie and playas on the far eastern plains; Curry and Roosevelt counties. ♦Our plants belong to var. *badium* (Gray ex S. Watson) Waterfall

- 1 Stems winged by decurrent leaf bases

- 3 Plants perennial; stems moderately to densely hairy; peduncles 3-10 cm long; rays 10-23 mm long ..... *H. autumnale* Linnaeus ●Floodplains, wetlands, riparian areas, wet mountain meadows, seeps; plains, foothills, and mountainous regions in scattered locales nearly throughout the state.
- 3 Plants annual; stems glabrous or sparsely hairy; peduncles 1-3 cm long; rays 2-5 mm long ..... *H. microcephalum* A.P. de Candolle ●Grasslands and pastures throughout the state; very abundant on overgrazed rangelands.

**Helianthella** [Key adapted from Weber]

- 1 Heads 5-15 terminating the stem; rays 8-14 mm long; disk corollas purple to brown ..... *H. microcephala* (Gray) Gray ●Bluffs, bajadas, mesas, and dry plains; northwestern counties.
- 1 Heads 1-3 terminating the stem; rays 11-30 mm long or more; disk corollas yellow
- 2 Heads held erect; paleae papery and firm ..... *H. uniflora* (Nuttall) Torrey & Gray ●Sagebrush plains and woodlands; little collected, known only from San Juan and Rio Arriba counties.
- 2 Heads nodding; paleae scarios and soft
- 3 Plants 20-50 cm tall; blades spatulate to oblanceolate, broadest above the middle, not leathery; involucre 15-20 in diameter ..... *H. parryi* Gray ●Meadows, creek banks, moist woods, shaded canyons, pine forests, aspen glades; in all the forested regions of the state, mostly above 6500 ft to very high elevations.
- 3 Plants usually 50-15 cm tall; blades elliptic to ovate-lanceolate, broadest near the middle, leathery; involucre 30-50 mm in diameter ..... *H. quinquenervis* (Hooker) Gray ●Pine woods, juniper woodlands, meadows, aspen glades, spruce forests; common in all mountainous regions.

**Helianthus**

- 1 Plants perennial, from rhizomes, creeping (rhizome-like) roots, or fascicled roots
- 2 Leaves sessile or nearly so
- 3 Leaves mostly alternate, folded and trough-shaped, arcuate downward, 7-25 cm long ..... *H. maximiliani* Schrader ●Infrequent as a garden escape in the Four Corners area south to Bernalillo County; two records from Harding County.
- 3 Leaves mostly opposite (occasionally alternate in *H. laciniatus*), variously shaped, but not as above (except in *H. maximiliani*)
- 4 Stems and leaves pale green, usually not glaucous; stems mostly strigose to hispid; leaves gland-dotted ..... *H. laciniatus* Gray ●Uncommon in the southwestern portion of the state.
- 4 Stems and leaves glaucous; stems glabrous or with scattered hairs; leaves not gland-dotted
- 5 Leaves mostly alternate, folded and trough-shaped, arcuate downward, 7-25 cm long ..... *H. maximiliani* Schrader ●Infrequent as a garden escape in the Four Corners area south to Bernalillo County; two

records from Harding County.

5 Leaves mostly opposite, variously shaped, but not as above

6 Plants 20-30 cm tall; disk flowers yellow..... *H. arizonensis*

Jackson ●Known only from western Catron County near the Arizona border.

6 Plants 40-70 cm tall; disk flowers reddish; widespread..... *H. ciliaris*

A.P. de Candolle ●Roadsides, ditches, open drainage areas. Widespread central to southern parts of the state.

2 Leaves markedly petiolate

7 Upper leaves mostly opposite; disk flowers purplish-brown..... *H. pauciflorus*

Nuttall ●Scattered localities in the plains of the northeastern quarter of the state. ♦Our plants belong to subsp. *subrhomboideus* (Rydberg) O. Spring & E.E. Schilling.

7 Upper leaves mostly alternate; disk flowers yellow

8 Phyllaries 2-4 mm wide, acute to short-acuminate at the apex; leaves tending to be ovate. *H. tuberosus*  
Linnaeus ●Occasionally escaping from cultivation.

8 Phyllaries 1-2 mm wide, long-acuminate to attenuate at the apex; leaves tending to be lanceolate.....  
..... *H. nuttallii*

Torrey & Gray ●Wet places in the northern and central mountains and foothills.

1 Plants annual, lacking rhizomes or other perennial organs

9 Leaves canescent to whitish-tomentose on both surfaces (var. *canescens*)..... *H. petiolaris*

Nuttall ●Widespread in usually dry sandy soils in a variety of habitats and communities.

9 Leaves glabrous to variously scabrous or short-hispid, but not canescent or tomentose

10 Phyllaries ovate, abruptly narrowed to an acuminate tip, ciliate..... *H. annuus*

Linnaeus ●Widespread throughout the state, generally associated with disturbance.

10 Phyllaries lanceolate, gradually tapering to the tip, not ciliate

11 Plants scarcely branched; leaves lanceolate, 1- to 3-nerved; central pales glabrous..... *H. paradoxus*  
Heiser ●Alkaline arid wetlands in the eastern and central portions of the state.

11 Plants usually branching; leaves lanceolate to ovate, prominently 3-nerved; central pales ciliate, giving the center of the head a white "eye"

12 Lower leaves cordate-based..... *H. neglectus*  
Heiser ●Sandy ground in the southeastern region.

12 Lower leaves attenuate to truncate at the base..... *H. petiolaris*  
Nuttall ●Widespread in usually dry sandy soils in a variety of habitats and communities.

**Heliomeris** [Key adapted from Schilling 2006]

1 Plants annual; leaf margins conspicuously ciliate (soft hairs forming a fringe) ¾ or more their lengths, hairs generally longer than 0.5 mm; saline marshes and meadows ..... *H. hispida*  
(Gray) Cockerell ●Saline marshes and meadows; Hidalgo and Grant Counties.

1 Plants annual or perennial; leaf margins ciliate no more than ¼ their lengths, hairs usually up to 0.5 mm long; desert scrub, canyons, woodlands, roadsides

2 Plants annual from taproots; peduncles 0.5-2 cm long ..... *H. longifolia*  
(B.L. Robinson & J.L. Greenman) Cockerell ●Desert scrub and piñon-juniper communities; widespread in scattered locales in the state, but generally absent from the eastern counties.

2 Plant perennial from woody caudices; peduncles 1-15 cm long..... *H. multiflora*  
Nuttall ●Canyons and woods, roadsides, foothills, widespread.

**Heliopsis**

1 Creeping rhizomes absent; blades 3-6 cm long, 1-3 cm wide; achenes rugulose to subtuberculate ...*H. parvifolia*  
Gray ●Grassy and rocky slopes of Animas Mountain in Hidalgo County; also one collection from San Miguel County.

1 Creeping rhizomes present; blades 6-12 cm long, 2.5-12 cm wide; achenes smooth.....*H. helianthoides*  
(Linnaeus) Sweet ●Woodlands and open forests, canyon bottoms, riparian zones, plains, old fields; widely scattered in the central tier of counties. ♦Our plants belong to var. *scabra* (Dunal) Fernald.

**Herrickia**

1 Leaves thick and rigid, coarsely spinose-toothed; phyllaries spreading ..... *H. horrida*  
Wootton & Standley ●Canyon bottoms and mountain slopes of Colfax and Harding counties.

1 Leaves thin, not rigid, mostly entire, not spinose-toothed; phyllaries appressed ..... *H. glauca*  
(Nuttall) Brouillet ●Sandstone mesas and washes, rocky drainages; the northwestern region.

**Heterosperma**

*H. pinnatum* Cavanilles ●Canyons, hills, arroyos, cliff bases, outcrops, dry stream beds, juniper-pine-oak woodlands and forests; widespread in scattered localities, mostly in the western ⅔ of the state.

**Heterotheca**

1 Leaves of mid cauline and distal mostly sessile and sub-clasping, noticeably stipitate-glandular; plants annual or biennial; pappus and achenes of ray and disk florets different .....*H. subaxillariss*  
(Lamarck) Britton & Rusby ●Disturbed ground, roadsides, drainages, sand dunes; eastern plains, southwestern counties, also Bernalillo County. ♦Our plants belong to var. *latifolia* (Buckley) Gandhi & R.D. Thomas.

- 1 Leaves markedly petiolate to nearly sessile, but not clasping, glandular or not; plants perennial; pappus and achenes of ray and disk florets similar
- 2 Some or all of the heads subtended by large leaf-like bracts that often surpass the heads, the heads appearing sessile
- 3 Middle and upper leaves narrow, more than 5 times longer than broad ..... *H. stenophylla*  
(A. Gray) Shimmers ●Eastern plains.
- 3 Middle and upper leaves broader, less than 5 times longer than broad
- 4 Bracts subtending the leaves linear to oblanceolate, mostly 1-2 mm wide ..... *H. pumila*  
(Greene) Semple ●Uncommon on rocky outcrops and soils in the high northern mountains.
- 4 Bracts subtending the heads ovate-lanceolate, mostly more than 2 mm wide ..... *H. fulcrata*  
(A.P. de Candolle) Shimmers ●Plains and foothills, woodlands, widespread.
- 2 Heads not subtended by large leaf-like bracts, the heads (at least many of them) appearing pedunculate
- 5 Plants clonal, markedly rhizomatous and often forming large colonies; leaves markedly white-sericeous ..... *H. canescens*  
(A.P. de Candolle) Shimmers ●Eastern plains.
- 5 Plants more individual, lacking rhizomes or only short-rhizomatous, not forming large colonies; leaves variously pubescent to glabrous
- 6 Plants 40-100 cm tall; stems silvery to silver-grey, sericeous to densely strigose, usually non-glandular ..... *H. zionensis*  
Semple ●Roadsides, washes, limestone and sandy soils; mostly southern counties, but also occurring in Colfax, McKinley, and Santa Fe counties.
- 6 Plants generally 13-40 cm tall, rarely taller, stems hispid to hirsute, not silver, mostly glandular (but see *H. villosa*)
- 7 Upper leaves mostly ovate and 2-2½ times longer than broad, densely glandular ..... *H. viscida*  
(Gray) Harms ●Crevices in cliffs and ledges, rocky slopes, on igneous soils, central and southern mountains.
- 7 Upper leaves oblanceolate more than 2 times longer than broad, glandular or eglandular ... *H. villosa*  
(Pursh) Shimmers ●Widespread throughout the state and extremely variable; expected in all counties.

**Hieracium** [Key by Robert C. Sivinski]

- 1 Plants with stolons and long rhizomes; achenes less than 2 mm long; herbage at least somewhat glaucous ..... *H. ×floribundum*  
Wimmer & Grabowski ●Recently found in moist disturbed areas in the north-central mountains.
- 1 Plants lacking stolons; rhizomes absent or short; achenes and herbage various
- 2 Achenes urn-shaped or columnar, fatter below the middle than above, usually at least 4 mm or longer
- 3 Stem leaves few, mostly 0-1; involucre 12-15 mm or more long; pappus usually sordid ..... *H. fendleri*  
Schultz-Bipontinus ●Widespread through most mountain ranges in the state.
- 3 Stem leaves many, mostly 3-8 or more; involucre 7-11 mm long; pappus white
- 4 Leaves glabrous or with hairs 3-6 mm long; corollas whitish to pinkish; pappus 4-5 mm long ..... *H. carneum*  
Greene ●Central and southern pine-oak woodlands.
- 4 Leaves glabrous or with hairs 0.5-2 mm long; corollas cream-colored or pale yellow; pappus 5-6 mm long
- 5 Phyllaries stipitate-glandular, floccose below and occasionally short-setose at the tips; florets 25-40 per head; achenes 3-5 mm long ..... *H. crepidispermum*  
Fries ●Usually in valley bottoms in the southern mountain ranges.
- 5 Phyllaries stipitate-glandular and pilose-hirsute with long non-glandular hairs; florets 15-25 per head; achenes (4)5-6 mm long ..... *H. brevipilum*  
Greene ●High elevation meadows and grassy slopes in the Mogollon Mountains of Catron County; also known from a few similar sites in the White Mountains of adjacent Arizona.
- 2 Achenes cylindrical, about the same width below and above, less than 4 mm long
- 6 Basal portion of the stems and leaves densely lanate ..... *H. pringlei*  
A. Gray ●Reported by W&S, and thence others, based on *Mearns 404* from "San Luis Mountains," which mostly occur in northern Mexico, with their northern portion extending into Hidalgo County; no specimens are otherwise known from New Mexico.
- 6 Basal portions of the stems long-hirsute, long-pilose or short-floccose, but not with long entangled hairs
- 7 Leaf blades relatively narrow, about 4-15 times longer than wide, the lower surfaces usually pilose-hirsute ..... *H. abscissum*  
Lessing ●Rare in pine-oak forests of the southwestern mountain ranges.
- 7 Leaf blades relatively broad, about 2-3 times longer than wide, the lower surfaces usually glabrous or variously hairy but not pilose-hirsute ..... *H. triste*  
Willdenow ex Sprengel ●High mountains of the north-central region.

**Hymenopappus** [Key adapted from Strother 2006]

- 1 Heads with conspicuous white ray flowers

- 2 Plants biennial; heads 20-40 per stem ..... *H. biennis*  
B.L. Turner ●Piñon-juniper, ponderosa, and mixed conifer woodlands; southwestern, south-central, and Sandia mountains.
- 2 Plants perennial; heads 3-8 per stem
  - 3 Leaves 12-25 cm long; receptacles paleate; pappus 0 or 0.01-0.1 mm long if present ..... *H. newberryi* (Gray) I.M. Johnston ●Piñon-juniper, ponderosa, and mixed conifer woodlands, meadows, mountain canyon bottoms; northern mountains, also Magdalena, San Mateo, San Andres, and Sacramento mountains.
  - 3 Leaves 8-14 cm long; receptacles naked, without paleae; pappus 0.4-0.6 mm long ..... *H. radiatus* Rose ●Pine forests and aspen glades of the northern, central, and south-central mountains.
- 1 Heads lacking ray flowers
  - 4 Disk corollas whitish
    - 5 Plants perennial, usually with 3 or more aerial stems from the crown; heads 1-8 per stem ..... *H. filifolius* Hooker ●Piñon-juniper woodlands, dry hills, rocky and sandy washes.
    - 5 Plants biennial, usually with a single aerial stem from the crown; heads 20-200 per stem ..... *H. tenuifolius* Pursh ●Dry hills, grassland, prairies, savannas, roadsides, river banks; widespread.
  - 4 Disk corollas yellowish
    - 6 Plants biennial, usually with a single aerial stem from the crown ..... *H. flavescens* Gray ●Piñon-juniper and ponderosa woodlands, sandy hills, grassland, prairies, roadsides; widespread.
    - 6 Plants perennial, usually with 3 or more aerial stems from the crown
      - 7 Leaf blades simple or 1-pinnate; achenes glabrous or sparsely hairy ..... *H. mexicanus* Gray ●Ponderosa, oak, piñon, juniper woodlands; western mountains.
      - 7 Leaf blades 2-pinnate; achenes pubescent to villous ..... *H. filifolius* Hooker ●Piñon-juniper woodlands, dry hills, rocky and sandy washes.
- Hymenothrix**
  - 1 Ray florets absent; disc floret corollas white or pinkish to purplish; anthers pinkish to purplish ..... *H. wrightii* (A. Gray) ●Piñon-juniper and ponderosa woodlands, grassland, rocky hillsides, canyon bottoms, disturbed areas; southwestern.
  - 1 Ray florets present; disc floret corollas yellow sometimes cream-colored; anthers yellow
    - 2 Pappus absent (rarely with lance-linear scales) ..... *H. dissecta* (A. Gray) B.G. Baldwin ●Open areas in in piñon-juniper, ponderosa pine, or spruce-fir forests, largely montane.
    - 2 Pappus present, of ovate, oblanceolate or lanceolate scales
      - 3 Leaf lobes oblong or ovate to oblanceolate, 2-8 mm wide; corolla ligules 5-6 mm long ..... *H. pedata* (A. Gray) B.G. Baldwin ●Desert scrub, grasslands, disturbed soils, and piñon-juniper woodlands; common in central and southern New Mexico.
      - 3 Leaf lobes filiform to linear, sometimes oblong, 0.5-2.5 mm wide; corolla ligules 2-4 mm long
        - 4 Ray florets 3-8; pappus scales all aristate ..... *H. wislizeni* A. Gray ●Desert scrub and washes, rocky canyon bottoms; southwestern to south-central.
        - 4 Ray florets 8-13; pappus scales of inner florets only aristate ..... *H. biternata* (A. Gray) B.G. Baldwin ●Sandy or gravelly soils in desert scrub, roadsides; central to southwestern New Mexico.
- Hymenoxys** [Key adapted from Biemer 2006]
  - 1 Leaves simple, the basal and lower stem leaves 1-5 cm wide ..... *H. hoopesii* (A. Gray) Biemer ●Mixed conifer forests, mountain meadows, along streams; widespread in mountain areas.
  - 1 Leaves simple, lobed, or compound, the ultimate blades less than 0.5 cm wide
    - 2 Phyllaries and upper stems wooly-tomentose; heads borne singly on usually unbranched stems
      - 3 Outer phyllaries mostly distinct, basally connate to only 1/5 their length; inner phyllaries aristate-tipped; stems usually more than 25 cm tall ..... *H. bigelovii* (Gray) Parker ●Piñon-juniper and ponderosa/oak woodlands, oak/beargrass communities; western border counties south of San Juan County.
      - 3 Outer phyllaries basally connate 1/5-2/3 their length; inner phyllaries mucronate to acuminate; stems usually less than 25 cm tall ..... *H. brandegeei* (Porter ex Gray) Parker ●Alpine ridges and meadows, tundra; northern mountains, also Sacramento Mountains.
    - 2 Phyllaries and upper stems glabrous or sparsely hairy, not wooly-tomentose; heads clustered, or borne on branched stems
      - 4 Plants annual ..... *H. odorata* A. P. de Candolle ●Sandy washes, grassland, desert scrub, riparian areas, river bottoms, roadsides; widespread.
      - 4 Plants biennial or perennial
        - 5 Disk flowers 6-15 in number, functionally staminate; receptacles flat ..... *H. ambigens* (S.F. Blake) Biemer ●Canyon bottoms, oak/juniper woodlands. ♦Our plants belong to var. *+neomexicana* Wagner, endemic to New Mexico.

- 5 Disk flowers 25-400 or more in number, perfect; receptacles hemispheric to conic
- 6 Plants usually with highly branched, woody caudices; basal leaf bases densely long villous-wooly  
..... *H. richardsonii*  
(Hooker) Cockerell ●Conifer woodlands and forests, riparian areas, rocky ridges, roadsides.
- 6 Plants with a sparingly or moderately branched caudex; basal leaf bases glabrous to sparingly wooly
- 7 Heads 4-8 mm wide
- 8 Stems usually green throughout; leaf lobes 0.8-1 mm wide; disk corollas 3-4 mm long.....  
..... *H. brachyactis*  
Wooton & Standley ●Piñon-juniper, ponderosa, and mixed conifer woodlands, roadsides, mountain scrub, Lincoln, Sierra, Socorro, Torrance, and Valencia counties; endemic to New Mexico.
- 8 Stems usually purplish tinged toward the base; leaf lobes 2-4 mm wide; disk corollas 2-3 mm long ..... *H. rusbyi*  
(Gray) Cockerell ●Piñon-juniper, ponderosa, and mixed conifer woodlands, riparian areas, roadsides; Grant and Catron counties.
- 7 Heads mostly 10-23 mm wide
- 9 Outer phyllaries 5 rarely up to 8; ray florets 5-8 ..... *H. quinquesquamata*  
Rydberg ●Edges of pine-oak woodlands; reported from two collections in Grant County (not seen) but otherwise occurring in southern Arizona in the Huachuca Mountains.
- 9 Outer phyllaries 7-15; ray florets 8-16
- 10 Outer phyllaries connate over half their lengths..... *H. vaseyi*  
(Gray) Cockerell ●Piñon-juniper and ponderosa woodlands, rocky slopes, riparian areas, arroyo bottoms; Doña Ana, Socorro, Sierra, and Luna counties.
- 10 Outer phyllaries connate for less than half their lengths..... *H. helenioides*  
(Rydberg) Cockerell ●Forest edges, roadsides; known only from San Juan County.

**Hypochaeris**

- \**H. radicata* Linnaeus ●Reported from Los Alamos County, but this needs verification.

**Ionactis**

- +*I. elegans* (Soreng & Spellenberg) Nesom ●Granitic outcrops and cliffs in mixed conifer forest of the White Mountains, Lincoln County; endemic to New Mexico.

**Isocoma**

- 1 Leaves lobed to pinnatifid
- 2 Herbage minutely hispid ..... *I. tenuisecta*  
Greene ●Rocky hills, gravelly washes, roadsides, and clay badlands in desert brush communities; along the western tier of counties.
- 2 Herbage glabrous..... *I. azteca*  
Nesom ●Flood plains, clay or sandy flats and slopes, arroyos, roadsides; northwestern counties.
- 1 Leaves entire or shallowly toothed, never lobed to pinnatifid
- 3 Involucres 3-5 mm high, 2-4 mm wide; ribs of the achene not surpassing the apex, not horn-like *I. pluriflora* (Torrey & Gray) Greene ●Flood plains, flats, bajadas, roadsides, seepy ground, ditches and drainages, sandy, gypseous, to clay soils; widespread, nearly throughout the state.
- 3 Involucres 6-10 mm high, 5-8 mm wide; ribs of the achene surpassing the apex, forming horn-like extensions..... *I. rusbyi*  
Greene ●Sandy breaks and mesas, flood plains and moist drainages; northwestern quarter of the state.

**Iva**

- 1 Leaves all or mostly opposite, blades rarely lobed
- 2 Inflorescence panicle-like, ± bracteate or with 3-6 heads per bract ..... go to *Cyclachaena*
- 2 Inflorescence raceme- or spike-like, bracteate with 1-2 heads per bract
- 3 Plants perennial; heads arranged singly in the leaf axils; leaves entire and mostly sessile ..... *I. axillarisa*  
Pursh ●Plains grasslands, pine forests, roadsides, pond and lake edges, often calcareous soil, scattered localities across the state.
- 3 Plants annual; heads arranged in terminal spikes in the axils of ciliate bracts; leaves toothed and petiolate  
..... *I. annua*  
Linnaeus ●Disturbed ground in moist soils; known only from two collections near San Antonio, Socorro County.
- 1 Leaves all or mostly alternate, some or all of the blades pinnately lobed or divided
- 4 Plants subshrubs or shrubby-looking ..... go to *Oxytenia*
- 4 Plants herbaceous
- 5 Leaf blades laciniately lobed, the upper surfaces tomentose ..... go to *Leuciva*
- 5 Leaf blades 1- to 3-times pinnately divided, the upper surfaces scabrellous or hispidulous . go to *Hedosyne*

**Jefea**

- Jefea brevifolia* (A. Gray) Strother ●Limestone soils in the San Andres Mountains, Doña Ana County.

**Koanophyllon**

- 1 Leaves opposite throughout; blades pubescent above.....*K. palmeri*  
(A. Gray) R.M. King & H.E. Robinson ●Reported for the state by Nesom (2006), but specimens are unknown; to be looked for among shaded rocks and crevices near streams, oak woodlands in Hidalgo County; awaits verification.
- 1 Leaves often alternate on the upper portions; blades glabrous above .....*K. solidaginifolium*  
(A. Gray) R.M. King & H.E. Robinson ●Reported by W&S from Guadalupe Pass, Hidalgo County, but no specimens are known. Two specimens collected by C. Wright in 1851 are attributed to New Mexico but the locality information is doubtful; awaits verification.

**Krigia**

*K. biflora* (Walter) Blake ●Wet meadows, boggy ground, pine forests; scattered montane locales from the Sacramento Mtns northward.

**Lactuca** [Key modified from Strother 2006]

- 1 Leaves with spiny margins, and often spiny midribs and veins..... *L. serriola*  
Linnaeus ●Roadsides, gardens, waste areas; widespread throughout the state in nearly all terrestrial habitats, from desert to high mountainous elevations; expected in all counties; native to Eurasia.
- 1 Leaves not spiny on the margins
- 2 Achenes mostly 1-nerved on each side
- 3 Involucres 10-15 mm high in fruit; achenes plus beak 4.5-6.5 mm long..... *L. canadensis*  
Linnaeus ●Canyon bottoms, moist areas in drainages and along streams; scattered localities in the mountains, probably more common than collections suggest.  
Linnaeus.
- 3 Involucres 15-22 mm high in fruit; achenes plus beak 7-10 mm long
- 4 Leaves mostly on the lower half of the stem; florets 15-20 per head; blades spatulate to lance-linear .....  
..... *L. graminifolia*  
Michaux ●Canyon bottoms, shaded mountain slopes and drainages, some roadsides; widespread in the mountains of the state. ●Our plants belong to var. *arizonica* McVaugh.
- 4 Leaves on the upper half of the stem; florets 20-50 per head; blades obovate to oblanceolate .....  
..... *L. ludoviciana*  
(Nuttall) A.P. de Candolle ●Woodlands and brushy foothills; known from a few collections in the Gila and Sandia mountains, also San Juan County.
- 2 Achenes mostly 5- to 9-nerved on each side
- 5 Plants strongly rhizomatous, perennial; beak of achene short, thick, not as long as the body; corollas bright blue, conspicuous .....*L. oblongifolia*  
Nuttall ●Flood plains, riparian woodlands and creek banks, seeps, canyon bottoms, moist arroyos and washes; throughout much of the state, absent or not collected from the eastern plains.
- 5 Plants not rhizomatous, mostly annual to biennial (sometimes weakly perennial) from a taproot; beak of achene elongate, equaling or longer than the body; corollas yellowish or bluish
- 6 Achene beaks less than 1 mm long ..... *L. biennis*  
(Moench) Fernald ●Canyons and forested slopes in the northern mountains and foothills.
- 6 Achene beaks 2-6 mm long
- 7 Blades of undivided cauline leaves linear to filiform; phyllaries erect in fruit ..... *L. saligna*  
Linnaeus ●Reported for New Mexico by Strother (2006) and Vuilleumier (1973), but specimens are unknown; to be looked for in moist disturbed sites; needs verification; native to Eurasia.
- 7 Blades of undivided cauline leaves usually oblong, sometimes obovate to lanceolate; phyllaries reflexed in fruit..... *L. sativa*  
Linnaeus ●This is the garden lettuce, occasionally escaping from cultivation but not persisting long; native to Eurasia.

**Laënnecia**

- 1 Leaves 1-2-pinnatifid, the bases not clasping but often petiolate ..... *L. sophiifolia*  
(Kunth) Nesom ●Wooded foothills and slopes of the southern desert mountains.
- 1 Leaves entire to coarsely toothed, the bases clasping
- 2 Blades villous and glandular but not tomentose; heads numerous and usually in panicles, small, 3-4 mm high, 5-6 mm wide ..... *L. coulteri*  
(A. Gray) Nesom ●Widespread and common in a variety of disturbed habitats, plains, foothills, mountain ranges.
- 2 Blades tomentose in addition to villous and glandular; heads few and clustered close to the stem, larger, 5-6 mm high, 7-10 mm wide ..... *L. schiedeana*  
(Lessing) Nesom ●Widespread in the foothills and lower mountain regions, mostly with juniper and pine.

**Lapsana**

\**L. communis* Linnaeus [common]. Leaf blades 1-15 cm long and 1-7 cm wide; calyculi with bractlets keeled in fruit; achenes 3-5 mm. ●Known only from a single collection in the White Mountains of Lincoln County.

**Lasianthaea**

*L. podocephala* (A. Gray) K.M. Becker ●Pine-oak woodlands in Hidalgo County.

**Lasthenia**

*L. gracilis* (A.P. de Candolle) Greene ●Known from an early report from Grant County and a recent collection in Hidalgo County; very common in Arizona and California.

**Layia**

*L. glandulosa* (Hooker) Hooker & Arnott ●Roadsides and dry foothills and mountain slopes, from desert to lower ponderosa communities; Grant and Hidalgo counties.

**Leibnitzia**

*L. lyrata* (Schultz-Bipontinus) G.L. Nesom ●Shaded slopes in the mountains; uncommon, mostly with ponderosa pine, Douglas-fir, or aspen; scattered locales in the mountainous regions of the state.

**Leontodon**

\**L. saxatilis* Lamarck ●Marshy ground, lake edges; known only from San Miguel and Union Counties.

**Lepidospartum**

*L. burgessii* Turner ●Stabilized gypsum dunes; known only from sacaton-saltbush plains of southern Otero County and adjacent Hudspeth County, Texas.

**Leucanthemum**

\**L. vulgare* Lamarck ●Meadows, moist slopes, and roadsides, mostly in the mountains and foothills of the state, but also found in the plains of Roosevelt County along hwy 70; native to Europe.

**Leuciva**

*L. dealbata* (A. Gray) Rydberg ●Roadsides, drainages, calcareous plains; mostly in the southern half of the state.

**Leucosyris**

1 Leaves, at least some, pinnatifid to bipinnatifid ..... *L. parviflora*  
(A. Gray) Pruski & R.L. Hartman ●Playas, saline flats, sandy open ground, and riparian areas; from Torrance County southward.

1 Leaves entire to toothed

2 Plants annual; leaf margins entire and glabrous or with 1-8 teeth per side, each tooth spinulose-tipped; involucre hemispheric, 10-16 mm wide when fresh..... *L. riparia*  
(Kunth) Pruski and R.L. Hartman ●Saline soils on mudflats and edges of playas, Hidalgo County.

2 Plants perennial, rhizomatous; leaf margins essentially entire with 8-20 cilia or bristles per side but no teeth; involucre turbinate, 5-8 mm wide when fresh ..... *L. blepharophylla*  
(A. Gray) Pruski & Hartman ●Playas or riparian sites in limestone seeps or springs; collected once in Hidalgo County, otherwise known from Texas and Mexico.

**Liatris**

1 Leaves 3- to 5-nerved..... *L. lancifolia*  
(Greene) Kittell ●Wetlands and marshy ground; known only from Chaves, Doña Ana, Lincoln, and Otero counties, and apparently not collected since 1901; more common in the central plains states; perhaps introduced with hay or settlement and not persisting.

1 Leaves 1-nerved

2 Pappus of barbellate bristles; stems sparsely to densely pubescent; leaves 4-20 mm wide..... *L. ligulistylis*  
(A. Nelson) K. Schumann ●Moist prairie; northeastern region.

2 Pappus of plumose bristles; stems glabrous; leaves 1-7 mm wide ..... *L. punctata*  
Hooker ●Widespread throughout the state on plains, prairies, and mountain slopes.

**Logfia**

1 Stems prostrate; outer phyllaries chartaceous (papery); bisexual corollas yellowish to brownish, 5-lobed; inner achenes smooth ..... *L. depressa*  
(A. Gray) Holub ●Desert flats and alluvial slopes, loose sandy or gravelly soils; recently observed in Hidalgo County near Lordsburg and in Grant County near Silver City.

1 Stems usually erect; outer paleae cartilaginous; bisexual corollas bright reddish to purplish, 4-lobed; inner achenes papillate ..... *L. filaginoides*  
(Hooker & Arnott) Morefield ●Rocky arroyos, slopes, and bajadas of the southern desert mountains.

**Lorandersonia**

1 Ray florets present; plants half-shrubs, mat-forming, 5-20 cm tall ..... *L. microcephala*  
(Cronquist) Urbatsch, Roberts & Neubig ●Cracks and crevices of granite boulders and outcrops; Rio Arriba and Taos counties; endemic to New Mexico; rare and of conservation concern.

1 Ray florets absent; plants well-developed shrubs, 25-150 cm tall

2 Involucres 10-15 mm long

3 Leaf margins ciliate..... *L. baileyi*  
(Wootton & Standley) Urbatsch, Roberts & Neubig ●Sandy soils or sand dunes in grasslands, shinnery oak woodlands, and prairie habitats nearly throughout the state.

3 Leaf margins entire and glabrous ..... *L. pulchella*  
(Gray) Urbatsch, Roberts & Neubig ●Widespread on sand dunes or open, sandy sites mostly below 7200 ft.

- 2 Involucres 4-7 mm long
  - 4 Achenes densely hairy; branches glabrous or scaberulous; leaves widest toward the base, glabrous; phyllaries in evident vertical ranks ..... *L. linifolia* (Greene) Urbatsch, Roberts & Neubig ● Arroyos and washes, canyon beds, sandy flood plains; northwest quarter of the state, extending into the central plains.
  - 4 Achenes sparsely hairy; branches finely scabrous; leaves widest toward the apex, scaberulous; phyllaries in weak vertical ranks ..... *L. spatulata* (L.C. Anderson) Urbatsch, Roberts & Neubig ● South-central mountains, foothills, and adjacent plains, below 7200 ft., with juniper, piñon, and mountain mahogany.

**Lygodesmia**

- 1 Basal leaf margins lobed; basal leaves forming a rosette, withering at flowering; stems 25-65 cm tall. *L. texana* (Torrey & Gray) Greene ● Mostly southeastern quarter of the state on grassy plains, limestone outcrops and canyons, and arroyo bottoms.
- 1 Basal leaf margins entire; basal leaves not forming a rosette; stems 5-25(40) cm tall
  - 2 Involucres 10-16 mm long; phyllary apices not appendaged; corollas 18-20 mm long, the ligules 3-4 mm wide; achenes 6-10 mm long ..... *L. juncea* (Pursh) D. Don ex Hooker ● Roadsides, drainages, canyon bottoms, sandy hills and dunes; mostly across the northern half of the state and extending southward in scattered locales.
  - 2 Involucres 15-25 mm long; phyllary apices appendaged; corollas 20-40 mm long, the ligules 5-10 mm wide; achenes 10-18 mm long ..... *L. grandiflora* (Nuttall) Torrey & Gray ● Plains and mesas of the Four Corners region, also Torrance County.

**Machaeranthera** [Key adapted from Morgan & Hartman 2003]

- 1 Rays yellow ..... go to *Xanthisma*
- 1 Rays white, pink, reddish, or purplish (sometimes drying yellowish)
  - 2 Leaves deeply pinnatifid to bipinnatifid throughout, at least many of the teeth sharply acute with bristle-tips; plants annual.
    - 3 Involucres hemispheric; herbaceous phyllary apices spreading to reflexed; disc corolla lobes mostly 0.3-0.7 mm long, glabrous to glabrate ..... *M. tanacetifolia* (Kunth) Nees ● Piñon-juniper woodlands, ditch and river banks, disturbed ground, grassland, desert scrub; widespread.
    - 3 Involucres broadly turbinate; herbaceous phyllary apices appressed; disc corolla lobes mostly 0.7-1 mm long, pubescent ..... *M. tegtina* Greene ● Juniper woodlands, canyon bottoms, grassland, desert scrub; known from Hidalgo, Grant, Otero, and Socorro counties.
  - 2 Leaves entire to toothed or lobed, if pinnatifid to bipinnatifid throughout then the lobes often rounded and without bristle-tips; plants annual to strongly perennial.
    - 4 Plants strongly perennial with a branched caudex; receptacles covered with scales 0.3-3 mm long, often honeycomb-like; pappus bristles subulate, flattened near the base, the bases overlapping ..... go to *Xanthisma*
    - 4 Plants taprooted annuals or short-lived perennials; receptacles usually naked; pappus bristles filiform, not especially flattened, the bases not or slightly overlapping
      - 5 Ray florets with a prominent pappus; leaves entire to toothed; plants variously pubescent with glandular and/or non-glandular hairs, ..... go to *Dieteria*
      - 5 Ray florets with or without a pappus, if a pappus present then the leaves pinnatifid to bipinnatifid or the plants glabrous ..... go to *Leucosyris*

**Madia**

*M. glomerata* Hooker ● Mixed conifer and ponderosa woodlands, mountain meadows, marsh and pond edges, riparian areas; northwestern quarter of the state.

**Malacothrix**

- 1 Phyllaries with broad and conspicuous hyaline margins 1-2.5 mm wide; midvein (and not the lamina) of outer phyllaries usually dark brown ..... *M. coulteri* Harvey & Gray ● Rocky hillsides in desert scrub in our area; known from two recent collections in Grant and Hidalgo counties.
- 1 Phyllaries with narrow and inconspicuous hyaline margins 0.1-0.5 mm wide; midvein of outer phyllaries not dark brown or if so then phyllaries completely brown
  - 2 Corollas 6-10 mm long, the outer ligules exerted from the head 1-4 mm
    - 3 Corollas white or pale yellow; achenes with the ribs ending 0.2-0.3 mm short of the apex; pappus of 16-18 needle-like teeth plus 2 bristles ..... *M. sonorae* Davis & Raven ● Rocky, sandy slopes, desert scrub; known only from Luna County.
    - 3 Corollas usually yellow, sometimes whitish; achenes with the ribs ending 0.1-0.2 mm short of the apex; pappus of 8-15 needle-like teeth plus 1 bristle ..... *M. stebbinsii* W.H. Davis & P.H. Raven ● Juniper/oak/mountain mahogany woodlands, rocky slopes; known from Catron, Grant, Doña Ana, and Luna counties.
  - 2 Corollas 10-25 mm long (somewhat shorter in *M. fendleri*), the outer ligules exerted from the head 5-15



mm or more

- 4 Receptacle not bristly; achenes with the ribs ending 0.3 mm short of the apex..... *M. fendleri*  
Gray ●Rocky slopes, piñon-juniper woodlands, arroyos, desert scrub, grassland; western half of the state.
- 4 Receptacle bristly; achenes with the ribs extending to the apex
- 5 Lower leaves not fleshy, with filiform lobes and entire margins; corollas pale yellow or white, 15-23 mm long..... *M. glabrata*  
(D.C. Eaton ex A. Gray) A. Gray ●Rocky slopes and flats, desert grassland; southwestern, also San Juan County.
- 5 Lower leaves ± fleshy, with oblong to triangular lobes and denticulate margins; corollas lemon-yellow, 10-15 mm long..... *M. sonchoides*  
(Nuttall) Torrey & Gray ●Sandy hills and plains, washes, desert scrub and grassland; northwestern quarter of the state, also Socorro and Hidalgo counties.

**Matricaria**

*M. discoidea* A.P. de Candolle ●Wet meadows in mixed conifer woodlands, riparian areas, roadsides, disturbed ground. §

**Melampodium**

- 1 Plants perennial; ray flowers cream-white..... *M. leucanthum*  
Torrey & Gray ●Grassland, piñon-juniper woodlands, canyon bottoms, desert scrub; widespread.
- 1 Plants annual; ray flowers yellow
- 2 Peduncles 4-30 mm long or more; rays 7-12 in number, 1.2-1.5 mm long; disk flowers 8-10 in number..... *M. longicorne*  
A. Gray ●Oak woodlands, mountain foothills; known from Hidalgo and Grant counties.
- 2 Peduncles 0-3 mm long (sometimes longer); rays 5-8 in number, 0.6-1.1 mm long; disk flowers 4-7 in number..... *M. strigosum*  
Steussy ●Piñon-juniper/oak woodlands, openings in pine forests; Hidalgo, Grant, and Otero Counties.

**Notholachia**

*N. cuspidata* (Pursh) Greene ●Mesas, grassland; it has been collected in Baca and Las Animas counties in Colorado, which border Colfax and Union counties here; reported by Chambers (2006), but specimens are unknown; needs verification.

**Onopordum**

\**O. acanthium* Linnaeus ●Roadsides, disturbed ground; known from San Juan, San Miguel, Chaves, Roosevelt, and Curry counties.

**Oreochrysum**

*O. parryi* (A. Gray) Rydberg ●Mountain slopes, ponderosa and mixed conifer woodlands, riparian areas, roadsides; widespread in mountain areas.

**Osteospermum**

\**O. spinescens* Thunberg ●Known in the United States from a single escape near Silver City.

**Oxytenia**

*O. acerosa* Nuttall ●Alkaline soils in meadows, washes; known from San Juan and Sandoval counties.

**Packera**...for key to species, go to *Senecio*

**Palafoxia**

- 1 Ray flowers absent; disk corollas 7-10 mm long..... *P. rosea*  
(Bush) Cory ●Grassland, sandy areas; known from Eddy, Hidalgo, Lea, Mora, Quay, and Roosevelt counties. ♦Our plants belong to var. *macrolepis* (Rydberg) Turner & Morris.
- 1 Ray flowers present; disk corollas 10-14 mm long..... *P. sphaelata*  
(Nuttall ex Torrey) Cory ●Sandy soils in desert scrub, grassland, roadside; eastern two-thirds of the state, also McKinley County.

**Parthenium**

- 1 Plants 1-2 cm tall, mat-forming; heads borne singly on the flowering stalk..... *P. alpinum*  
(Nuttall) Torrey & Gray ●Open, calcareous slopes and ridges; Harding and McKinley counties.
- 1 Plants much taller, not mat-forming; heads in well-developed clusters
- 2 Plants shrubs, woody at least below..... *P. incanum*  
Humboldt, Bonpland, & Kunth ●Piñon-juniper woodlands, desert scrub, rocky, sandy soils, plains; from Harding, San Miguel, and Bernalillo counties southward, also southwestern.
- 2 Plants herbaceous
- 3 Biennials; leaf blades 1-pinnately lobed, the abaxial faces strigillose with erect hairs 1-2 mm long..... *P. confertum*  
Gray ●Piñon-juniper woodlands, grassland, desert scrub, canyon bottoms; central and southern. ♦Our plants belong to var. *lyratum* (Gray) Rollins.
- 3 Annuals; leaf blades 2-pinnately lobed, the abaxial faces scabrellous, without erect hairs..... *P. hysterothorus*  
Linnaeus ●To be looked for in disturbed sites; native to tropical America. ♦Reported for the state by Strother (2006), presumably based on a misidentified specimen of *Parthenium confertum* (Metcalfe

1497, GA); not yet known for the state.

**Pectis** [Key adapted from Keil 2006]

1 Ray flowers 8-15 in number

- 2 Plants perennial; heads borne singly on peduncles 3-16 cm long..... *P. longipes*  
A. Gray ●Grassland, juniper/oak and ponderosa/juniper woodlands, roadsides; southwestern.
- 2 Plants annual; heads borne several together on peduncles 1-4 cm long
- 3 Pappus of disk flowers of 4-5 scales and/or of 1-7 scabrous awns or bristles; achene hairs with straight, forked tips..... *P. angustifolia*  
Torrey ●Piñon-juniper woodlands, canyon bottoms, mesquite/creosote bush scrub, mountain slopes and foothills, sandy soils; widespread.
- 3 Pappus of disk flowers of 16-24 sub-plumose bristles (rarely of scales); achene hairs with curled, bulbous tips..... *P. papposa*  
Harvey & Gray ●Piñon-juniper and ponderosa woodlands, desert scrub, roadsides; southern border, also Catron, Lea, Lincoln, and San Juan counties.

1 Ray flowers 3-5 in number

- 4 Phyllaries separate and distinct, spreading and falling individually..... *P. filipes*  
Harvey & Gray ●Openings in ponderosa and piñon-juniper woodlands, arroyos, desert scrub, grassland; southwestern. ♦Our plants belong to var. *subnuda* Fernald.
- 4 Phyllaries coherent and falling together with all the achenes
- 5 Ray flowers 3(4) in number..... *P. cylindrica*  
(Fernald) Rydberg ●Piñon-juniper woodlands, desert scrub, grassland, playas, lawns, roadsides; Doña Ana, Luna, Otero, McKinley, San Juan counties.
- 5 Ray flowers 5 in number..... *P. prostrata*  
Cavanilles ●Piñon-oak/juniper and ponderosa woodlands, rocky or gravelly slopes, canyon bottoms, roadsides; southwestern.

**Pentzia**

\**Pentzia incana* (Thunberg) O. Kuntze ●Upper bajadas and foothills in the Chihuahuan Desert; in New Mexico known only from Doña Ana County; native to southern Africa.

**Pericome**

*P. caudata* A. Gray ●Mixed conifer and piñon-juniper woodlands, rocky slopes in mountains, canyons, among rocks and boulders; widespread.

**Perityle**

1 Pappus of 20 or more bristles; leaves toothed to shallowly lobed

- 2 Disk flowers 20-150 in number; heads borne singly, nodding or erect, 12-14 mm wide; phyllaries 18-28..... *P. cernua*  
(Greene) Shinnars ●Limestone or igneous cliffs; endemic to the Organ Mountains in Doña Ana County.
- 2 Disk flowers 5-8 in number; heads borne in corymb-like clusters, erect, 2-3 mm wide; phyllaries 5-6..... *P. quinqueflora*  
(Steyermark) Shinnars ●Limestone cliffs and crevices; known only from the Guadalupe Mountains of Chaves, Eddy, and Otero counties; also Texas.

1 Pappus 1-6 bristles; leaves 3- to 5-lobed or pinnatisect

- 3 Ray flowers absent
- 4 Plants glabrous or puberulent..... *P. staurophylla*
- 4 Plants usually densely pilose or villous..... *P. lemmonii*  
(A. Gray) MacBride ●Rock ledges, limestone cliffs; known only from Hidalgo County; also Arizona.
- 3 Ray flowers present, 3-6 mm long
- 5 Ray flowers white, 5-6 mm long; achenes strongly ciliate..... *P. coronopifolia*  
A. Gray ●Rock outcrops, crevices; Catron, Grant, Luna, Doña Ana counties.
- 5 Ray flowers yellow, 3-4 mm long; achenes glabrous to sparsely ciliate..... *P. staurophylla*  
+*Perityle staurophylla* (Barneby) Shinnars ●Limestone cliffs and crevices of mountains along the Rio Grande; endemic to New Mexico.

**Petradoria**

*P. pumila* (Nuttall) Greene ●Dry, rocky areas in piñon-juniper and ponderosa/oak woodlands; northwestern regions.

**Picradeniopsis**

- 1 Plants annual; ray flowers absent..... *P. multiflora*  
(Hooker and Arnott) B.G. Baldwin ●Roadsides, washes, piñon-juniper woodland, pine-oak forest, disturbed sites; widespread.
- 1 Plants perennial; ray flowers present
- 2 Distal leaves opposite or alternate; ray florets 9-15; disc florets 60-120..... *P. absinthifolia*  
(Bentham) B.G. Baldwin ●Desert scrub, creosote bush shrubland; from Bernalillo County southward; common.
- 2 Distal leaves opposite; ray florets 3-8; disc florets 25-60
- 3 Achenes gland-dotted, rarely hairy; pappus scales ovate or obovate..... *P. oppositifolia*

(Nuttall) Rydberg ex Britton ● Sagebrush communities, grassland, roadsides, valleys, edges of riparian areas; from Socorro and Lincoln counties northward and eastward, also McKinley County.

- 3 Achenes rarely gland-dotted, usually hairy; pappus scales lanceolate to linear-subulate ..... *P. woodhousei* (Gray) Rydberg ● Mesas, grassland, roadsides, silty soils; scattered locations in northern 2/3 of the state, also Otero County.

### **Pinaropappus**

- 1 Plants small, clumped or forming mats, 3-9 cm tall; involucre 8-10 mm long, 3-5 mm wide, cylindrical ..... *P. parvus*  
Blake ● Cliffs, rock ledges and crevices; south-central regions.

- 1 Plants larger, not mat-forming, 10-30 cm tall; involucre 10-15 mm long, 12-20 mm wide, campanulate ..... *P. roseus* (Lessing) Lessing ● Limestone substrate; known only from Eddy County and one collection from Otero County; also Texas and Arizona.

### **Platyschkuhria**

*P. integrifolia* (Gray) Rydberg ● Piñon-juniper woodlands, sagebrush communities, grassland, sandstone, sandy or shale soils; San Juan, McKinley, Rio Arriba, and Sandoval counties.

### **Plectocephalus**

- 1 Phyllary appendages medium to dark brown, bearing 9-15 pairs of lobes at the tips ..... *P. rothrockii* (Greenman) D.J.N. Hind ● Mountain meadows, wooded canyons, and along streams and roadsides from Socorro County southward.

- 1 Phyllaries appendages straw-colored, bearing 4-8 pairs of lobes at the tips ..... *P. americanus* (Nuttall) D. Don ● Prairies, plains, open fields, and roadsides, often in disturbed ground.

### **Pluchea**

- 1 Plants shrubs, eglandular; leaf margins entire ..... *P. sericea* (Nuttall) Cavanilles ● Riverbanks, lake shores, floodplains; known from Otero, Sierra, Socorro, Doña Ana counties.

- 1 Plants herbaceous, glandular; leaf margins shallowly serrate ..... *P. odorata* (Linnaeus) Cassini ● River beds, lake shores, pond edges; known from Doña Ana, Otero, Socorro, DeBaca, Eddy, Chaves counties.

### **Porophyllum**

- 1 Plants herbaceous annuals; leaf blades oval to elliptic, crenate ..... *P. ruderale* (Jacquin) Cassini ● Occasional in moist canyon slopes and bottoms; known only from Hidalgo County. ● Our plants belong to subsp. *macrocephalum* (A.P. de Candolle) R.R. Johnson.

- 1 Plants perennial shrubs or subshrubs; leaf blades linear, entire

- 2 Corollas whitish or purplish ..... *P. gracile*  
Bentham ● Rocky slopes and flats, desert scrub; south-central to southwestern.

- 2 Corollas yellowish ..... *P. scoparium*  
A. Gray ● Rocky or gravelly areas, foothills and arroyos, limestone substrates; Doña Ana, Otero, Eddy, Sierra, Socorro, and Hidalgo counties.

### **Prenanthea**

*P. exigua* (A. Gray) Rydberg ● Rocky areas in ponderosa/oak woodlands, desert slopes, sandy or clay soils; known from Hidalgo and San Juan counties.

### **Psacalium**

*P. decompositum* (Gray) H.E. Robinson & Brettell ● Oak/juniper and ponderosa/oak woodlands, canyon bottoms, shaded mountain slopes; known from Grant and Hidalgo counties.

### **Psathyrotopsis**

*P. scaposa* (A. Gray) H. Robinson ● Rocky limestone slopes in creosote bush scrub. Known only from a few collections in southern Doña Ana County.

### **Pseudoclapia**

*P. arenaria* Rydberg ● Grassland, gypsum substrates, alkaline seeps and lake edges; scattered locations in non-mountainous areas.

### **Pseudognaphalium**

- 1 Leaves bicolor, mostly white-tomentose on the lower surface and green on the upper; stems stipitate-glandular beneath the hairs

- 2 Leaves crowded on the stem, the nodes usually 1-3 mm apart (sometimes up to 10 mm apart), the blades linear-lanceolate, 1-5 mm wide ..... *P. leucocephalum* (A. Gray) A. Anderberg ● Gravelly arroyos, lake shores, ditches; Hidalgo, Catron, Doña Ana counties.

- 2 Leaves not crowded, the nodes mostly more than 5 mm apart, the blades oblanceolate to obovate, 5-20 mm wide

- 3 Leaf blades 3-13 mm wide; involucre 4.5-5.5 mm long; phyllaries in 4-5 series ..... *P. macounii* (Greene) Kartesz ● Canyon slopes, piñon-juniper and mixed conifer woodlands, roadsides; mountain areas.

- 3 Leaf blades 10-20 mm wide; involucre 3.4-4 mm long; phyllaries in 2-3 series ..... *P. pringlei* (A. Gray) A. Anderberg ● Piñon-oak/juniper and ponderosa woodlands, canyon slopes and bottoms;

known from Cibola, Catron, Grant, and Hidalgo Counties.

- 1 Leaves about the same color on both surfaces; stems not glandular
  - 4 Leaf bases not at all decurrent ..... *P. canescens*  
(A.P. de Candolle) A. Anderberg ●Grassland, piñon-juniper/oak and ponderosa woodlands, rocky slopes and flats; southwestern, also Eddy, Sandoval, Quay, Union counties.
  - 4 Leaf bases decurrent
    - 5 Leaf bases decurrent 4-8 mm down the stem and not clasping ..... *P. jaliscense*  
(Greenman) A. Anderberg ●Piñon-juniper woodlands, grassland; known from Colfax, Lincoln, Mora, Hidalgo, Grant, and San Miguel counties.
    - 5 Leaf bases decurrent only 1-2 mm down the stem and sub-clasping
      - 6 Involucres 3-4 mm long; inner florets 5-10 per head, the corollas red-tipped ..... *P. leutealbum*  
(Linnaeus) Hilliard & Burt ●River valleys, moist depressions in grassland; known from Mora, Hidalgo, Grant, Otero, Sierra, and San Miguel counties.
      - 6 Involucres 4-6 mm long; inner florets 18-28 per head, the corollas evenly yellowish ..... *P. stramineum*  
(Kunth) A. Anderberg ●Piñon-juniper/oak and mixed conifer woodlands, river and stream beds, wet meadows, grassland; widespread.

**Psilactis**

- 1 Involucres 2-4 mm long; rays 1-4 mm long ..... *P. brevilingulata*  
Schultz-Bipontinus ex Hemsley ●Desert scrub; known only from a single collection in Hidalgo County; also Arizona and Texas.
- 1 Involucres 4-5 mm long; rays 5-9 mm long ..... *P. asteroides*  
A. Gray ●Oak/juniper woodlands, washes, occasionally flooded areas, pond edges; from McKinley and Cibola counties southward and eastward to Hidalgo and Otero counties.

**Psilostrophe**

- 1 Plants shrubs or subshrubs; stems white; heads borne singly ..... *P. cooperi*  
(A. Gray) Greene ●Rocky and gravelly areas, oak/juniper woodlands, roadsides; known from Hidalgo, Grant, Catron, Sierra, Chaves, Union, Colfax counties.
- 1 Plants herbaceous perennials; stems gray, gray-green, or greenish; heads borne in clusters
  - 2 Stems with appressed, straight, stiff hairs, greenish; rays reflexed in fruit ..... *P. sparsiflora*  
(A. Gray) A. Nelson ●Prairies, piñon-juniper woodlands dry creek beds, desert grassland; widely scattered locations.
  - 2 Stems with cobwebby-villous hairs, grayish; rays horizontal in fruit
    - 3 Peduncles of flowering heads 1-5 mm long; rays 3-6 mm long ..... *P. villosa*  
Rydberg ●Grassland, limestone substrates, roadsides; central to southwestern, also Santa Fe County.
    - 3 Peduncles of flowering heads 5-40 mm long; rays 5-14 mm long ..... *P. tagetina*  
(Nuttall) Greene ●Piñon-juniper woodlands, grassland, desert scrub, sandy or limestone or gypseous soils; widespread.

**Pyrhopappus**

- 1 Plants annual; stems rarely without leaves (1-5 on the stem); anthers 3-4 mm long ..... *P. pauciflorus*  
(D. Don) A.P. de Candolle ●River beds, lake shores, bosque, ditches, roadsides, desert shrubland; widely scattered locations.
- 1 Plants perennial, the rootstocks producing tubiform swellings 1-15 cm below the soil surface; stems usually scapiform with all or nearly all the leaves basal (0-3 on the stem); anthers 4.5-5 mm long ..... *P. grandiflorus*  
(Nuttall) Nuttall ●To be looked for in weedy, moist sites at lower elevations on the eastern plains. ♦Reported for the state by Correll & Johnston (1970), and thence others, but no specimens have ever been cited and none are known; awaits verification.

**Pyrrocoma**

*P. crocea* (A. Gray) Greene ●Piñon-juniper woodlands, clearings in ponderosa and mixed conifer forests, moist meadows; northern and western mountains.

**Rafinesquia**

*R. neomexicana* A. Gray ●Desert scrub, mesquite grassland, dry washes; southwestern.

**Ratibida**

- 1 Receptacle globular-ovoid, about as long as wide; pappus a low crown of united scales ..... *R. tagetes*  
(James) Barnhart ●Piñon-juniper and ponderosa woodlands, dry valleys, grassland, gravelly slopes, roadsides; widespread.
- 1 Receptacle elongate-columnar, at least twice as long as wide; pappus of 1-2 tooth-like projections, sometimes absent ..... *R. columnifera*  
(Nuttall) Wootton & Standley ●Piñon-juniper and ponderosa woodlands, prairies, grassland, river beds; widespread.

**Rayjacksonia**

*R. annua* (Rydberg) Hartman & Lane ●Prairies, dry creek beds, roadsides; known only from Quay and Lea Counties.

**Rhaponticum**

\**R. repens* (Linnaeus) Hidalgo ●Roadsides, pastures, and disturbed ground largely in the central portion of

the state from San Juan County to the Mexican Border.

### Roldana

*R. hartwegii* (Benth.) H. Robinson & Brettell •To be looked for in pine-oak forests in moist soils in the bootheel region. ♦Reported for the state by Funston (2006), but no specimens are known and its occurrence is dubious; common in the Sierra Madre of Mexico; awaits verification.

### Rudbeckia

- 1 Leaves deeply lobed or cleft ..... *R. laciniata*  
 Linnaeus •Widespread in the mountains.
- 1 Leaves entire to toothed, but not deeply lobed or cleft
- 2 Stems glabrous; stem leaves sessile and the bases clasping ..... *R. amplexicaulis*  
 Vahl •Ditches, moist areas; known only from a single collection in Doña Ana County in 1895.
- 2 Stems with stiff, spreading hairs; stem leaves sessile to petiolate, but the bases not clasping ..... *R. hirta*  
 Linnaeus •Moist and grassy canyon bottoms, riparian areas, meadows, roadsides; northern mountains.  
 ♦Our plants belong to var. *pulcherrima* Farwell.

### Sanvitalia

*S. abertii* A. Gray •Open habitats in shrublands, desert scrub, and piñon-juniper woodlands; mostly western two thirds of the state.

### Sartwellia

*S. flaveriae* A. Gray •Gypsum soils and outcrops from Socorro and Torrance counties southward.

### Schkuhria

- 1 Ray flowers absent; disk flowers 15-30 in number; phyllaries hairy and gland-dotted (*P. multiflora*) ..... go to *Picradeniopsis*
- 1 Ray flowers usually 1-2 in number; disk flowers 2-8 in number; phyllaries glabrous and gland-dotted ..... *S. pinnata*  
 (Lamarck) Kuntze ex Thellung •Roadsides, piñon-juniper woodland, rocky slopes in desert scrub; foothills and ridges in the south-central and southwestern mountains.

### Scorzonera

\**S. laciniata* Linnaeus •Disturbed and waste habitats throughout the state; a relatively recent introduction that has spread widely.

**Senecio** and **Packera** [Key adapted from Barkley 2006; from Trock 2006; and with much help from Chick Keller]

- 1 Plants shrubs, woody at least at the base, or coarse bushy, shrub-like plants with linear leaves 1-3 mm wide
- 2 Leaves lanceolate-elliptic, 5-15 mm wide ..... go to *Barkleyanthus*
- 2 Leaves or leaf lobes linear, 1-3 mm wide
- 3 Herbage glabrous or nearly so
- 4 Calyculi present, bractlets prominent, 1/3 to 1/2 the length of the phyllaries (var. *monoensis*) ..... *Senecio flaccidus*  
 Lessing •Hills, plains, bajadas, dry mountain slopes, canyons, arroyos, mesas; throughout the state.
- 4 Calyculi absent or very short, bractlets if present, not more than 1/4 the length of the phyllaries
- 5 Phyllaries mostly 8 in number, 6-10 mm long; involucre cylindrical to narrowly campanulate, 3-6 mm wide at the top of the involucre ..... *Senecio spartioides*  
 Torrey and A. Gray •Piñon-juniper woodlands, grasslands, brushy scrublands, plains and foothills; nearly throughout the state.
- 5 Phyllaries mostly 13 in number, 7-12 mm long; involucre campanulate, 7-10 mm wide at the top of the involucre ..... *Senecio riddellii*  
 Torrey and A. Gray •Piñon-juniper woodlands, grasslands, brushy scrublands, plains and foothills; nearly throughout the state.
- 3 Herbage prominently tomentose
- 6 Plants usually 20-40 cm tall; leaves crowded toward the ends of the stems, often recurved, thickish-turgid; gypseous soils ..... *Senecio warnockii*  
 Shinnery •Gypsum plains; Eddy and Otero Counties (also unverified reports from the northeastern plains).
- 6 Plants 40-120 cm tall or more; leaves evenly distributed, seldom recurved; variety of soils and habitats ..... *Senecio flaccidus*  
 Lessing •Hills, plains, bajadas, dry mountain slopes, canyons, arroyos, mesas; throughout the state.
- 1 Plants wholly herbaceous, not at all bushy or shrub-like
- 7 Plants annual
- 8 Rays present; leaf blades entire or weakly toothed; native plants, generally not in weedy habitats ..... *Packera wernerifolia*  
 (A. Gray) W.A. Weber & A. Löve •Brushy mountain slopes, woodlands, coniferous forests, rocky ridges, talus from low to high elevations in alpine habitats.
- 8 Rays absent; leaf blades dissected-lobed; exotic plants, generally in weedy habitats ..... *Senecio vulgaris*  
 Linnaeus •Moist weedy ground, flower beds, roadsides, similar disturbed ground; known from a few scattered localities, but potentially throughout the state.
- 7 Plants perennial

9 Heads nodding, at least in the bud

10 Ray flowers absent

- 11 Stems 40-100 cm tall; calyculi of 4-10 linear bractlets..... *Senecio bigelovii*

A. Gray ● Meadows, stream banks, springs, grassy slopes, openings in pine-spruce-fir-aspen communities, at moderate to high elevations; throughout the mountainous areas of the state.

- 11 Stems 20-50 cm tall; calyculi of 2-6 lance-linear, lance-deltate, or filiform bractlets

12 Lower leaves narrowly lanceolate to lance-linear, about 5 times longer than wide, the bases tapered to weakly defined petioles, the margins entire to weakly toothed.... *Senecio pudicus*  
Greene ● Reported from the state by W&S and thence M&H and others, but authentic specimens are unknown; awaits verification.

12 Lower leaves lanceolate to triangular or nearly orbicular, 1-2 times longer than wide, the bases contracted to distinct petioles, which then expand basally to clasp the stem, the margins serrate to dentate..... *Senecio sacramentanus*  
Wootton and Standley ● Known only from the Sacramento and White Mountains of Lincoln and Otero counties; endemic to New Mexico.

- 10 Ray flowers numerous, the rays well-surpassing the phyllaries (sometimes absent in some heads of *S. taraxacoides*)

- 13 Leaf margins dentate to incised, the blades woolly-hairy ..... *Senecio taraxacoides* (Gray) Greene ● Alpine and above timberline zones in the northern mountains.

- 13 Leaf margins nearly entire, if toothed then the blades glabrous

14 Roots thick, fleshy; leaves ovate to orbicular, about as wide as long, entire to hardly dentate, often maroon, the petioles usually twice as long as the blades; rays less than 1.5 times as long as the involucre ..... *Senecio soldanella*  
Gray ● Not yet known from New Mexico but to be looked for in loose scree at high elevations near the Colorado border.

14 Roots thin, fibrous; leaves lanceolate to ovate, mostly more than 1.5 times longer than wide, evidently dentate, sometimes maroon, the petioles usually much shorter; rays usually more than 2 times as long as the involucre ..... *Senecio amplexens*  
A. Gray ● Spruce-fir forests and meadows; upper montane to alpine zones in the northern mountains.

9 Heads erect

- 15 Essentially all leaves deeply lacinate, pinnatisect, pinnately lobed, to compound

16 Leaves mainly cauline and well-distributed along the stem, as large or larger than the basal leaves, the lower and basal leaves often deciduous or withered at anthesis *Senecio eremophilus*  
Richardson ● Forest openings, outcrops, meadows, gravelly slopes and cut-banks, disturbed logging areas; in all the mountain ranges of the state.

- 16 Leaves cauline and basal, usually the stem leaves reduced upwards, the lower and basal leaves present at anthesis

17 Terminal lobe of basal and lower stem leaves about the same size as the lateral lobes, not much larger if at all

18 Herbage mostly tomentose..... *Packera fendleri*  
(Gray) W.A. Weber & A. Löve ● Meadows, aspen glades, rocky slopes and clearings, ridges and outcrops, mid- to high elevations; widespread throughout the mountainous regions of the state.

18 Herbage mostly glabrous ..... *Packera multilobata*  
(Torrey & Gray ex Gray) W.A. Weber & A. Löve ● Canyon slopes and hillsides, gravelly arroyos and drainages, ledges, slickrock, mesa tops, with piñon, juniper, rabbitbrush, and saltbush; across the northern half of the state, also Eddy and Otero counties.

- 17 Terminal lobe of basal and lower stem leaves obviously larger than the lateral lobes

19 Herbage mostly tomentose..... *Packera plattensis*  
(Nuttall) W.A. Weber & A. Löve ● Open prairie, open wooded areas, and roadsides, Catron and Otero counties.

- 19 Herbage mostly glabrous

20 Heads mostly 15-40 in number; plants 60-100 cm or more tall, bluish when fresh....  
..... *Packera quercetorum*  
(Greene) C. Jeffrey ● Scrub-oak and piñon woodlands at low to mid-elevations in the western mountains; known only from Grant and Catron counties.

20 Heads mostly 3-8 in number; plants 25-50 cm tall, rarely taller, green when fresh  
..... *Packera sanguisorboides*  
(Rydberg) W.A. Weber & A. Löve ● Moist slopes, aspen glades, wet meadows, seeps and springs, canyon bottoms, stream banks; endemic to New Mexico at mid- to high elevations in the central cordillera.

- 15 At least many of the leaves (basal or cauline or both) entire to toothed and not deeply lacinate to

compound

- 21 Herbage viscid-pubescent, malodorous when fresh..... *Senecio parryi*  
A. Gray ●Rocky, disturbed sites in the desert mountains. ♦Reported from New Mexico by Barkley (2006) but no specimens can be located; likely present in the state but needs verification.
- 21 Herbage glabrous to hairy, but not viscid, not malodorous
- 22 Rays deep orange-yellow to brick red; stem leaves sessile or auriculate-clasping
- 23 Heads 1-6 (sometimes more) on short peduncles, in congested clusters; bractlets (calyculi) subtending the heads conspicuous, the bases swollen; corolla tubes of disk florets 2-3 mm long..... *Packeria dimorphophylla*  
(Greene) W.A. Weber & A. Löve ●Seeps, marshy meadows, wet canyon bottoms, above 8500 ft; northern mountains.
- 23 Heads 7-15 or more on long peduncles, in relatively open clusters; bractlets (calyculi) subtending the heads absent or inconspicuous; corolla tubes of disk florets 4.5-5.5 mm long..... *Packeria crocata*  
(Rydberg) W.A. Weber & A. Löve ●Wet meadows, boggy ground, mid- to high elevations in northern mountains.
- 22 Rays yellowish, or lacking; stem leaves various
- 24 Heads mostly single on the flowering stem
- 25 Plants 3-6 cm tall (rarely taller); basal leaves 1-3 mm wide; rays absent, or when present, 4-7 mm long..... *Packeria spellenbergii*  
(T.M. Barkley) C. Jeffrey ●Short-grass prairie in Harding and Union counties; limey mudstones or sandy soils in pinon-juniper woodlands up to mixed conifer forests in McKinley and Rio Arriba counties; also known from Apache County, Arizona, and Kane County, Utah.
- 25 Plants mostly 5-40 cm tall (sometimes shorter); basal leaves 10-50 mm wide; rays always present, 8-14 mm long
- 26 Foliage glabrous or nearly so; achenes glabrous..... *Senecio soldanella*  
Gray ●Not yet known from New Mexico but to be looked for in loose scree at high elevations near the Colorado border.
- 26 Foliage mostly tomentose; achenes hairy..... *Senecio actinella*  
Greene ●Meadows, sloping stream banks, openings in the forest; ponderosa pine forests of the western and southern mountains.
- 24 Heads mostly several to numerous on the flowering stem
- 27 Leaves mainly cauline, well-distributed along the stem, only very gradually or scarcely reduced upwards, a well-developed tuft of basal leaves absent at flowering
- 28 Leaves, at least the larger (7)8-17 cm wide and suborbicular to ovate.....  
..... go to *Roldana*
- 28 Leaves less than 8 cm wide and not suborbicular or ovate
- 29 Mid- and upper stem leaves sessile and clasping
- 30 Phyllary tips blackish; heads 4-12 in number..... *Senecio crassulus*  
A. Gray ●Pine-oak to subalpine communities; northern mountains, also Grant County.
- 30 Phyllary tips green or brownish; heads 1-4 in number.....  
..... *Senecio fremontii*  
Torrey & Gray ●Rocky scree, overhangs; above 12,000 ft in the northern mountains. ♦Our plants belong to var. *blitoides* (Greene) Cronquist.
- 29 Mid- and upper stem leaves petiolate, at least shortly so (except for the reduced upper-most ones)
- 31 Principal leaves triangular with truncate or hastate-cordate bases.....  
..... *Senecio triangularis*  
Hooker ●Around seeps and springs, wet canyon bottoms, moist woods; mid- to high elevations in the northern mountains, also Sacramento Mountains of Otero County.
- 31 Principal leaves lanceolate to lance-elliptic, not triangular, tapering to the petiole, not truncate at the base..... *Senecio serra*  
Hooker ●Meadows and aspen glades at mid- to high elevations in the mountains; little collected, known from Rio Arriba County. ♦Our plants belong to var. *admirabilis* (Greene) A. Nelson.
- 27 Leaves ± basally distributed, the basal and lower stem leaves well-developed, the middle and upper leaves reduced, a well-developed tuft of basal leaves usually present at flowering

- 32 Stems scapose or nearly so, the stem leaves reduced to linear or bract-like vestiges; herbage characteristically tomentose, sometimes glabrate; plants 5-18 cm tall..... *Packera wernerifolia* (A. Gray) W.A. Weber & A. Löve ●Brushy mountain slopes, woodlands, coniferous forests, rocky ridges, talus from low to high elevations in alpine habitats.
- 32 Plants other than above
  - 33 Plants mostly glabrous or appearing so (at most spotted-wooly at the bases of stems, in the leaf axils, and at the bases of the heads)
    - 34 Basal leaf blades orbiculate to ovate, 1-2 times longer than wide
    - 35 Stem leaves entire or nearly so
      - 36 Plants glaucous, completely glabrous; petioles of basal leaves broadened and sheathing at the base ..... *Senecio wootonii*
      - 36 Plants green, sometimes scattered floccose; petioles of basal blades not sheathing at the base .... *Packera streptanthifolia*
    - 35 Stem leaves obviously toothed to more commonly dissected or lobed
      - 37 Lower blades cordate at the base
        - 38 Plants rhizomatous from a branching caudex; stem leaves conspicuously auriculate-clasping; heads 3-8 in number; phyllaries 5-9 mm long; pappus 9-10 mm long..... *Packera cardamine* (Greene) W.A. Weber & A. Löve ●Canyons, forested slopes, with ponderosa pine, spruce, and fir; Catron and Grant Counties.
        - 38 Plants lacking rhizomes; stem leaves sessile but not auriculate-clasping; heads 5-12 in number; phyllaries 3-5 mm long; pappus 4-6 mm long
        - 39 Basal leaves entire to merely crenate, not dentate..... *Packera crocata* (Rydberg) W.A. Weber & A. Löve ●Wet meadows, boggy ground, mid- to high elevations in northern mountains.
        - 39 Basal leaves clearly (sometimes minutely) dentate (Rydberg) W.A. Weber & A. Löve ●Moist meadows, edges of marshy and boggy ground, stream banks; scattered throughout the state in the mountains, though nowhere very common. ♦Our plants belong to var. *flavula* (Greene) Trock & Barkley.
    - 37 Lower blades mostly obtuse to acute at the base
      - 40 Stem leaves auriculate-clasping, some of them nearly as large or larger than the basal leaves; petioles of basal leaves broadly winged; heads congested; plants of very high elevations, generally over 10,000 ft..... *Packera dimorphophylla* (Greene) W.A. Weber & A. Löve ●Seeps, marshy meadows, wet canyon bottoms, above 8500 ft; northern mountains.
      - 40 Stem leaves sessile but not auriculate-clasping, all of them smaller than the basal leaves; petioles of basal leaves not broadly winged; heads generally loosely disposed; plants of lower elevations
        - 41 Plants with stolons or superficial rhizomes (near the surface); many or most basal leaves orbicular; bractlets subtending the heads conspicuous ..... *Packera obovata* (Muhlenberg ex Willdenow) W.A. Weber & A. Löve ●Shaded limestone outcrops at mid elevations in the Guadalupe Mountains; Eddy County.
        - 41 Plants otherwise, lacking stolons, if short rhizomes



- present, then basal leaves broadly elliptic or ovate; bractlets subtending the heads inconspicuous or absent.
- 42 Bases of basal blades tapering or obtuse .....  
 ..... *Packera hartiana*  
 (Heller) W.A. Weber & A. Löve ● Meadows, creek banks, marshy ground, wet canyon bottoms; widespread in woods and plains.
- 42 Bases of basal blades truncate to cordate.....  
 ..... *Packera pseudaura*  
 (Rydberg) W.A. Weber & A. Löve ● Moist meadows, edges of marshy and boggy ground, stream banks; scattered throughout the state in the mountains, though nowhere very common. ♦ Our plants belong to var. *flavula* (Greene) Trock & Barkley.
- 34 Basal leaf blades narrower, lanceolate to elliptic, 2-5 times longer than wide
- 43 Phyllary tips black
- 44 Herbage with sparse, scattered, kinky hairs .....  
 ..... *Senecio integerrimus*  
 Nuttall ● Moist meadows, swales, dry ponds; little collected, Otero, Catron, Colfax, and Rio Arriba counties.
- 44 Herbage glabrous ..... *Senecio crassulus*  
 A. Gray ● Pine-oak to subalpine communities; northern mountains, also Grant County.
- 43 Phyllary tips green to brownish, not black
- 45 Stem leaves obviously toothed to more commonly dissected or lobed ..... *Packera paupercula*  
 (Michaux) W.A. Weber & A. Löve ● Wooded slopes and ridges at mid-elevations in the mountains; known from Otero County and single collections from Grant and Sierra Counties.
- 45 Stem leaves entire or nearly so
- 46 Phyllaries sparsely tomentose toward the bases; basal leaves 3-many toothed at the apex, 5-15 mm wide; plants flowering Apr-May ..... *Packera thurberi*  
 (Gray) B.L. Turner ● Shortgrass plains and prairies; northern counties.
- 46 Phyllaries glabrous throughout; basal leaves variously entire to toothed, 10-40 mm wide; plants flowering Apr-Aug
- 47 Plants glaucous, completely glabrous; petioles of basal leaves broadened and sheathing at the base ...  
 ..... *Senecio wootonii*  
 Greene ● Very common and widespread in all the mountainous regions of the state, in a wide variety of habitats, 4500-11,500 ft.
- 47 Plants green, sometimes scattered floccose; petioles of basal blades not sheathing at the base .....  
 ..... *Packera streptanthifolia*  
 (Greene) W.A. Weber & A. Löve ● Stream banks and adjacent slopes, meadows, aspen glades, wet canyon bottoms and drainages; northern and western mountain ranges.
- 33 Plants noticeably and rather uniformly tomentose or villous
- 48 Basal leaves orbiculate to broadly ovate, weakly tomentose
- 49 Margins of basal leaves entire to shallowly toothed or weakly lobed; phyllaries glabrous; achenes glabrous.....  
 ..... *Packera streptanthifolia*  
 (Greene) W.A. Weber & A. Löve ● Stream banks and adjacent slopes, meadows, aspen glades, wet canyon bottoms and drainages; northern and western mountain ranges.
- 49 Margins of basal leaves dentate to pinnatisect; phyllaries densely

- tomentose below; achenes usually hairy, sometimes glabrous.....  
*Packera plattensis*  
 (Nuttall) W.A. Weber & A. Löve •Open prairie, open wooded areas, and roadsides, Catron and Otero counties.
- 48 Basal leaves narrowly elliptic to ovate, usually strongly tomentose
  - 50 Phyllary tips black
    - 51 Lower leaves 10-30 cm long; heads numerous, 20-60 in number.....*Senecio atratus*  
 Greene •Meadows, forested ridges and slopes, mid- to high elevations in the northern mountains.
    - 51 Lower leaves 6-15 cm long (sometimes longer); heads 5-20 in number.....*Senecio integerrimus*  
 Nuttall •Moist meadows, swales, dry ponds; little collected, Otero, Catron, Colfax, and Rio Arriba counties.
  - 50 Phyllary tips greenish, reddish, or brownish, not black
    - 52 Basal blades narrowly lanceolate or narrowly oblanceolate, 4-8 times longer than wide..... *Packera cynthioides*  
 (Greene) W.A. Weber & A. Löve •Coniferous forests and woods, rocky outcrops and rubble; widespread in the western and west-central mountains; endemic to New Mexico. Reports of this from Arizona are in error.
    - 52 Basal blades, at least many, ovate to broadly elliptic, 2-4 times longer than wide
      - 53 Margins of basal blades mostly entire..... *Packera cana*  
 (Hooker) W.A. Weber & A. Löve •Plains and knolls (Colfax and Harding counties), rocky wooded slopes and foothills (Colfax, Grant, Harding, and Sandoval counties).
      - 53 Margins of basal blades mostly strongly dentate.....  
 (Gray) W.A. Weber & A. Löve •Very common and widespread throughout the mountains and foothills of the state, in sagebrush, piñon-juniper, and pine communities.

**Sidneya**

*S. tenuifolia* (A. Gray) E.E. Schilling & Panero •Rocky banks and slopes; foothills and bajadas of the eastern and southern desert mountains.

**Silphium**

- 1 Leaves lacinate, pinnatifid, to pinnately lobed.....*S. laciniatum*  
 Linnaeus •Roadsides, open plains and prairies in scattered localities in the northern half of the state.
- 1 Leaves serrate or entire.....*S. integrifolium*  
 Michaux •Known only from two collections on roadsides, one each from Mora and San Miguel counties.  
 ♦Our plants belong to var. *laeve* Torrey & Gray.

**Silybum**

\**S. marianum* (Linnaeus) Gaertner •Roadsides, gardens, and similar disturbed ground; Doña Ana and Grant counties.

**Simsia**

- 1 Inflorescence perennial, herbaceous or half-shrubs; rays flowers 8-21; disc florets (26) 90-154..... *S. calva*  
 (Engelmann & Gray) Gray •Dry canyons of the southern desert mountains, Hidalgo County, rarely collected.
- 1 Plants annual, herbaceous; ray flowers 5-10; disc florets 13-27.....*S. lagasceiformis*  
 A.P. de Candolle •Drainages and swales in creosote and mesquite communities of the southern desert; Hidalgo and Otero counties.

**Solidago** Contributed by John C. Semple

- 1 Inflorescence flat topped, phyllaries multiveined; basal leaf petiole bases persisting on rootstock..... *S. rigida*  
 Linnaeus •Dry to mesic, often sandy or eroded, soils, prairies and open meadows, open grassy clearings in woods. ♦Our plants belong to subsp. *humilis* (Porter) Heard & Semple.
- 1 Inflorescence narrow paniculiform to secund conical, or if more or less flat-topped then phyllaries single veined and basal leaf petiole bases not persisting
  - 2 Lower stem leaves deciduous and not the largest; basal rosette leaves not present; inflorescence secund conical, lower and mid stem leaves and sometimes upper leaves triple-nerved
    - 3 Mid to lower stems densely short strigose-villous
      - 4 Leaves lanceolate; upper stem leaves triple-nerved; inflorescences range from about as tall as wide to 2x as tall as wide.....*S. altissima*  
 Linnaeus •Dry to moist soils, disturbed soils, prairies, grasslands, near streams and ponds, roadsides,

edges of thickets; scattered localities.

- 4 Leaves linear lanceolate; upper stem leaves not triple-nerved; inflorescence usually much taller than wide ..... *S. atiplanites*  
C.E.S. Taylor & R.J. Taylor •Mixed gypsum and shale soils, lava flows, rocky slopes, escarpments, and ridges in high plains, rare in Colfax and Union counties.
- 3 Lower to mid upper stems glabrous or lower stems glabrous to very sparsely strigose becoming more so distally
- 5 Inflorescence parts not glandular, very rarely sparsely so; wetter locations on prairies and base of mountains in northeastern counties ..... *S. gigantea*  
Aiton •Wetter soils near streams on the prairies and along roadsides. ♦Our plants belong to var. *shinersii* Beaudry.
- 5 Inflorescence parts sparsely to moderate stipitate glandular; lower elevations to high mountains meadows in mountains ..... *S. lepida*  
A.P. de Candolle •Fields, meadows, open woods, along streams, roadsides.
- 2 Lower stem leaves often persisting and are the largest; basal rosette leaves often present; inflorescence narrow to broadly paniculiform
- 6 Outer phyllaries ½ to more as long as inner; inflorescence rounded if small to more paniculiform if lower branches develop; upper leaves broadest at the base, margin with long ciliate hairs; mid to higher elevations ..... *S. multiradiata*  
Aiton •Mid to high elevations, open woods, alpine slopes and meadows.
- 6 Outer phyllaries ¼ to 1/3 the as long as inner; inflorescence narrow to broadly paniculiform; upper leaf margins not long ciliate
- 7 Phyllaries and sometimes stems glutinous resinous ..... *S. glutinosa*  
Nuttall •Sandy and rocky soils, rocky outcrops; grasslands, open pine woods, largely montane in New Mexico.
- 7 Phyllaries not glutinous resinous, but sometimes stipitate glandular
- 8 Inflorescence narrow to broadly paniculiform, not secund conical
- 9 Large lower stem leaves usually present; stems glabrous below to strigose in inflorescences
- 10 Leaves pale green, somewhat glaucous; achenes glabrous ..... *S. pallida*  
(Porter) Rydberg •Prairies and pine forests, sandy soils.
- 10 Leaves bright green, not pale nor glaucous; achenes finely strigose ..... *S. glutinosa*  
Nuttall •Sandy and rocky soils, rocky outcrops; grasslands, open pine woods, largely montane in New Mexico.
- 9 Large lower stem leaves usually absent; stems usually short strigose-villous
- 11 Basal rosette and lower stem leaves narrowly oblanceolate, petioles 1-4 cm long; mid and upper stem leaves lanceolate-elliptic to linear lanceolate-elliptic; phyllaries resinous, glabrate; cypselae sparsely strigose; Guadalupe Mts ..... *S. correllii*  
Semple •Open oak-pine woods and rocky limestone open ridges and slopes, gravelly stream beds; endemic to the Guadalupe Mts. and scattered mountains to the north in New Mexico and to the southeast in Texas.
- 11 Basal rosettes nearly always absent, lower stem leaves winged petiolate; mid and upper stem leaves narrowly to broadly elliptic; phyllaries glandular, resinous or strigose; cypselae glabrous to moderately densely strigose
- 12 Achenes glabrous (rarely glabrate to very sparsely strigose; very rarely strigose); arrays of heads often narrow, elongated; cauline leaves entire; Union County .... *S. petiolaris*  
Aiton •Open places on the eastern prairie, especially sandy soils, 1700-1800 m; in New Mexico, known only from Union County. ♦Our plants belong to var. *wardii* (Britton) Fernald.
- 12 Achenes very sparsely to moderately densely strigose (rarely glabrate)
- 13 Achenes moderately densely strigose; arrays rounded corymbiform to paniculiform on older shoots; phyllaries range from densely strigose to densely glandular with mixed hairs and glands common; widespread ..... *S. wrightii*  
A. Gray •Open oak-pine woods and rocky open slopes, disturbed ground.
- 13 Achenes very sparsely strigose; arrays congested narrowly paniculiform phyllaries lanceolate sparsely glandular and moderately strigose distally, cauline leaves grayish-green, moderately short strigose; stems densely short villose-canescens; Union County ..... *S. capulinensis*  
Cockerell & Andrews •Volcanic rock fields, Colfax and Union counties, and adjacent Colorado.
- 8 Inflorescence secund conical, either elongated or compressed and pseudo-corymbiform
- 14 Stems glabrous; rhizomatous ..... *S. missouriensis*  
Nuttall •Open sandy and rocky soils, clay soils, prairies, grasslands, pastures, open conifers forests in foothills and proximal elevations of mountains, sandstone ledges, limestone glades, disturbed soils, roadsides.

- 14 Stems sparsely to densely strigillose; short branched caudices to rhizomatous
  - 15 Heads secund, in rounded, pseudo-corymbiform compressed panicleform arrays; leaves soft pubescent; northern of Rio Arriba Co. .... *S. nana* Nuttall ●Dry to wet soils, often alkaline meadows and flats, open wooded slopes.
  - 15 Heads in secund arrays (sometimes only weakly so), not compressed pseudo-corymbiform
    - 16 Plants with short-branched caudices; leaves softly canescent; arrays secund to apically recurved; prairies and open ground near base of foothills, northeastern region ..... *S. nemoralis* Aiton ●Open, sandy and gravelly soils, disturbed sites, roadsides, prairies and grasslands, drier open mixed deciduous and conifers woods; northeastern counties.
    - 16 Plants with short to long creeping-rhizomatous; heads in thyriform to secund-pyramidal, panicleform arrays
      - 17 Heads in panicleform arrays, usually compact, branches broadly thyriform to somewhat secund pyramidal, proximal branches reflexed-recurved distally, basal leaves withering by flowering; prairies ..... *S. mollis* Bartling ●Dry or drying prairies, open woods, along fence rows.
      - 17 Heads in cone-shaped arrays with branches narrowly secund, or open, lax, pyramidal; basal leaves often present at flowering; lower to mid-montane elevations ..... *S. velutina* A.P. de Candolle ●Dry open slopes, rocky places, sometimes along streams or seeps, in meadows, open pine woods, margins of dry woods, grasslands, disturbed soils.

**Sonchus**

- 1 Auricles of stem leaves pointed; plants annual or biennial ..... *S. oleraceus* Linnaeus ●Disturbed moist ground of roadsides, gardens, fields, canal banks; scattered localities in the state.
- 1 Auricles of stem leaves rounded; plants annual, biennial, or perennial
  - 2 Plants annual or biennial, ± taprooted ..... *S. asper* (Linnaeus) Hill ●Very widespread and common in a wide variety of disturbed sites throughout the state.
  - 2 Plants perennial, rhizomatous ..... *S. arvensis* Linnaeus ●Scattered weedy and disturbed moist ground.

**Stenotus**

*S. armerioides* Nuttall ●Bluffs, mesa tops, sandy slopes; brush- and woodlands in the northwestern region. §

**Stephanomeria** [Key adapted from Gottlieb 2006]

- 1 Plants annual ..... *S. exigua* Nuttall ●Sandy hills and mesas, grasslands, woodlands, forests; widespread in the state in plains, deserts, and lower mountain slopes.
- 1 Plants perennial
  - 2 Florets 8-16 per head ..... *S. thurberi* A. Gray ●Piñon-juniper woodlands and brushlands, roadsides, lower ponderosa forests; mostly in the southwestern quarter of the state, extending into Lincoln County.
  - 2 Florets 4-6 per head
    - 3 Pappus bristles tan (rarely white), plumose on the distal 80%; basal leaves runcinate, pinnately lobed; plants from branched woody caudices ..... *S. pauciflora* (Torrey) A. Nelson ●Very common and widespread throughout the state in the deserts, grassy plains, and dry mountains.
    - 3 Pappus bristles white, plumose throughout; basal leaves entire or toothed; plants from stout rhizomes ..... *S. tenuifolia* (Rafinesque) Hall ●Scattered sites in the state, woodlands, dry canyons and foothills.

**Stevia**

- 1 Plants annual ..... *S. micrantha* Lagasca ●Shaded forests, moist canyon bottoms and stream beds; southwestern counties.
- 1 Plants perennial, herbaceous or woody
  - 2 Plants woody shrubs ..... *S. salicifolia* Cavanilles ●Rocky sites and crevices in oak and pine-oak woodlands; reported from Hidalgo County near the Mexican border; also a recent specimen from the Sacramento Mountains in Otero County.
  - 2 Plants herbaceous perennials
    - 3 Leaves mostly opposite, short-petiolate; blades mostly 3-10 cm long ..... *S. plummerae* A. Gray ●Dry ponderosa forests and piñon woodlands in the western mountains; known from Catron, Grant, and Sierra counties.
    - 3 Leaves mostly alternate, sessile; blades 1-4 cm long ..... *S. serrata* Cavanilles ●Mixed ponderosa forests in the southern and southwestern mountains.

**Stylocline**

- 1 Proximal leaves acute; heads ovoid to ellipsoid, 5-9 mm diam; receptacles cylindrical, the heights 4-8 times the diam ..... *S. micropoides*

- A. Gray ●Rocky slopes and hillsides of the southwestern desert mountains.  
 1 Proximal leaves blunt; heads spherical, 3-4 mm diam; receptacles club-shaped, the heights 3-3.5 times the diam  
 ..... *S. sonorensis*
- Wiggins ●Grassy hillsides and sandy drainages; recently discovered in Hidalgo and Grant Counties.
- Symphotrichum** [Key adapted from Brouillet et al. 2006]
- 1 Plants annual; ray or disk flowers in 1-5 series
- 2 Ray flowers 6-50 in number, the rays 0.2-1.3 mm wide; phyllaries unequal ..... *S. subulatum*  
 (Michaux) Nesom ●Wet, marshy ground, stream banks and sloughs, weedy ground, turf, lawns,  
 widespread.
- 2 Rays (pistillate) flowers mostly 75-95 in number (sometimes fewer), the rays absent or to 0.2 mm wide;  
 phyllaries subequal
- 3 Rays present, 1.5-2 mm long ..... *S. frondosum*  
 (Nuttall) Nesom ●Wet ground of canyon bottoms and arroyos, ponds, springs; northwest counties,  
 extending a bit eastward and southward.
- 3 Rays absent ..... *S. ciliatum*  
 (Ledebour) Nesom ●Drainages through brush and woodlands, floodplains, lake edges; northern third of  
 the state and Otero County; native to Eurasia and northeastern Canada.
- 1 Plants perennial; ray flowers usually in a single series (in 4-5 series in *S. frondosum*)
- 4 Rays 0.1-0.2 mm wide ..... *S. frondosum*  
 (Nuttall) Nesom ●Wet ground of canyon bottoms and arroyos, ponds, springs; northwest counties,  
 extending a bit eastward and southward.
- 4 Rays 0.5-2.5 mm wide
- 5 Ray corollas white, sometimes pink- or purple-tinged
- 6 Stems sparsely to densely hairy
- 7 Phyllaries not spine-tipped ..... *S. lanceolatum*  
 (Willdenow) Nesom ●Bosques, marshes, pond edges, wet meadows and stream banks, ditch  
 banks; widespread nearly throughout the state, but absent or not collected from much of the  
 eastern plains (but known from Curry County). ♦Our plants belong to var. *hesperium* (A. Gray)  
 Nesom
- 7 Phyllaries spine-tipped
- 8 Involucres 2.5-4.5 mm long; ray flowers fewer than 20 in number; rays mostly 6-14 mm long;  
 disk corollas 2.5-4 mm long ..... *S. ericoides*  
 (Linnaeus) Nesom ●Widespread, canyon bottoms, marshy ground, open plains and draws.
- 8 Involucres 4.5-8 mm long; ray flowers mostly more than 20 in number (sometimes fewer); rays  
 mostly 18-30 mm long; disk corollas 2-2.5 mm long ..... *S. falcatum*  
 (Lindley) Nesom ●Widespread throughout the state.
- 6 Stems glabrous to sparsely hairy in lines
- 9 Apices of phyllaries involute or folded, green and spinose, acute to cuspidate ..... *S. porteri*  
 (A. Gray) Nesom ●Canyons and ravines of the Canadian River drainage in Harding, Mora, and  
 San Miguel counties.
- 9 Apices of phyllaries flat, not involute or folded, not spinose, obtuse to acuminate
- 10 Margins of stem leaves usually entire; inflorescences racemose to narrowly paniculate, the  
 branches ascending; achenes not compressed ..... *S. eatonii*  
 (A. Gray) Howell ●Swales, grassy bottoms, and low roadsides; north-central and  
 northeastern plains.
- 10 Margins of stem leaves toothed or entire; inflorescences open and paniculate, the branches  
 ascending to divaricate; achenes ± compressed ..... *S. lanceolatum*  
 (Willdenow) Nesom ●Bosques, marshes, pond edges, wet meadows and stream banks, ditch  
 banks; widespread nearly throughout the state, but absent or not collected from much of the  
 eastern plains (but known from Curry County). ♦Our plants belong to var. *hesperium* (A.  
 Gray) Nesom
- 5 Ray corollas violet, purple, blue, or pink
- 11 Stems moderately to densely hairy
- 12 Phyllaries stipitate-glandular
- 13 Stem leaves auriculate-clasping ..... *S. novae-angliae*  
 (Linnaeus) Nesom ●Canyon bottoms, weedy moist sites in the mountains, roadsides; a  
 few widely scattered sites.
- 13 Stems leaves not both auriculate and clasping, though they may be slightly clasping
- 14 Leaves thin, the apices obtuse; outer phyllaries often broadly foliaceous, the outer faces  
 hairy ..... *S. oblongifolium*  
 (Nuttall) Nesom ●Plains grasslands, sometimes with oak or in weedy ground;  
 northeastern counties (one record from Grant County).
- 14 Leaves thick, firm, the apices acute and ± mucronate; outer phyllaries not foliaceous (or  
 only the apices), the outer faces glabrous

- 15 Stems ascending to erect, from rhizomes; phyllaries hairy when young, becoming glabrous; ray flowers 15-31 in number; ribs of the achenes 3-4.....*S. campestris* (Nuttall) Nesom ●Grassy plains and hillsides, often near ponds or drainages; northern two tiers of counties.
- 15 Stems decumbent to ascending, from thick, woody caudices; phyllaries glabrous when young; ray flowers 10-20 in number; ribs of the achenes 7-10..... *S. fendleri* (A. Gray) Nesom ●Shortgrass plains on limestone; Colfax, Harding, Rio Arriba, and Mora counties.
- 12 Phyllaries lacking glands
  - 16 Apices of upper leaves not mucronate or spinose; rays violet .....*S. ascendens* (Lindley) Nesom ●Wetlands, wet meadows, aspen glades, canyon bottoms, floodplains; northern counties and the central mountain chain to Otero County.
  - 16 Apices of upper leaves white-spinose or mucronate; rays commonly white, but sometimes violet .....*S. falcatum* (Lindley) Nesom ●Widespread throughout the state.
- 11 Stems glabrous or hairy only in lines
  - 17 Stem leaves not or little clasping
    - 18 Stem leaves ovate to broadly elliptic
      - 19 Plants tufted with short rhizomes; inflorescences racemose to narrowly paniculate, the branches ascending; ray corollas pink..... *S. eatonii* (A. Gray) Howell ●Swales, grassy bottoms, and low roadsides; north-central and northeastern plains.
      - 19 Plants with long rhizomes; inflorescences paniculate to corymb-like, the branches usually open; ray corollas usually violet to blue
      - 20 Leaves thin, the margins flat; bracts of the peduncle 5-12 or more in number; outer phyllaries linear-lanceolate..... *S. lanceolatum* (Willdenow) Nesom ●Bosques, marshes, pond edges, wet meadows and stream banks, ditch banks; widespread nearly throughout the state, but absent or not collected from much of the eastern plains (but known from Curry County). ♦Our plants belong to var. *hesperium* (A. Gray) Nesom
      - 20 Leaves firm, the margins often revolute; bracts of the peduncle 1-3 in number; outer phyllaries oblong-lanceolate.....*S. praealtum* (Poiret) Nesom ●Wet soils in seeps and riparian areas; central mountains and middle & upper Rio Grande drainage, infrequently collected.
    - 18 Stem leaves linear to narrowly elliptic
      - 21 Plants tufted with short rhizomes; inflorescences racemose to narrowly paniculate; ray corollas pink..... *S. eatonii* (A. Gray) Howell ●Swales, grassy bottoms, and low roadsides; north-central and northeastern plains.
      - 21 Plants colonial with long rhizomes; inflorescences paniculate to corymb-like; ray corollas usually violet to blue
      - 22 Basal leaves persistent at flowering time; achenes not compressed, 2.5-3.5 mm long ..... *S. spathulatum* (Lindley) Nesom ●Montane meadows and wetlands from Los Alamos county northward.
      - 22 Basal leaves withering by flowering time; achenes ± compressed, 1.5-2 mm long .... *S. lanceolatum* (Willdenow) Nesom ●Bosques, marshes, pond edges, wet meadows and stream banks, ditch banks; widespread nearly throughout the state, but absent or not collected from much of the eastern plains (but known from Curry County). ♦Our plants belong to var. *hesperium* (A. Gray) Nesom
  - 17 Stem leaves clasping
    - 23 Stem leaves ovate to broadly elliptic ..... *S. foliaceum* (Lindley ex A.P. de Candolle) Nesom ●Montane meadows and grasslands; northern mountains.
    - 23 Stem leaves linear to narrowly elliptic
      - 24 Bracts on the peduncle large and foliaceous; peduncles ± hispid-pilose .. *S. lanceolatum* (Willdenow) Nesom ●Bosques, marshes, pond edges, wet meadows and stream banks, ditch banks; widespread nearly throughout the state, but absent or not collected from much of the eastern plains (but known from Curry County). ♦Our plants belong to var. *hesperium* (A. Gray) Nesom
      - 24 Bracts on the peduncle narrow to subulate; peduncles glabrous or nearly so.....*S. laevis* (Linnaeus) Löve & Löve ●Forests and woodlands, aspen glades, stream banks and drainages, canyon bottoms, roadsides, mostly in the mountainous regions but

extending into plains and foothills; widespread in all but the southwest and far eastern regions. ♦Our plants belong to var. *geyeri* (A. Gray) Nesom.

### Tagetes

*T. micrantha* Cavanilles • Piñon-juniper and ponderosa woodlands, arroyos; western mountains, also San Miguel, Colfax, and Harding counties.

### Tanacetum

\**T. vulgare* Linnaeus • Cultivated ornamental, occasionally escaping; known from Bernalillo County northward; native to Eurasia.

### Taraxacum

1 Inner involucre bracts dilated at the tip and bearing a somewhat hooded appendage

2 Achenes red, purplish-red, or brownish red at maturity; leaves tending to be very deeply cleft for their entire length, the lobes narrow ..... *T. erythrospermum*  
Andrzejewski ex Besser • Fields and lawns, moist disturbed sites; northern and central regions; native to Europe.

2 Achenes brown, olive-, or straw-colored at maturity; leaves generally less cleft than above. *T. ceratophorum* (Ledebour) A.P. de Candolle • Meadows and other moist places in the northern mountains and Sacramento Mountains.

1 Inner involucre bracts not dilated apically and lacking an appendage

3 Outer involucre bracts reflexed or at least spreading; inner involucre bracts 12-18 mm long; achenes straw-colored to olive drab or brownish ..... *T. officinale*  
G.H. Weber ex F.H. Wiggers • Lawns, meadows, fields, and other moist disturbed sites, in a variety of habitats throughout the state; the most commonly encountered species and expected in all counties.

3 Outer involucre bracts erect; inner involucre bracts 6-10 mm long; achenes black to grayish. *T. scopulorum* (A. Gray) Rydberg • Rocky sites in the northern mountains; alpine and subalpine habitats.

### Tetradymia

1 Plants spinose, the primary leaves forming spines ..... *T. spinosa*  
Hooker and Arnott • Piñon woodlands, desert grassland, dry washes, shale; northwestern.

1 Plants lacking spines

2 Blades linear-filiform ..... *T. filifolia*  
Greene • Piñon-juniper woodlands, limestone slopes, gypsum outcrops and soils; north-central to south-central, also Grant County; endemic to New Mexico.

2 Blades spatulate to lanceolate ..... *T. canescens*  
A.P. de Candolle • Piñon-juniper and ponderosa woodlands, sagebrush scrub, grassland; west-central to northwest, also Colfax, Chaves counties.

### Tetraneuris

1 Plants annual ..... *T. linearifolia*  
(Hooker) Greene • Arroyos, canyon bottoms, piñon-juniper woodlands, grassland; southeastern.

1 Plants perennial

2 Caudex branches not noticeably thickened toward the ends; basal leaves not tightly clustered, the internodes often evident ..... *T. scaposa*  
(A.P. de Candolle) Greene • Slopes, plains, grassland, sandy soils; eastern half of the state.

2 Caudex branches noticeably thickened toward the ends; basal leaves tightly clustered, the internodes usually not evident

3 Leaves all basal ..... *T. acaulis*  
(Pursh) Greene • Alpine slopes and meadows, piñon-juniper woodlands, canyon bottoms, grasslands.

4 Midribs of leaves distinct; outer phyllaries 4-8, margins conspicuously scarious, 0.5-1.2 mm wide ..... *T. torreyana*  
(Nuttall) Greene • Piñon-juniper woodland and grasslands; known only from a very few collections in Harding, San Juan McKinley, and San Miguel Counties.

4 Midribs of leaves indistinct; outer phyllaries 6-12, margins not or slightly scarious, 0-0.4 mm wide ..... *T. acaulis*

3 Leaves both basal and cauline

5 Leaf blades densely canescent ..... *T. argentea*  
(A. Gray) Greene • Rocky slopes, piñon-juniper and mixed conifer woodlands, limestone or gypsum soils; from Lincoln County northward and westward, also Sierra and Doña Ana counties.

5 Leaf blades glabrous to moderately sericeous ..... *T. ivesiana*  
Greene • Piñon-juniper and mixed conifer woodlands, grassy flats, gypsum or sandy areas; northwestern plus Bernalillo and Tarrant counties.

### Thelesperma

1 Plants annual ..... *T. filifolium*  
Gray • Piñon-juniper woodlands, rocky slopes, grassland, plains; widespread. ♦Our plants belong to var. *intermedium* (Rydberg) Shimmers.

1 Plants herbaceous perennials or subshrubs

2 Lobes of the disk corollas longer than the throats; pappus present, 1-3 mm long

- 3 Ray florets 8; disc floret corollas red-brown..... *T. ambiguum*  
A. Gray ●Rocky slopes and flats; known from Mesa Quemado in Quay County and the Oscura Mountains in Socorro County.
- 3 Ray florets absent; disc floret corollas yellow..... *T. megapotamicum*  
(Sprengel) Kuntze ●Piñon-juniper and ponderosa woodlands, grassland, riparian areas, rocky slopes, roadsides; widespread.
- 2 Lobes of the disk corollas shorter than the throats; pappus usually absent, or if present then less than 0.5 mm long
- 4 Stem leaves scattered along the stem, the internodes mostly 4-10 cm long..... *T. simplicifolium*  
A. Gray ●Piñon-juniper woodlands, grassland, roadsides; known from San Miguel, Socorro, and Chaves counties.
- 4 Stems leaves ± crowded toward the basal ½ or less of the stem, the internodes mostly 3-5 cm long
- 5 Leaf lobes mostly linear to filiform, mostly 5-25 mm long and 0.5-1 mm wide; achenes 2-3 mm long...  
..... *T. longipes*  
A. Gray ●Piñon-juniper woodlands, dry hills, desert scrub, limestone slopes and soils; from Cibola and Quay counties southward.
- 5 Leaf lobes mostly oblanceolate to linear, mostly 10-45 mm long and 2-5 mm wide; achenes 5-7 mm long..... *T. subnudum*  
A. Gray ●Piñon-juniper and ponderosa woodlands, shale or limestone hills, roadsides; scattered locations west-central and northern.
- Thymophylla** [Key adapted from Strother 2006]
- 1 Leaves entire, not pinnatifid ..... *T. acerosa*  
(A.P. de Candolle) Strother ●Desert scrub, rocky slopes, disturbed areas, calcareous soils, roadsides; widespread.
- 1 Leaves mostly pinnatifid or lobed
- 2 Plants perennial; leaves mostly opposite
- 3 Plants ashly white, tomentose ..... *T. setifolia*  
Lagasca ●Canyon bottoms, rocky flats, limestone soils; Grant, Socorro, Otero and Eddy counties. ♦Our plants belong to var. *greggii* (Gray) Strother.
- 3 Plants greenish, puberulent to canescent, sometimes glabrous ..... *T. pentachaeta*  
(A.P. de Candolle) Small ●Limestone slopes and hills, desert scrub; southern.
- 2 Plants annual; leaves mostly alternate
- 4 Bractlets subtending the heads 3-8 in number; disk flowers 50-100 or more in number..... *T. tenuiloba*  
(A.P. de Candolle) Small ●Roadsides; known only from Luna County; also Texas, Mexico.
- 4 Bractlets subtending the heads 0-2 in number; disk flowers 25-45 in number ..... *T. aurea*  
(Gray) Greene ex Britton ●Grassland, desert scrub.
- Tonestus**  
*T. pygmaeus* (Torrey & Gray) A. Nelson ●Alpine tundra, ridges, meadows; north-central mountains.
- Townsendia** [Key adapted from Strother 2006]
- 1 Plants 1-3 cm tall, pulvinate; heads sessile nestled among the rosette of basal leaves
- 2 Leaves mostly 1-2 mm wide; phyllaries lanceolate, mostly 7-9 mm long, 2-5 times longer than wide; rays 5-10 mm long ..... *T. leptotes*  
(A. Gray) Osterhout ●Piñon-juniper/oak and ponderosa woodlands, canyon bottoms; north-central and northwestern mountains.
- 2 Leaves mostly 2-6 mm wide; phyllaries linear, 10-17 mm long, 6 or more times longer than wide; rays 12-18 mm long ..... *T. excapata*  
(Richardson) Porter ●Piñon-juniper and ponderosa woodlands, mountain slopes, gravelly hills; widespread.
- 1 Plants 3-35 cm tall; heads at the tips of the stems
- 3 Pappus of all florets less than 1 mm long; plants rhizomatous or stoloniferous ..... *T. formosa*  
Greene ●Mountain slopes and meadows, mixed conifer woodlands, riparian areas; western and southwestern mountains, reported questionably from San Miguel county.
- 3 Pappus of disk florets 1-7 mm long; plants taprooted
- 4 Phyllaries mostly 16-30 in number, in 3-4 series
- 5 Plants annual; pappus of disk florets 1-2.5mm long..... *T. annua*  
Beaman ●Disturbed ground, piñon-juniper woodlands, arroyo bottoms, grassland, desert scrub, sandy soils; western two-thirds of the state and possibly Lea County.
- 5 Plants biennial to perennial; pappus of disk florets mostly 2.5-8 mm long
- 6 Stems densely hairy so the surface is hidden by the hairs
- 7 Rays 5-12 mm long; pappus of disk florets 4-6 mm long ..... *T. incana*  
Nuttall ●Piñon-juniper woodlands, rock benches, shales, sandy areas; northwestern.
- 7 Rays 3-6 mm long; pappus of disk florets 2.5-3 mm long ..... *T. gypsophila*  
Lowrey & P.J. Knight ●Gypsum soils and outcrops; endemic to New Mexico, and known only from Sandoval County; of conservation concern.



- 6 Stems only moderately hairy and the surface seldom hidden
- 8 Leaves linear, 1-3 mm wide; disk corollas 2-3.5 mm long ..... *T. fendleri*  
A. Gray ●Piñon-juniper woodlands, desert scrub, sandy soils, gypsum substrates; north-central to northwest, also Catron and Grant counties.
- 8 Leaves lanceolate, 2-9 mm wide; disk corollas 3.5-5 mm long ..... *T. strigosa*  
Nuttall ●To be looked for in piñon-juniper woodlands, desert scrub, washes, and sandy areas along the western tier of counties. ♦Reported for the state by Strother (2006), but authentic specimens from New Mexico are unknown; awaits verification.
- 4 Phyllaries 30-60 in number, in 4-8 series
- 9 Pappus of disk florets 8-12 in number, most of the scales 0.5-1 mm long, only 1-2 scales 1-4 mm long; phyllaries 10-14 mm long ..... *T. eximia*  
A. Gray ●Piñon-juniper woodlands and mixed conifer woodlands, central and north-central mountains.
- 9 Pappus of disk florets 15-30 in number, 4-6 mm long; phyllaries 8-10 mm long ..... *T. grandiflora*  
Nuttall ●Ponderosa/piñon-juniper woodlands, grassland, shales, limestone; Rio Arriba, Taos, Colfax, Sandoval, Harding and possibly Socorro counties.

**Tragopogon**

- 1 Flowers purple; leaf apices straight ..... *T. porrifolius*  
Linnaeus ●Widespread in weedy ground.
- 1 Flowers yellow; leaf apices straight or recurved to coiled
- 2 Leaf apices straight; flowers pale lemon-yellow, all shorter than the phyllaries; phyllaries longer than the outer flowers, not purple-margined, about 10-15 in number; peduncle strongly inflated in fruit. .... *T. dubius*  
Scopoli ●Widespread in weedy ground.
- 2 Leaf apices recurved to coiled; flowers chrome yellow, the outer ones as long as the phyllaries; phyllaries about equaling the outer flowers in length, purple-margined, about 8-10 in number; peduncle not inflated ....  
..... *T. pratensis*  
Linnaeus ●Widespread, but more common at higher elevations and more moist sites than the previous.

**Tripleurospermum**

\**T. inodorum* (Linnaeus) Schultz-Bipontinus ●Lake edges, floodplains, waste areas; in New Mexico, known only from Navajo River floodplain in Rio Arriba County and Eagle Nest State Park in Colfax and Taos Counties; native to Eurasia.

**Trixis**

*T. californica* Kellogg ●Rocky slopes, desert scrub, dry washes, grassland; mostly southwestern. §

**Uropappus**

*U. lindleyi* (A.P. de Candolle) Nuttall ●Plains and foothills, sandy to gravelly ground, roadsides and disturbed sites; widespread across the southwestern region of the state with one verified record from Rio Arriba County.

**Verbesina** [Key adapted from Strother 2006]

- 1 Leaves mostly alternate, lower leaves sometimes opposite; plants annual ..... *V. encelioides*  
(Cavanilles) Benth & Hooker f. ex Gray ●Plains, foothills, lower mountain slopes, washes and arroyos; throughout the state in deserts and plains vegetation; expected in all counties.
- 1 Leaves mostly opposite, upper leaves sometimes alternate; plants perennial
- 2 Plants low, mostly 7-15 cm tall; leaves mostly stiff-sericeous ..... *V. nana*  
(Gray) B.L. Robinson & J.L. Greenman ●Roadsides, gravelly and sandy plains, desert scrub and grassland communities; Chavez and Eddy counties.
- 2 Plants much taller, mostly 30-100 cm or more; leaves scabrous to hirsute
- 3 Leaf blades lance-linear, 8-15 times longer than wide ..... *V. longifolia*  
A. Gray ●Brushy hillsides, grassy plains; known from Hidalgo County; also Arizona, Mexico.
- 3 Leaf blades elliptic to broadly ovate or deltoid, mostly 1-3 times longer than wide
- 4 Heads 8-10 mm high, borne singly or 2-6 together; phyllaries 4-7 mm long; rays mostly 9-12 mm long; achenes 4-5 mm long ..... *V. oreophila*  
Wootton & Standley ●Limestone slopes, outcrops, and canyons in the southern mountains; Eddy, Lincoln, and Otero counties.
- 4 Heads 10-15 mm high, borne singly; phyllaries 6-10 mm long; rays 15-25 mm long; achenes about 10 mm long ..... *V. rothrockii*  
B.L. Robinson & J.L. Greenman ●Rocky slopes and outcrops of the desert mountains; southwestern corner of the state.

**Vernonia**

- 1 Leaves 8-12 mm wide, the lower surface scaberulous to glabrous ..... *V. marginata*  
(Torrey) Rafinesque ●River bottoms, roadsides, borrow ditches, grassy swales and plains; eastern counties.
- 1 Leaves 18-50 mm wide, the lower surface puberulent to tomentose ..... *V. missurica*  
Rafinesque ●Roadsides, grassy swales and drainages; known from Lea, Otero, San Miguel, Santa Fe, and Torrance counties, expected in similar plains regions.

**Viguiera** [Key adapted from Schilling 2006]

- 1 Plants shrubs; leaves deeply lobed (*S. tenuifolia*) ..... go to *Sidneya*

- 1 Plants herbaceous; leaves entire to toothed but not at all lobed
- 2 Pappus absent..... go to *Heliomeris*
- 2 Pappus present
  - 3 Petioles less than 1 cm long; phyllary apices gradually narrowed (*A. cordifolia*)..... go to *Aldama*
  - 3 Petioles 1-2 cm long; phyllary apices abruptly narrowed ..... *V. dentata* (Cavanilles) Sprengel ●Piñon-juniper woodlands and plains, grasslands, arroyos, canyon bottoms, ditch banks, roadsides; widespread.

**Wyethia**

- 1 Leaves lanceolate to ovate-lanceolate; basal leaves much larger than the stem leaves ..... *W. arizonica* A. Gray ●Mountain slopes and passes, usually with ponderosa pine and Gambel's oak; northwestern counties.
- 1 Leaves linear to linear-lanceolate; basal leaves similar in size to the stem leaves ..... *W. scabra* Hooker ●Sandy bluffs, hills, and breaks, brushy ground, juniper woodlands; western mountains, foothills, and plains, in the northwest counties south to Bernalillo County and one record from Catron County.

**Xanthisma**

- 1 Ray florets absent..... *X. grindelioides* (Nuttall) Morgan & Hartman ●Juniper woodlands, brush and sage lands, sandy to rocky soil, including gypsum; northwestern and western plains, hills, and canyons.
- 1 Ray florets present
  - 2 Rays white, pinkish, or purplish
    - 3 Peduncles stipitate-glandular; leaves serrate, often coarsely so with 5-14 pairs of teeth..... *X. gypsophilum* (B.L. Turner) Morgan & Hartman ●Gypseous, calcareous, and sandy plains and outcrops; known from Doña Ana, and possibly Sierra and Socorro counties.
    - 3 Peduncles hispid or hispidulous; leaves usually finely or obscurely serrulate, usually with 12-25 pairs of teeth..... *X. blephariphyllum* (A. Gray) Morgan & Hartman ●Juniper and pine woodlands on sandy to rocky ground, often gypseous soil; scattered localities in the southern half of the state.
  - 2 Rays yellow
    - 4 At least the inner phyllaries with a basal stalk, abruptly enlarged into an ovate to orbicular or elliptic blade, mostly 2-5 mm wide, the apices not bristly-tipped ..... *X. texanum* A.P. de Candolle ●Sandy roadsides, plains, and disturbed ground, often with *Prosopis*; northeast quarter of the state and one collection from Sandoval County.
    - 4 Phyllaries not expanded distally with a basal stalk, linear to lanceolate, mostly 1-2 mm wide, the apices usually bristle-tipped or with a stiff callus
      - 5 Leaf teeth terminated in a stiff callus, not bristle-tipped ..... *X. viscidum* (Wooton & Standley) Morgan & Hartman ●Desert scrubland and plains; Chaves, Eddy, Socorro, and Roosevelt counties.
      - 5 Leaf teeth terminated in a bristle 1.5-3 mm long
        - 6 Plants annual from a taproot, the stems with ± herbaceous bases ..... *X. gracile* (Nuttall) Morgan & Hartman ●Roadsides, disturbed plains and hills, in a wide variety of habitats; widespread nearly throughout the state, but apparently absent or not collected in the northeast corner.
        - 6 Plants perennial from a much-branched caudex, the stems with ± woody bases ..... *X. spinulosum* (Pursh) Morgan & Hartman ●Throughout the state.

**Xanthium**

- 1 Nodes with prominent spines (1-3); leaf blades lanceolate to ovate, white beneath ..... *X. spinosum* Linnaeus ●Moist drainages, around stock tanks, roadsides, arroyos, and other disturbed ground; widely scattered locales nearly state-wide.
- 1 Nodes lacking spines; leaf blades deltoid, cordate, to nearly orbicular, green beneath ..... *X. strumarium* Linnaeus ●Roadsides, vacant lots, swales, moist drainages, pond and marsh edges, dry lake beds, and similar seasonally wet and disturbed sites; throughout the state.

**Zaluzania**

- Z. grayana* B.L. Robinson & J.L. Greenman ●Known in New Mexico only from gravelly limestone slopes of Hidalgo County; also Arizona, Mexico.

**Zinnia**

- 1 Flowers bright yellow to orange; leaves 3-veined ..... *Z. grandiflora* Nuttall ●Hills, plains, bajadas, foothills, sandy to rocky ground, in deserts, woodlands, scrublands, and lower elevations of the forests; widespread throughout the entire state.
- 1 Flowers white; leaves 1-veined ..... *Z. acerosa* (A.P. de Candolle) Gray ●Arid plains, hills, and foothills of the southern regions.

**BERBERIDACEAE BARBERRY FAMILY**

- 1 Leaves 2-3-times pinnately compound, the margins of the leaflets entire..... *Nandina*
- 1 Leaves simple to once pinnately compound, if compound the margins of the leaves toothed ..... *Berberis*

**Berberis**

- 1 Stems spiny; leaves simple, deciduous (*Berberis* s.s.)
- 2 Spines mostly 3-parted
- 3 Leaf margins entire or with 3-12 teeth per side; racemes 4-15-flowered; bark of 2<sup>nd</sup> year branches purple ..... *B. fendleri*  
Gray ●Rocky slopes and canyon bottoms in the northern and western plains and mountains; very common.
- 3 Leaf margins with 16-30 teeth per side; racemes 10- to 20-flowered; bark of 2<sup>nd</sup> year branches gray ..... *B. vulgaris*
- 2 Spines all simple
- 4 Spines 4-7 mm long; leaves spinulose-serrulate; inflorescence 10-20-flowered ..... *B. vulgaris*  
Linnaeus ●Roadsides, old fields, moist woods; an escape from cultivation; native to Europe.
- 4 Spines 5-15 mm long; leaves entire; inflorescence 1- to 3-flowered ..... *B. thunbergii*  
A.P. de Candolle ●Commonly cultivated throughout the state; not known in the wild.
- 1 Stems not spiny; leaves compound, evergreen (*Alloberberis/Mahonia*)
- 5 All leaves 3-foliolate, usually glaucous, the terminal leaflet sessile ..... *B. trifoliolata*  
Moricand ●Plains and hills in grassland and shrubland communities; southern regions.
- 5 Most leaves 5- to 11-foliolate, green or glaucous, the terminal leaflet stalked in most (at least many) leaves
- 6 Low half-shrubs mostly 10-30 cm high with only a few leaves ..... *B. repens*  
Lindley ●Widespread in foothills and mountains.
- 6 Well-developed shrubs 30-200 cm or more high with numerous leaves (a low semi-shrub in *Berberis wilcoxii* of Hidalgo Co.)
- 7 Leaflets commonly glossy adaxially; inflorescences densely flowered with 25-50 flowers
- 8 Leaf blades glossy abaxially; lateral leaflets with 5-21 teeth on each margin; cultivated and a rare escape in northern mountains ..... *B. aquifolium*  
Pursh ●Commonly cultivated, and a single escape found in Los Alamos County.
- 8 Leaf blades dull abaxially; lateral leaflets with 3-5 teeth on each margin; bootheel region ..... *B. wilcoxii*  
Kearney ●Dry rocky slopes and canyons in the bootheel.
- 7 Leaflets commonly dull, often glaucous, adaxially; inflorescences loosely flowered with 1-11 flowers; widespread
- 9 Berries yellow, brown, sometimes reddish, dry, inflated, 12-18 mm diam/long; blades of terminal leaflets ovate to orbiculate, 1-2.5 times longer than wide; retrorse appendages of the anther filaments broad, lobe-like ..... *B. fremontii*  
Torrey ●Perhaps piñon-juniper woodlands and plains grasslands in the northwest region; occurrence in the state has not been verified.
- 9 Berries red, purple, juicy, solid, 5-8 mm diam/long; blades of terminal leaflets lanceolate to narrowly ovate, 2-5 times longer than wide; retrorse appendages of the anther filaments narrow, teeth-like ..... *B. haematocarpa*  
Wootton ●Desert shrubland, grassland, and oak woodland.

**Nandina**

- N. domestica* Thunberg ●Commonly cultivated as an ornamental landscape plant; not known to occur in the wild in New Mexico, but it has escaped in the southeastern United States.

**BETULACEAE BIRCH FAMILY**

- 1 Nutlets wingless, each enclosed in a bladder-like papery bractlet ..... *Ostrya*
- 1 Nutlets winged, not so enclosed
- 2 Buds stalked; pistillate catkins usually several in a raceme, the bracts persistent ..... *Alnus*
- 2 Buds sessile; pistillate catkins solitary, the bracts deciduous ..... *Betula*
- Alnus**
- 1 Leaf bases mostly rounded to truncate; margins strongly and coarsely double-toothed; older bark smooth, with prominent horizontal lenticels ..... *A. incana*  
(Linnaeus) Moench ●Along streams in the northern mountains, extending southward to Catron County, but more common northward, throughout the Rocky Mountains. ♦Our material belongs to subsp. *tenuifolia* (Nuttall) Breitung.
- 1 Leaf bases mostly wedge-shaped; margins often weakly and shallowly double toothed; older bark cracked and checkered, the lenticels inconspicuous ..... *A. oblongifolia*  
Torrey ●Along streams in rocky canyon bottoms, mostly in the western mountains.
- Betula**
- 1 Leaf blades 0.5-2 cm long, oval to orbicular; small shrubs 0.5-2 m tall ..... *B. glandulosa*  
Michaux ●Wet stream-sides, Jemez Mountains, Sandoval County.
- 1 Leaf blades 1-6 cm long, mostly ovate; large shrubs or small trees mostly 3-25 m tall
- 2 Plants known only in the wild; bark dark gray to shiny reddish, with long horizontal lenticels, not peeling ..... *B. occidentalis*

Hooker ●Along streams in coniferous forests with cottonwoods and willows, in the northern mountains.

2 Plants known only in cultivation; bark white and slightly peeling, with rough diamond-shaped black furrows near the base..... *B. pendula*

Roth ●Occasionally cultivated as a landscape ornamental in cooler regions; not known in the wild in New Mexico.

**Ostrya**

*O. knowltonii* Coville ●Moist canyon bottoms and wet seeps with oaks, piñon, and juniper in the Guadalupe, Sacramento, San Andres, and Organ Mountains; disjunct populations in northern Arizona and southeastern Utah.

**BIGNONIACEAE CATALPA FAMILY**

- 1 Leaves compound, toothed (rarely subentire in *Campsis*)
  - 2 Plants clambering or climbing woody vines..... *Campsis*
  - 2 Plants semi-woody shrubs, not climbing or vine-like..... *Tecoma*
- 1 Leaves simple, entire
  - 3 Leaves ovate to cordate, strongly petiolate..... *Catalpa*
  - 3 Leaves linear to lanceolate, nearly sessile
    - 4 Known only in cultivation; leaves whorled, lanceolate, glutinous..... *Chitalpa*
    - 4 Known in cultivation and in the wild; leaves mostly alternate, linear, not glutinous..... *Chilopsis*

**Campsis**

\**C. radicans* (Linnaeus) Seemann ●A cultivated ornamental, persisting around old dwellings, infrequently escaping to moist weedy sites, scattered locales in the state; native to eastern United States.

**Catalpa**

\**C. speciosa* (Warder) Warder ex Engelm. ●Cultivated ornamentals, persisting around old dwellings and occasionally escaping; native to eastern United States.

**Chilopsis**

*C. linearis* (Cavanilles) Sweet ●Washes and arroyos in the desert regions, also heavily used as an ornamental.

**Chitalpa**

\**C. xashkentensis* T.S. Elias & Wisura ●A very popular ornamental in southern New Mexico, flowering from spring to fall; currently known in the wild from a single established escape in Diablo Canyon Recreation Area, Santa Fe County.

**Tecoma**

*T. stans* (Linnaeus) Jussieu ex Kunth ●Rocky hills and among boulders in the southern desert mountains.

◆Our plants belong to var. *angustata* Rehder.

**BORAGINACEAE FORGET-ME-NOT FAMILY**

Contributed by Robert C. Sivinski

- 1 Nutlets armed with hooked or barbed prickles or bristles
  - 2 Bristles of the nutlets merely hooked at the tips, not glochidiate with several barbs; nutlets widely spreading when mature..... *Pectocarya*
  - 2 Bristles of the nutlets glochidiate at the tips with several barbs; nutlets spreading or erect when mature
    - 3 Nutlets covered over the entire surface with numerous short barbs; nutlets spreading when mature..... *Cynoglossum*
    - 3 Nutlets barbed only on the angles or dorsal side, the entire surface not covered as above
      - 4 Pedicels erect in fruit; plants annual..... *Lappula*
      - 4 Pedicels reflexed in fruit; plants biennial or perennial..... *Hackelia*
- 1 Nutlets unarmed (toothed or lacerate in *Eritrichium*, but not hooked or barbed)
  - 5 Ovary entire or shallowly lobed, the style terminal on the ovary
    - 6 Style distinctly cleft; stigmas 2, not subtended by a ring or disk (*Tiquilia*)..... go to EHRETIACEAE
    - 6 Style not divided, simple; stigma subtended by a ring or disk..... go to HELIOTROPIACEAE
  - 5 Ovary deeply 4-lobed, the style basal
    - 7 Flowers large, 2.5-8 cm long, hairy..... *Lithospermum*
    - 7 Flowers smaller, less than 2.5 cm long, glabrous or hairy
      - 8 Corolla blue, rarely white or pinkish
        - 9 Plants pulvinate-caespitose, the flowering stems to 10 cm tall; foliage conspicuously villous to strigose..... *Eritrichium*
        - 9 Plants not at all pulvinate-caespitose, the flowering stems nearly always taller than 10 cm; foliage glabrous to obscurely or lightly pubescent
          - 10 Corolla rotate-salverform, the lobes spreading at nearly right angles and about the same length as the short tube..... *Myosotis*
          - 10 Corolla tubular-funnelform, the lobes erect to ascending and usually shorter than tube
            - 11 Nutlet attachment scar surrounded by a thick ring or collar..... *Symphytum*
            - 11 Nutlet attachment scar not surrounded by a thick ring or collar..... *Mertensia*
        - 8 Corolla white, greenish white, cream-colored, yellow, or orange
          - 12 Gynobase low, not at all pyramidal

- 13 Corolla yellow, orange-yellow, or greenish yellow ..... *Lithospermum*  
 13 Corolla greenish white or creamy white  
 14 Leaves with 5-7 raised veins beneath; corolla tubular, hairy, lobes erect or folded tightly in-ward over the throat; style strongly exerted ..... *Lithospermum*  
 14 Leaves without obvious veins except midrib; corolla broadly rotate-salverform (saucer-shaped), glabrous; style included in the tube ..... *Antiphytum*
- 12 Gynobase raised, ± pyramidal  
 15 Corolla orange or bright yellow, the throat open and not crested (lacking fornicies); plants annual ..... *Amsinckia*  
 15 Corolla pale yellow to white, the throat usually crested (with fornicies); plants perennial, or if annual then not yellow  
 16 Nutlets with a keel on the ventral surface, the attachment scar not elongated but raised and wart-like ..... *Plagiobothrys*  
 16 Nutlets with a groove or open triangular scar running most of the length of the ventral surface, this often expanded at the base (upper part of scar sometimes with overlapping edges)  
 17 Plants biennial or perennial; corolla limb 4-14 mm wide ..... *Oreocarya*  
 17 Plants annual; corolla limb 1-5 mm wide  
 18 Stigma terminating a short style; stems not wiry; roots not purple dye stained ..... go to *Cryptantha*  
 18 Stigma sessile on an elongate gynobase; stems wiry; roots charged with a purple dye ..... *Eremocarya*

**Amsinckia**

- 1 Corolla tube 20-nerved below the attachment of the stamens; calyx lobes unequal in width, commonly 3 or 4, 1 or 2 of them 2-lobed; nutlets rounded tuberculate ..... *A. tessellata*  
 Gray • Desert scrub in southwestern region.  
 1 Corolla tube 10-nerved below the attachment of the stamens; calyx lobes 5, distinct, ± equal; nutlets sharply tuberculate ..... *A. intermedia*  
 Fischer & Meyer • Rocky slopes and bajadas in desert scrub of the southwestern region – infrequently collected in the northern Peloncillo Mountains.

**Antiphytum**

- A. floribundum* (Torrey) Gray • Igneous rocky slopes in oak woodland. Known only from a single collection in the Animas Mountains of Hidalgo County.

**Cryptantha**

- 1 Nutlet margins decidedly winged ..... *C. pterocarya*  
 (Torrey) Greene • Desert scrub or piñon-juniper woodland in the northwestern region and southwestern regions.  
 1 Nutlet margins rounded or sharply angled, never winged  
 2 Taproot charged with red-purple dye, gynobase elongate, surpassing the nutlets and terminated by a sessile stigma, without a differentiated style; fruiting calyx persistent (*E. micrantha*) ..... go to *Eremocarya*  
 2 Taproot without red dye (sometimes slightly dye-stained in *C. recurvata*); gynobase shorter than the nutlets and topped by a definite style that may or may not surpass the nutlets; fruiting calyx deciduous  
 3 Usually a solitary nutlet matured in each calyx  
 4 Calyx lobes and nutlet decidedly recurved or deflexed; nutlet muricate ..... *C. recurvata*  
 Coville • Uncommon in woodlands and desert scrub of the northwest region.  
 4 Calyx and nutlet not curved or bent; nutlet smooth ..... *C. gracilis*  
 Osterhout • Woodlands and desert scrub in the Four Corners region.  
 3 Nutlets normally 4/calyx (often fewer by abortion)  
 5 Nutlets in each calyx all smooth surfaced ..... *C. fendleri*  
 (Gray) Greene • Irregularly distributed on deep sandy soils in the woodlands and ponderosa forests of the central and northwestern regions.  
 5 Nutlets all rough  
 6 Nutlets decidedly heteromorphic, one larger and/or differently ornamented than the others  
 7 Odd nutlet less than 1.5 mm long; nutlet margins angled or rounded; style surpassing odd nutlet; midrib of fruiting calyx lobes moderately thickened but not noticeable expanded and hard (*J. angustifolia*) ..... go to *Johnstonella*  
 7 Odd nutlet 2-3 mm long; nutlet margins rounded; style subequal to odd nutlet; midrib of fruiting calyx lobes conspicuously thickened and bony  
 8 Cymules bracteate (most flowers subtended by small, leafy bracts) ..... *C. minima*  
 Rydberg • Arid grasslands in the eastern and central regions.  
 8 Cymules naked (may have 1 or 2 small bracts near the base) ..... *C. crassisejala*  
 (Torrey & Gray) Greene • Widespread through most of the state from desert scrub up to piñon-juniper woodland.  
 6 Nutlets all alike in size and surface ornamentation

- 9 Cymules bractless or nearly so
  - 10 Fruiting calyx less than 3 mm long (*J. pusilla*) ..... go to *Johnstonella*
  - 10 Fruiting calyx more than 5 mm long
    - 11 Stems spreading hirsute, the branches erect or ascending ..... *C. barbiger* (Gray) Greene ●Rocky slopes in Chihuahuan Desert scrub of the southwestern region.
    - 11 Stems strigose, erect or often flexuous and laxly branched
      - 12 Stems slender, flexuous-sprawling; nutlets narrow lanceolate and long-acuminate ..... *C. nevadensis* Nelson & Kennedy ●Barely entering southwestern New Mexico Chihuahuan Desert scrub.
      - 12 Stems rigid, stiffly erect; nutlets lance-ovate and narrowly acute ..... *C. juniperensis* R.B. Kelley & M.G. Simpson ●Barely entering southwestern New Mexico in dry arroyos at the foothills of the Peloncillo Mountains.
- 9 Cymules bracteate throughout
  - 13 Plants low (5-15 cm), stems dichotomously branching from the base outward; spring-flowering ..... *C. mexicana* (Brandegee) I.M. Johnston ●Calcareous soils in Chihuahuan Desert of the southern region.
  - 13 Plants usually taller (15-30 cm), stems initially straight and erect, forming a short central axis and producing dichotomously branching laterals; late summer-flowering ..... *C. albida* (Humboldt, Bonpland, & Kunth) I.M. Johnston ●Rare on calcareous desert soils in the southeastern and south-central regions.

**Cynoglossum**

\**C. officinale* Linnaeus ●Disturbed montane sites and riparian areas; native to Eurasia.

**Eremocarya**

*E. micrantha* (Torrey) Greene ●Desert scrub in the southwestern and south-central regions, rare in the northwest region with sagebrush and saltbush.

**Eritrichium**

*E. nanum* (Villars) Schrader ex Gaudin ●Rocky ledges and slopes in alpine tundra at, or above, timber line in the north-central mountains.

**Hackelia**

- 1 Corolla limb white to cream-colored; inflorescence bracteate ..... *H. ursina* (Greene ex Gray) I.M. Johnston ●Pine-oak woodlands and mixed conifer forest in the southwestern mountains.
- 1 Corolla limb blue, rarely pale violet or pinkish; inflorescence bracteate or not
  - 2 Leaves hispid-hirsute, pustulate bases of the coarse hairs evident
    - 3 Corolla limb inconspicuous, 1-2.5 mm across; nutlet margin prickles less than 1.5 mm long ..... *H. besseyi* (Rydberg) J.L. Gentry ●Mountain slopes in piñon-juniper woodland up to pine-oak forest; mostly east of the Continental Divide.
    - 3 Corolla limb conspicuous, 4-8 mm across; nutlet margin prickles greater than 1.5 mm long ..... *H. hirsuta* (Wooton & Standley) I.M. Johnston ●Endemic to the northern mountains in pine-oak and mixed conifer forests.
  - 2 Leaves soft-hirsute or strigose, pustulate bases of the hairs inconspicuous or absent
    - 4 Intramarginal prickles 1-4 on dorsal nutlet surface between the larger marginal prickles ..... *H. pinetorum* (Greene ex Gray) I.M. Johnston ●Pine-oak and mixed conifer forests in the southern and central mountains.
    - 4 Intramarginal prickles absent
      - 5 Inflorescence mostly elongate and narrow, racemose branches usually 3-6 cm long in fruit; mid-stem leaf blades narrow oblanceolate or lance-linear, narrow-acute or acuminate ..... *H. floribunda* (Lehmann) I.M. Johnston ●Forest openings and valley bottoms in all high mountain ranges.
      - 5 Inflorescence open and spreading, racemose branches 4-10 cm long in fruit; mid-stem leaf blades elliptic or lanceolate, acute or obtuse ..... *H. pinetorum* (Greene ex Gray) I.M. Johnston ●Pine-oak and mixed conifer forests in the southern and central mountains.

**Johnstonella**

- 1 Nutlets lanceolate, decidedly heteromorphic with 3 small consimilar nutlets and 1 larger odd nutlet ..... *C. angustifolia* (Torrey) Hasenstab & M.G. Simpson ●Desert scrub in the southwestern and south-central regions.
- 1 Nutlets triangular-ovate, all alike ..... *C. pusilla* (Torrey & Gray) Hasenstab & M.G. Simpson ●Rocky arid slopes in the southwestern and south-central regions.

**Lappula**

- 1 Nutlets with two or more rows of slender marginal prickles that are not confluent at their bases; corolla 3-4 mm wide ..... *L. squarrosa* (Retzius) Dumortier ●Widespread, but uncommon, in disturbed openings in pine and mixed conifer forests;

native to Eurasia.

- 1 Nutlets with a single row of marginal prickles that are distinct or confluent at their bases; corolla 1-2 mm wide  
 ..... *L. occidentalis*  
 (S. Watson) Greene ●Throughout the state from desert scrub up to pine forest.

### **Lithospermum**

- 1 Corolla yellow, rarely greenish; upper stem leaves linear, narrow lanceolate or oblong, only the mid-vein prominent
- 2 Corolla lobes erose or fimbriate on early chasmogamous flowers; later (lower) cleistogamous flowers smaller, entire ..... *L. incisum*  
 Lehmann ●Widespread though most of the state from desert scrub up to piñon-juniper woodland.
- 2 Corolla lobes entire; cleistogamous flowers present or absent
- 3 Nutlets distinctly roughened; faucal appendages (fornices) present at corolla throat; cleistogamous flowers sometimes present ..... *L. parksii*  
 I.M. Johnston ●On limestone in the southeastern mountains.
- 3 Nutlets smooth or slightly pitted; faucal appendages at corolla throat absent; cleistogamous flowers absent
- 4 Stems 1 or few arising from a crowded rosette of basal leaves that are larger than the middle and upper stem leaves ..... *L. cobrense*  
 Greene ●Openings in pine forest and oak woodlands of the southern mountains.
- 4 Stems 1 to several arising from buds on a stout root crown or caudex; lowest stem leaves usually poorly developed and smaller than the middle stem leaves
- 5 Corolla definitely yellow, tube 9-15 mm; flowers heterostylis, heteromorphic ..... *L. multiflorum*  
 Torrey ex Gray ●Pine forest and oak woodlands of mountains throughout the state.
- 5 Corolla pale yellow, often tinged with green, tube 4-7 mm; flowers homostylis; anthers in the corolla throat surpassing the style ..... *L. ruderale*  
 Douglas ex Lehmann ●Piñon-juniper woodland and foothill scrub, barely entering the state in Colfax County.
- 1 Corolla pale green or greenish yellow; upper stem leaves broadly lanceolate, mid-vein and lateral veins prominent
- 6 Corolla tube more than 3 cm long ..... *L. macromeria*  
 J.I. Cohen ●Pine forest and oak woodlands of the southern mountains and southeast slope of the Sangre de Cristo Mountains.
- 6 Corolla tube less than 3 cm long
- 7 Corolla lobes spreading-reflexed ..... *L. viride*  
 Greene ●Piñon-juniper-oak woodlands in the southern mountains.
- 7 Corolla lobes erect, like closed valves when fresh ..... *L. onosmodium*  
 J. Cohen ●Moist draws in the northeastern plains.

### **Mertensia** Contributed by Patrick J. Alexander

- 1 Cauline leaves with prominent lateral veins; stems usually more than 4 dm tall; flowering late spring and summer
- 2 Leaves minutely strigose on the upper surface, glabrous or with spreading pubescence on the lower surface; sepals 2.5-5 mm long, lanceolate, acute ..... *M. franciscana*  
 Heller ●Meadows, streams, and moist sites in mixed coniferous forest in most of the western two-thirds of New Mexico; flowering late May-early October.
- 2 Leaves glabrous on both surfaces (ciliate on the margins, often papillate on the upper surface); sepals 1.5-3 mm long, linear or elliptic, obtuse ..... *M. ciliata*  
 (James ex Torrey) G. Don ●Moist spots in mixed coniferous forest and subalpine habitats in northern New Mexico; flowering June-September.
- 1 Cauline leaves without lateral veins, or lateral veins very inconspicuous; stems usually less than 4 dm tall; normally flowering in early spring, as soon as temperatures permit
- 3 Stamens included within the corolla tube (filaments attached in the corolla tube and anthers not projecting beyond the throat); flowers of various orientations, at least some horizontal to ascending; corolla limb broadly campanulate to nearly rotate ..... *M. alpina*  
 (Torrey) G. Don ●Rocky alpine and subalpine habitats in northern New Mexico; flowering June-August.
- 3 Stamens mostly beyond the corolla tube (filaments attached near the throat of the corolla, anthers well beyond the throat); flowers pendent or mostly so; corolla limb campanulate to narrowly campanulate
- 4 Cauline leaves glabrous on the lower surface, pubescent or glabrous on the upper surface
- 5 Upper cauline leaf surface strigose, pustulate, or glabrous (if strigose, the trichomes directed toward the apex of the leaf, ± parallel to the central vein); sepals glabrous on the lower surface (ciliate on the margins) (var. *caelestina*) ..... *M. ovata*  
 Rydberg ●Alpine habitats in the Sangre de Cristo Mountains of northern New Mexico; flowering July-August; endemic to New Mexico.
- 5 Upper cauline leaf surface strigose, the trichomes pointing towards the leaf margin (at a 30-90° angle to the central vein); sepals sparsely pubescent on the lower surface

- 6 Sepals connate about half or more of their lengths (var. *fendleri*) ..... *M. fendleri*
- 6 Sepals free to the base or nearly so (may be overlapping and appear connate without close inspection) (var. *ovata*) ..... *M. ovata*  
 Rydberg ●Ponderosa/piñon/juniper woodlands and forest, and Douglas-fir forests; flowering in May. ♦Common in Rio Arriba County and perhaps elsewhere, but rarely collected and never before recognized as occurring in the state.
- 4 Cauline leaves pubescent on both surfaces
  - 7 Sepals connate about half or more of their lengths; pedicels glabrous or strigose (var. *pubens*) ..... *M. fendleri*  
 Gray ●Mixed coniferous forest and mesic ponderosa pine woodland in the northern half of New Mexico; flowering April-June.
  - 7 Sepals connate only at the base, free most of their lengths; pedicels usually canescent ..... *M. bakeri*  
 Greene ●Alpine and subalpine habitats in northern New Mexico; flowering June-August.

**Myosotis**

\**Myosotis scorpioides* Linnaeus ●Occasional in shallow water and wet soil of mountain streams; native to Europe.

**Oreocarya**

- 1 Dorsal surface of mature nutlets smooth and shiny
  - 2 Entire corolla yellow; nutlets straight-lanceolate, usually maturing 1/calyx (rarely 2) ..... *O. flava*  
 A. Nelson ●Sandy soils in desert scrub, sagebrush and piñon-juniper communities in the northwestern quarter of the state.
  - 2 Corolla limb white (tube and fornices often yellowish); nutlets ovate-lanceolate, decidedly curved inward towards the style, usually maturing 4/calyx (sometimes fewer by abortion)
  - 3 Corolla tube lacking basal scales; plants biennials or short-lived perennials ..... *O. palmeri*  
 (Gray) Greene ●Limestone hills in desert scrub of the southeastern region.
  - 3 Interior base of corolla tube ringed with small (less than 1 mm) antrorse scales; plants evidently perennial ..... *O. suffruticosa*  
 (Torrey) Greene ●Widespread from desert scrub up to piñon-juniper woodland.
- 1 Dorsal nutlet surface roughened with tubercles, murications, or wrinkles (rugose)
  - 4 Corolla tube elongate, usually exceeding the calyx by at least 2 mm
    - 5 Nutlets muricate (the murications sometimes setulose-tipped), usually maturing 1/calyx (sometimes 2) ..... *O. fulvocanescens*  
 (S. Watson) Greene ●Widespread, desert scrub, sagebrush and piñon-juniper woodland.
    - 5 Nutlets rugose or tuberculate; usually maturing 4/calyx (sometimes fewer by abortion)
    - 6 Nutlets lance-ovate, straight, scar narrowly open for nearly entire length, northwestern region
      - 7 Inflorescence sub-capitate, less than 5 cm long; corolla tube 10-12 mm long; plants usually less than 15 cm tall ..... *O. paradoxa*  
 A. Nelson ●Sporadic and rare on alkaline soils of saltbush scrub in San Juan County.
      - 7 Inflorescence elongate, 5-30 cm long; corolla tube 7-10 mm long; plants 10-40 cm tall ..... *O. flavoculata*  
 A. Nelson ●Rare in sagebrush and piñon-juniper woodland and barely entering San Juan County.
    - 6 Nutlets ovate, decidedly curved toward the style, scar closed for entire length, southern and east-central regions
      - 8 Flowers heterostylous; corolla limb 10-14 mm in diameter, fornices bright yellow ..... *O. paysonii*  
 Macbride ●Sporadic on limestone or caliche.
      - 8 Flowers homostylous; corolla limb 6-10 mm in diameter, fornices white or pale yellow ..... *C. oblata*
  - 4 Corolla tube about equal to the calyx
    - 9 Nutlet margins conspicuously papery-winged; plants coarse, 4-10 dm tall ..... *O. setosissima*  
 (Gray) Greene ●Sporadic and rare in some of the western mountains.
    - 9 Nutlet margins not papery-winged; plants smaller, less than 5 dm tall
      - 10 Corolla tube 6-10 mm long; nutlets decidedly bent toward the style ..... *O. oblata*  
 (M.E. Jones) Macbride ●Gravelly limestone or caliche soils in desert scrub of central and southern regions.
      - 10 Corolla tube 6 mm or less; nutlets erect
        - 11 Mature inflorescence densely-flowered and broad (more than 1 dm broad) ..... *O. thyrsoflora*  
 Greene ●Limestone and caliche soils in the shortgrass prairie of the northeastern region.
        - 11 Inflorescence fewer-flowered and narrower, (less than 1 dm broad) ..... *O. bakeri*  
 Greene ●Sandstones or sandy clay soils in sagebrush, piñon-juniper, oak brush and ponderosa pine in the Four-Corners region.

**Pectocarya**

- 1 Nutlets orbicular or nearly so, both the body and the very thin conspicuous wing with slender uncinatate bristles ..... *P. setosa*  
 A. Gray ●Arid brushy slopes; known only from an 1884 collection from Acoma Pueblo (Veno 1979), not seen; likely no longer present in the state.



- 1 Nutlets oblong to linear, the body lacking uncinata bristles (but these present on the margins)  
 2 Nutlet margins mostly entire or undulate, bristly only at the end ..... *P. heterocarpa*  
 I.M. Johnston •Southwestern desert hills and plains.  
 2 Nutlet margins lacerate or toothed most of their length, as well as at the end  
 3 Nutlets conspicuously recurved, the margins narrow with nearly distinct teeth ..... *P. recurvata*  
 I.M. Johnston •Southwestern desert hills and plains.  
 3 Nutlets nearly straight, the margins broad and conspicuous with confluent teeth ..... *P. platycarpa*  
 (Munz & I.M. Johnston) Munz & I.M. Johnston •South-central and southwestern desert hills and plains.

**Plagiobothrys**

- 1 Fruiting calyx circumscissile; leaf veins, roots and basal part of stem charged with a red-purple dye; stems 10-50 cm long, ascending to erect ..... *P. arizonicus*  
 (Gray) Greene ex Gray •Dry plains and hills in the southwestern region.  
 1 Fruiting calyx not circumscissile; leaf veins, roots and basal part of stem not dye-stained; stems 2-15 cm long, prostrate to ascending ..... *P. scouleri*  
 (Hooker & Arnott) I.M. Johnston •Drying mud of low, seasonally wet areas in the northern mountains.

**Symphytum**

- \**S. officinale* Linnaeus •Disturbed montane sites and riparian areas; native to Europe, now widely introduced.

**BRASSICACEAE (CRUCIFERAE) MUSTARD FAMILY**

- 1 Fruit short (a silicle), 1-3 times longer than broad ..... KEY A  
 1 Fruit long (a silique), 4-many times longer than broad ..... KEY B  
 2 Plants glabrous or with simple, unbranched hairs only ..... KEY C  
 2 Plants pubescent with at least some branched or stellate hairs ..... KEY C
- KEY A: Fruit short (a silicle), 1-3 times longer than broad.**
- 1 Fruit round in cross-section, often inflated, not conspicuously flattened  
 2 Hairs absent or simple, not branched  
 3 Fruit with 3 distinct portions and 1-3 seeds: a terminal persistent style, a middle enlarged segment, and a basal narrowed segment; plants annual ..... *Rapistrum*  
 3 Fruit not partitioned as above, with few to many seeds; plants annual or perennial  
 4 Fruit  $\pm$  indehiscent, sometimes slightly flattened, with 2-4 seeds (*Cardaria*) ..... *Lepidium*  
 4 Fruit dehiscent, plump, not at all flattened, with several-many seeds  
 5 Plants aquatic with hollow stems rooting at the nodes; flowers white ..... *Nasturtium*  
 5 Plants terrestrial or in wet habitats, but not aquatic and not rooting at the nodes; flowers yellow ..... *Rorippa*
- 2 Hairs forked, branched, or stellate  
 6 Cauline leaves once- more compound ..... *Descurainia*  
 6 Cauline leaves entire to deeply lobed, but not compound  
 7 Cauline leaves sessile and clasping the stem ..... *Camelina*  
 7 Cauline leaves absent, petiolate, and/or not clasping the stem (including *Lesquerella*) ..... *Physaria*
- 1 Fruit flattened in cross-section  
 8 Cauline leaves sessile and auriculate, often clasping  
 9 Basal leaves lobed to deeply dissected; fruit ob-triangular, the upper corners acute ..... *Capsella*  
 9 Basal leaves entire to dentate or sinuate; fruit obovate, spatulate, or nearly circular, the upper corners rounded  
 10 Fruits erect to ascending, not drooping or hanging down; seeds 2-several per locule; petals white to purplish  
 11 Plants annual; style obsolete or up to 0.2 mm long; fruit orbicular in outline, conspicuously winged ..... *Thlaspi*  
 11 Plants perennial; style 0.3-4 mm long; fruit oblanceolate to obovate, narrowly winged or not ..... *Noccaea*
- 10 Fruits dropping or hanging down at maturity; seeds 1 per locule; petals white or yellow  
 12 Petals white or purplish; fruit round to shortly elliptic in outline; plants annual .... *Thysanocarpus*  
 12 Petals yellow; fruit spatulate in outline; plants biennial to perennial ..... *Isatis*
- 8 Cauline leaves sessile or petiolate (or absent), never auriculate nor clasping  
 13 Fruit flattened at right angles to the septum, which is indicated by a median longitudinal line on each face of the fruit  
 14 Racemes axillary, spreading or drooping; fruit coarsely wrinkled (*Coronopus*) ..... *Lepidium*  
 14 Racemes mostly terminal, erect or ascending; fruit not wrinkled  
 15 Plants pubescent with branched or stellate hairs; fruit spectacle-shaped ..... *Dimorphocarpa*  
 15 Plants glabrous or with simple hairs; fruit  $\pm$  ovate  
 16 Basal leaves broadly oblong, coarsely crenate or nearly entire; stem leaves much smaller, lobed ..... *Armoracia*

- 16 Basal and stem leaves of nearly equal size and shape
  - 17 Petals of markedly unequal sizes, two of them much larger than the others; escaped garden plants..... *Iberis*
  - 17 Petals all about the same size; native or exotic, but not garden plants
    - 18 Seeds several per chamber; diminutive annuals to 15 cm tall with decumbent-based stems..... *Hornungia*
    - 18 Seed one per chamber; plants various..... *Lepidium*
- 13 Fruit flattened parallel to the septum, each face without a longitudinal line
  - 19 Plants glabrous or with simple hairs only
    - 20 Mature fruits shortly stipitate, about 1 cm wide; petals 12-15 mm long, yellow..... *Selenia*
    - 20 Mature fruits sessile, less than 6 mm wide, petals 1-7 mm long, white or yellow
      - 21 Plants perennial..... *Draba*
      - 21 Plants annual
        - 22 Petals white (when present); fruits usually pubescent, rarely glabrous; early-season flowers chasmogamous and petaliferous; late-season flowers cleistogamous, apetalous, with the anthers obsolete to vestigial..... *Tomostima*
        - 22 Petals yellow; fruits usually glabrous, rarely puberulent; all flowers chasmogamous and petaliferous..... *Draba*
  - 19 Plants with at least some forked, branched, or stellate hairs
    - 23 Hairs 2-branched (malpighiaceus) and attached in the middle; escapes from cultivation..... *Lobularia*
    - 23 Hairs multi-branched; native or exotic plants, but not cultivated ornamentals
      - 24 Fruits circular or nearly so in outline..... *Alyssum*
      - 24 Fruits elongate, elliptic to oblong in outline
        - 25 Petals deeply bifid pedicels stiffly erect and appressed to the rachis; plants 30 cm or more tall..... *Berteroa*
        - 25 Petals entire or at most shallowly lobed; pedicels usually ascending to spreading; plants usually less than 30 cm tall
          - 26 Plants perennial..... *Draba*
          - 26 Plants annual
            - 27 Petals white (when present); fruits usually pubescent, rarely glabrous; early-season flowers chasmogamous and petaliferous; late-season flowers cleistogamous, apetalous, with the anthers obsolete to vestigial.... *Tomostima*
            - 27 Petals yellow; fruits usually glabrous, rarely puberulent; all flowers chasmogamous and petaliferous..... *Draba*

**KEY B: Fruits long (a silique), 4-many times longer than broad; plants glabrous or with simple, unbranched hairs only.**

- 1 Stamens with long filaments strongly exerted beyond the sepals and petals
  - 2 Petals yellow, cream-colored, to whitish; stalk of mature fruit 1-2.5 cm long; anthers rolling from tip to base..... *Stanleya*
  - 2 Petals white to purplish; stalk of mature fruit less than 1 cm long; anthers not rolling..... *Thelypodium*
- 1 Stamens not strongly exerted beyond the sepals and petals
  - 3 Fruit transversely jointed and breaking into segments, otherwise indehiscent
    - 4 Plants with conspicuous stipitate glands..... *Chorispora*
    - 4 Plants lacking stipitate glands
      - 5 Petals 5-9 mm long, yellow; fruit with 3 distinct portions: a terminal persistent style, a middle enlarged spherical segment, and a basal narrowed segment; pedicels appressed..... *Rapistrum*
      - 5 Petals 15-25 mm long, white to purplish; fruit segments not as above; pedicels ascending to spreading..... *Raphanus*
  - 3 Fruit not transversely jointed, dehiscing by valves
    - 6 Calyx urn-shaped, constricted near the middle and the sepals flaring at their tips..... *Streptanthus*
    - 6 Calyx not urn-shaped as above
      - 7 Flowers yellow or pale yellow
        - 8 Cauline leaves auriculate-clasping
          - 9 Stem leaves lyrate-pinnatifid, the terminal lobe much larger than the others; plants often growing in moist places..... *Barbarea*
          - 9 Stem leaves entire to sinuate-toothed, but not pinnatifid as above; plants growing in various places
            - 10 Fruit with a prominent beak 6 mm or more long at maturity..... *Brassica*
            - 10 Fruit lacking a beak, or the beak obscure and 1-3 mm long
              - 11 Basal leaves 5-9 cm long; cauline leaves rounded at the apex; fruiting pedicels 10-15 mm long; mature fruits 8-13 cm long, sessile..... *Conringia*
              - 11 Basal leaves 3-5 cm long; cauline leaves usually acute at the apex; fruiting pedicels 5-10 mm long; mature fruits 5-7 cm long on a short stipe 2-5 mm long.... *Thelypodopsis*

- 8 Cauline leaves petiolate or sessile (or absent) but not auriculate
- 12 Fruit with a prominent beak (3)5 mm or more long at maturity
- 13 Valves and beak of fruit with 3-7 prominent veins; sepals spreading to reflexed ..... *Sinapis*
- 13 Valves and beak of fruit with a single prominent midvein; sepals erect to ascending ..... *Brassica*
- 12 Fruit lacking a beak, or the beak obscure and 1-3 mm long
- 14 Plants of perennially wet habitats, along streams, marshy or muddy ground
- 15 Fruits 4-angled, 1-5 cm long; lower leaves nearly compound with a much enlarged terminal lobe and much smaller lateral lobes separated by a winged rachis ..... *Barbarea*
- 15 Fruits terete, 0.5-1.5 cm long; lower leaves lobed but not nearly compound, the lobes about the same size ..... *Rorippa*
- 14 Plants of drier habitats, not perennially moist or wet
- 16 Fruit flattened, usually shorter than 2 cm ..... *Draba*
- 16 Fruit terete or nearly so, often longer than 2 cm
- 17 Plants perennial from branched vertical rhizomes ..... *Sisymbrium*
- 17 Plants annual or biennial from a taproot
- 18 Seeds in 2 rows in each locule; style stout, well-developed, 2-3 mm long beyond the valves and resembling a short beak of the fruit ..... *Diplotaxis*
- 18 Seeds in a single row in each locule; style almost lacking, 0-1 mm long beyond the valves and not beak-like ..... *Sisymbrium*
- 7 Flowers white or purplish
- 19 Petals 2- to 7-lobed ..... *Dryopetalon*
- 19 Petals entire or emarginate, not lobed
- 20 Fruit with a prominent beak 6 mm or more long at maturity
- 21 Plants glabrous; leaves entire to sinuate-dentate (*S. longirostris*) ..... *Streptanthus*
- 21 Plants pubescent with simple hairs; leaves, at least the lower, pinnately lobed ..... *Eruca*
- 20 Fruit lacking a beak, or the beak obscure and 1-3 mm long
- 22 Basal and lower cauline leaves pinnately lobed to compound
- 23 Plants aquatic; stems rooting at the nodes, mostly procumbent ..... *Nasturtium*
- 23 Plants terrestrial; stems not rooting at the nodes and erect or nearly so
- 24 Fruits ± terete with shallow constrictions between the seeds; petals longer than 4 mm
- 25 Cauline leaves auriculate ..... *Mostacillastrum*
- 25 Cauline leaves petiolate or sessile but not auriculate ..... *Thelypodium*
- 24 Fruits flattened, not constricted between the seeds; petals 1-2 mm long
- 26 Stamens 6; leaves pinnately lobed but not compound ..... *Thelypodium*
- 26 Stamens 4; leaves compound, with distinct leaflets ..... *Cardamine*
- 22 Basal and cauline leaves entire to toothed but not pinnately lobed or compound
- 27 Fruit flattened at right angles to the septum, which is indicated by a median longitudinal line on each face of the fruit ..... *Nerisyrenia*
- 27 Fruit terete or flattened parallel to the septum and each face without a longitudinal line
- 28 Plants strongly rhizomatous; fruits dehiscent from the base and the valves coiling upwards; leaf blades reniform to cordate, 3-10 cm wide ..... *Cardamine*
- 28 Plants lacking rhizomes; fruits dehiscent by valves but not as above; leaf blades various, but usually not as above
- 29 Fruits flattened
- 30 Plants annual
- 31 Petals white (when present); fruits usually pubescent, rarely glabrous; early-season flowers chasmogamous and petaliferous; late-season flowers cleistogamous, apetalous, with the anthers obsolete to vestigial ..... *Tomostima*
- 31 Petals yellow; fruits usually glabrous, rarely puberulent; all flowers chasmogamous and petaliferous ..... *Draba*
- 30 Plants perennial (rarely biennial)
- 32 Leaves all basal ..... *Draba*
- 32 Leaves, at least some, cauline
- 33 Fruit usually shorter than 2 cm; seeds in 2 rows in each locule, wingless ..... *Draba*
- 33 Fruit often longer than 3 cm; seeds in a single row in each locule, winged at least at one end
- 34 Pedicels and siliques spreading to at least some degree from the main axis, often widely so ..... *Boecheria*
- 34 Pedicels and siliques strictly erect, appressed to the main

- axis ..... *Arabis*
- 29 Fruits terete and angled
  - 35 Calyx cup-like, the petals barely exceeding the sepals ..... *Pennellia*
  - 35 Calyx not cup-like, the petals usually twice as long as the sepals and obviously exceeding them
    - 36 Cauline leaves auriculate ..... *Mostacillastrum*
    - 36 Cauline leaves petiolate to sessile but not auriculate
      - 37 Petals 10-25 mm long ..... *Hesperidanthus*
      - 37 Petals mostly less than 8 mm long
        - 38 Petals about 3 mm long ..... *Arabidopsis*
        - 38 Petals 5-8(10) mm long ..... *Thelypodium*

**KEY C: Fruit long (a silique), 4-many times longer than broad; plants pubescent with at least some forked, branched, or stellate hairs.**

- 1 Hairs 2-branched (dolabriform), attached at the middle with the 2 branches lying parallel to the long axis of the stems and leaves
  - 2 Plants whitish, fading pale lavender; leaves sessile, auriculate-clasping; fruits erect-appressed (*B. stricta*) ..... *Boechnera*
  - 2 Petals, leaves, and fruits not all as above ..... *Erysimum*
- 1 Hairs multi-branched or stellate, not 2-branched as above
  - 3 Fruit flattened
    - 4 Fruit flattened at right angles to the septum, which is indicated by a median longitudinal line on each face of the fruit ..... *Nerisyrenia*
    - 4 Fruit flattened parallel to the septum and each face without a longitudinal line
      - 5 Leaves all basal
        - 6 Plants perennial ..... *Draba*
        - 6 Plants annual
          - 7 Petals white (when present); fruits usually pubescent, rarely glabrous; early-season flowers chasmogamous and petaliferous; late-season flowers cleistogamous, apetalous, with the anthers obsolete to vestigial ..... *Tomostima*
          - 7 Petals yellow; fruits usually glabrous, rarely puberulent; all flowers chasmogamous and petaliferous ..... *Draba*
    - 5 Leaves, at least some, cauline
      - 8 Petals yellow ..... *Draba*
      - 8 Petals white to purplish
        - 9 Plants annual ..... *Tomostima*
        - 9 Plants perennial
          - 10 Fruit usually shorter than 2 cm; seeds in 2 rows in each locule, wingless ..... *Draba*
          - 10 Fruit often longer than 3 cm; seeds in a single row in each locule, winged at least at one end
            - 11 Pedicels and siliques spreading to at least some degree from the main axis, often widely so ..... *Boechnera*
            - 11 Pedicels and siliques strictly erect, appressed to the main axis
              - 12 Sepals 4-7 mm long; petals 7-11 mm long; siliques 1.5-2.5 mm wide ..... *Boechnera*
              - 12 Sepals 2-4 mm long; petals 4-6 mm long; siliques 0.9-1.3 mm wide ..... *Arabis*
  - 3 Fruit terete or slightly angled, not flattened
    - 13 Leaf blades compound ..... *Descurainia*
    - 13 Leaf blades simple, lobed to entire, not compound
      - 14 Petals 15-25 mm long; stigmas deeply 2-lobed; garden escapes
        - 15 Seeds winged; fruit with apical horn-like outgrowths (2)5-7 mm long; petals narrow ..... *Matthiola*
        - 15 Seeds not winged; fruit lacking horn-like outgrowths; petals broad ..... *Hesperis*
      - 14 Petals less than 15 mm long; stigmas not 2-lobed; native or exotic
        - 16 Fruit sharply pointed; pedicels less than 2 mm long ..... *Strigosella*
        - 16 Fruit mostly obtuse; pedicels longer than 2 mm
          - 17 Pedicels appressed or nearly so to the main axis ..... *Turritis*
          - 17 Pedicels spreading to divaricate or reflexed from the main axis
            - 18 Sepals 5-9 mm long; petals 8-15 mm long ..... *Nerisyrenia*
            - 18 Sepals 1-3 mm long; petals less than 5 mm long
              - 19 Fruit evidently pubescent; cauline leaves, at least some, deeply lobed .... *Pennellia*
              - 19 Fruit glabrous; cauline leaves entire to shallowly sinuate
                - 20 Fruit 1-1.5 cm long; plants short-lived annual ..... *Arabidopsis*
                - 20 Fruit 2-8 cm long; plants perennial, almost woody at the base .... *Halimolobos*

**Alyssum**

- 1 Fruit completely glabrous ..... *A. desertorum*
- Stapf •Sandy soil, in the northern tier of counties; native to Europe and Asia.

1 Fruit covered with stellate hairs (use a lens)

- 2 Fruit 2.5-4 mm wide; style 0.3-0.6 mm long; stellate hairs delicate and appressed.....*A. alyssoides* (Linnaeus) Linnaeus ●Adventive in weedy sites in the northern tier of counties; native to Europe and Asia.
- 2 Fruit 4-5 mm wide; style 0.8-1.2 mm long; stellate hairs coarse, spreading-ascending.....*A. simplex* Rudolphi ●Disturbed ground, piñon-juniper woodlands in the northern plains and mesas; native to Europe, Africa, Asia.

**Arabidopsis**

\**Arabidopsis thaliana* (Linnaeus) Heynhold ●Not known in the wild in the state, but to be looked for in flower beds, greenhouses, and other moist disturbed sites of the cities; native to Europe and Asia.

**Arabis**

*A. pycnocarpa* Hopkins ●Widespread in woodlands, grassy plains and meadows, and canyons.

**Armoracia**

\**A. rusticana* P. Gaertner ●Moist disturbed ground, an escape from gardens, reported for the state by Al-Shehbaz without locality; no specimens known; native to Europe and Asia.

**Barbarea**

- 1 Style beaks of mature siliques 2-3 mm long; upper stem leaves shallowly lobed to toothed; auricles of cauline leaves glabrous.....*B. vulgaris* W. T. Aiton ●Wet disturbed ground around streams and ditches in the mountains; native Europe and Asia.
- 1 Style beaks of mature siliques to about 1 mm long; upper stem leaves deeply lobed to pinnatifid, or if not, then narrowed to a winged petiole; auricles of cauline leaves usually sparsely pubescent.....*B. orthoceras* Ledebour ●Wet ground of seeps, streams, creeks, irrigation canals; widespread in the mountains.

**Berteroa**

\**B. incana* (Linnaeus) A.P. de Candolle ●Woodlands, roadsides, moist drainages; native to Europe and Asia; known from a few collections in the northern counties.

**Boechera** Contributed by Patrick J. Alexander

- 1 Basal rosettes with several flowering stems (rarely, only one) borne laterally, the rosette producing a tuft of leaves above the attachment of the flowering stems
- 2 Sepals glabrous.....*B. porphyrea* (in part) (Wooton & Standley) Windham, Al-Shehbaz, & P.J. Alexander ●Found in south-central and central New Mexico on rocky, usually igneous, slopes in Chihuahuan desert scrub, scrub oak, and piñon-juniper woodland; flowering March to May.
- 2 Sepals pubescent
- 3 Basal leaf surfaces with 3- to 8-rayed trichomes
- 4 Fruits ascending to horizontal and seeds uniseriate.....*B. thompsonii* (S.L. Welsh) N.H. Holmgren ●Found in north-central and northwestern New Mexico, usually on igneous or sandstone slopes in piñon-juniper woodland; flowering late April to early June.
- 4 Not as above; either fruits pendent, seeds irregularly biseriate, or both
- 5 Basal leaves entire, narrowly oblanceolate to linear
- 6 Fruiting pedicels sparsely pubescent, seeds uniseriate or, rarely, irregularly biseriate .....*B. kelseyana*
- 6 Fruiting pedicels glabrous, seeds irregularly biseriate.....*B. gracilentia* (in part) (Greene) Windham & Al-Shehbaz ●Found in north-central and northwestern New Mexico on rocky slopes in piñon-juniper woodland, ponderosa pine woodland, and scrub oak; flowering late April to early June.
- 5 Basal leaves dentate, oblanceolate to obovate
- 7 Seeds irregularly biseriate, fruits horizontal to slightly descending, rarely widely pendent, plants mostly north of Interstate 40.....*B. gracilentia* (in part) (Greene) Windham & Al-Shehbaz ●Found in north-central and northwestern New Mexico on rocky slopes in piñon-juniper woodland, ponderosa pine woodland, and scrub oak; flowering late April to early June.
- 7 Seeds uniseriate, fruits widely pendent, plants south of Interstate 40.....*B. perennans* (S. Watson) W.A. Weber ●Found primarily in southwestern part of the state, only sporadically in central or west-central New Mexico, usually on rocky, igneous slopes in Chihuahuan desert scrub or piñon-juniper woodlands; flowering March to May.
- 3 Basal leaf surfaces with simple and forked trichomes
- 8 Pollen narrowly ellipsoid; found throughout the western 2/3 of New Mexico (if in doubt, take this lead).....*B. fendleri* (S. Watson) W.A. Weber ●Found throughout the western two-thirds of New Mexico on rocky (usually igneous) slopes in ponderosa pine forest, piñon-juniper woodlands, and scrub oak; flowering April to early June.
- 8 Pollen a mixture of narrowly ellipsoid and 25-50% malformed, shrunken grains; sporadic from Taos County south to western Lincoln County, usually in mixed populations in which some plants have single, central flowering stems.....*B. centrifendleri* (in part) P.J. Alexander ●Found primarily in northwestern New Mexico, on igneous slopes and level openings in ponderosa pine forest, piñon-juniper woodland, and scrub oak; flowering late April to early June.

- 1 Basal rosettes with a single flowering stem that arises centrally and terminates the rosette (rarely with additional flowering stems arising laterally below the terminal one)
  - 9 Sepals pubescent
    - 10 Fruits densely pubescent throughout ..... *B. formosa*  
(Greene) Windham & Al-Shehbaz • Found in northwestern New Mexico, usually on sandstone slopes in piñon-juniper woodland.
    - 10 Fruits glabrous or with a few, scattered trichomes distally
      - 11 Basal leaf surfaces with 4- to 8-rayed trichomes
        - 12 Fruiting pedicels and fruits strongly reflexed to closely pendent ..... *B. consanguinea*  
(Greene) Windham & Al-Shehbaz • Found primarily with sagebrush in openings in ponderosa pine forest, uncommon in northwestern New Mexico; flowering in May.
        - 12 Fruiting pedicels and fruits horizontal or slightly descending .....  
..... *B. formosa* × *kelseyana* × *peremans* hybrids  
Windham & Allphin • Found in northwestern New Mexico, in sandy soils or on sandstone in piñon-juniper woodlands; flowering late April to early June.  
(Greene) Windham & Al-Shehbaz • Found in northwestern New Mexico, usually on sandstone slopes in piñon-juniper woodland.
      - 11 Basal leaf surfaces with simple to 3-rayed trichomes, or glabrous
        - 13 Basal leaves narrowly oblanceolate, margins prominently ciliate throughout their lengths and surfaces glabrous or with a few simple or forked trichomes near the margins; lower fruiting pedicels usually less than 12 mm long ..... *B. sanluisensis*  
P.J. Alexander • Found in northern New Mexico on rocky, usually igneous, slopes and in level openings in ponderosa woodland and in mixed coniferous forest, rarely in the upper margins of piñon-juniper woodland; flowering May to July.
        - 13 Basal leaves broadly oblanceolate, margins ciliate only towards the base and surfaces pubescent throughout; lower fruiting pedicels usually more than 12 mm long
          - 14 Basal leaf surfaces with at least some 3-rayed trichomes; lower fruiting pedicels usually more than 20 mm long ..... *B. gracilipes*  
(Greene) Dorn • Rocky slopes in ponderosa pine forests and piñon-juniper woodlands, known in New Mexico from a single collection in western Catron County; flowering April to June.
          - 14 Basal leaf surfaces with simple and forked trichomes only; lower fruiting pedicels usually less than 20 mm long ..... *B. centrifendleri* (in part)  
P.J. Alexander • Found primarily in northwestern New Mexico, on igneous slopes and level openings in ponderosa pine forest, piñon-juniper woodland, and scrub oak; flowering late April to early June.
  - 9 Sepals glabrous
    - 15 Fruits erect, ascending, or divaricate; trichomes of the basal leaf surfaces sessile or nearly so, or basal leaf surfaces glabrous
      - 16 Fruits erect or, rarely, strongly ascending; basal leaves with sessile, 2-rayed trichomes and, rarely, simple cilia on the petiole ..... *B. stricta*  
(Graham) Al-Shehbaz • Found in north-central and northwestern New Mexico, usually above 9000 feet in montane meadows and openings in mixed conifer forest; flowering late May to early July.
      - 16 Fruits ascending to divaricate; basal leaves with short-stalked 2-4-rayed trichomes and prominent simple cilia on or near the petiole ..... *Boechea fendleri* × *stricta* hybrids  
• Found in north-central and northwestern New Mexico, usually in open ponderosa pine woodlands and montane meadows; flowering May to June.
  - 15 Fruits pendent
    - 17 Basal leaves narrowly oblanceolate, margins prominently ciliate throughout their lengths and surfaces glabrous or with a few simple or forked trichomes near the margins ..... *B. carrizoensis*  
P.J. Alexander • Found in central and southern New Mexico, usually on sandstone or limestone slopes in Chihuahuan desert scrub or at the lower extremes of piñon-juniper woodland; flowering March to April.
    - 17 Basal leaves broadly oblanceolate, margins prominently ciliate only near the petiole and surfaces pubescent throughout
      - 18 Basal rosettes usually elevated above the ground on woody caudices; pollen a mixture of narrowly ellipsoid and malformed, shrunken grains; plants of the southern edge of New Mexico in the Guadalupe Mountains, Cornudas Mountains, and Sierra de las Uvas. *B. zephyra*  
P.J. Alexander • Found along the southern edge of New Mexico on rocky slopes, igneous or limestone, in Chihuahuan desert scrub or at the lower extremes of piñon-juniper-oak woodland; flowering March to April.
      - 18 Basal rosettes not elevated above the ground on woody caudices; pollen grains spheroid and irregularly colpate; plants mostly north of the previous

- 19 Basal leaves prominently and sharply dentate, the larger > 2.5 cm long, with at least some 4- to 6-rayed trichomes ..... *B. porphyrea* (in part)  
(Wooton & Standley) Windham, Al-Shehbaz, & P.J. Alexander • Found in south-central and central New Mexico on rocky, usually igneous, slopes in Chihuahuan desert scrub, scrub oak, and piñon-juniper woodland; flowering March to May.
- 19 Basal leaves shallowly dentate, the larger < 2.5 cm long, with forked and 3-rayed trichomes only ..... *B. fendleri* × *spatifolia* × *texana* hybrids  
• Found near Santa Fe in northern New Mexico and extending south in a line to Texas on rocky (usually igneous) slopes in piñon-juniper woodland; flowering April to May.

**Brassica**

- 1 Cauline leaves distinctly clasping the stem at their bases
- 2 Petals 18-30 mm long; beaks of fruits 4-11 mm long ..... *B. oleracea*  
Linnaeus • Known in the wild from a single collection in Socorro County, but expected elsewhere as an escape, though perhaps not persisting long.
- 2 Petals 6-16 mm long; beaks of fruits mostly 8-22 mm long
- 3 Petals mostly pale yellow, mostly 6-10 mm long; beaks of fruit 8-22 mm long; plants usually green .....  
..... *B. rapa*  
Linnaeus • Waste places and disturbed ground; known from a few scattered locales in the state.
- 3 Petals mostly bright yellow to golden, 10-16 mm long; beaks of fruit 10-16 mm long; plants usually glaucous ..... *B. napus*  
Linnaeus • Roadsides and disturbed sites; known from a single location in Sierra County, but expected elsewhere.
- 1 Cauline leaves not clasping the stem, short-stalked or sessile with a cuneate base
- 4 Valves of the fruit hirsute, the beak strongly compressed, sword-like, and about ½ the total length of the fruit (*S. alba*) ..... go to *Sinapis*
- 4 Valves of the fruit glabrous (rarely sparsely bristly), the beak terete or angled but not sword-like, usually less than ½ the total length of the fruit
- 5 Lower stems and leaves glabrous or nearly so, often glaucous; fruiting pedicels 10-15 mm long. *B. juncea* (Linnaeus) Cosson • Disturbed ground in scattered locales; native to Europe and Asia; known from only a few old collections.
- 5 Lower stems and leaves manifestly hirsute (sometimes nearly glabrate in age), not glaucous; fruiting pedicels 2-18 mm long
- 6 Basal and lower stem leaves with 5-14 pairs of lobes, ± persistent; fruiting pedicels 8-15 mm long; siliques widely spreading when mature; sepals with a purplish tinge ..... *B. tournefortii*  
Gouan • Roadsides, waste places, invading desert sites and spreading northward from its first collection in Doña Ana County; native to Europe and Asia.
- 6 Basal and lower stem leaves with 1-3 pairs of lobes, shed early; fruiting pedicels 2-6 mm long; siliques erect to ascending; sepals yellowish or greenish
- 7 Beak of the fruit 7-15 mm long, angled (sometimes appearing winged upon drying), 3-veined; sepals spreading to reflexed; mature siliques 3-5 cm long, 2-3 mm thick (*S. arvensis*) .....  
..... go to *Sinapis*
- 7 Beak of the fruit 2-6 mm long, terete, 1-veined; sepals usually erect to ascending; mature siliques 1-2.5 cm long, 1-2 mm thick ..... *B. nigra* (Linnaeus) Koch • Roadsides and waste places; known from single collections in Socorro and San Juan counties.

**Camelina**

- 1 Fruits 7-9(13) mm long, the seeds mostly 2-2.5 mm long; stems basally glabrous or the hairs mostly minute and branched ..... *C. sativa* (Linnaeus) Crantz • There have been a few reports through the years of this species from waste places and disturbed ground in the northern counties, but all specimens we have seen belong to *Camelina microcarpa*; recent reports of *C. sativa* from the Four Corners region are unverified, but it may be present in McKinley County.
- 1 Fruits 3-7 mm long, the seeds 1-1.5 mm long; stems basally with long simple hairs mixed with long branched hairs and minute branched hairs
- 2 Petals pale yellow, 3-6 mm long; basal leaves withered by flowering ..... *C. microcarpa*  
Andrzejowski ex A.P. de Candolle • Prairies, meadows, forest and woodland margins and open areas; widespread in the northern half of the state; native to Europe and Asia.
- 2 Petals white to creamy white; basal leaves persistent after flowering ..... *C. rumelica*  
Velenovsky • Piñon-juniper woodlands and conifer forest in the northern counties; known from only two collections; native to Europe and Asia.

**Capsella**

- \**C. bursa-pastoris* (Linnaeus) Medikus • Very common in the spring, in gardens, lawns, waste places, and disturbed urban ground; widespread throughout the state and expected in every county; native to Europe and

Asia.

**Cardamine**

- 1 Leaves simple, rounded-cordate; rhizomatous perennials ..... *C. cordifolia*  
Gray ●Common in the mountains along streams.
- 1 Leaves deeply pinnately lobed or compound; tap-rooted annuals
  - 2 Basal leaves rosette-forming, numerous, and persistent at anthesis ..... *C. hirsuta*  
Linnaeus ●Weakly adventive in flower beds and gardens, and expected in more regions than currently known; native to Europe and Asia.
  - 2 Basal leaves not rosette-forming, few or absent at anthesis
    - 3 Rachises slightly flexuous or zig-zag; ovules 18-40 per ovary ..... *C. flexuosa*  
Withering ●Gardens, flower beds, known only from Doña Ana and Eddy counties, but expected to turn up elsewhere; native to Europe and Asia.
    - 3 Rachises straight; ovules 40-80 per ovary ..... *C. pensylvanica*  
Muhlenberg ex Willdenow ●Known from irrigation ditches and small creeks in San Juan County, but to be looked for elsewhere.

**Chorispora**

\**C. tenella* (Pallas) A.P. de Candolle ●Roadsides and other waste places; widespread; native to Europe and Asia.

**Conringia**

\**C. orientalis* (Linnaeus) C. Presl ●Roadsides, disturbed ground, waste places; scattered locales in the northern and central counties.

**Descurainia** [Key adapted from Goodson & Al-Shehbaz 2010]

- 1 Fruits sparsely to densely pubescent, at least when young
  - 2 Seeds biseriate; ovules 48-64 per ovary; fruits 1-1.3 mm wide; fruiting pedicels 13-31 mm long; sepals 2-3 mm long ..... *D. adenophora*  
(Wooton & Standley) O.E. Schulz ●Open woodland and sandy plains in the southwestern region.
  - 2 Seeds mostly uniseriate; ovules 16-40 per ovary; fruits 0.7-1 mm wide; fruiting pedicels 6-15 mm long; sepals 1-2 mm long ..... *D. obtusa*  
(Greene) O. E. Schulz ●Gravelly and sandy ground, woodlands, and washes in the central and western counties.
- 1 Fruits glabrous
  - 3 Fruits usually fusiform, obovate, clavate, or broadly ellipsoid
    - 4 Siliques fusiform, distinctly tapered at both ends; seeds uniseriate; plants unbranched proximally, much-branched distally ..... *D. californica*  
(Gray) O.E. Schulz ●Dry hillsides in piñon-juniper woodlands; scattered sites in the central and western plains and foothills.
    - 4 Siliques clavate to obovate, rounded to obtuse at the apex; seeds biseriate; plants much-branched proximally and often also distally ..... *D. pinnata*  
(Walter) Britton ●Nearly throughout the state (and expected everywhere); sandy washes, scrub communities, oak and pine woodlands, under juniper, gravelly hills and slopes, desert grasslands and upland plains.
  - 3 Fruits linear (sometimes oblong in *D. brevisilqua*)
    - 5 Fruits often strictly appressed to the rachis, the pedicels erect to erect-ascending ..... *D. incana*  
(Bernhardi ex Fischer & Meyer) Dorn ●Prairies, grassy or rocky slopes, disturbed ground, forests; widespread in the central and western regions.
    - 5 Fruits not appressed to the rachis, the pedicels ascending to horizontal
      - 6 Leaves 2- to 3-times pinnate; fruit septa appearing 2- or 3-veined ..... *D. sophia*  
(Linnaeus) Webb ex Prantl ●Roadsides and disturbed ground of plains, mountain slopes, and deserts; state-wide; native to Eurasia.
      - 6 Leaves usually once-pinnate; fruit septa not veined
        - 7 Petals tiny, 0.7-1 mm long; seeds less than 1 mm long ..... *D. brevisilqua*  
(Detling) Al-Shehbaz & Goodson ●Pine and juniper communities, roadsides, washes, grasslands; central to west-central plains.
        - 7 Petals larger, 1.7-3 mm long; seeds more than 1 mm long
          - 8 Plants not canescent; end segments of the cauline leaves linear to oblong, the margins nearly entire; fruits straight to slightly curved inward ..... *D. longepedicellata*  
(Fournier) O.E. Schulz ●Sandy plains, open hillsides, juniper or pine forests; known from very few specimens in scattered locales.
          - 8 Plants canescent or not; end segments of the cauline leaves oblong to lanceolate or linear, the margins toothed to entire; fruits straight to strongly curved inward ..... *D. incisa*  
(Engelmann ex A. Gray) Britton ●Roadsides, disturbed areas, open woodlands, sandy areas, rocky cliffs; widespread.

**Dithyrea**

*D. wislizeni* (Engelmann) Rollins ●Widely distributed throughout the state and expected in every county.



**Diplotaxis**

- 1 Plants annual or biennial (rarely perennial), lacking adventitious buds on the roots, the stems herbaceous; leaves mostly basal; siliques sessile ..... *D. muralis* (Linnaeus) A.P. de Candolle ●Roadsides, waste ground; known only from single collections in Grant and Lincoln counties; native to Eurasia, Africa.
- 1 Plants perennial, with adventitious buds on the roots, the stems woody at the base; leaves mostly cauline; siliques on stipes 1-3 mm long ..... *D. tenuifolia* (Linnaeus) A.P. de Candolle ●Roadsides in the foothills, wet woods, mountain slopes; native to Eurasia, Africa.

**Draba** [Key adapted from Al-Shehbaz et al. 2010 and Rollins 1993]

- 1 Plants annual or biennial, a caudex or root crown usually not developed
- 2 Styles evident, 1-4 mm long
- 3 Cauline leaves typically 10-30 in number; rachis pubescent; fruiting pedicels 4-10 mm long *D. helleriana* Greene ●Woodlands, forest, meadows, rocky outcrops at forest edges, aspen communities, in all the mountainous regions of the state.
- 3 Cauline leaves 1-3 in number; rachis generally glabrous; fruiting pedicels 8-20 mm long .. *D. mogollonica*
- 2 Styles obsolete or less than 0.25 mm long
- 4 Rachises glabrous
- 5 Cauline leaves 4-12 in number; fruiting pedicels 2-7 times longer than the fruit ..... *D. nemorosa* Linnaeus ●Wooded slopes and rocky canyons, recently found in Taos County and known from a single collection; native to Europe and Asia.
- 5 Cauline leaves 1-5 in number; fruiting pedicels subequal to or shorter than the fruit
- 6 Lower leaf surfaces noticeably pubescent with 2-4-rayed hairs; stems pubescent ..... *D. albertina* Greene ●Meadows and wet places at high elevations in the northern mountains.
- 6 Lower leaf surfaces mostly glabrous or with some simple or 2-rayed hairs; stems usually glabrous ..... *D. crassifolia* Graham ●High-elevation fields and slopes of the northern mountains, infrequent.
- 4 Rachises pubescent
- 7 Inflorescence sub-umbellate or crowded toward the stem apex; leaves entire to obscurely dentate; hairs coarse, simple or once-forked on upper leaf surfaces (*T. reptans*) ..... go to *Tomostima*
- 7 Inflorescence racemose; leaves obviously dentate; hairs branched on both surfaces
- 8 Siliques nearly erect on divaricate pedicels, acute to narrowly obtuse at the apex, stems simple or with erect branches ..... *D. rectifruca* C.L. Hitchcock ●Open forests, meadows, rocky hills, disturbed sites; scattered locales in the mountains.
- 8 Siliques spreading at nearly the same angle as the divaricate pedicels, rounded to broadly obtuse at the apex; stems with widely spreading branches (*T. cuneifolia*) ..... go to *Tomostima*
- 1 Plants perennial or rarely biennial, a caudex or root crown usually well-developed
- 9 Flowering stems leafless or rarely with a single cauline leaf
- 10 Styles evident, 0.5-1 mm long; plants perennial with well-developed caudices ..... *D. grayana* (Rydberg) C.L. Hitchcock ●Alpine tundra and wet meadows, above 10,000 ft; known from only a few collection in Taos and Colfax counties.
- 10 Styles obsolete, 0-0.1 mm long; plants annual to short-lived perennial with weakly developed caudices
- 11 Lower leaf surfaces noticeably pubescent with 2-4-rayed hairs; stems pubescent ..... *D. albertina* Greene ●Meadows and wet places at high elevations in the northern mountains.
- 11 Lower leaf surfaces mostly glabrous or with some simple or 2-rayed hairs; stems usually glabrous ... ..... *D. crassifolia* Graham ●High-elevation fields and slopes of the northern mountains, infrequent.
- 9 Flowering stems with two or more leaves
- 12 Leaf blade abaxial surfaces glabrous or with simple hairs
- 13 Styles mostly 1-3 mm long; fruits usually twisted; petals 4-7 mm long
- 14 Fruits usually strongly twisted to 3 turns; stems hairs proximally with hairs 0.5-2 mm long ..... *D. streptocarpa* Gray ●Rock outcrops and hillsides, meadows and aspen groves in mixed conifer forests and alpine tundra.
- 14 Fruits usually slightly twisted to 1 turn; stems glabrous proximally
- 15 Basal leaves undifferentiated into blade and petiole, to 1 cm long, persisting, imbricate, becoming indurate at the bases ..... *D. heilii* Al-Shehbaz ●Alpine tundra in the northern mountains, known from very few collections, endemic to New Mexico.
- 15 Basal leaves differentiated into blade and petiole, 1-9 cm long, the petioles persistent
- 16 Flowering stems mostly decumbent to ascending; blade surfaces glabrous; northern mountains ..... *D. crassa* Rydberg ●High elevation outcrops, alpine tundra, and rocky meadows; uncommon

- and little known from the northern mountains.
- 16 Flowering stems mostly erect; blades surfaces glabrous to pubescent; southwestern mountains ..... *D. standleyi*  
Macbride & Payson ●Igneous rock outcrops, talus slopes; southwestern mountains and upper foothills.
- 13 Styles 0-1 mm long; fruits rarely twisted; petals 1-4 mm long
  - 17 Annual to short-lived perennials with weakly developed caudices
    - 18 Lower leaf surfaces noticeably pubescent with 2-4-rayed hairs; stems pubescent..... *D. albertina*  
Greene ●Meadows and wet places at high elevations in the northern mountains.
    - 18 Lower leaf surfaces mostly glabrous or with some simple or 2-rayed hairs; stems usually glabrous..... *D. crassifolia*  
Graham ●High-elevation fields and slopes of the northern mountains, infrequent.
  - 17 Perennials with well-developed caudices
    - 19 Flowering stems mostly decumbent to ascending, glabrous proximally; blade surfaces glabrous; fruiting pedicels 5-10 mm or more long ..... *D. crassa*  
Rydberg ●High elevation outcrops, alpine tundra, and rocky meadows; uncommon and little known from the northern mountains.
    - 19 Flowering stems mostly erect, densely to moderately pubescent throughout; blades surfaces pubescent abaxially, glabrous to pubescent adaxially; fruiting pedicels 1-6 mm long ..... *D. grayana*  
(Rydberg) C. L. Hitchcock ●Alpine tundra and wet meadows, above 10,000 ft; known from only a few collection in Taos and Colfax counties.
- 12 Leaf blade abaxial surfaces with only branched hairs
  - 20 Fruit valves glabrous
    - 21 Stem and leaf hairs sessile, 2 longer rays parallel to the long axis of stem or midvein, some hairs malpighiaceae ..... *D. spectabilis*  
Greene ●Rocky slopes, meadows, and aspen groves in coniferous forests, alpine areas, in the mountains.
    - 21 Stem and leaf hairs stalked, the rays not parallel to axis of stem or midvein, none malpighiaceae
      - 22 Styles to 0.6 mm long; petals 2-3 mm long ..... *D. albertina*  
Greene ●Meadows and wet places at high elevations in the northern mountains.
    - 22 Styles 1-3 mm long; petals 4-8 mm long
      - 23 Fruits plane, not twisted; ovules 10-18 per ovary; basal leaf blades 4-10 mm wide; cauline leaves mostly 5-9 in number ..... *D. abajoensis*  
Windham & Al-Shehbaz ●Conifer forests and subalpine meadows, Four Corners region.
      - 23 Fruits slightly twisted; ovules 20-38 per ovary; basal leaf blades 7-30 mm wide; cauline leaves 1-3 in number ..... *D. mogollonica*  
Greene ●Rocky slopes and outcrops in pine-oak woodlands in the southwestern mountains; recently discovered in Arizona, so no longer endemic to New Mexico.
  - 20 Fruit valves pubescent, at least on margins
    - 24 Petals white
      - 25 Plants forming prostrate mats of tangled and highly branched flowering and vegetative shoots; petals 4-6 mm long; fruiting pedicels and fruits spreading..... *D. smithii*  
Gilg ex O.E. Schulz ●Recently discovered along roadside in Taos County, sagebrush, piñon-juniper communities.
      - 25 Plants with erect flowering shoots and without tangled mats of vegetative shoots; petals 2-4.5 mm long; fruiting pedicels and fruits erect and nearly appressed to the rachis or spreading
        - 26 Fruiting pedicels and fruits spreading outward from the rachis; basal leaves 5-12 mm long ..... *D. henrici*  
Al-Shehbaz ●As yet known only from alpine tundra in Taos County; endemic to northern New Mexico.
        - 26 Fruiting pedicels and fruits erect and nearly appressed to the rachis; basal leaves 10-40 mm long ..... *D. cana*  
Rydberg ●Rock outcrops, talus, meadows, roadsides at high elevations in the northern mountains.
    - 24 Petals yellow
      - 27 Stem and leaf hairs sessile, 2 longer rays parallel to the long axis of stem or midvein, some hairs malpighiaceae ..... *D. spectabilis*  
Greene ●Rocky slopes, meadows, and aspen groves in coniferous forests, alpine areas, in the mountains.

- 27 Stem and leaf hairs stalked, the rays not parallel to axis of stem or midvein, none malpighiaceous
- 28 Basal leaves forming a flat rosette; stems nearly leafless and branched. *D. mogollonica* Greene ● Rocky slopes and outcrops in pine-oak woodlands in the southwestern mountains; recently discovered in Arizona, so no longer endemic to New Mexico.
- 28 Basal leaves not forming a flat rosette; stems leafless to foliose, branched or not
- 29 Fruits appressed to the rachis or nearly so; at least the lowermost (sometime all) flowers bracteate ..... *D. aurea* Vahl ex Hornemann ● Alpine and tundra areas, conifer forests, damp canyons and meadows; widespread in the mountains.
- 29 Fruits not appressed to the rachis, ascending to spreading; no flowers bracteate
- 30 Plants mostly 15-45 cm tall; styles 1-3 mm long; stem hairs simple to branched but not stellate; mid- to high elevations throughout the state ..... *D. helleriana* Greene ● Woodlands, forest, meadows, rocky outcrops at forest edges, aspen communities, in all the mountainous regions of the state.
- 30 Plants mostly 2-10 cm tall; styles to 1 mm long; stem hairs stellate; alpine areas in the northern mountains ..... *D. streptobrachia* R.A. Price ● Loose rocky soils and scree at very high elevations in the north-central mountains; uncommon, known from only a few collections.

**Dryopetalon**

*D. runcinatum* Gray ● Southwestern canyons and foothills.

**Eruca**

\**Eruca vesicaria* (Linnaeus) Cavanilles ● Disturbed areas, roadsides and sidewalks, cultivated fields, open rangelands; native to Europe and Africa. ♦ Our plants belong to subsp. *sativa* (Miller) Thellung.

**Erysimum** Contributed by Patrick J. Alexander.

- 1 Petals 11-30 mm long, 4-10 mm wide; plants biennial or short-lived perennials
- 2 Fruits strongly ascending to erect, concolorous, pubescent with a mixture of 2- and 3-rayed trichomes ..... *E. capitatum* (Douglas ex Hooker) Greene ● In a wide variety of habitats throughout the state, from grasslands to woodlands, forests, and subalpine meadows, rarely even into the alpine zone, but not in desert shrublands; flowering April to September. ♦ Our plants belong to var. *purshii* (Durand) Rollins.
- 2 Fruits horizontal to divaricate-ascending, striped (grayish and densely pubescent on the surfaces but greenish and glabrous, or nearly so, on the angles), pubescent with exclusively 2-rayed trichomes (or very few 3-rayed trichomes just below the style) ..... *E. asperum* (Nuttall) A.P. de Candolle ● Plains in the northeastern quarter of the state; flowering April to August.
- 1 Petals 3-9 mm long, 1-2 mm wide; plants annual or biennial
- 3 Many trichomes on the leaves, stems, and fruits 4- or 5-rayed; pedicels  $\frac{1}{3}$  to  $\frac{1}{2}$  (or more) the length of the mature fruits ..... *E. cheiranthoides* Linnaeus ● Riparian woodland in Rio Arriba County; flowering June to August; native to Europe, Asia, north Africa.
- 3 All trichomes on the leaves, stems, and fruits 2- or 3-rayed; pedicels less than  $\frac{1}{4}$  the length of the mature fruits
- 4 Plants annual; pedicels as wide as or slightly wider than the mature fruits; fruits horizontal to divaricate-ascending; blades of the petals primarily yellow, but white towards the claw ..... *E. repandum* Linnaeus ● Desert shrubland, juniper savanna, piñon/juniper woodlands, and riparian habitats, mostly in the northwest; flowering March to June.
- 4 Plants biennial; pedicels narrower than the mature fruits; fruits strongly ascending to erect; blades of the petals yellow throughout ..... *E. inconspicuum* MacMillan ● Piñon/juniper, ponderosa, and mixed coniferous forest in north-central New Mexico; flowering April to August.

**Halimolobos**

*H. diffusa* (Gray) O.E. Schulz ● Steep canyons, granite outcrops, igneous or limestone slopes, oak-juniper communities; southwestern region, also Eddy, Lincoln, and San Miguel counties.

**Hesperidanthus**

*H. linearifolius* (A. Gray) Rydberg ● Open woods, mixed conifer forests, canyons, rocky plains, outcrops; throughout the state.

**Hesperis**

\**H. matronalis* Linnaeus ● Occasional in gardens, abandoned fields, and roadsides in the cooler northern half of the state; native to Eurasia.

**Hornungia**

\**H. procumbens* (Linnaeus) Hayek ● Disturbed ground of salt marshes, alkaline flats, and sagebrush plains in the Four Corners region; native to Europe and Asia.

**Iberis**

\**I. umbellata* Linnaeus •A garden escape to riparian areas, abandoned gardens, and lawns; known as yet from San Miguel County; native to southern Europe.

**Isatis**

\**I. tinctoria* Linnaeus •Fields and roadsides; known as yet only from Sandoval County; native to Eurasia.

**Lepidium** [Key partly adapted from Al-Shehbaz & Gaskin 2010]

1 Plants rhizomatous, forming colonies (*Cardaria*)

2 Upper cauline leaves cuneate to truncate at the base, neither auriculate nor perfoliate; plants 1-3 m tall; flowers purplish; basal leaves up to 30 cm long and 10 cm wide ..... *L. latifolium*

Linnaeus •Roadsides, ditchbanks, and disturbed ground in grasslands, dry flats and hillsides, sagebrush and piñon-juniper communities; native to Eurasia.

2 Upper cauline leaves auriculate or perfoliate

3 Silicles densely pubescent with minute simple trichomes, globose to subglobose; sepals pubescent ..... *L. appelianum*

Al-Shehbaz •Roadsides, fields, ditch and stream banks, scattered locales; native to Asia.

3 Silicles glabrous, cordate to depressed subglobose or broadly obovate; sepals glabrous

4 Silicles cordate, usually constricted at the septum ..... *L. draba*

Linnaeus •Widespread on moist mountain slopes, farmland, roadsides, and other disturbed areas; native to Eurasia.

4 Silicles transversely oval to slightly reniform or broadly obovate, not constricted at the septum ..... *L. chalapense*

Linnaeus •Farmland, roadsides, and other disturbed areas in the northern regions; native to Asia.

1 Plants with a taproot or woody caudex, not rhizomatous and not forming colonies

5 Upper cauline leaves auriculate or perfoliate

6 Leaves sharply dimorphic, the middle and upper cauline leaves perfoliate, the lower pinnatisect ..... *L. perfoliatum*

Linnaeus •Waste areas, roadsides, disturbed ground in the northern regions; native to Eurasia.

6 Leaves not as above, the middle and upper cauline leaves auriculate-sagittate, the lower entire to toothed... *L. campestre*

(Linnaeus) R. Brown •Disturbed areas and roadsides in the northern forests and woodlands; native to Eurasia.

5 Upper cauline leaves cuneate to truncate at the base, neither auriculate nor perfoliate

7 Racemes axillary, spreading or drooping; fruit coarsely wrinkled ..... *L. didymum*

Linnaeus •Gardens and lawns, fields, disturbed areas, and roadsides, known from Doña Ana County; native to South America.

7 Racemes mostly terminal, erect or ascending; fruit not wrinkled

8 Plants subshrubs or herbaceous perennials, with at least a woody caudex and sometimes with persistent remains of the petioles

9 Basal and lowermost stem leaves entire to toothed, but not lobed ..... *L. crenatum*

(Greene) Rydberg •Sagebrush and piñon-juniper plains and hills in the northwestern region; a report from Chaves County is unexamined, but doubtful.

9 Basal and often the lowermost stem leaves pinnatifid to pinnately lobed

10 Fruits usually ovate to nearly orbicular, rarely oblong; basal blades 1- to 2-pinnatifid; stem blades often pinnately lobed ..... *L. montanum*

Nuttall •Piñon-juniper woodlands, sagebrush plains and hills; predominantly in the northern region, but scattered elsewhere.

10 Fruits broadly ovate; basal blades pinnately lobed; stem blades entire or rarely toothed

11 Plants often woody-based, 10-50 cm tall; middle stem blades 1-3 mm wide .... *L. alyssoides*

Gray •Widespread in woodlands, juniper plains, grasslands, and desert scrub, throughout much of the state and expected in all the counties.

11 Plants rarely woody-based, 45-180 cm tall; middle stem blades 3-10 mm wide ..... *L. eastwoodiae*

Wootton •Mountain slopes and foothills, sagebrush and desert plains; scattered localities mostly along the central cordillera.

8 Plants annual or biennial, lacking a woody caudex and without persistent remains of the petioles

12 Stamens 6 in number

13 Plants annual; rachises pilose, the trichomes straight ..... *L. thurberi*

Wootton •Generally southwestern mesquite and creosote scrub.

13 Plants annual or biennial; rachises puberulent, the trichomes straight or curved

14 Petals 1.5-2.5 mm wide; stem blades lanceolate to linear; plants 45-180 cm tall ..... *L. eastwoodiae*

Wootton •Mountain slopes and foothills, sagebrush and desert plains; scattered localities mostly along the central cordillera.

14 Petals 1.3-1.8 mm wide; stem blades often pinnatifid; plants 10-50 cm tall . *L. montanum*

Nuttall ●Piñon-juniper woodlands, sagebrush plains and hills; predominantly in the northern region, but scattered elsewhere.

12 Stamens 2 in number

15 Herbage granular-puberulent, the hairs flattened, scurfy-like, and tiny; rosettes usually present at flowering time, the leaves pinnatifid; silicles less than 2 mm long; stems erect.....

..... *L. sordidum*

A. Gray ●Eastern plains, sandy ground. ♦Plants can be found intergrading among *Lepidium sordidum*, *L. oblongum*, and *L. densiflorum*.

15 Herbage, rosettes, silicles, and stems not all as above

16 Fruiting pedicels strongly flattened, 0.2-0.7 mm wide; valves of fruits hirsute to hispid, at least on the margins..... *L. lasiocarpum*

Nuttall ex Torrey & Gray ●Open ground, waste places, roadsides, washes, dry plains, widespread and expected in more counties than documented.

16 Fruiting pedicels terete or only slightly flattened, 0.1-0.3 mm wide; valves of fruits glabrous to puberulent

17 Fruits elliptic

18 Basal leaves pinnatifid; racemes slightly elongated in fruit, the rachises with curved trichomes; fruiting pedicels usually puberulent on adaxial side.....

..... *L. ramosissimum*

A. Nelson ●Sagebrush communities and conifer woodlands, waste ground, lawns, fields; mostly northern half of the state, but also scattered locales elsewhere.

18 Basal leaves mostly 2- to 3-times pinnatisect; racemes considerably elongated in fruit, the rachises with straight trichomes; fruiting pedicels puberulent throughout..... *L. ruderalis*

Linnaeus ●Moist disturbed ground along roads, gardens, pastures, scattered locales; native to Eurasia.

17 Fruits obovate to orbicular

19 Plants hirsute; basal leaves pinnatifid

20 Stems often simple from the base; rachises pubescent, the trichomes curved with fewer, longer, straight hairs mixed in..... *L. austrinum*

Small ●Dry disturbed ground at lower elevations in the southern regions.

20 Stems often several from the base; rachises hirsute, the trichomes mostly straight..... *L. oblongum*

Small ●Waste places and disturbed ground in scattered locales, mostly in the southern regions but possible elsewhere.

19 Plants puberulent or glabrous; basal leaves various, toothed to pinnatifid

21 Fruits obovate to nearly orbicular, but the fruits widest beyond the middle; rachises with straight, slender to subclavate hairs; petals absent or rudimentary, less than 1 mm long..... *L. densiflorum*

Schrader ●Open disturbed ground in many habitats, widespread and expected in additional counties.

21 Fruits orbicular, widest at the middle; rachises usually with curved, cylindrical hairs, rarely glabrous; petals usually present and 1-3 mm long (rarely rudimentary)..... *L. virginicum*

Linnaeus ●Fields, roadsides, and other disturbed ground.

### Lobularia

\**L. maritima* (Linnaeus) Desvaux ●An occasional escape from flower gardens, found in scattered locales and perhaps not persisting long; native to Eurasia.

### Matthiola

\**M. longipetala* (Venantat) A.P. de Candolle ●Waste ground, fields, and roadsides; native to Europe and Asia.

### Mostacillastrum

1 Lower leaves pinnatifid, strongly auriculate-clasping; siliques 3-7 cm long..... *M. purpusii* (Brandege) Al-Shehbaz ●Canyons, cliff bases, rocky sites, often in the shade, mountains and foothills.

1 Lower leaves entire or minutely denticulate, not clasping the stem; siliques 1.5-2.5 cm long. *M. subauriculatum* Al-Shehbaz ●Central cordillera, canyon, pine forest, and wooded slopes.

### Nasturtium

1 Mature siliques 1-1.8 mm wide, terete or nearly so; seeds uniseriate..... *N. microphyllum* Boehmer ex Reichenbach ●Springs, streams, seeps; reported by Al-Shehbaz (2010), but counties of occurrence not known; reports from Los Alamos County were corrected to *N. officinale*; native to Europe.

1 Mature siliques 2-3 mm wide, flattened contrary to the septum; seeds biseriate..... *N. officinale* R. Brown ●Throughout the state in springs, marshes, streams, lakes, and ponds; native to Europe and Asia.

**Nerisyrenia** [Key adapted from Alexander et al. 2014]

- 1 Leaves linear, all less than 5 mm wide ..... *N. linearifolia*  
(S. Watson) Greene ●Gypsum plains, bluffs, flats, central and southern arid regions.
- 1 Leaves oblanceolate, spatulate, or obovate, the larger more than 5 mm wide
- 2 Fruits crispate, less than 15 mm long; inflorescences less than 7 cm long; petals less than 5 mm wide, remaining white..... *N. hypercorax*  
P.J Alexander & M.J. Moore ●Gypsum outcrops of the Yeso Formation in southeast New Mexico.
- 2 Fruits straight sided, not crispate, more than 15 mm long; inflorescences more than 7 cm long; petals more than 5 mm wide, fading lavender..... *N. camporum*  
(Gray) Greene ●Clay and gypsum flats, plains, and hillsides; scattered localities nearly throughout the southern half of the state.

**Noccaea**

- N. fendleri* (Gray) Holub ●Mountain and foothill slopes and canyons, meadows and forest clearings, talus, from lower elevation foothills to above timberline.

**Pennellia**

- 1 Siliques hanging; pedicels arched downward; sepals purplish ..... *P. longifolia*  
(Bentham) Rollins ●Widespread in pine-oak forests, meadows, and grasslands in the mountains and foothills.
- 1 Siliques erect or ascending; pedicels likewise; sepals greenish ..... *P. micrantha*  
(Gray) Nieuwland ●Widespread in pine-oak forests, meadows, and grasslands in the mountains and foothills.

**Physaria**

- 1 Fruit paired (didymous) and notched at the tip; plants perennial (*Physaria*)
  - 2 Outer margins of the silique valves sharply angled, nearly winged; basal sinus of silique absent .*P. newberryi*  
A. Gray ●Pine-oak forests, juniper woodlands, gypseous grasslands and shrublands, mostly in the western regions.
  - 2 Outer margins of the silique valves rounded or obtuse, not wing-like; basal sinus of silique present or absent
  - 3 Basal and apical sinuses of the silique about equal and prominent.....*P. acutifolia*  
Rydberg ●Pine-oak, piñon-juniper woodlands, sagebrush flats, mostly northwest region,
  - 3 Sinuses of the silique very unequal, the upper prominent and deep, the basal very shallow or absent.....  
..... *P. floribunda*  
Rydberg ●Piñon-juniper woodlands, canyons, conifer forests in Taos and Rio Arriba counties.
- 1 Fruit not paired nor notched at the tip; plants annual or perennial (*Lesquerella*)
  - 4 Silicles glabrous
    - 5 Rays of the leaf hairs fused to near the middle or more, forming a webbing between the rays (use a lens); primary rays mostly simple and often numerous, usually more than 12..... *P. fendleri*  
(A. Gray) O’Kane & Al-Shehbaz ●Widespread in plains, foothills, and desert areas; our most common and widespread species of *Physaria*.
    - 5 Rays of the leaf hairs distinct to only somewhat fused toward the bases; primary rays mostly with some forking and fewer than 10
    - 6 Plants annual, lacking a distinctly woody caudex
      - 7 Fruiting pedicels recurved, not sigmoid..... *P. aurea*  
(Wooton) O’Kane & Al-Shehbaz ●Known only from the Sacramento and Jicarilla Mountains of Otero and Lincoln counties; endemic to New Mexico, and a state species of concern.
      - 7 Fruiting pedicels straight or sigmoid, not recurved ..... *P. gordonii*  
(A. Gray) O’Kane & Al-Shehbaz ●Grassy plains, washes, ledges and outcrops, and desert slopes, mostly southern half of the state.
    - 6 Plants perennial, often with a woody branched caudex, or at least considerably enlarged
      - 8 Plants forming low dense cushions; inflorescences not or only slightly elongated, scarcely if at all exceeding the leaves; silicles densely arranged
      - 9 Leaves nearly all less than 1 cm long (to 13 mm)..... *P. navajoensis*  
(O’Kane) O’Kane & Al-Shehbaz ●Piñon-juniper woodlands, on Todilto Limestone, McKinley County, also Arizona.
      - 9 Leaves mostly 1-5 cm long
        - 10 Petals 5-8 mm long, styles 2-4 mm long (*iveyana* phase)..... *P. pinetorum*  
(Wooton & Standley) O’Kane & Al-Shehbaz ●Limestone soils in oak, piñon-juniper, ponderosa pine forests, high-elevation spruce-fir communities; central and west-central mountains.
        - 10 Petals 7-15 mm long; styles 4-8 mm long..... *P. ovalifolia*  
(Rydberg) O’Kane & Al-Shehbaz ●Limestone and gypsum outcrops, rocky hills and slopes.
      - 8 Plants more elongate, not forming cushions; inflorescences elongated, easily exceeding the leaves; silicles loosely arranged
        - 11 Pedicels prominently recurved, not sigmoid..... *P. purpurea*  
(A. Gray) O’Kane & Al-Shehbaz ●Southern canyons, rocky hills, and arroyos.
        - 11 Pedicels divaricately ascending to widely spreading and sigmoid

- 12 Styles longer than the silicles; basal leaf blades orbicular to broadly ovate, abruptly narrowed to slender petioles ..... *P. pruinosa* (E.L. Greene) O'Kane & Al-Shehbaz ● Mancos slate or shale, edges of pine forests, meadows, clay barrens; known only from Rio Arriba County near the Colorado border.
- 12 Styles shorter than the silicles, sometimes deciduous; basal leaf blades gradually narrowed to the petioles ..... *P. pinetorum* (Wooton & Standley) O'Kane & Al-Shehbaz ● Limestone soils in oak, piñon-juniper, ponderosa pine forests, high-elevation spruce-fir communities; central and west-central mountains.
- 4 Silicles pubescent
- 13 Pedicels simply recurved in a single arch, neither straight nor sigmoid
- 14 Cauline leaves 1-3.5 cm wide and usually somewhat appressed to the stems; silicles sparsely pubescent ..... *P. aurea* (Wooton) O'Kane & Al-Shehbaz ● Known only from the Sacramento and Jicarilla Mountains of Otero and Lincoln counties; endemic to New Mexico, and a state species of concern.
- 14 Cauline leaves less than 1 cm wide and spreading from the stems; silicles densely pubescent ..... *P. ludoviciana* (Nuttall) O'Kane & Al-Shehbaz ● Limestone outcrops, rocky slopes, and sandy prairies; northwestern and central regions.
- 13 Pedicels sigmoid or curved, but not recurved in a single arch
- 15 Basal and lowermost leaves narrow, 1-5 mm wide, usually with no clear distinction between blade and petiole; basal and cauline leaves somewhat similar
- 16 All leaves involute and uniformly very narrow, less than 2 mm wide, thick ..... *P. intermedia* (S. Watson) O'Kane & Al-Shehbaz ● Pine-oak and piñon-juniper woodlands, brushy plains, washes, scattered localities surrounding the mountains.
- 16 Outer basal leaves flattened, not involute, 3-5 mm wide
- 17 Flower buds keeled; leaves and stems numerous from a thick caudex ..... *P. calcicola* (Rollins) O'Kane & Al-Shehbaz ● Northern woodlands and grassy plains on limestone and gypsum soil.
- 17 Flower buds not keeled; leaves and stems few ..... *P. rectipes* (Wooton & Standley) O'Kane & Al-Shehbaz ● Rocky hills and slopes, washes, sagebrush plains, pine and juniper woodlands and forests, central and western plains, foothills, and lower mountain slopes.
- 15 Basal and lowermost leaves with a definite blade, more than 5 mm wide, usually abruptly expanded from petiole to blade; basal and cauline leaves different
- 18 Silicles rounded at the apex
- 19 Silicles compressed parallel to the septum ..... *P. gooddingii* (Rollins & Shaw) O'Kane & Al-Shehbaz ● Mid-elevation woodlands in Catron, Grant, and Sierra counties.
- 19 Silicles inflated
- 20 Fruiting pedicels sigmoid, 5-8 mm long; silicles 3-4 mm long ..... *P. pinetorum* (Wooton & Standley) O'Kane & Al-Shehbaz ● Limestone soils in oak, piñon-juniper, ponderosa pine forests, high-elevation spruce-fir communities; central and west-central mountains.
- 20 Fruiting pedicels mostly straight and divaricately spreading, 5-15 mm long; silicles 4-8 mm long ..... *P. rectipes* (Wooton & Standley) O'Kane & Al-Shehbaz ● Rocky hills and slopes, washes, sagebrush plains, pine and juniper woodlands and forests, central and western plains, foothills, and lower mountain slopes.
- 18 Silicles pointed at the apex
- 21 Silicles 6-12 mm long, not compressed at the apex; styles 3-7 mm long ..... *P. montana* (A. Gray) E.L. Greene ● Pine and juniper woodlands, sagebrush flats, sandy washes and slopes, often on igneous soils.
- 21 Silicles 5-8 mm long, slightly compressed at the apex; styles 2-3 mm long ..... *P. valida* (E.L. Greene) O'Kane & Al-Shehbaz ● Steep limestone slopes and open woods; south-central and southeastern mountains.

### Raphanus

- 1 Petals pale or creamy white; fruits strongly constricted between the seeds and usually breaking ..... *R. raphanistrum* Linnaeus ● Disturbed moist waste places and roadsides; native to Eurasia; an uncommon escape.
- 1 Petals usually purple or pink, sometimes white; fruits not strongly constricted and not usually breaking ..... *R. sativus* Linnaeus ● Disturbed ground, gardens, roadsides; native to Eurasia; an uncommon escape.

**Rapistrum**

\**R. rugosum* (Linnaeus) Allioni ●Disturbed ground and waste areas; native to southern Europe; an uncommon escape.

**Rorippa** [Key adapted from Rollins 1993 and Al-Shehbaz 2010]

1 Petals white..... go to *Nasturtium*

1 Petals yellow

2 Plants perennial, often with creeping roots and adventitious stems; petals well exceeding the sepals

3 Cauline leaves entire to toothed or repand, never lobed

4 Stems erect; cauline leaves auriculate to clasping; fruits 2.5-3.2 mm long, globose ..... *R. austriaca* (Crantz) Besser ●Moist disturbed ground in the northwest region, known from a single collection; native to Europe.

4 Stems usually decumbent to prostrate, rarely erect; cauline leaves not at all auriculate or clasping; fruits 3-7 mm long, ovoid to lanceolate..... *R. alpina* (S. Watson) Rydberg ●Moist places in mixed conifer forests in the northwest, seeps and springs, stream banks.

3 Cauline leaves shallowly to deeply lobed

5 Pedicels very slender, widely spreading to very slightly ascending; siliques sterile, straight; leaf lobes usually few, cut to the midrib, sharply toothed along the margin ..... *R. sylvestris* (Linnaeus) Besser ●Scattered disturbed riverine and other moist to wet sites; native to Europe and southwest Asia.

5 Pedicels stout, gently recurved; siliques fertile, usually curved upward; leaf lobes few, not cut to the midrib, entire or with a few teeth ..... *R. sinuata* (Nuttall) A.S. Hitchcock ●Pond edges, stream sides, ditches, and other moist ground; widespread.

2 Plants annual or biennial from a taproot; petals scarcely exceeding the sepals

6 Siliques orbicular or nearly so, small, less than 2.5 mm in diameter ..... *R. sphaerocarpa* (Gray) Britton ●Moist ground along lakes, ponds, and streams; northern plains, foothills, and mountain slopes.

6 Siliques elongated, not orbicular, mostly at 2 times longer than wide

7 Siliques linear, 8-50 mm long

8 Lower pedicels more than 1 cm long..... *R. microtitis* (Robinson) Rollins ●Ponds, moist meadows, and ditches; known from a single collection from Catron County, more common westward.

8 Lower pedicels 2-5 mm long ..... *R. teres* (Michaux) Stuckey ●Stream banks, ditches and canals, wet ground, edges of ponds; scattered locales in the mountains.

7 Siliques oblong, less than 8 mm long

9 Plants more than 10 cm tall, usually with one dominant erect stem from the base

10 Siliques rough with minute papillae, tapering toward the apex, not constricted near the center... *R. tenerrima* Greene ●Lake and pond edges, stream sides, moist ground; northern counties.

10 Siliques smooth and glabrous, only slightly tapered to the blunt apex, constricted or not near the center..... *R. curvipes* Greene ●Moist ground of lakes, ponds, and streams; scattered mountain areas.

9 Plants low, ± caespitose, mostly less than 10 cm tall, with several stems arising from the crown

11 Siliques narrowly ovate to oblong with an irregular margin and often with a constriction near the center; stems glabrous ..... *R. tenerrima* Greene ●Lake and pond edges, stream sides, moist ground; northern counties.

11 Siliques subglobose to broadly oblong, not irregular in outline or constricted near the center; stems hispid to glabrous..... *R. palustris* (Linnaeus) von Besser ●Scattered throughout the state in moist ground of ponds, lakes, and streams.

**Selenia**

*S. dissecta* Torrey & Gray ●Scrubland and grassy plains and flats mostly in the southern half of the state.

**Sinapis**

1 Fruit hirsute, the beak strongly compressed and winged; pedicels 6-18 mm long, mostly at right angles to the rachis..... *S. alba* Linnaeus ●An escapee from cultivation to fields, orchards, and roadsides; as yet known only from McKinley County; native to Eurasia.

1 Fruit glabrous or pubescent, the beak conical or angled, not winged; pedicels 3-7 mm long, mostly erect to spreading ..... *S. arvensis* Linnaeus ●Scattered localities, fields, orchards, and other disturbed areas; native to Eurasia.

**Sisymbrium**

1 Fruits 1-2 cm long, ascending-appressed, tapering from a wider base to a narrower beak ..... *S. officinale* (Linnaeus) Scopoli ●Dry waste ground, fields, and roadsides in scattered regions; native to Europe, Asia.



- 1 Fruits 2-10 cm or more long, usually spreading at least somewhat and not appressed, not tapering from base to beak
- 2 Fruiting pedicels thick and stout, about as thick as the silique
- 3 Upper stem leaves with numerous long linear lobes or leaflets; outer two sepals with erect horns at their tips.....*S. altissimum*  
Linnaeus ●Disturbed areas and roadsides, grasslands and plains, piñon-juniper woodlands, forested slopes; native to Europe and Asia.
- 3 Upper stem leaves with two broad basal lobes; outer two sepals lacking horns .....*S. orientale*  
Linnaeus ●Disturbed areas and roadsides, not yet common in the state.
- 2 Fruiting pedicels slender, obviously not as thick as the silique
- 4 Plants perennial; uppermost leaf blades usually linear to filiform, 1-5 mm wide ..... *S. linifolium*  
(Nuttall) Nuttall ex Torrey & Gray ●Rocky or gravelly slopes and plains in sagebrush, piñon-juniper, and pine communities.
- 4 Plants annual; uppermost leaf blades oblanceolate to oblong in outline, 10-30 mm wide
- 5 Plants glabrous or sparsely pubescent; petals 2-4 mm long ..... *S. irio*  
Linnaeus ●Widespread in fields, orchards, roadsides, and other disturbed sites.
- 5 Plants usually densely hispid, at least below; petals 6-8 mm long ..... *S. loeselii*  
Linnaeus ●Occasional in disturbed ground, roadsides, and fields mostly in the northern counties (a single outlier in Hidalgo Co.); native to Europe and Asia.

**Stanleya**

- 1 Middle and upper stem leaves sessile and auriculate-clasping; leaves entire or scarcely toothed .....*S. viridiflora*  
Nuttall ex Torrey & Gray ●Sagebrush and piñon-juniper communities in the Four Corners region.
- 1 Middle and upper stem leaves petiolate; leaves pinnatifid to entire
- 2 Petal blades pale yellow or whitish, obovate, 3-6 mm wide; plants biennial, not woody at the base.....*S. albescens*  
M.E. Jones ●Low clay hills and flats; documented only from a few old collections, in 1869 and 1908; perhaps no longer present in the state; relatively more common in northeastern Arizona and southwestern Colorado.
- 2 Petal blades bright yellow, oblong, 1.5-3 mm wide; plants perennial, woody at the base .....*S. pinnata*  
(Pursh) Britton ●Sagebrush, piñon-juniper, mixed shrub communities; scattered locales along the northern and western tiers of counties.

**Streptanthus**

- 1 Fruit reflexed and hanging downward; sepals 2-5 mm long
- 2 Calyx urn-shaped, constricted near the middle and the sepals flaring at their tips ..... *S. lasiophyllus*  
(Hooker & Arnott) Hoover ●Desert flats and gravelly plains; known from a single collection in Hidalgo County.
- 2 Calyx not urn-shaped as above.....*S. longirostris*  
(S. Watson) S. Watson ●Salt-bush and juniper communities in the northwestern region; flowering April-June.
- 1 Fruit ascending; sepals 8-11 mm long
- 3 Blades of the petals large and showy, obovate to orbicular, spreading, much wider than the claws; calyx not urn-shaped.....*S. platycarpus*  
A. Gray ●Known only from the Guadalupe Mountains of Eddy County.
- 3 Blades of the petals narrower or only slightly wider than the claws; calyx urn-shaped
- 4 Buds and sepals yellowish (subsp. *arizonicus*)..... *S. carinatus*
- 4 Buds and sepals purplish/whitish
- 5 Plants perennial; fruiting pedicels 5-10 mm long; sepals usually with a sparse tuft of bristles near the apex ..... *S. cordatus*  
Nuttall ●Pine and piñon-juniper woodlands and sagebrush plains; mostly northwestern region, but one specimen from Sierra Blanca, Lincoln County.
- 5 Plants annual; fruiting pedicels 5-20 mm long; sepals lacking a tuft of bristles near the apex.....*S. carinatus*  
Wright ex Gray ●Southwestern plains, grasslands, gravelly washes, and canyons.

**Strigosella**

- \**Strigosella africana* (Linnaeus) Botschantzev ●Roadsides, disturbed ground, Four Corners region; native to Europe, Asia, northern Africa. ♦Easily confused with *Chorispora tenella*, but that species has glandular mostly simple hairs on the leaves.

**Thelypodopsis**

- 1 Sepals and petals purplish to whitish..... go to *Mostacillastrum*
- 1 Sepals and petals yellowish ..... *T. aurea*  
(Eastwood) Rydberg ●Heavy clay or sandy soils, banks and road cuts, disturbed ground in the northern mountains and plains.

**Thelypodium** Contributed by Patrick J. Alexander.

- 1 Stem leaves sessile, entire or rarely denticulate; pedicels stout, ca. 0.5 mm wide; sepals erect (subsp. *gracilipes*)  
 ..... *T. integrifolium*  
 (Nuttall) Endlicher ex Walpers ●Found in northwestern New Mexico, usually at relatively moist, low, and  
 often alkaline sites; flowering July to August.
- 1 Stem leaves petiolate, at least the lower pinnately lobed; pedicels slender, ca. 0.25 mm wide (or stout in *T.*  
*texanum*); sepals ascending or spreading
- 2 Sepals ascending, bases of petals and stamens not directly visible; stamens erect, tetradynamous, of unequal  
 lengths; replum constricted between the seeds ..... *T. laxiflorum*  
 Al-Shehbaz ●Known in New Mexico from a single specimen collected in San Juan County, in a riparian  
 area surrounded by piñon-juniper woodland; flowering May to September.
- 2 Sepals and stamens spreading, bases of petals and stamens directly visible; stamens ascending, equal in  
 length and actinomorphically disposed; replum not constricted between the seeds
- 3 Uppermost stem leaves pinnately lobed, mature fruits stiffly divaricate, usually 1.3 mm wide or more .....  
 ..... *T. texanum*  
 (Cory) Rollins ●Found in southeastern New Mexico on and adjacent to limestone cliffs; flowering  
 March to May.
- 3 Uppermost stem leaves entire or toothed, rarely with a couple of lobes near the base; mature fruits  
 horizontal to reflexed, often drooping, usually 1.2 mm wide or less ..... *T. wrightii*  
 Gray ●Widespread, mostly in the western two-thirds of New Mexico, generally in moist, rocky habitats  
 in piñon-juniper or ponderosa forests; flowering July to September.

**Thlaspi**

- 1 Plants annual; stems usually more than 30 cm tall; fruits at least 8 mm wide when mature ..... *T. arvense*  
 1 Plants perennial; stems up to 40 cm tall, but usually shorter; fruits not more than 6 mm wide when mature .....  
 ..... go to *Noccaea*  
 \**T. arvense* Linnaeus ●Stream sides, open ground, roadsides, gardens, mostly foothills and mountain slopes;  
 widespread.

**Thysanocarpus**

- T. curvipes* Hooker ●Plains and foothills in the southwestern region. ●Our material belongs to subsp.  
*amplectens* (Greene) Alexander & Windham.

**Tomostima**

- 1 Racemes 10-70-flowered, elongated in fruit, the rachises densely pubescent; fruiting pedicels densely pubescent  
 ..... *T. cuneifolia*  
 (Nuttall ex Torrey & Gray) Al-Shehbaz, Koch, & Jordon-Thaden ●Rocky slopes or outcrops, meadows,  
 prairies, desert scrub, piñon-juniper woodlands; widespread.
- 1 Racemes 3-16-flowered, subumbellate in fruit, the rachises usually glabrous (rarely sparsely pubescent);  
 fruiting pedicels glabrous or sparsely pubescent ..... *T. reptans*  
 (Lamarck) Al-Shehbaz, Koch, & Jordon-Thaden ●Roadsides, rock outcrops, dry hillsides and slopes, prairies;  
 central to northwest regions.

**Turritis**

- T. glabra* Linnaeus ●Uncommon in moist ground of mountain slopes and forests.

**CACTACEAE CACTUS FAMILY**

- 1 Stems jointed, the joints flattened or cylindrical; areoles with barbed bristles (glochids) and sometimes also  
 with spines, subtended by deciduous, fleshy, green leaves when young
- 2 Joints of the stem flat; spines not covered by a thin papery sheath ..... *Opuntia*
- 2 Joints of the stem cylindrical and elongate or club-shaped, not flattened; young spines covered by a thin  
 papery sheath, this deciduous completely or separating only at the spine tips
- 3 Epidermis of spines separating only at the tips into sheaths; plants low and mat-forming ..... *Corynopuntia*
- 3 Epidermis of the spines fully deciduous; plants tree- or shrub-like, not mat-forming ..... *Cylindropuntia*
- 1 Stems not jointed, hemispherical to cylindrical but never flattened; areoles with hairs or spines but lacking  
 glochids, lacking fleshy green leaves when young
- 4 Primary stems 0.5-2 m tall, not more than about 15 mm in diameter in the lower half, 4- to 6-angled; flowers  
 white ..... *Peniocereus*
- 4 Primary stems mostly shorter and wider than above in the lower half, if angled (ribbed) then usually with  
 more than 6 ribs; flower color various
- 5 Spines, at least some, hooked at the ends like fish-hooks
- 6 Stems 20 cm or more wide, large and barrel-like; central spine cross-ridged (*F. wislizeni*) .. *Ferocactus*
- 6 Stems less than 15 cm wide, not barrel-like (but sometimes barrel-shaped and smaller); central spine  
 not cross-ridged
- 7 Tubercles (nipple-like projections) distinct, not forming longitudinal ridges (though the tubercles  
 may be vertically aligned)
- 8 Tubercles with a groove on the upper side (*C. robustispina uncinata*) ..... *Coryphantha*
- 8 Tubercles lacking a groove ..... *Mammillaria*

- 7 Tubercles united for at least half their length and forming confluent longitudinal ridges  
 9 Hooked spines 6-10 cm long (*F. hamatacanthus*)..... *Ferocactus*  
 9 Hooked spines 2-3 cm long  
 10 Some of the radial spines hooked..... *Glandulicactus*  
 10 None of the radial spines hooked (*S. cloverae*) ..... *Sclerocactus*
- 5 Spines straight to curving or arching, but not fish-hooked at the ends (sometimes hooked in *Coryphantha robustispina*)
- 11 Tubercles (nipple-like projections) united to some degree (at least below) to form confluent longitudinal ridges, which are sometimes topped by separate portions of the tubercles
- 12 Flowers and fruits produced at the sides of the stems; hypanthia with spine clusters (areoles) .....  
 ..... *Echinocereus*
- 12 Flowers and fruits produced at the apex of the stems; hypanthia lacking spine clusters
- 13 Central spine absent (rarely 1) (*S. mesa-verdae*) ..... *Sclerocactus*
- 13 Central spines 1-5
- 14 Central spine curved, strongly cross-ribbed; fruits woolly and bearing spine-tipped sepals  
 15 Central spines 3-7 cm long, 3-9 mm wide at the base; longer radial spines usually longer than 3 cm; ribs usually more than 13 in number; stem epidermis pubescent .....  
 ..... *Homalocephala*
- 15 Central spines 2-3 cm long, 2-3 mm wide at the base; longer radial spines usually shorter than 3 cm; ribs usually fewer than 13 in number; stem epidermis glabrous .  
 ..... *Echinocactus*
- 14 Central spines straight, not cross-ribbed; fruits glabrous
- 16 Flowers 3.5-6 cm long; radial spines 8-17 in number; rare, Carlsbad Caverns National Park, Eddy County..... *Thelocactus*
- 16 Flowers 2-3 cm long; radial spines 13-25 in number; widespread across the southern region..... *Echinomastus*
- 11 Tubercles completely distinct and not forming confluent ridges, often spirally arranged
- 17 At least some of the spines flattened, papery, and appearing as curling blades of grass (*S. papyracanthus*) ..... *Sclerocactus*
- 17 None of the spines as above
- 18 Tubercles with a groove on the upper side
- 19 Flower and fruit borne at the middle of the tubercle, the groove only about ½ to ¾ the length of the tubercle (*C. macromeris*); fruits green ..... *Coryphantha*
- 19 Flower and fruit borne at the base of the tubercle, the groove about as long as the tubercle (except in very young tubercles); fruits green or red
- 20 Tubercles protruding 2.5-4 cm, conspicuous; central spines to nearly 4 cm long; fruits green; outer tepals minutely fringed (*C. robustispina*) ..... *Coryphantha*
- 20 Tubercles protruding no more than 2 cm; central spines less than 2 cm long; outer tepals conspicuously fringed; fruits red..... *Escobaria*
- 18 Tubercles lacking a groove
- 21 Flowers produced on the sides of the stems ..... *Mammillaria*
- 21 Flowers produced on the apex of the stems
- 22 Fruit brown or green and becoming dry and splitting open at maturity; flowers easily visible and projecting from the tip of the stem; stems 3-25 cm tall, not much obscured by the spines; spines not breaking cross-wise..... *Pediocactus*
- 22 Fruit bright red and remaining fleshy at maturity; flowers nearly hidden in a depression at the tip of the stem; stems spherical, 2-5 cm tall, obscured by the dense covering of spines; spines ultimately breaking cross-wise at the middles .....  
 ..... *Epithelantha*

### Corynopuntia

- 1 Larger spines clearly longitudinally ridged and grooved, the bases noticeably flat and broad ..... *C. clavata* (Engelmann) H. Robinson • Endemic to the central plains, valleys, and foothills of New Mexico, ranging from about 6,000-8,000 ft.
- 1 Larger spines not longitudinally ridged and grooved, or only faintly so, the bases subulate or only slightly flattened
- 2 Spines 6-15 per areole, usually much less than 5 cm long; glochids 3-6 mm long..... *C. grahamii* (Engelmann) H. Robinson • Chihuahuan Desert plains and mesas of southern Doña Ana and Otero counties.
- 2 Spines 12-30 per areole, the longer ones to 5 cm long; glochids 6-12 mm long ..... *C. emoryi* (Engelmann) Pinkava • Sandy to gravelly ground in the southwestern desert areas of the bootheel region.

### Coryphantha

- 1 Flower and fruit borne at the middle of the tubercle, the groove only about ½ to ¾ the length of the tubercle; tissue of the tubercles strongly mucilaginous and slimy ..... *C. macromeris*

(Engelmann) Lemaire ●Gravelly and clay soils of low hills and plains in the south-central and southeastern desert areas.

- 1 Flower and fruit borne at the base of the tubercle, the groove about as long as the tubercle (except in very young tubercles); tissue of the tubercles not mucilaginous..... *C. robustispina* (Schott ex Engelmann) Britton & Rose ●Grasslands and shrubby plains in the southern region.

**Cylindropuntia**

- 1 Terminal joints not more than 1.2 cm in diameter
- 2 Larger terminal branches 3-5 mm in diameter; fruits not tuberculate ..... *C. leptocaulis* (A.P. de Candolle) F.M. Knuth ●Widespread in the southern ½ of the state in valleys, flats, bajadas, mesas, and plains.
- 2 Larger terminal branches 6-12 mm in diameter; fruits strongly tuberculate ..... *C. kleiniae* (A.P. de Candolle) F.M. Knuth ●Rocky to gravelly soils on hillsides and canyons in the deserts and grasslands; scattered locales throughout the state.
- 1 Terminal joints (at least some) not less than 1.5 cm in diameter
- 3 Width of terminal joints 1.5-2 cm
- 4 Largest spines at least 3.8 cm long..... *C. davisii* (Engelmann & Bigelow) F.M. Knuth ●Sandy soils mostly of the eastern plains on the Llano Estacado, with scattered populations westward. Reports from Santa Fe County have not been verified.
- 4 Largest spines mostly less than 3 cm long..... *C. whipplei* (Engelmann & Bigelow) F.M. Knuth ●Deserts, grasslands, and woodlands at scattered locales in the western half of the state.
- 3 Width of terminal joints mostly greater than 2 cm
- 5 Stem segments firmly attached; spines not obscuring the stems..... *C. imbricata* (Haworth) F.M. Knuth ●Widespread throughout the state, flats, plains, valleys, washes; common on grasslands and degraded grasslands, also juniper woodlands and clearings in low-elevation forests.
- 5 Stem segments easily detached; spines obscuring or not obscuring the stems
- 6 Stem segments mostly 2-3.4 cm wide; spines usually not obscuring the stems; flowers pink to magenta; fruits proliferating and forming long pendent chains ..... *C. fulgida* (Engelmann) Knuth ●Known from a single ambiguous specimen taken near Steins Pass, Peloncillo Mountains, Hidalgo County, presumably adventive; native westward.
- 6 Stem segments mostly 4 cm or more wide (sometimes narrower on a few stems – look at several stems); spines usually obscuring the stems; flowers green to whitish, sometimes tipped red; fruits not proliferating, not forming pendent chains..... *C. bigelovii* (Engelmann) F.M. Knuth ●A common ornamental, and occasionally escaping into the desert around residential areas in the southern counties; native to Arizona, California, Mexico.

**Echinocactus**

- 1 Central spines 3-7 cm long, 3-9 mm wide at the base; longer radial spines usually longer than 3 cm; ribs usually more than 13 in number; stem epidermis pubescent (*H. texensis*) ..... go to *Homalocephala*
- 1 Central spines 2-3 cm long, 2-3 mm wide at the base; longer radial spines usually shorter than 3 cm; ribs usually fewer than 13 in number; stem epidermis glabrous..... *E. horizontalonius* Lemaire ●Rocky limestone hills, mostly Chihuahuan Desert and adjacent plains and hills.

**Echinocereus** [Key adapted from Taylor 1985]

- 1 Areoles of mature vegetative parts of the stem bearing short white felt or longer cobwebby hairs; petaloids bright orange or slightly pinkish red to deep pure red, with no mixture of blue; flowers not closing at night, remaining open 2-3 days
- 2 Central spines absent (or rarely 1, and then like the radials)..... *E. triglochidiatus*
- 2 Central spines present, distinguishable from the radials
- 3 Central spines angular in cross-section..... *E. triglochidiatus* Engelmann ●Widespread in piñon-juniper communities, bajadas, and grasslands.
- 3 Central spines not angular, round or sometimes flattened
- 4 Central spines 1-2 cm long, mostly 1 in number; radial spines about the same length as the central ..... *E. ×roetteri*
- 4 Central spines 2.5-7 cm long, 1-4 in number; radial spines shorter than the central
- 5 Stems 2-5 cm wide; larger central spines to 0.7 mm in diameter..... *E. coccineus* Engelmann ●Widespread on rocky hillsides, ledges, and canyons.
- 5 Stems 8-15 cm wide; larger central spines to 1.5 mm in diameter..... *E. arizonicus* Rose ex Orcutt ●Oak woodlands in the southwest region. ♦Our plants belong to subsp. *nigrihorridispinus* W. Blum & Rutov.
- 1 Areoles of mature vegetative parts of the stem not bearing white felt or cobwebby hairs (but such present in young areoles); petaloids lavender to purple, or yellow; flowers closing at night and reopening the next day
- 6 Flowers 2-3 cm in diameter and length..... *E. viridiflorus* Engelmann ●Widespread on hillsides, mesas, desert slopes and plains, and mountain foothills.
- 6 Flowers 4-12 cm in diameter and length
- 7 Areoles vertically elongate, elliptic to linear, close-set and 2-6 mm apart; spines often obscuring the ribs

- of the stem; stems unbranched or with few branches
- 8 Spines of the entire floral tube slender and somewhat flexible, the hairs of the areoles long and cobwebby; flowers 5-7.5 cm in diameter; petaloids acuminate ..... *E. reichenbachii* (Terscheck ex Walpers) Haage f. ●Deserts and grasslands of the eastern plains.
- 8 Spines of the entire floral tube stout and rigid, the hairs of the areoles short; flowers 6-12 cm in diameter; petaloids apically rounded
- 9 Central spines absent; radial spines 7-9 mm long, stout..... *E. rigidissimus* (Engelmann) Rose ●Igneous outcrops and rocky slopes of desert grasslands and oak woodlands, southwestern region.
- 9 Central spines present; radial spines 5-12 mm long, slender
- 10 Central spines 8-12 mm long, 2-5 in number; radial spines 7-15 in number.....*E. ×roetteri* (Engelmann) Rümpler ●Desert hills, grasslands, and shrub vegetation in the southern tier of counties.
- 10 Central spines mostly 3-7 mm long, mostly 7-9 in number (sometimes fewer); radial spines 18-22 in number ..... *E. dasyacanthus* Engelmann ●Limestone hills and flats of the southern deserts and grasslands, mostly in the southcentral region, but with scattered populations elsewhere, as far north as Union County.
- 7 Areoles nearly circular; spacing and density of spines and branching variable
- 11 Stems solitary to few in a cluster (1-5); central spines terete, not flattened at the base, nearly circular to broadly elliptic in cross-section ..... *E. fendleri* (Engelmann) Sencke ex J.N. Haage ●Widespread in the state on desert flats, bajadas, juniper grasslands, and mountain foothills.
- 11 Stems many to very numerous, nearly always more than 20 in a cluster, to 300 or more; central spines flattened at the base, narrowly elliptic in cross-section
- 12 Stems very numerous, tightly clumped together into massive yellowish mounds, erect or sub-erect; central spines 2-4 on upper areoles, 5-9 cm long ..... *E. stramineus* (Engelmann) F. Seitz ●Chihuahuan Desert scrub and rocky slopes.
- 12 Stems many, but not tightly clumped into massive mounds, decumbent; central spine usually 1, 1-4 cm long ..... *E. enneacanthus* Engelmann ●Chihuahuan Desert scrub, rocky slopes; very few plants known from Doña Ana and Otero counties, but more common southward along the Rio Grande plain in Texas and Mexico.

**Echinomastus**

*E. intertextus* (Engelmann) Britton & Rose ●Limestone hills and grasslands in the southern and central deserts and arid regions.

**Epithelantha**

*E. micromeris* (Engelmann) Weber ex Britton & Rose ●Limestone or igneous soils in the southern deserts and grasslands, including a single verified report from Hidalgo County.

**Escobaria** [Key adapted from Zimmerman & Parfitt 2003]

- 1 Spines 10-20 per areole; floral remnant on fruit deciduous; stems deep-seated in the substrate, nearly subterranean (in winter especially); fruit globular ..... *E. missouriensis* (Sweet) Britton & Rose ●Plains and hills in grasslands and among junipers on lower mountain slopes; known from very few specimens.
- 1 Spines 15-80 per areole; floral remnant on fruit persistent (deciduous in *E. duncanii*); stems usually not deep-seated, more than ½ above ground; fruit elongate
- 2 Central spines confined to the adaxial part of the spine cluster, erect, appressed and therefore inconspicuous against the adaxial radial spines
- 3 Spines 30-45 per areole; stigma lobes dark green to bright yellow; seeds black; fruit bright red ..... *E. duncanii* (Hester) L. Benson ●Crevice of limestone hills in the desert regions of Sierra County; known in New Mexico from a single locality; also Texas, Mexico.
- 3 Spines 15-20 per areole; stigma lobes white to pink or purple; seeds bright reddish brown; fruit green to dull reddish ..... *E. vivipara*
- 2 Central spines radiating in all directions and not confined to the adaxial part of the spine cluster, obviously distinguished from the radials
- 4 Mature fruit red; stigma lobes green, yellow, or white; calcium oxalate crystals in the pith and cortex nearly microscopic
- 5 Stigma lobes green to bright yellow; anthers bright yellow; sterile distal part of the flower tube shorter than the stamen-bearing part..... *E. dasyacantha* (Engelmann) Orcutt ♦Reported from Anthony Gap, but the plants in question belong to *Escobaria sneedii*; otherwise not reported for the state, but it may yet be found in New Mexico just across the borders of El Paso and Hudspeth counties.
- 5 Stigma lobes white; anthers pale yellow to nearly white; sterile distal part of the flower tube longer than the stamen-bearing part..... *E. tuberculosa*

(Engelmann) A. Berger ●Desert scrub communities in the southern region, generally on limestone.

- 4 Mature fruit green to red; stigma lobes pink, purple, or white; calcium oxalate crystals in the pith 0.5-1 mm in diameter
- 6 Branches 0-30; inner tepals pinkish to reddish; fruits green, exposed portions turning red ....*E. vivipara* (Nuttall) Britton & Rose ●Widespread in deserts, grasslands, woodlands, forests, perhaps in every county.
- 6 Branches 0-250; inner tepals generally white, cream, tan, greenish, to pinkish; fruits red or green .....  
..... *E. sneedii* (Britton & Rose) A. Berger ●Desert scrub to woodlands in the southern region, quite uncommon and seldom encountered.

**Ferocactus**

- 1 Stems 7-30 cm diam; principal central spines smooth to scarcely annulate; fruit filled with juicy pulp at maturity ..... *F. hamatacanthus* (Muehlenpfordt) Britton & Rose ●This was reported from the Cornudas Hills (southern Otero County) by Benson (1982), based on a personal communication from E.F. Castetter; no specimens, photos, or any other documentation are known, and we consider it (as yet) unknown from the state.
- 1 Stems 20-100 cm diam; principal central spines strongly annulate; fruit dry and hollow at maturity ...*F. wislizeni* (Engelmann) Britton & Rose ●Rocky, gravelly, and sandy soils of hills, flats, and bajadas in the southern deserts, Doña Ana County westward, but probably also in Otero County.  
*Ferocactus hamatacanthus*

**Glandulicactus**

- G. uncinatus* (Galeotti) Backeberg ●Soils of hills and bajadas in the southern desert regions, often on limestone. ●Our material belongs to var. *wrightii* (Engelmann) Backeberg.

**Homalocephala**

- H. texensis* (Hopffer) Britton & Rose ●Hills, plains, and valleys in the grasslands and shrublands of the southeastern region.

**Mammillaria**

- 1 Juice of the stems milky
- 2 Radial spines usually 5-7 per areole..... *M. meiacantha* Engelmann ●Widespread throughout the southern regions, mostly east of the Rio Grande, extending northward to Colfax and Union counties.
- 2 Radial spines usually 13-17 per areole.....*M. heyderi* Muehlenpfordt ●Usually gravelly to rocky soils of the deserts, plains, bajadas, and foothills.
- 1 Juice of the stems not milky
- 3 No spines hooked ..... *M. lasiacantha* Engelmann ●Limestone hills, mesas, and plains in the southcentral and southeastern deserts and grasslands.
- 3 At least some spines hooked
- 4 Usually 2-4 hooked spines per areole ..... *M. wrightii* Engelmann ●Low hills, often among grasses, in plains grassland and woodland; widespread through the central and western portions of the state.
- 4 Usually only one hooked spine per areole
- 5 Central spine one, hooked..... *M. barbata* Engelmann ●Sandy granitic soils among grasses and bushes in oak and piñon-juniper woodlands, Grant and Hidalgo counties.
- 5 Central spines 3, the principal one hooked and the other two shorter and straight ..... *M. grahamii* Engelmann ●Hills, washes, and plains at the upper reaches of the southern desert grasslands, southern tier of counties.

**Opuntia**

- 1 Plants tree-like, with a single main trunk at the base, generally taller than wide, 1-6 m tall
- 2 Stem segments 20-60 cm long, 10-25 cm wide; potentially large trees to 6 m tall; not known outside of cultivation in New Mexico ..... *O. ficus-indica* (Linnaeus) Miller ●Sometimes reported from the wild, but not definitely known outside of cultivation in the state; used as an ornamental in the warm southern regions; perhaps native to Mexico.
- 2 Stem segments 15-20 cm long, 12-18 cm wide; small trees or generally shrubs 1-2.5 m tall; known in the wild as well as occasionally in cultivation..... *O. chorotica* Engelmann & Bigelow ●Scattered locales in southwestern counties.
- 1 Plants commonly shrubs, not or scarcely tree-like with a trunk, often wider than tall, rarely taller than 2 m
- 3 Fruits dry at maturity, tan to gray, usually bearing spines; plants low-growing, 2-25 cm tall
- 4 Stem segments flattened to nearly cylindrical, easily detached, 2-5 cm long, 1-3 cm wide; plants 2-10 cm tall; San Juan County..... *O. fragilis* (Nuttall) Haworth ●Rocky outcrops in San Juan County.
- 4 Stem segments flattened, firmly attached, 5-27 cm long, 3-18 cm wide; plants 8-40 cm tall; throughout the state, including San Juan County

- 5 Stem segments puberulent (use a lens); plants completely spineless; seeds nearly spherical and angular  
..... *O. basilaris*  
Engelmann & Bigelow •A common ornamental, not definitely known to escape to the wild, but perhaps to be found in desert habitats of the southern tier of counties; native to Arizona, California.
- 5 Stem segments glabrous; plants densely spiny; seeds flattened ..... *O. polyacantha*  
Haworth •Widespread, throughout the state.
- 3 Fruits fleshy or juicy, various colors, spiny to spineless; plants low-growing to shrubby, 10 cm to 2 m tall
- 6 Stem segments puberulent (use a lens); plants completely spineless; glochids dense, filling the areole; areoles 11-16 per diagonal row across the midstem segment ..... *O. microdasys*  
(Lehmann) Pfeiffer •Commonly cultivated and infrequently escaped and persisting in southern New Mexico, often where yard cuttings have been dumped in the wild; native to Mexico.
- 6 Stem segments glabrous; plants spineless or spiny; glochids not filling the areole; areoles number various across the midstem segment
- 7 Stem segments nearly completely purplish, or at least purplish around the areoles and on the margins of the pads
- 8 Plants typically 1-2 m tall, 3-5 or more pads high, forming ± erect shrubs from a few pad bases; flowers lemon yellow throughout (var. *santa-rita*) ..... *O. chlorotica*  
Engelmann & Bigelow •Scattered locales in southwestern counties.
- 8 Plants typically 0.3-0.6 m tall, sometimes taller, 1-3 pads high, forming spreading clumps from laterally spreading pads; flowers bright yellow with bright-red centers ..... *O. macrocentra*  
Engelmann •Arid grasslands and uplands, scrublands and woodlands, in the southern half of the state.
- 7 Stem segments typically greenish and not purplish, or only slightly purplish under stress
- 9 Plants prostrate, sprawling and bush-like, to erect and tree-like; stem segments mostly 10-35 cm or more long
- 10 Plants 1-2(3) pads high, 15-50 cm tall, the stems commonly prostrate to low-spreading with few branches rising upward
- 11 Larger spines 3-7 per areole ..... *O. camanichica*  
Engelmann & Bigelow •Desert scrub vegetation, desert or arid grasslands and prairies, rocky hills and bajadas, throughout much of eastern and southern regions the state, with outliers northward.
- 11 Larger spines usually 1-2 per areole
- 12 Spines reddish brown to blackish, never yellow (rarely whitish), mostly around the margins of the pads, few inward ..... *O. macrocentra*  
Engelmann •Arid grasslands and uplands, scrublands and woodlands, in the southern half of the state.
- 12 Spines tan, brown, pinkish, white, yellow, mostly with many spines inward on the pad ..... *O. phaeacantha*  
Engelmann •Rocky hillsides in grasslands and woodlands, arid foothills, throughout most of the state.
- 10 Plants (2)3-6 pads high, 50-200 cm tall, at least somewhat bushy with some to many branches rising upward, to tree-like
- 13 Spines typically yellow (sometimes dark in age)
- 14 Plants tree-like, with a single trunk at the base, with spines on the trunk; southwestern region ..... *O. chlorotica*  
Engelmann & Bigelow •Arid grasslands, mountain woodlands, desert scrub, in the southwestern region.
- 14 Plants bushy, with many branches at the base; mostly southeastern region ..... *O. lindheimeri*  
Engelmann •Southeastern corner of the state, with scattered outliers westward and northward.
- 13 Spines of various colors, but not yellow
- 15 Stem segments mostly medium-sized, 12-25 cm long
- 16 Pads blue-green; spines 4-8 cm long, typically two-toned, darker below, lighter above ..... *O. dulcis*  
Engelmann •Desert plains, bajadas, foothills and lower mountain slopes, arid grasslands, throughout much of the state, except, perhaps, the northwest region.
- 16 Pads yellow-green; spines 2-3 cm long, generally not two-toned, typically whitish or light brown ..... *O. gilvescens*  
Griffiths •Scattered locales generally in the southern ½ of the state, with outliers northward; foothills, bajadas, low dry mountains, woodlands and shrubby grasslands.
- 15 Stem segments mostly larger, 20-55 cm or more long
- 17 Pads conspicuously elongated, many pads 2 times longer than wide; areoles with 3-

- 6 large spines; older stems/trunks spiny ..... *O. valida*  
Griffiths ●Arid, rocky foothills; central to southern regions; little known and probably more common than indicated, also in west Texas.
- 17 Pads ovate, nearly orbicular, to obovate, not much elongated, most 1-1.5 times longer than wide; areoles with 1-3 large spines; older stems/trunks generally not spiny
- 18 Pads nearly orbicular to diamond-shaped and about as wide as long; main spines mostly angled and not much flattened..... *O. orbiculata*  
Salm-Dyck ex Pfeiffer ●Rocky slopes and cliffs, desert scrub communities; generally southern half of the state.
- 18 Pads mostly definitely longer than wide; main spines angled to commonly flattened ..... *O. engelmannii*  
Salm-Dyck ex Engelmann ●Common in the desert or arid regions of the state, often on rocky hillsides and canyons, rarely in desert flats; common across the southern 2/3 of the state.

9 Plants prostrate; stem segments mostly 5-11 cm long

- 19 Fruits nearly globose or ovoid; major spines erect to reflexed; minor spines at base of areole 2-8, deflexed; spines usually distributed over the distal 30-85% of the segment ..... *O. tortispina*  
Engelmann & Bigelow ●Grasslands, woodlands, rocky hills, scattered locales in the state.
- 19 Fruits elongate; major spines erect to spreading; minor spines at base of areole 0-2, spreading to deflexed; spines absent or only in the distal 10-30% of the segment
- 20 Stem segments nearly circular to obovate, usually rooting where they touch the soil; leaves on young pads usually bluish green and about 1 cm long; spines ± stout, 0.5 mm diameter at the base; inner tepals yellow, with red basal portions ..... *O. macrorrhiza*  
Engelmann ●Plains and woodlands, commonly in the northern and western halves of the state, with scattered reports elsewhere.
- 20 Stem segments cuneate-obovate to commonly rhombic, usually not rooting; leaves on young pads usually green or reddish and about 0.5 cm long; spines slender, about 0.2 mm diameter at the base; inner tepals red throughout ..... *O. pottsii*  
Salm-Dyck ●Plains, hills, and dry mountain slopes across the southern tier of counties.

**Pediocactus**

- 1 Central spines 3-10 (except in some juvenile plants); stems 3-15 cm long ..... *P. simpsonii*  
(Engelmann) Britton & Rose ●North-central mountains and foothills, from mid- to high-elevations (to well over 10,000 ft).
- 1 Central spines none or rare; stems 0.5-4 cm long ..... *P. knowltonii*  
L. Benson ●Gravelly hills of piñon-juniper-sagebrush country; endemic to New Mexico.

**Peniocereus**

*P. greggii* (Engelmann) Britton & Rose ●Desert grasslands and plains in the southwestern region.

**Sclerocactus** [Key adapted from Heil & Porter 1994]

- 1 Spines strongly flattened and ribbon-like, several times wider than thick, puberulent, resembling grass blades ..... *S. papyracanthus*  
(Engelmann) N.P. Taylor ●Widespread in open flats of grasslands and woodlands, often among grama grass, throughout the central portions of the state north to south.
- 1 Spines not as above, not at all resembling grass blades
- 2 Hooked spines absent; central spine none (rarely 1 and rarely hooked) ..... *S. mesae-verdae*  
(Boissevain & C. Davidson) L. Benson ●Sparsely vegetated, low rolling clay hills on the Mancos or Fruitland shale formations, San Juan County; also in Montezuma County, Colorado.
- 2 Hooked spines consistently present; central spines 1-9
- 3 Some of the radial spines hooked (*G. uncinata*)..... go to *Glandulicactus*
- 3 None of the radial spines hooked
- 4 Central spines mostly 4; radial spines 6-17 (sometimes fewer) ..... *S. parviflorus*  
Clover & Jotter ●Gravelly, sandy, clay sites in piñon-juniper woodlands and brush communities, northwestern quarter of the state, especially the Four Corners area. ♦Our material belongs to subsp. *intermedius* (Peebles) Heil & Porter.
- 4 Central spines 4-9; radial spines 2-8 ..... *S. cloverae*  
Heil & Porter ●Hills, mesas, washes, grasslands to woodlands in the northwest-central regions.

**Thelocactus**

*T. bicolor* (Galeotti ex Pfeiffer) Britton & Rose ●Chihuahuan Desert scrub vegetation, limestone substrate, Eddy County, known only from a single collection (ASU) at the mouth of Slaughter Canyon, Carlsbad Canyon National Park.

**CAMPANULACEAE BELLFLOWER FAMILY**

- 1 Corolla actinomorphic
  - 2 Plants perennial; flowers pedicellate or pedunculate, borne in racemes or solitary ..... *Campanula*
- 230



- 2 Plants annual; flowers sessile, borne in spikes..... *Triodanus*
- 1 Corolla zygomorphic, bilabiate
- 3 Flowers minute, 1-3 mm long; plants annual, 5-15 cm tall..... *Nemacladus*
- 3 Flowers large, more than 10 mm long; plants perennial..... *Lobelia*
- Campanula**
- 1 Stem leaves lance-ovate to ovate, coarsely serrate, at least the lower petiolate..... *C. rapunculoides*  
Linnaeus ●An escape from cultivation, known in the wild from a single collection in Colfax County, but potentially invasive elsewhere from garden plants; native to Europe.
- 1 Stem leaves linear to narrowly oblong, entire, sessile
- 2 Flowers solitary, 4-10 mm long; calyx lobes 3-4 mm long..... *C. uniflora*  
Linnaeus ●High elevation alpine tundra, above 12,000 ft; known definitely only from Taos County.
- 2 Flowers solitary or 2-several, 10-20 mm long; calyx lobes 5-10 mm long or more
- 3 Corolla lobed about half-way, the sepals longer than the corolla bowl; flowers and fruits erect; leaf bases glabrous or merely hispidulous..... *C. parryi*  
Gray ●Mostly subalpine slopes to near timberline, but descending to about 7,000 ft, often in wet ground.
- 3 Corolla lobed about one-third, the sepals shorter than the corolla bowl; flowers and fruits nodding or sometimes erect; leaf bases ciliate..... *C. rotundifolia*  
Linnaeus ●Forest openings and meadows at medium to high elevations, rather dry ground; exceedingly common in all the mountainous regions of the state.
- Lobelia**
- 1 Flowers red..... *L. cardinalis*  
Linnaeus ●Widespread in wet places, seepy areas, springs. ♦Our plants belong to subsp. *graminea* (Lamarck) McVaugh.
- 1 Flowers blue
- 2 Plants annual or biennial; leaves sharply and deeply serrate, broad and often clasping at the base..... *L. fenestralis*  
Cavanilles ●Wet places, stock ponds, stream banks, in the bootheel; known from a single collection in Hidalgo County; rare in New Mexico, Arizona, and Texas, but common in the highlands of Mexico.
- 2 Plants from a perennial rootstock; leaves shallowly dentate or nearly entire, narrowed at the base and never clasping..... *L. anatina*  
Wimmer ●Meadows, marshy places, and stream banks in the southwestern region.
- Nemacladus**
- N. orientalis* (McVaugh) Morin ●Desert shrub communities.
- Triodanis**
- T. perfoliata* (Linnaeus) Nieuwland ●Stream sides, moist canyon bottoms, and disturbed areas in scattered locales.

### CANNABACEAE HEMP or HACKBERRY FAMILY

- 1 Plants woody trees or shrubs; leaves simple, ± pinnate-veined but with 3 veins at the base..... *Celtis*
- 1 Plants herbaceous or vines, though may be robust; leaves simple to compound, palmate
- 2 Erect herb to several meters tall; leaves compound with palmately arranged leaflets..... *Cannabis*
- 2 Trailing vines; leaves simple with palmate lobes..... *Humulus*
- Cannabis**
- \**C. sativa* Linnaeus ●Moist, fertile disturbed sites, generally not persisting.
- Celtis**
- 1 Branches with thorns; leaf blades usually less than 2 cm wide..... *C. pallida*  
Torrey ●Southwestern desert canyons and foothills.
- 1 Branches not thorny; leaf blades usually wider than 2 cm
- 2 Leaf blades mostly 2-5 cm long on normal growth..... *C. reticulata*  
Torrey ●Rocky hills and outcrops, stream banks, arroyos, valley bottoms; widespread and common throughout the state.
- 2 Leaf blades mostly 4-15 cm long on normal growth
- 3 Margins mostly entire..... *C. laevigata*  
Willdenow ●Bottomlands, flood plains; known from only a few collections. ♦Our plants belong to var. *texana* Sargent.
- 3 Margins conspicuously serrate well below the middle..... *C. occidentalis*  
Linnaeus ●River bottoms, floodplains; known from only a few collections in the northeast region.
- Humulus**
- H. lupulus* Linnaeus ●Widespread, clambering on shrubs and small trees, river banks, moist woods. ♦Our plants belong to var. *neomexicanus* Nelson & Cockerell.

### CAPRIFOLIACEAE HONEYSUCKLE FAMILY

- 1 Leaves pinnately compound (*Sambucus*)..... go to VIBURNACEAE

Dicotyledonous Plants - Caprifoliaceae

- 1 Leaf simple, but may be divided
  - 2 Corolla rotate, actinomorphic (*Viburnum*)..... go to VIBURNACEAE
  - 2 Corolla tubular, typically zygomorphic
    - 3 Stems and leaves markedly prickly; flowers tightly clustered in involucrate heads, also prickly .. *Dipsacus*
    - 3 Stems, leaves, and flowers not as above
      - 4 Plants herbaceous, frequently ill-scented; stamens 1-3
        - 5 Cauline leaves entire, occasionally with small lobes at the base; flowers with a spur 4-12 mm long at the base of the corolla tube..... *Centranthus*
        - 5 Cauline leaves pinnately lobed to compound; flowers lacking a spur, sometimes with a slight pouch..... *Valeriana*
      - 4 Plants subshrubs or well-developed shrubs, not ill-scented; stamens 4-5
        - 6 Plants subshrubs 20 cm or less tall; flowers paired on long peduncles 2-6 cm long..... *Linnaea*
        - 6 Plants well-developed shrubs and much taller; flowers paired or not but on shorter peduncles
          - 7 Corolla slightly to markedly bilabiate, the tube gibbous or swollen near the base; ovary 2- to 3-loculed..... *Lonicera*
          - 7 Corolla not bilabiate, the tube not gibbous or swollen; ovary 4-loculed..... *Symphoricarpos*

**Centranthus**

\**C. ruber* (Linnaeus) A.P. de Candolle ●Escaped along Fresnal Creek, Otero County; native to Mediterranean region.

**Dipsacus**

\**D. fullonum* Linnaeus ●Scattered localities, old fields, ditch-banks, roadsides, and similar disturbed habitats; expected in more counties than shown; native to Europe.

**Linnaea**

*L. borealis* Linnaeus ●Damp woods in the northern mountains, at high elevations. ♦Our plants belong to var. *longiflora* Torrey.

**Lonicera**

- 1 Uppermost pair of leaves (nearest the flowers, not the subtending bracts) connate-perfoliate; flowers in whorled clusters at the ends of the stems, absent from the axils along the stems
  - 2 Corolla white to cream-colored, strongly bilabiate; blades glabrous or hairy below, but lacking conspicuous ciliate hairs along the margin..... *L. albiflora*  
Torrey & Gray ●Southern and western mountains and canyons.
  - 2 Corolla orange, pink, red, or purplish, nearly regular; blades glabrous to very sparsely hairy below, with conspicuous ciliate hairs along the margin..... *L. arizonica*  
Rehder ●Southern and western mountains.
- 1 Uppermost pair of leaves distinct, not connate-perfoliate; flowers in pairs in the axils all along the stem (sometimes also crowded at the stem tips)
  - 3 Stems twining, trailing; corolla 3-5 cm long, strongly bilabiate; fruit black..... *L. japonica*  
Thunberg ●A common ornamental, escaping to the wild in a few scattered, weedy, moist sites; native to Asia.
  - 3 Stems not twining or trailing, mostly upright or bushy-branched; corolla usually less than 3 cm long, not strongly bilabiate; fruit variously colored, including black
    - 4 Branchlets solid; style glabrous; native species
      - 5 Leaves acuminate at the apex; subtending bracts (not the leaves below) at the tip of the peduncle enlarged, broad and foliaceous, glandular-ciliate, forming an involucre; flowers glandular-hairy..... *L. involucrata*  
(Richardson) Banks ex Sprengel ●Widely scattered locales in the mountains, commonly encountered.
      - 5 Leaves obtuse or rounded at the apex; subtending bracts at the tip of the peduncle tiny, 1-3 mm long, glabrous; flowers glabrous..... *L. utahensis*  
S. Watson ●Western mountains.
    - 4 Branchlets hollow; style hirsute; exotic species escaped from cultivation
      - 6 Leaves glabrous beneath; peduncles 1.5-2.5 cm long..... *L. tatarica*  
Linnaeus ●Known from only a few collections; native to Asia.
      - 6 Leaves thinly pubescent beneath; peduncles 0.5-1.5 cm long..... *L. ×bella*  
Zabel ●Known from Los Alamos and Santa Fe counties; native to Asia.

**Symphoricarpos**

- 1 Young twigs and foliage glabrous
  - 2 Leaves lanceolate to oblanceolate, usually glaucous, 0.5-1.5 cm long, 2-5 mm wide; young twigs whitish..... *S. longiflorus*  
Gray ●Desert scrub communities in the southern foothills, 5,000-6,600 ft.
  - 2 Leaves ovate to orbicular, not glaucous, 1-3 cm long, 8-18 mm wide or more; young twigs usually dark (*oreophilus* phase)..... *S. rotundifolius*  
Gray ●Widespread throughout the state in the mountains and foothills, in a wide variety of habitats and terrain, 5,800-10,200 ft.

- 1 Young twigs and foliage variously puberulent to pubescent
- 3 Corolla campanulate, the lobes as long as the tube
- 4 Blades mostly 1-3 cm long; style and stamens scarcely exerted from the corolla ..... *S. albus* (Linnaeus) Blake ●Brushy slopes, canyons, and clearings in the mountains and foothills, 7,000-8,000 ft.
- 4 Blades mostly 3-10 cm long; style and stamens noticeably exerted from the corolla ..... *S. occidentalis* Hooker ●Barely entering New Mexico in Colfax County, in moist canyons and rocky ravines in the foothills and mountain slopes, 6,700-8,200 ft.
- 3 Corolla funnelliform to salverform, the lobes much shorter than the tube
- 5 Corolla salverform, narrow, about 1 mm wide just below the lobes; leaves lanceolate to oblanceolate, usually glaucous, 0.5-1.5 cm long, 2-5 mm wide; young twigs whitish ..... *S. longiflorus* Gray ●Desert scrub communities in the southern foothills, 5,000-6,600 ft.
- 5 Corolla funnelliform, broader, 2-3 mm wide just below the lobes; leaves ovate to orbicular, glaucous to green, 1-4 cm long, 5-25 mm wide; young twigs whitish to dark ..... *S. rotundifolius* Gray ●Widespread throughout the state in the mountains and foothills, in a wide variety of habitats and terrain, 5,800-10,200 ft.

**Valeriana**

- 1 Corolla yellowish or greenish
- 2 Cauline leaves usually pinnatifid; stems usually taller than 15 cm; corolla 2-3 mm long ..... *V. edulis* Nuttall ex Torrey & Gray ●Widespread in the mountains.
- 2 Cauline leaves entire; stems usually shorter than 15 cm; corolla 5-6 mm long ..... *V. texana* Steyermark ●Moist, shaded limestone cliffs and ledges in the southeastern mountains.
- 1 Corolla whitish or pinkish
- 3 Rootstocks usually vertical, short, tuber-like; leaves thin and flaccid, all nearly sessile; corolla 1-2 mm long; fruits strigose-pubescent ..... *V. sorbifolia* Kunth ●Coniferous forests of the bootheel region.
- 3 Rootstocks usually horizontal, elongate, rhizome-like; leaves firm, the basal petiolate; corolla 4-13 mm long; fruits glabrous to pubescent
- 4 Corolla 7-13 mm long, the tube usually much longer than the throat and limb; basal leaves broadly elliptic to nearly orbicular ..... *V. arizonica* Gray ●Widespread in the mountains, in damp woods.
- 4 Corolla 2-6 mm long, the tube usually shorter than the throat and limb; basal leaves various
- 5 Corolla tube short, the limb widely flaring (rotate or nearly so), 2-3.5 mm long; leaves mostly oblong in outline, the lateral segments of the stem leaves commonly broadly lanceolate to elliptic, obtuse to acute ..... *V. occidentalis* A. Heller ●Mountain brush to subalpine forests, uncommon in the northern and western mountains.
- 5 Corolla tube longer, funnelliform, 4-6 mm long; leaves ovate to spatulate in outline, the lateral segments of the stem leaves usually narrowly lanceolate and acuminate ..... *V. acutiloba* Rydberg ●Damp woods in the mountains.

**CARYOPHYLLACEAE PINK FAMILY**

- 1 Leaves with evident, scarious or hyaline stipules
- 2 Leaves subulate-setaceous, rigid; outer three sepals with a setaceous tooth on each side; plants annual ..... *Loeflingia*
- 2 Leaves and sepals not as above; plants annual or perennial
- 3 Petals absent; fruit 1-seeded, indehiscent; plants perennial ..... *Paronychia*
- 3 Petals present; fruit several-seeded, dehiscent; plants annual or perennial
- 4 Styles 3, divided to the base; petals entire, not fimbriate, lobed, or divided ..... *Spergularia*
- 4 Styles single below, 3-lobed above the middle; petals fimbriate, lobed, or divided ..... *Drymaria*
- 1 Leaves lacking stipules
- 5 Sepals distinct or united only at the base, not forming a calyx tube; petals not clawed
- 6 Leaf blades suborbicular, clustered with the flowers at the ends of slender, radiating, naked stems; style single below, divided above the middle into 3 lobes; (*D. pachyphylla*) ..... *Drymaria*
- 6 Leaves and branches otherwise; styles 3-5, divided to the base
- 7 Petals entire or merely emarginate or fimbriate at the apex
- 8 Styles 4-5, as many as the sepals; valves of the capsule 4-5; flowers single on the elongated peduncles; leaves linear and mostly basal; low plants of high elevations ..... *Sagina*
- 8 Styles 3, fewer than the sepals; valves of the capsule 3 or sometimes appearing as 6; flowers, leaves, and plants various
- 9 Leaves lanceolate to ovate
- 10 Plants annual from taproots; leaves 1-2 times longer than broad, much shorter than the internodes, mostly 0.2-1.5 cm long ..... *Arenaria*
- 10 Plants perennial from rhizomes or stolons; leaves mainly 2-10 times longer than broad, often longer than the internodes, mostly 1-7 cm long
- 11 Stems usually elongate, branched and sprawling; herbage densely but minutely

- puberulent; stem leaves acute and the apex apiculate ..... *Arenaria*
- 11 Stems simple or branched only from the base, erect; herbage sparsely and inconspicuously pubescent; stem leaves obtuse or rounded at the tips ..... *Moehringia*
- 9 Leaves linear
  - 12 Leaves narrowly linear or filiform, grass-like, over 1 cm long; ovary at maturity splitting into 3 valves, which are again partly split to form 6 teeth ..... *Eremogone*
  - 12 Leaves linear but very short and thick, less than 1 cm long; ovary at maturity splitting into 3 valves, which are entire or only emarginate at the tip
    - 13 Sepal apices acute to acuminate, not hooded, the sepals not hardened at the base ..... *Sabulina*
    - 13 Sepal apices rounded, hooded, the sepals hardened at the base ..... *Cherleria*
- 7 Petals ± deeply bifid (sometimes absent in *Stellaria media*)
  - 14 Capsule cylindrical, opening by 10 apical teeth; styles mostly 5 (3 in *C. nutans*) ..... *Cerastium*
  - 14 Capsule oblong or ovoid, opening by 6 valves to about the middle; styles 3
    - 15 Plants glandular-pubescent, at least in the inflorescence; petals 6-8 mm long; leaves in decussate pairs (each pair at right angles to the pair above or below) ..... *Pseudostellaria*
    - 15 Plants not glandular-pubescent; petals not longer than 5 mm; leaves not decussate ..... *Stellaria*
- 5 Sepals united to form an obvious calyx tube; petals clawed
  - 16 Calyx 20- to 25-nerved, closely invested at the base by long-aristate bracts; flowers with red petals, in rather tight clusters ..... *Dianthus*
  - 16 Calyx 5- to 10-nerved, or the nerves scarcely discernible; lacking closely subtending aristate bracts; flowers otherwise
    - 17 Calyx lobes much longer than the tube and usually extending beyond the corolla lobes as well; flowers solitary on long peduncles ..... *Agrostemma*
    - 17 Calyx lobes much shorter than both the calyx tube and corolla lobes; flowers variously disposed, but often clustered on a common peduncle
      - 18 Flowers small, less than 4 mm long, very numerous in bushy-branched cymes; plants perennial, glabrous, up to 1 m tall and nearly as wide ..... *Gypsophila*
      - 18 Flowers larger, usually more than 5 mm long, the cymes not bushy-branched; plants various
        - 19 Calyx strongly 5-angled or 5-ribbed, ovoid; plants annual ..... *Vaccaria*
        - 19 Calyx 10-ribbed or nerved, or smooth and the veins scarcely noticeable, cylindrical to ovoid, but not strongly 5-angled; plants annual or perennial
          - 20 Flowers in crowded terminal clusters; herbage glabrous; styles 3-5; a garden escape ..... *Saponaria*
          - 20 Flowers solitary or in racemose or paniculate cymes, usually not in terminal clusters; herbage often glandular or pubescent; styles 2; native or adventive plants ..... *Silene*

**Agrostemma**

\**A. githago* Linnaeus •Occasional in cultivated fields and waste places; native to Eurasia.

**Arenaria**

- 1 Plants perennial, from taproots and often also rhizomes; herbage densely but minutely puberulent ..... *A. languginosa*  
(Michaux) Rohrbach •Widespread in all the mountain ranges and foothills. ♦Our plants belong to var. *saxosa* (A. Gray) Zarucchi, Hartman, & Rabeler
- 1 Plants annual, from filiform taproots; herbage glabrous or sparsely minutely puberulent
  - 2 Leaves ovate, mostly 3-5 mm long; stems uniformly puberulent ..... *A. serpyllifolia*  
Linnaeus ♦Disturbed ground, roadsides; native to Eurasia, Africa; known only from a single occurrence at a city park in Deming, Luna County, but likely to be found elsewhere.
  - 2 Leaves elliptic to oblanceolate, mostly 5-20 mm long; stems puberulent in lines ..... *A. benthamii*  
Fenzl ex Torrey & Gray •To be looked for in rocky outcrops of the eastern plains; reported for New Mexico by both Hartman et al. (2005) and Maguire (1951), but without locality; specimens are unknown.

**Cerastium** [Key adapted from Morton 2005]

- 1 Plants annual, all the shoots producing flowers
  - 2 Sepals with long hairs exceeding the sepal tips ..... *C. glomeratum*  
Thuiller •Disturbed ground, roadsides, a few localities; native to Europe.
  - 2 Sepals with shorter hairs not exceeding the sepal tips
    - 3 Flowers produced singly in the axils of foliaceous bracts along the stems ..... *C. axillare*  
Correll •Foothills and canyons of southern desert mountains.
    - 3 Flowers in cymes or clusters
      - 4 Stem nearly naked above; teeth of mature capsule strongly revolute ..... *C. texanum*  
Britton •Moist wooded places in the central and southern mountains.
      - 4 Stem ± above; teeth of mature capsule erect or slightly curving
        - 5 Pedicels equaling or shorter than the capsules, often becoming deflexed at the base .....

- ..... *C. brachypodium*  
(Engelmann ex A. Gray) B.L. Robinson ●Widespread in the mountains, meadows, woods, roadsides.
- 5 Pedicels longer than the capsules, deflexed at the tips near the capsules
- 6 Sepals ovate-lanceolate, the apices broadly acute to obtuse; scarious margins of the inner sepals about as wide as the herbaceous center; blades at mid-stem 3-15 mm wide ..... *C. nutans* Rafinesque ●Widespread, open moist ground. ♦Our material belongs to var. *obtectum* Kearney & Peebles
- 6 Sepals narrowly lanceolate, the apices sharply acute to acuminate; scarious margins of the inner sepals narrower than the herbaceous center; blades at mid-stem 1-6 mm wide..... *C. fastigiatum* Greene ●Open woods and canyons in the western mountains.
- 1 Plants perennial, often with non-flowering shoots
- 7 Small tufts of leaves present in the axils of the mid-stem and upper leaves ..... *C. arvense* Linnaeus ●Meadows and openings in pine forests, medium to high elevations in the mountains. ♦Our material belongs to subsp. *strictum* (Linnaeus) Ugborougho.
- 7 Small tufts of leaves absent from the axils (but normal leafy shoots may be present)
- 8 Basal bracts of the cymes leaf-like; petals usually exceeding the sepals..... *C. beeringianum* Chamisso & Schlechtendal ●Subalpine to alpine rockslides, meadows, ledges in the mountains.
- 8 Basal bracts of the cymes reduced, not leaf-like; petals about equaling the sepals ..... *C. fontanum* Baumgarten ●Occasional ruderal weed of sporadic distribution, usually in the mountains or foothills, but occasional specimens from urban areas; native to Europe. ♦Our plants are referred to subsp. *vulgare* (Hartman) Greuter & Burdet.
- Cherleria**
- C. obtusiloba* (Rydberg) Moore & Dillenberger ●Rocky alpine slopes above 9000 ft; central mountain cordillera.
- Dianthus**
- 1 Inflorescence an open cyme of 1-6 flowers; calyx pubescent.....*D. armeria* Linnaeus ●Meadows, fields, and disturbed areas; scattered locales in the mountains; native to Europe, Asia.
- 1 Inflorescence a dense head of 5-20 flowers (rarely solitary); calyx glabrous ..... *D. barbatus* Linnaeus ●Moist roadsides, fields, disturbed streambanks, escaped from nearby gardens and homesites, not persisting long; native to Europe, Asia.
- Drymaria**
- 1 Stem leaves broadly ovate, nearly as broad as long or broader
- 2 Stems prostrate, radiating from the central crown, with clusters of leaves and flowers at the stem tips; plants glabrous; sepals obtuse, broadly hyaline-margined; petals 4-lobed ..... *D. pachyphylla* Wootton & Standley ●Dry plains and desert flats and playas in the southern region.
- 2 Stems erect or ascending, not as above; plants glabrous to glandular; sepals acute to acuminate, scarcely hyaline-margined; petals 2-lobed
- 3 Plants mostly annual (sometimes perennial), the stems erect, unbranched or with sparse ascending branches; petals clawed, narrower below than above; petal lobes not notched apically ..... *D. glandulosa* K. Presl ●Dry plains, foothills, and mountain slopes, low to medium elevations, widespread.
- 3 Plants mostly perennial (sometimes annual), the stems spreading-geniculate with divaricate branches; petals not clawed, about the same width above and below; petal lobes notched apically ..... *D. laxiflora* Benthman ●Rocky slopes in the southern foothills, known from a single collection in Luna County.
- 1 Stem leaves linear to oblanceolate, much longer than broad
- 4 Leaves fascicled and appearing whorled; sepals broadly oblong to obovate, obtuse to rounded and somewhat hooded at the apex, 1-nerved; petals fimbriate
- 5 Herbage and sepals glabrous ..... *D. molluginea* (Lagasca) Didrichsen ●Widespread in the state on dry plains and foothills.
- 5 Herbage and sepals densely hispidulous-glandular.....*D. arenarioides* Humboldt & Bonpland ex J.A. Schultes ●Not yet known in New Mexico nor the United States, but present in northern Chihuahua within 50 meters of the border in the vicinity of Antelope Wells, Hidalgo County, and persistently (but, as yet, erroneously) attributed to the state; native to Mexico.
- 4 Leaves clearly opposite; sepals various; petals bifid
- 6 Sepal apices blunt to rounded, the 3 veins parallel .....*D. depressa* Greene ●Open meadows in the northern and southwestern mountains at medium elevations.
- 6 Sepal apices acute to acuminate, the lateral 2 veins arcing outward and not parallel ..... *D. leptophylla* (Chamisso & Schlechtendal) Fenzl ex Rohrbach ●Foothills and mid-elevation slopes in the mountains, pine-oak woodlands.
- Eremogone**
- 1 Inflorescence congested, capitate, 1-5 cm long, scarcely to only moderately exceeding the leaves, the plants cushion-forming..... *E. hookeri* (Nuttall ex Torrey & Gray) W.A. Weber ●Central and northeastern plains and foothills.
- 1 Inflorescence an open cyme, not at all capitate, mostly longer than 5 cm, much exceeding the tuft of basal

leaves, the plants somewhat dense or mat-forming, but not cushion-forming

- 2 Sepals glabrous throughout, or very nearly so ..... *E. eastwoodiae*  
(Rydberg) Ikonnikov ●Foothills and plains in the western regions.
- 2 Sepals moderately to densely stipitate-glandular
- 3 Leaves divergent; sepals ovate, the apices obtuse to rounded, then abruptly mucronate..... *E. aculeata*  
(S. Watson) Ikonnikov ●Reported by M&H and W&S, but all plants examined belong to *E. eastwoodiae*; not known from the state.
- 3 Leaves erect or ascending; sepals linear-lanceolate, the apices acuminate..... *E. fendleri*  
(Gray) Ikonnikov ●Widespread, from brushy foothills to subalpine ledges.

**Gypsophila**

\**G. scorzoniferifolia* Seringe ●Known from a few scattered localities, in disturbed moist sites; expected along roadsides and fencerows elsewhere; an escape from gardens and ornamental plantings; native to Europe.

**Loeflingia**

*L. squarrosa* Nuttall ●Infrequent on the eastern plains, weedy sites in mesquite shrub and shin-oak.

**Moehringia**

- 1 Stem pubescence retrorse; sepal apices rounded to obtuse; leaves about as long as the internodes, narrowly oval, rounded at the apex ..... *M. lateriflora*  
(Linnaeus) Fenzl ●Woods and meadows in the northern mountains.
- 1 Stem pubescence peg-like; sepal apices acute to acuminate; leaves often longer than the internodes, broader, ovate-oblong, with distinct points at the tips ..... *M. macrophylla*  
(Hooker) Torrey ●Damp woods and shaded slopes in the central and northern mountains.

**Paronychia**

- 1 Sepal awns prominent, white; plant with a white shaggy appearance ..... *P. wilkinsonii*  
S. Watson ●Gravelly bajadas of the Guadalupe Mountains, only recently discovered in the state (Alexander et al. 2014).
- 1 Sepals awns present but not as prominent, green to yellowish, or whitish; plants greenish-yellowish
- 2 Leaf blades ovate, elliptic-oblong to oblanceolate, the apices rounded to narrowly obtuse; alpine or subalpine areas..... *P. pulvinata*  
Gray ●Gravelly alpine or subalpine slopes in the northern mountains.
- 2 Leaf blades subulate to filiform, the apices obtuse, acute, to setaceous; lower elevations
- 3 Stems forming dense cushions; leaves closely crowded and strongly overlapping, equaling or only slightly longer than the stipules ..... *P. sessiliflora*  
Nuttall ●Rocky ridges and outcrops, from the plains to the mountains.
- 3 Stems more loosely clustered, not forming dense cushions, but may be mat-like; leaves moderately spaced, longer than the stipules
- 4 Stems mostly prostrate and crowded with ascending or erect tips, mat-forming, the entire plant rarely more than 10 cm high..... *P. depressa*  
(Torrey & Gray) Nuttall ex A. Nelson ●Sandy or rocky hills and slopes on the eastern plains; known from only a few collections.
- 4 Stems erect or ascending in tufts, not mat-forming, the plant mostly 10-30 cm high ..... *P. jamesii*  
Torrey & Gray ●Widespread on plains, foothills, and mountain slopes, grasslands; our most common and widespread *Paronychia*.

**Pseudostellaria**

*P. jamesiana* (Torrey) W.A. Weber & R.L. Hartman ●Widespread in mountainous areas.

**Sabulina**

- 1 Calyx and pedicel stipitate-glandular ..... *M. rubella*  
(Wahlenberg) Dillenber & Kadereit ●Rocky ledges, open talus, gravelly slopes, calcareous substrates, at high elevations in the northern mountains.
- 1 Calyx and pedicel glabrous
- 2 Inflorescence 5-30-flowered; blades flat to prow-shaped, the apices blunt to sharp-pointed; plants from the central or eastern plains, 5500-6500 ft ..... *M. michauxii*  
(Frenzl) Dillenber & Kadereit ●Short-grass plains and prairies; known from only a few collections.
- 2 Inflorescence 1-5-flowered (sometimes as many as 8); blades prow-shaped, the apices rounded; plants from high in the mountains, 10,000-13,000 ft..... *M. macrantha*  
(Rydberg) Dillenber & Kadereit ●Rocky ground in subalpine forests and alpine slopes.

**Sagina**

*S. saginoides* (Linnaeus) Karsten ●Damp meadows and rocky places in the northern mountains, aspen and spruce-fir communities.

**Saponaria**

\**S. officinalis* Linnaeus ●Escaped from cultivation, found occasionally along roadsides and similar sites; native to Eurasia.

**Silene**

- 1 Plants forming cushions or mats, the flowering stems not more than 12 cm tall; flowers solitary (sometimes 3) on the stems; alpine communities

- 2 Flowers usually distinctly exceeding the tuft of leaves; petals barely surpassing the calyx, erect, obscure; styles 5 ..... *S. hitchguirei*  
 Bocquet ●Only recently discovered in alpine fell fields in the Sangre de Cristo mountains, above 11,500 ft, Taos County.
- 2 Flowers scarcely exceeding the tuft of leaves; petals much surpassing the calyx, horizontal, showy; styles 3 ..  
 ..... *S. acaulis*  
 Linnaeus ●Alpine tundra in the northern mountains.
- 1 Plants not cushion or mat-like, with elongate stems usually taller than 12 cm; flowers more than 1 per stem; various communities below alpine
- 3 Plants annual
- 4 Foliage densely pubescent throughout; internodes lacking glutinous bands; calyx 8-10 mm long; petals white or sometimes pink ..... *S. noctiflora*  
 Linnaeus ●Disturbed moist areas in the northern and central mountains; native to Europe.
- 4 Foliage glabrous or essentially so; upper internodes with glutinous bands; calyx 4-6 mm long; petals pink.  
 ..... *S. antirrhina*  
 Linnaeus ●Widespread, from deserts to mountain brush.
- 3 Plants perennial
- 5 Petals bright red or scarlet
- 6 Stem leaves 1-2.5 cm long and 1-3 mm wide; plants mostly 10-15 cm tall; petals bilobed, not lacinate  
 ..... *S. plankii*  
 C.L. Hitchcock & Macguire ●Igneous cliffs and rocky ledges in the central cordillera.
- 6 Stem leaves usually longer than 2.5 cm and wider than 3 mm; plants 20-60 cm tall; petals multi-lobed or lacinate ..... *S. laciniata*  
 Cavanilles ●Widespread in woodlands and open forests, foothills, apparently absent or uncollected from the northern mountains. ♦Our plants belong to var. *greggii* (Gray) C.L. Hitchcock & Maguire.
- 5 Petals white, pink, purplish, or greenish
- 7 Calyx glabrous, inflated; corolla hardly exceeding the calyx, but surpassed by exerted stamens
- 8 Calyx with very prominent reticulations, with translucent areas between the veins ..... *S. vulgaris*  
 (Moench) Garcke ●A recently found adventive along subalpine roadsides in the northern counties; native to Europe.
- 8 Calyx with faint reticulations, the surface ± smooth and uniform ..... *S. cserei*  
 Baumgarten ●Adventive along the road near Pecos, perhaps not persisting; to be expected in similar sites in the northern counties.
- 7 Calyx and corolla otherwise
- 9 Blades of petals large, 8-12 mm long, the flower diameter 2-3 cm when fresh and open; calyx inflated in fruit; flowers dimorphic, the staminate smaller than the pistillate ..... *S. latifolia*  
 Poiret ●Adventive in disturbed areas and pastures, mountain roadsides, fields and meadows.
- 9 Blades of petals and flower diameter smaller; calyx not inflated; flowers all alike
- 10 Calyx small, 5-8 mm long; corolla 6-10(12) mm long; flowers solitary or in open, leafy cymes; plants rhizomatous ..... *S. menziesii*  
 Hooker ●Moist woods and brushy slopes in the northern mountains.
- 10 Calyx and corolla larger; flowers variously arranged; plants from a branching caudex and taproot
- 11 Flower clusters nestled among the leaves, not elevated in bracteate cymes or panicles .....  
 ..... *S. wrightii*  
 Gray ●Cliffs and rocky outcrops in the southwestern mountains, endemic to New Mexico.
- 11 Flower clusters, at least some of them, elevated above the leaves in bracteate cymes or panicles
- 12 Stems freely branching ..... *S. thurberi*  
 S. Watson ●Rocky canyons and slopes in the bootheel region, little collected.
- 12 Stems rarely branching
- 13 Styles 4-5; capsule opening at maturity by 4-5 spreading teeth ..... *S. drummondii*  
 Hooker ●Conifer forests, stream sides, mountain slopes and foothills, mountain grasslands.
- 13 Styles 3; capsule opening at maturity by 6 of 8 teeth ..... *S. scouleri*  
 Hooker ●Widespread in mountainous areas.

**Spargularia**

- 1 Seeds smooth, with a thin but obvious wing about 0.3 mm broad; stipules conspicuous, shiny white ..... *S. media*  
 (Linnaeus) Presl ●Salt marshes and flats; native to Europe and Asia. ♦This species has been reported for the state in various works (including FNA), but specimens are unknown to us.
- 1 Seeds smooth or roughened-papillate, usually wingless; stipules present but inconspicuous, dull white
- 2 Stamens normally 10 (or some aborted); seeds wingless; axillary leaf clusters present, with 2-4 or more leaves per cluster; plants of non-saline habitats ..... *S. rubra*

(Linnaeus) J. & C. Presl ●Known only from moist, weedy ground in the mountains of Rio Arriba County; native to Europe and Asia.

- 2 Stamens 1-3 (rarely more); seeds sometimes with an incomplete wing, or wingless; axillary leaf clusters usually absent; plants of saline habitats ..... *S. marina*  
(Linnaeus) Besser ●Mud flats, salt playas, salty disturbed ground; native to Eurasia.

**Stellaria** [Key adapted from Morton 2005]

- 1 Cauline leaves lance-ovate to ovate, at least the lower ones petiolate
- 2 Blades cordate or subcordate at the base; stems usually glandular, but without hairs in lines; all leaves petiolate; petals present ..... *S. cuspidata*  
Willdenow ex Schlectendal ●Moist canyons in the southern mountains and foothills, known from few collections in Doña Ana County.
- 2 Blades cuneate to rounded at the base; stems rarely glandular, but with a single line of hairs along each internode; the lower leaves petiolate, the upper tending to be sessile; petals present or absent
- 3 Stamens 3-5(8); sepals mostly 4-6 mm long; petals usually present (sometimes absent); seeds reddish brown, 0.9-1.3 mm long ..... *S. media*  
(Linnaeus) Villars ●Weed of moist shaded lawns and similar habitats; native to Europe.
- 3 Stamens 0-3; sepals mostly 2-4 mm long; petals usually absent; seeds yellowish brown, 0.5-0.8 mm long ..... *S. pallida*  
(Dumortier) Crépin ●Lawn and garden weed; known from a single collection in Luna County; native to Europe.
- 1 Cauline leaves elliptic to lanceolate or linear, never petiolate
- 4 Plants glandular-pubescent, at least in the inflorescence (*P. jamesiana*) ..... go to *Pseudostellaria*
- 4 Plants not glandular-pubescent
- 5 Inflorescences, or flowers when solitary, in axils of foliage leaves at mid-stem or above
- 6 Leaf blades 25-35 mm long; sepals ± 1-veined, the lateral veins obscure ..... *S. porsildii*  
Chinnappa ●Mixed conifer-oak forests in Grant County, Pinos Altos range.
- 6 Leaf blades 2-15 mm long; sepals prominently 3-veined
- 7 Petals equaling the sepals; floral bracts foliaceous-herbaceous ..... *S. crassifolia*  
Ehrhart ●Wet meadows and mountain slopes, lakesides; only recently found in McKinley and Rio Arriba counties, known from two collections.
- 7 Petals shorter than the sepals or absent; floral bracts foliaceous-herbaceous or scarious
- 8 Floral bracts scarious; capsules much longer than the sepals ..... *S. irrigua*  
Bunge ●Moist alpine and tundra screes and slopes; known in New Mexico from few collections.
- 8 Floral bracts foliaceous-herbaceous; capsules shorter than the sepals ..... *S. sanjuanensis*  
Sharpley & Tripp ●Dry, exposed alpine scree slopes of usually volcanic origin; endemic to southern Rocky Mountains of southern Colorado and northern New Mexico; rare.
- 5 Inflorescences with most flowers terminal, either several in bracteate clusters or solitary on long pedicels
- 9 Floral bracts scarious or with scarious margins
- 10 Capsules ± equal to or shorter than the sepals; plants annual ..... *S. nitens*  
Nuttall ●A single record from Grant County, in desert-scrub.
- 10 Capsules longer than the sepals; plants perennial
- 11 Petals absent; inflorescence subumbellate ..... *S. umbellata*  
Turczaninow ex Karelin & Kirilov ●Streamsides and meadows in the mountains paralleling the Rio Grande.
- 11 Petals present; inflorescence cymose or flowers solitary
- 12 Plants delicate, creeping, often forming mats; flowers solitary and axillary, or in small, few-flowered, leafy cymes; midrib of leaf blades obscure ..... *S. crassifolia*  
Ehrhart ●Wet meadows and mountain slopes, lakesides; only recently found in McKinley and Rio Arriba counties, known from two collections.
- 12 Plants not as above; midrib of leaf blades prominent
- 13 Stem angles minutely papillate-scabrous (use a lens); leaf blades widest at or beyond the middle; petals 2-3.5 mm long ..... *S. longifolia*  
Muhlenberg ex Willdenow ●Frequent in the mountains.
- 13 Stem angles not papillate-scabrous; leaf blades widest at the base; petals 3-8 mm long ..... *S. longipes*  
Goldie ●Widespread in the mountains, often at high elevations.
- 9 Floral bracts herbaceous, without scarious margins
- 14 Leaves widest at or above the middle ..... *S. crassifolia*  
Ehrhart ●Wet meadows and mountain slopes, lakesides; only recently found in McKinley and Rio Arriba counties, known from two collections.
- 14 Leaves widest toward the base
- 15 Flowers 5-10 mm across; petals 5, 3-8 mm long, as long as or longer than the sepals; capsules blackish-purple to straw-colored ..... *S. longipes*



Goldie ●Widespread in the mountains, often at high elevations.

15 Flowers 3-5 mm across; petals 0-5, 1-2 mm long, shorter than the sepals; capsules greenish ....

..... *S. calycantha*

(Ledebour) Bongard ●Wet forests and meadows in the northern mountains, montane to over 10,000 ft.

### Vaccaria

\**V. hispanica* (Miller) Rauschert ●Occasional weed of cultivated ground and associated fields and roadsides; native to Eurasia.

## CELASTRACEAE STAFF-TREE FAMILY

1 Leaves spreading from the stem, mostly opposite, usually longer than 15 mm, smooth; low mountain shrubs mostly less than 50 cm tall ..... *Paxistima*

1 Leaves loosely appressed along the stem, alternate (may be crowded and appearing opposite), 6-15 mm long, sandpapery; larger desert shrubs 80-200 cm or more tall ..... *Mortonia*

### Mortonia

*M. scabrella* Gray ●Rocky hills in desert regions of the bootheel. ●Reports of *Mortonia sempervirens* A. Gray s.s. from the eastern plains are erroneous.

### Paxistima

*P. myrsinites* (Pursh) Rafinesque ●Woods, thickets, rocky slopes, and outcrops in the mountains, widespread.

## CERATOPHYLLACEAE HORNWORT FAMILY

### Ceratophyllum

*C. demersum* Linnaeus ●Slow streams, ponds, and irrigation ditches, potentially throughout the state, sometimes choking waterways, but also providing protection for newly hatched fish.

## CISTACEAE ROCK-ROSE FAMILY

### Lechea

1 Mid-stem leaves 0.5-1.5 mm wide; upper and flowering stems beset with appressed hairs ..... *L. mensalis*  
Hodgdon ●Oak-juniper woodlands; known only in New Mexico from brown sandstone in the Guadalupe Mts, Eddy County; also Texas and Coahuila (Mexico).

1 Mid-stem leaves 3 mm or more wide; upper and flowering stems beset with spreading hairs ..... *L. mucronata*  
Rafinesque ●Sandy shinoak communities on the eastern plains, currently known in New Mexico only from Roosevelt County.

## CLEOMACEAE BEEPLANT FAMILY

1 Stamens numerous, 8-27 (rarely fewer); capsules erect, sessile or short-stipitate, the valves hirsute-glandular and persistent ..... *Polanisia*

1 Stamens fewer, 6; capsules divergent to reflexed, short- to long-stipitate, the valves glabrous and deciduous ..... *Cleomella*

### Cleomella

1 Fruits 10-80 mm long, much longer than wide; petals yellow or purplish (*Peritoma*)

2 Flowers yellow; leaflets 5 in number ..... *C. lutea*  
(Hooker) Roalson & Hall ●Dry hills and plains, also streamsides, in the northwest region.

2 Flowers pink-purple-white; leaflets 3 in number  
3 Leaflets narrowly elliptic, 5-15 mm wide; flowers large, 8-13 mm long, racemose in the axils of small 1-foliolate bracts ..... *C. serrulata*  
(Pursh) Roalson & Hall ●Widespread on plains, hills, woodlands, and along water courses.

3 Leaflets linear, 2 mm or less wide; flowers small, 4-7 mm long, borne singly in the axils of 3-foliolate stem leaves ..... *C. multicaulis*  
(A.P. de Candolle) J.C. Hall & Roalson ●This species is almost certainly no longer in New Mexico, if it were ever actually here.

1 Fruits less than 10 mm long, often nearly as wide as long, or wider than long; petals yellow

4 Fruit 2.5 mm or less long, of 2 paired 1-seeded nutlets; gynophores reflexed in fruit (*Wislizenia*) .. *C. refracta*  
(Engelmann) J.C. Hall & Roalson ●Central and southwestern hills and plains.

4 Fruit 4-8 mm long, a unilocular capsule with a few seeds; gynophores not reflexed

5 Leaflets pubescent, less than 3 times longer than wide; flowers borne in axillary clusters and crowded at the ends of stems and subtended by not much reduced leaves, not in racemes ..... *C. obtusifolia*  
Torrey & Frémont ●A single specimen reported from alkaline plains south of Deming (Holmgren & Cronquist 2005), perhaps no longer present, and considered exotic here; native to Mojave and Colorado deserts.

5 Leaflets glabrous, more than 3 times longer than wide; flowers borne in terminal racemes subtended by bracts or greatly reduced leaves

6 Petals 3-4 mm long; stipes of the capsules 3-8 mm long ..... *C. palmeriana*  
M.E. Jones ●Clay soils in washes, and roadsides; known only from San Juan County.

Dicotyledonous Plants - Cochlospermaceae

- 6 Petals 6-9 mm long; stipes of the capsules 7-20 mm long ..... *C. longipes*  
Torrey ●Sandy and alkaline sands of the southwestern desert region.

**Polanisia**

- 1 Leaflets linear to filiform, thread-like, 1-5 mm wide; petals deeply lacinate ..... *P. jamesii*  
(Torrey & Gray) Iltis ●Dunes, sandy hills, and plains; known from a few scattered areas on the eastern plains.
- 1 Leaflets lanceolate to elliptic, 10-30 mm wide; petals entire to shallowly notched
- 2 Stamens about 20-30 in number, the longer ones up to 50 mm long; petals 10-30 mm long; plants perennial ..... *P. uniglandulosa*  
(Cavanilles) A.P de Candolle ●Arroyos, rocky slopes, mountain hillsides and canyons, and along watercourses in the south-central to southwest regions.
- 2 Stamens about 10-20 in number, the longer ones up to 30 mm long; petals 5-15 mm long; plants usually annual ..... *P. dodecandra*  
(Linnaeus) A.P. de Candolle ●Widespread in mountain canyons and foothills, bajadas, plains, and drainages.

**COCHLOSPERMACEAE COCHLOSPERMUM FAMILY**

**Amoreuxia**

- A. palmatifida* Sessé & Mociño ex A.P. de Candolle ●Rocky canyons and moist places in otherwise dry foothills and mountains in the southwest corner; Grant & Hidalgo counties.

**COMANDRACEAE BASTARD-TOADFLAX FAMILY**

**Comandra**

- C. umbellata* (Linnaeus) Nuttall ●Widely distributed throughout the state on plains and deserts.

**CONVOLVULACEAE MORNING-GLORY FAMILY**

[Keys adapted from Austin 1990]

- 1 Plants lacking chlorophyll, mostly yellowish or orange-colored ..... *Cuscuta*
- 1 Plants green
- 2 Leaf bases obtuse to acute
- 3 Styles 2; stigmas 2, globose; leaves elliptic to lanceolate or ovate-lanceolate; flowers salverform, 5-6 mm long ..... *Cressa*
- 3 Styles 2; stigmas 4, linear to club-shaped; leaves ovate to almost linear; flowers rotate, funnellform or salverform, 5-22 mm long ..... *Evolvulus*
- 2 Leaf bases truncate, cordate, to hastate
- 4 Leaves reniform, on petioles commonly much longer than the blades; flowers less than 1 cm wide; styles 2 ..... *Dichondra*
- 4 Leaves variable, but not reniform, on petioles usually shorter than the blades; flowers mostly more than 1 cm wide; styles 1
- 5 Flowers lavender, blue, red, pink, or white with a purple to purple-red throat ..... *Ipomoea*
- 5 Flowers white, with or without tinges of lavender to pink on the limb
- 6 Calyx usually enclosed by 2 foliaceous subtending bracts; corollas 3-7 cm long ..... *Calystegia*
- 6 Calyx not enclosed, the subtending bracts scale-like; corollas mostly 1-3 cm long (longer in *Ipomoea tenuiloba*)
- 7 Corolla salverform with a very narrow basal tube, 3.5-10 cm long; stigma entire, globose ..... *Ipomoea tenuiloba*
- 7 Corolla variously shaped, mostly 1-3 cm long; stigma bifid, linear ..... *Convolvulus*

**Calystegia**

- 1 Floral bracts strongly overlapping, at least ½ their length, inflated at their bases; leaf sinuses broad and almost square-sided; flowers sometimes in pairs in the axils (subsp. *fraterniflora*) ..... *C. silvatica*  
(Kitaibel) Grisebach ●Moist roadsides, open meadows and fields, along creeks and streams; scattered locales in the state. ♦Our plants belong to subsp. *fraterniflora* (Mackenzie & Bush) Brummitt
- 1 Floral bracts not or only slightly overlapping, flat and mostly keeled, not or only slightly inflated at their bases; leaf sinuses acute to rounded; flowers always single in the axils
- 2 Calyces 15-30 mm long; plants usually glabrous (subsp. *angulata*) ..... *C. sepium*  
(Linnaeus) R. Brown ●Disturbed areas and fields at lower elevations mainly in the northern counties, but scattered collections southward. ♦Our plants belong to the native element of this widespread species, subsp. *angulata* Brummitt.
- 2 Calyces 10-12 mm long; plants pubescent ..... *C. macounii*  
(Greene) Brummitt ●Plains, fields, and disturbed areas; known only from Cibola and San Miguel counties.

**Convolvulus**

- 1 Calyx 3-5 mm long, inconspicuously pubescent or glabrate; plants pubescent to glabrate; leaf blades entire except for basal lobes; perennial from deeply set creeping rootstocks ..... *C. arvensis*  
Linnaeus ●A widespread weed of roadsides, fields, gardens, and other disturbed ground; native to Europe and Asia, but naturalized ± throughout the world.

- 1 Calyx 6-12 mm long, densely pubescent; plants densely gray-pubescent; leaf blades entire, toothed, or deeply lobed; perennial from a taproot ..... *C. equitans*  
Bentham ●Foothills, rocky hills, plains, flats, washes; this is our widespread, native bindweed.
- Cressa**  
*C. truxillensis* Kunth ●Alkali flats, floodplains, ditch banks, open fields, playas; central to southern regions, probably more widespread than inferred from collections.
- Cuscuta** [Key from Costea 2012]
- 1 Styles equal; stigmas elongate, terete or conic (Subgenus *Cuscuta*, exotic species)
- 2 Calyx cellular-reticulate and golden when dry, lobes with a short, fleshy appendage distally. *C. approximata*  
Babington ●Introduced with contaminated seeds of forage legume crops; hosts are often herbaceous Fabaceae, especially clover and alfalfa; native to Europe, Africa, Asia.
- 2 Calyx not cellular-reticulate, creamy-purple when dry, calyx lobes without a fleshy appendage.....  
..... *C. epithymum*  
(Linnaeus) Linnaeus ●Hosts: Mainly herbaceous Fabaceae, especially alfalfa and clover, also other field crops; native to Europe. ♦Reported by Costea (2012) for New Mexico, but no specimens are known to us; to be looked for on field crops.
- 1 Styles unequal; stigmas capitate (Subgenus *Grammica*, native species)
- 3 Capsules circumscissile near the base (the line of dehiscence is readily detectable even at the base of young ovaries; at this stage, the carpellary wall will tear along the dehiscence line when light pressure is applied)
- 4 Corolla tube cylindrical; infrastaminal scales about ¼-½ the length of corolla tube
- 5 Flowers 5-merous; calyx lobes carinate; corolla lobes erect..... *C. tuberculata*  
Brandege ●Hosts: *Boerhavia* species, rarely *Amaranthus* or Euphorbiaceae.
- 5 Flowers (3)4-merous; calyx lobes not carinate; corolla lobes spreading to reflexed
- 6 Calyx equaling the corolla tube; infrastaminal scales ¼-½ the length of the corolla tube.....  
..... *C. liliputana*  
Costea & Stefanović ●Hosts: *Chamaesyce* species; Sierra and Doña Ana counties.
- 6 Calyx ½-½ the length of the corolla tube; infrastaminal scales about ½ the length of the corolla tube  
..... *C. leptantha*  
Engelmann ●Hosts: various *Euphorbia/Chamaesyce* species.
- 4 Corolla tube campanulate, sometimes becoming globose in fruit; infrastaminal scales equaling or exceeding the corolla tube
- 7 Flowers sessile, subsessile, or short-pedicellate (pedicels absent to 2 mm long); calyx lobes carinate or with irregular protuberances along the midveins
- 8 Calyx lobes obtuse or rounded, overlapping, carinate; apices of corolla lobes rounded ..*C. chinensis*  
Lamarck ●Hosts: various herbaceous species from numerous genera. ♦Our plants belong to the North American var. *applanata* (Engelmann) Costea & Stefanović.
- 8 Calyx lobes acute, not overlapping or barely so, not carinate; apices of corolla lobes acute .*C. azteca*  
Costea & Stefanović ●Hosts: mostly herbaceous Fabaceae (especially *Dalea*), Asteraceae, Malvaceae, Euphorbiaceae.
- 7 Flowers pedicellate (pedicels 2-10 mm long); calyx lobes not carinate, without protuberances along midveins
- 9 Flowers 4-6 mm long; calyx lobes acuminate.....*C. legitima*  
Costea & Stefanović ●Hosts: numerous herbaceous plants, including species of *Allionia*, *Amaranthus*, *Boerhavia*, *Chamaesaracha*, *Evolvulus*, *Kallstroemia*, *Salsola*, *Solanum*, *Tidestromia*, *Trianthema*, *Tribulus*.
- 9 Flowers 2-3 mm long; calyx lobes obtuse to acute..... *C. umbellata*  
Kunth ●Hosts: various herbaceous plants, including species of *Acleisanthes*, *Allionia*, *Alternanthera*, *Amaranthus*, *Atriplex*, *Boerhavia*, *Chamaesaracha*, *Evolvulus*, *Gilia*, *Iresine*, *Kallstroemia*, *Salsola*, *Sesuvium*, *Selinocarpus*, *Solanum*, *Suaeda*, *Tidestromia*, *Trianthema*, *Tribulus*.
- 3 Capsules indehiscent or breaking irregularly
- 10 Bracts 2-11 at the base of clusters, pedicels, and/or flowers (or on the pedicels); calyx divided to the base or nearly so
- 11 Flowers pedicellate (pedicels 2-5 mm); inflorescences loose, paniculiform..... *C. cuspidata*  
Engelmann ●Hosts: mostly from Asteraceae, including *Ambrosia*, *Amphichayris*, *Baccharis*, *Eclipta*, *Helianthus*, *Heterotheca*, *Iva*, *Liatris*.
- 11 Flowers sessile to subsessile (pedicels absent to 1 mm); inflorescences continuous, rope-like, glomerulate, or short-spiciform
- 12 Inflorescences extremely dense, continuous (individual clusters not discernible), rope-like, spiraling around and closely appressed to the host stem; apices of bracts recurved.....  
..... *C. glomerata*  
Choisy ♦Not known from the state (reported in error in earlier editions of *Flora Neomexicana*); included here for comparative purposes
- 12 Inflorescences dense to loose, glomerulate or short-spiciform (individual clusters discernible),

- isolated or further aggregated in compact inflorescences but not rope-like; apices of bracts straight ..... *C. squamata*  
Engelmann ●Hosts: mostly weedy species of Asteraceae.
- 10 Bracts 1 at the base of clusters, 0-3 at the base of pedicels/flowers or on pedicels; calyx divided  $\frac{2}{3}$ - $\frac{3}{4}$  its length
- 13 Corolla lobes rounded or obtuse
- 14 Flowers mostly 4-merous (rarely 3- or 5-merous); capsules depressed-globose, not thickened or raised around the interstyler aperture ..... *C. cephalanthi*  
Engelmann ●Hosts: a wide variety of woody and herbaceous species.
- 14 Flowers mostly 5-merous (rarely 4-merous); capsules globose to ovoid, thickened or raised around the interstyler aperture
- 15 Infrastaminal scales  $\frac{1}{2}$ - $\frac{1}{2}$  the length of the corolla tube; styles 0.3-0.9 mm long; capsules 3.5-7 mm long ..... *C. umbrosa*  
Beyrich ex W.J. Hooker ●Hosts: a wide variety of woody and herbaceous species.
- 15 Infrastaminal scales equaling the corolla tube; styles (0.6-)1.2-2.2 mm long; capsules 2.5-4.5(5.2) mm long ..... *C. gronovii*  
Willdenow ex J.J. Roemer & J. Schultes ♦Reported for the state by Costea et al. (2006) and Costea (2012), but specimens of this have not been found.
- 13 Corolla lobes acute to acuminate
- 16 Corolla lobe apices straight; capsules 1-seeded ..... *C. salina*  
Engelmann ●Hosts: salt flats and marshes, *Atriplex*, *Cressa*, *Frankenia*, *Plantago*, *Salsola*, *Suaeda*, *Cleomella*/Wislizenia.
- 16 Corolla lobe apices inflexed; capsules 2-4-seeded
- 17 Infrastaminal scales reduced, either with a few distal teeth or bifid with 1-3 fimbriae/denticulate wings on each side of the filament attachment
- 18 Flowers mostly 5-merous; each calyx lobe with a large, divergent, apical horn-like projection; infrastaminal scales oblong, truncate and dentate distally; styles 0.2-0.4 mm long ..... *C. warneri*  
Yuncker ●Hosts: *Phyla cuneata* and *P. incisa*; Sierra and Roosevelt counties.
- 18 Flowers mostly 4-merous; calyx lobes without projections; infrastaminal scales bifid with 1-3 fimbriae on each side of filament attachment or with denticulate wings; styles 0.7-1.8 mm long ..... *C. coryli*  
Engelmann ●Hosts: a wide range of herbaceous and woody species, including *Helianthus*, *Rhus*, *Solidago*; little-known from very few specimens.
- 17 Infrastaminal scales well-developed with numerous fimbriae
- 19 Multicellular protuberances present on the calyx (do not confuse these 'multicellular protuberances' with unicellular papillae, which are present in many species)..... *C. draconella*  
Costea & Stefanović ●Hosts: herbaceous species of *Atriplex*, *Gutierrezia*, and *Thelysperma*.
- 19 Multicellular protuberances absent on the calyx
- 20 Perianth fleshy; capsules globose to subglobose, thickened and raised around the interstyler aperture..... *C. indecora*  
Choisy ●Hosts: numerous herbaceous and woody species; can be a weed and seed contaminant, especially in alfalfa.
- 20 Perianth membranous; capsules globose-depressed to depressed not thickened and raised around the interstyler aperture
- 21 Calyx lobes overlapping at base; dried corolla creamy or golden-yellow, campanulate, not saccate; persistent corolla enveloping  $\frac{1}{3}$  or less of capsule bases ..... *C. campestris*  
Yuncker ●Hosts: a wide range of numerous herbaceous species; this is the most common weedy dodder, which attacks numerous crops (alfalfa, clover, beets, carrots, etc.).
- 21 Calyx lobes not or only slightly overlapping at base; dried corolla yellow to reddish-brown, initially campanulate, later globose, saccate between the lines of stamen attachments; persistent corolla enveloping  $\frac{1}{2}$  or more of the capsule ..... *C. glabrior*  
(Engelmann) Yuncker ●Hosts: numerous herbaceous plants.

**Dichondra**

- 1 Plants of lawns, gardens, and similar moist artificial habitats; corollas about 2 mm long; stems sparsely appressed-pubescent; leaf blades nearly glabrous above, thinly pubescent beneath; ovary and fruit deeply bilobed, indehiscent..... *D. micrantha*  
Urban ●Lawns, along sidewalks, garden edges, and similar weedy habitats, known from only a few collections but expected elsewhere; native to the West Indies and adjacent Florida, now a worldwide weed.

- 1 Plants of natural habitats of mountain foothills, rocky plains, washes, etc; corollas 3-5 mm long; stems densely pilose to tomentose, the hairs appressed to spreading; leaf blades sparingly to densely pubescent on both surfaces; ovary and fruit emarginate to shallowly lobed, dehiscent
- 2 Leaves silvery, densely sericeous with appressed hairs; pedicels 3-6 mm long, recurved in fruit at the proximal end near the axil ..... *D. argentea*  
Humboldt & Bonpland ex Willdenow • Bajadas, foothills, rocky washes, in the lower tier of counties.
- 2 Leaves greenish, sparingly to densely pubescent with nearly appressed to erect hairs; pedicels 5-20 mm long, recurved in fruit at the distal end near the calyx ..... *D. brachypoda*  
Wootton & Standley • Lower mountains, rocky plains, and washes, in the southern counties.

**Evolvulus** [Key adapted from Harms 2018]

- 1 Leaf venation primarily palmate, with 3 or more major veins arising from the base near the petiole and no or obscure lateral veins arising along the midvein above the midpoint (look carefully at several leaves); upper leaves distichous, conduplicate, and often falcate ..... *E. sericeus*  
Swartz • Plains, hills, bajadas, washes, desert grasslands, shrublands, and woodlands; generally southern half of the state.
- 1 Leaf venation primarily pinnate, with at least some evident lateral veins arising all along the midvein and no or obscure extra veins basally, or with a single midvein only; upper leaves not distichous nor conduplicate
- 2 Peduncles and/or pedicels elongate, commonly bringing many of the flowers well beyond the subtending leaves
- 3 Stems appressed-pilose to tomentose, rarely with spreading hairs; leaves linear-lanceolate to lanceolate; corollas (10)12-22 mm across; sepals 3-4 mm long ..... *E. arizonicus*  
A. Gray • Sandy to gravelly ground, desert plains and foothills, grasslands, scrublands, and woodlands.
- 3 Stems with long spreading hairs; leaves lanceolate, elliptic, oblong, to ovate; corollas 5-10 mm across; sepals 2-3 long ..... *E. alsinoides*  
(Linnaeus) Linnaeus • Desert and semi-arid plains and foothills, sandy to rocky ground, generally southwestern region, with a few collections eastward.
- 2 Peduncles and/or pedicels short or absent, none of the flowers exceeding the subtending leaves
- 4 Herbage with sparse foliage, the internodes commonly longer than 4 mm; mid-leaves linear, more than 8 times longer than wide; hairs denser on the upper surface; corolla yellowing with age ..... *E. arenarius*  
Harms • In deep sand of grassland and scrub vegetation on the eastern plains; often occurring with *Evolvulus nuttallianus*.
- 4 Herbage with dense foliage, the internodes rarely longer than 4 mm; mid-leaves elliptical, less than 8 times longer than wide; hairs denser on lower surface; corolla not turning yellow with age ..... *E. nuttallianus*  
Roemer & Schultes • Sandy to rocky or gravelly ground, widespread in grasslands, scrublands, and woodlands of plains, foothills, and bajadas.

**Ipomoea**

- 1 Leaf blades linear and entire, never lobed or cordate, at least 6 times longer than wide; plants rounded-bushy ..... *I. leptophylla*  
Torrey • Open plains, prairies, sandy areas, common on the eastern grassy plains, but extending westward in similar habitats.
- 1 Leaf blades not linear and entire, often lobed or cordate, usually 1-2 times longer than wide; plants erect to prostrate, often climbing to trailing vines
- 2 Leaf blades broadly elliptic to wedge-shaped in outline, prominently palmately veined, the bases attenuate, the apices lacinate-lobed, like 4 fingers of a hand, entire along the sides; Grant County (var. *cuneifolia*) ..... *I. plummerae*  
Gray • Pine-oak woodlands, lower elevation coniferous forests; predominantly southwestern, but with scattered outliers.
- 2 Leaves not as above; widespread, including Grant County
- 3 Leaves deeply cleft into ± filiform segments 1-3 mm wide
- 4 Pedicels and peduncles pubescent, and sometimes also the sepals; sepals smooth, not warty; rare in Hidalgo County ..... *I. ternifolia*  
Cavanilles • Grassy plains and foothills; known only from the Peloncillo Mountains in Hidalgo County; also Texas, Mexico. • Our plants belong to var. *leptotoma* (Torrey) McDonald.
- 4 Pedicels, peduncles, and sepals glabrous, lacking hairs; sepals warty; various counties, including Hidalgo
- 5 Corolla prominently salverform, white, 3.5-10 cm long ..... *I. tenuiloba*  
Torrey • Oak, piñon, juniper woodlands, rocky lower slopes and foothills in the southern mountains.
- 5 Corolla funnellform to narrowly campanulate, purplish to pinkish, 0.8-4 cm long
- 6 Plants annual from a slender taproot; corolla 0.8-1.5 cm long ..... *I. costellata*  
Torrey • Plains, canyon bottoms, grassland, rocky slopes, arroyos; from Cibola and Bernalillo counties southward and eastward.
- 6 Plants perennial from a woody, tuberous root; corolla 2-4 cm long

- 7 Mature plants erect, never twining; leaves sessile; leaf segments mostly up to 1 mm wide; sepals 5-6 mm long; peduncle plus pedicel about 5-10 mm long; tuber elongate *I. capillacea* (Kunth) G. Don ●Open slopes and foothills of the southwestern mountains.
- 7 Mature plants prostrate, twining; leaves petiolate, the pedicel 1-5 mm long; leaf segments mostly 1-3 mm wide; sepals 7-9 mm long; peduncle plus pedicel about 14-18 mm long or more; tuber globose to subglobose (var. *plummerae*) ..... *I. plummerae* Gray ●Pine-oak woodlands, lower elevation coniferous forests; predominantly southwestern, but with scattered outliers.
- 3 Leaves entire to deeply cleft, if cleft the segments not filiform but usually broadest at the middle ( $\geq 4$  mm) and narrower at each end of the segment
- 8 Corolla prominently salverform, scarlet ..... *I. cristulata* Hallier f. ●Widespread on lower mountain slopes and foothills, shrublands, woodlands, open pine-oak forests, sandy to rocky ground.
- 8 Corolla funnelform to campanulate, of various colors, only rarely white or scarlet
- 9 Sepals glabrous, lacking hairs, the surfaces smooth or warty, the distal portion  $\pm$  erect/appressed
- 10 Corollas bluish; leaf blades cordate in outline and shape, the basal shoulders rounded but usually not lobed, the central distal portion not enlarged nor much attenuate ..... *I. cardiophylla* Gray ●Lower canyons, foothills, and rocky slopes of the southwestern mountains.
- 10 Corollas reddish-pinkish-purplish; leaf blades cordate in outline, but more hastate in shape, the basal portion with rounded or angled lobes, the central distal portion commonly enlarged or attenuate
- 11 Sepals scarious-margined, warty, 4-5 mm long; corollas 1-1.5 cm long; plants annual ..... *I. dumetorum* Willdenow ex Roemer & Schultes ●Mountain canyons; known from only a few sites in Lincoln and Doña Ana counties.
- 11 Sepals membranous-margined, smooth, about 10 mm long; corollas 1.5-3.5 cm long; plants perennial ..... *I. cordatotriloba* Dennstedt ●Disturbed ground, adventive in landscaping; known only from Doña Ana County; a common weed eastward through the southern states.
- 9 Sepals obviously hairy, the distal portion spreading outward from the corolla
- 12 Plants annual; corollas 2-5 cm long
- 13 Peduncles, pedicels, and stems glabrous, the surface usually with scattered warts; corolla 1.5-2.5 cm long ..... *I. barbatisepala* Gray ●Canyon bottoms of the southwestern mountains, also Eddy county.
- 13 Peduncles, pedicels, and stems softly pubescent with reflexed hairs, the surface lacking warts; corolla 2-5 cm long
- 14 Sepals acute at the apices, any obviously narrowed terminal portion about equal to the body ..... *I. purpurea* (Linnaeus) Roth ●Widespread in the state in mountain canyons, meadows, foothills, plains, roadsides, disturbed areas; native to Mexico and Central America, naturalized worldwide.
- 14 Sepals long acuminate at the apices, the obviously narrowed terminal portion usually much longer than the body ..... *I. hederacea* Jacquin ●Southwestern and southcentral foothills and bajadas, rocky drainages, washes, roadsides, disturbed sites in town.
- 12 Plants perennial from deep-seated tubers; corollas 4-10 cm long
- 15 Body of outer sepals cordate-ovate, 6-10 mm wide at the widest point, the apices abruptly acuminate, softly and sometimes densely sericeous, the surface sometimes obscured ..... *I. pubescens* Lamarck ●Foothills, canyons, and lower slopes of the southern mountains.
- 15 Body of outer sepals typically lanceolate, 4-6 mm wide at the widest point, the apices acute to gradually acuminate, scattered hirsute-sericeous or sparingly appressed pilose, the surface not obscured
- 16 Sepals 11-16 mm long, broadly lanceolate to ovate, the apices acute; stamens attached about 2 cm above the base of the corolla tube, slightly exerted ..... *I. gilana* Keith & McDonald ●Open woodlands of piñon-juniper-oak; endemic to New Mexico, and known from only a few collections in the Black Range, Sierra County.
- 16 Sepals 15-32 mm long, lanceolate, the apices attenuate; stamens attached about 1 cm above the base of the corolla, included ..... *I. lindheimeri* Gray ●Foothills, canyons, and lower slopes of the southern mountains; also Texas.

CORNACEAE DOGWOOD FAMILY

Cornus

- 1 Herb from a woody rhizome; leaves in a whorl at the top of the stem; inflorescence bracts petaloid ..... 244

- ..... *C. canadensis*  
 Linnaeus ●Subalpine forests in the northern mountains.  
 1 Shrub with red bark; leaves opposite; inflorescence bract not petaloid ..... *C. stolonifera*  
 Michaux ●Stream banks and moist woods, widespread in the mountains.

### CRASSULACEAE STONECROP FAMILY

- 1 Leaves opposite, the bases united across the stem; plants annual, aquatic or on muddy ground ..... *Crassula*  
 1 Leaves alternate, the bases not united; plants perennial, terrestrial  
 2 Petals connate basally, pale yellow, dotted and red-banded in distal ½ ..... *Graptopetalum*  
 2 Petals distinct throughout, colored other than above  
 3 Rootstocks stout, with scale-like leaves; petals pink, deep red, or yellow; leaves not forming rosettes .....  
 ..... *Rhodiola*  
 3 Rootstocks slender, lacking scale-like leaves; petals white or yellow; leaves sometimes forming rosettes...  
 ..... *Sedum*

#### Crassula

*C. aquatica* (Linnaeus) Schönland ●Mudflats, pools, muddy margins of ponds and streams; scarcely known from the state.

#### Graptopetalum

*G. rusbyi* (Greene) Rose ●Pine-oak woodlands, brushy slopes, on cliffs; known only from Grant County, also Arizona and Mexico.

#### Rhodiola

- 1 Petals pink, 8-13 mm long, longer than the stamens; flowers bisexual, slightly perigynous ..... *R. rhodantha*  
 (Gray) H. Jacobsen ●Deeply rooted in moist organic matter or loamy soil over granite or andesite, stream banks and wet areas in the mountains.  
 1 Petals red or yellow, 1-5 mm long, shorter than the stamens; flowers usually unisexual, hypogynous .....  
 ..... *R. integrifolia*  
 Rafinesque ●Rocky slopes at high elevations in the mountains.

#### Sedum

- 1 Rootstocks stout, with scale-like leaves; petals pink, deep red, or yellow; leaves not forming rosettes .....  
 ..... go to *Rhodiola*  
 1 Rootstocks slender, lacking scale-like leaves; petals white or yellow; leaves sometimes forming rosettes (*Sedum* s.s.)  
 2 Petals yellowish  
 3 Leaves opposite; inflorescences 2-7-flowered ..... *S. debile*  
 S. Watson ●Open rocky sites in the mountains; known only from Colfax County.  
 3 Leaves alternate; inflorescences 5-25-flowered ..... *S. lanceolatum*  
 Torrey ●Open rocky areas among ponderosa pine in the mountains; northern counties.  
 2 Petals whitish  
 4 Leaves terete or nearly so ..... *S. stelliforme*  
 S. Watson ●Southwestern mountain forests.  
 4 Leaves flattened or somewhat rounded only on the back  
 5 Cauline leaves easily detached from the stem on slight pressure, narrowing from the middle to the apex ..... *S. wrightii*  
 Gray ●Among rocks, ledges, cliffs, and crevices in the southern mountains.  
 5 Cauline leaves more firmly attached to the stem, narrowing from the middle to the base ... *S. cockerellii*  
 Britton ●Cliffs and rocky ledges in the mountains, at medium to high elevations, widespread.

### CROSSOSOMATAACEAE GREASEBUSH FAMILY

- 1 Leaves alternate; twigs thorny-tipped ..... *Glossopetalon*  
 1 Leaves opposite, sometimes appearing fascicled on short shoots; twigs not thorny-tipped ..... *Apacheria*

#### Apacheria

*A. chiricahuensis* Mason ●North-facing cliffs of limestone or rhyolite in the southwest region.

#### Glossopetalon

*G. spinescens* Gray ●Limestone cliffs and ledges, rocky hillsides, bluffs; generally southern and western, extending eastward onto the plains.

### CUCURBITACEAE GOURD FAMILY

- 1 Tendrils branched or forked  
 2 Fruit bristly or spiny  
 3 Leaves nearly palmately compound, the segments appearing as leaflets with a broadened blade and a narrowed stalk ..... *Cyclanthera*  
 3 Leaves variously lobed, sometimes deeply so, but the segments not appearing as leaflets with a broad blade and a narrowed stalk  
 4 Fruits 5-7 mm long, 1-seeded ..... *Sicyos*

Dicotyledonous Plants - Cucurbitaceae

- 4 Fruits usually much more than 10 mm long
  - 5 Herbage essentially glabrous; prickles of fruit about 6 mm long, glabrous ..... *Echinocystis*
  - 5 Herbage ± pubescent; prickles of fruit to 15 mm long, pubescent ..... *Echinopepon*
- 2 Fruit smooth
  - 6 Leaves highly dissected, the sinuses of the lobes nearly reaching the midrib; fruits 25-60 cm long or more (watermelon) ..... *Citrullus*
  - 6 Leaves variously lobed, but these shallow and the sinuses scarcely reaching halfway to the midrib; fruits 0.5-10 cm long
    - 7 Flowers solitary
      - 8 Petals yellow ..... *Cucurbita*
      - 8 Petals white ..... *Sicyosperma*
    - 7 Flowers few to several in a cluster
      - 9 Primary leaf lobes rounded in outline; flowers yellowish; fruits 6-10 cm long, many-seeded ..... *Apodanthera*
      - 9 Primary leaf lobes pointed; flowers white to greenish; fruits less than 1 cm long, 1-seeded (*S. glaber*) ..... *Sicyos*
- 1 Tendrils simple or branched only at the very base
  - 10 Fruit bristly or spiny
    - 11 Leaves nearly palmately compound, the segments appearing as leaflets with a broadened blade and a narrowed stalk ..... *Cyclanthera*
    - 11 Leaves palmately lobed, sometimes deeply so, but the segments not appearing as leaflets and not narrowed toward the base ..... *Marah*
  - 10 Fruit smooth to warty, but not bristly
    - 12 Leaves very highly dissected into numerous segments, each only 1-2 mm wide; fruit bright red and fleshy when ripe, globose, about 15 mm in diameter; plants usually clambering over shrubs. *Ibervillea*
    - 12 Leaves entire, toothed, lobed, to deeply dissected, when dissected the segments 5 mm wide or more; fruits and plants otherwise
      - 13 Corolla lobes united from the middle or beyond ..... *Cucurbita*
      - 13 Corolla lobes distinct nearly to the base
        - 14 Herbage glabrous; fruits warty-tuberculate, yellowish-reddish-orange ..... *Mormodica*
        - 14 Herbage soft-pubescent to strigose; fruits smooth to ridged, not warty, greenish to yellowish but not reddish-orange
          - 15 Fruits 6-10 cm long; not cultivated, native to natural habitats ..... *Apodanthera*
          - 15 Fruits 10-20 cm long; cultivated cantaloupe, escaping to disturbed ground around fields and gardens ..... *Cucumis*

**Apodanthera**

*A. undulata* Gray ●Mountain foothills, rocky or gravelly slopes or flats, roadsides; southernmost tier of counties from Hidalgo to Otero counties.

**Citrullus**

- 1 Leaf blades ovate to lanceolate-ovate or ovate-triangular in outline, mostly 8-20 cm long; fruits globose to oblong-ellipsoid, 12-35 cm (or more) dia, the rind hard but not durable; flesh juicy, red, yellow, or greenish, sweet; seeds commonly black ..... *C. lanatus* (Thunberg) Matsumura & Nakai ●Occasionally found escaped in scattered locales, campgrounds, river valleys, and moist drainages; native to Asia and Africa.
- 1 Leaf blades ovate in outline, 3-8 cm long; fruits globose to globose-ovoid, 15-25 cm dia, the rind hard and durable; flesh dry, whitish, bitter; seeds tan to brown or reddish ..... *C. caffer* Schrader ●Occasionally escaped from cultivation, but not persisting long; native to Africa.

**Cucumis**

- 1 Pepos smooth, ridged, or warty, but not spiny or bristly; leaf margins entire to weakly serrate ..... *C. melo* Linnaeus ●An occasional escape from cultivation around fields, gardens, and agricultural areas, not persisting long; native to Asia.
- 1 Pepos spiny or bristly; margins serrate ..... *C. myriocarpus* Naudin ●An occasional escape from cultivation around fields, gardens, and agricultural areas, not persisting long; native to Africa.

**Cucurbita**

- 1 Leaf blades longer than wide, triangular, scarcely lobed ..... *C. foetidissima* Kunth ●Widespread in the state, often along roadsides and disturbed areas, but also found in canyon bottoms, native plains, and hillsides.
- 1 Leaf blades about as wide as long, broadly ovate to orbicular in outline, sometimes deeply lobed
  - 2 Lobes of the leaf blades lanceolate to linear, often very narrow and reaching nearly to the midrib or petiole ... Gray ●Canyon bottoms, rocky or gravelly slopes, and washes in the southwestern region. *C. digitata*
  - 2 Lobes of the leaf blades (when developed) broad, ovoid-elliptic, often hardly reaching to the midrib. *C. pepo* Linnaeus ●An occasional escape from cultivation around fields, gardens, and agricultural areas, not



persisting long; native to Mexico and Central America.

### Cyclanthera

- 1 Fruiting peduncles 2-6 mm long; staminate corollas 2.5-3 mm dia; anther heads 0.6-0.8 mm diam. *C. gracillima*  
Cogniaux ●Piñon-juniper woodlands, and cottonwood streamsides in the southwestern region.
- 1 Fruiting peduncles 10-30 mm long; staminate corollas 4.2-6.3 mm dia; anther heads 1.4-3 mm diam.....  
..... *C. naudiniana*  
Cogniaux ●Riparian draws and canyon bottoms, juniper woodlands, in the northeastern region.

### Echinocystis

*E. lobata* (Michaux) Torrey & Gray ●Moist sites along streams, garden edges, pastures; cultivated as an ornamental and occasionally escaping.

### Echinopepon

- 1 Leaf blades 4-5(7) cm wide; corollas 8-12 mm dia; petal apices emarginate; capsule surfaces and prickles eglandular-pubescent, the prickles mostly 3-5 mm long; seeds with an elliptic depression on each surface.....  
..... *E. coulteri*  
(Gray) Rose ●Riparian woodlands and forests in the southwestern mountains, not common.
- 1 Leaf blades 5-8(15) cm wide; corollas 6-8 mm dia; petal apices acute to slightly obtuse; capsule surfaces and prickles hirsute, the hairs stipitate-glandular, the prickles 10-20 mm long; seeds without elliptical depressions..  
..... *E. wrightii*  
(Gray) S. Watson ●Riparian woodland, roadsides, culverts, base of cliffs and boulders in the southwestern canyons and foothills.

### Ibervillea

- 1 Leaf lobes 2-5 mm wide; petals 3-4 mm long; fruits 1-1.5 cm dia ..... *I. tenuisecta*  
(Gray) Small ●Foothills, bajadas, plains, desert slopes and washes; mostly southern.
- 1 Leaf lobes 10-25 mm wide; petals 5-7 mm long; fruits 2-3.5 cm long ..... *I. lindheimeri*  
(A. Gray) Greene ●Fencerows, woody thickets, shrublands; known from two collections in Eddy County.

### Marah

*M. gilensis* (Greene) Greene ●Along water courses and washes; known only from Grant County, from a few early collections from the Gila River area and the Burro Mountains in the 1880s.

### Momordica

\**M. balsamina* Linnaeus ●Occasionally escaping from cultivation, disturbed ground; known only from openings in a pecan orchard in Doña Ana County; native to Africa and Asia.

### Sicyos

- 1 Fruit smooth; leaf lobes coarsely toothed ..... *S. glaber*  
Wooton ●Canyon bottoms and rocky drainages, uncommon in Doña Ana and Hidalgo counties.
- 1 Fruit bristly or spiny; leaf lobes dentate to nearly entire
- 2 Mature stems glabrate to sparsely minutely stipitate-glandular; leaves mostly deeply lobed, the sinus indented ½ to ¾ to the base; lowermost pair of lateral veins divergent from the edge of the basal sinus .....  
..... *S. microphyllus*  
Kunth ●Rocky slopes, cliff bases, streamsides, lower elevations of the central and southwestern mountains.
- 2 Mature stems glabrescent but remaining villous and stipitate-glandular; leaves shallowly lobed to angulate, the sinus indented ½ to ¾ to the base; lowermost pair of lateral veins closely bordering the edge of the basal sinus ..... *S. laciniatus*  
Linnaeus ●Canyon bottoms, shaded rocky slopes, and riparian woodlands, mostly southwestern.

### Sicyosperma

*S. gracile* Gray ●This has been attributed repeatedly to the state, but no specimens can be found; the species occurs just westward in the Chiricahua Mountains of eastern Arizona, and would be looked for along watercourses in partial shade in the bootheel region.

## EHRETIACEAE EHRETIA FAMILY

Contributed by Robert C. Sivinski

### Tiquilia

- 1 Leaf blades broad, ovate to elliptic, 2-10 mm wide, villous-tomentose, but not hispid-hirsute
- 2 Plants small erect shrubs; flowers aggregated into conspicuous, dense, plumose clusters..... *T. greggii*  
(Torrey) A. Richardson ●A few scattered localities in southern desert scrub, on limestone.
- 2 Plants low and spreading; flowers solitary, not plumose..... *T. canescens*  
(A.P. de Candolle) A. Richardson ●Widespread in the southern half of the state, in arid or desert vegetation on calcareous substrates.
- 1 Leaf blades linear to narrow obovate, 0.5-2 mm wide, strongly hispid-hirsute
- 3 Upper blade surfaces usually green, glabrous to scabrous beneath the bristles, mostly linear and broadest at the middle or below; petioles glabrous or minutely scabrous, never villous, bristly on the margin; flowers 4-5 mm across; attachment on the nutlet opened its entire length or at least below the middle .. *T. hispidissima*  
(Torrey) A. Richardson ●Widespread in widely scattered locales on gypsum from Sandoval County south and east.

- 3 Upper blade grayish, occasionally light green, usually puberulent-villous beneath the bristles, mostly oblanceolate and broadest above the middle; petioles usually villous, bristly on the margin; flowers 2-3 mm across; attachment scar on the nutlet entirely closed or open only above the middle..... *T. gossypina* (Wootton & Standley) A. Richardson ●Known in New Mexico from only a few localities in Doña Ana County in arid or desert vegetation.

**ELAEGNACEAE OLEASTER FAMILY**

- 1 Leaves and branches opposite; flowers unisexual, the plants dioecious; fruit without a well-developed stone ..... *Shepherdia*
- 1 Leaves and branches alternate; flowers perfect or some staminate; fruit with a well-developed stone. *Elaeagnus*
- Elaeagnus**
- \**E. angustifolia* Linnaeus ●Widespread throughout the state along streams and river banks; also planted as an ornamental; native to Eurasia.
- Shepherdia**
- 1 Upper surface of the leaves silvery and ± covered with stellate scales; blades mostly 2-5 cm long and 0.5-1.5(2.5) cm wide, tapering to an arcuate base..... *S. argentea* (Pursh) Nuttall ●Canyon bottoms, meadows, and open slopes in the foothills, scattered locales in the northwest quarter of the state.
- 1 Upper surface of the leaves ± green and only sparsely pubescent; larger blades 3-7 cm long and 1.5-4 cm wide, obtuse to rounded or subcordate at the base ..... *S. canadensis* (Linnaeus) Nuttall ●Woods and open rocky slopes in the northern mountains, more common than the previous across the northern tier of counties.

**ELATINACEAE WATERWORT FAMILY**

- 1 Plants glabrous, creeping or with ascending branches; leaves 3-15 mm long; sepals 2; petals 3 ..... *Elatine*
- 1 Plants glandular-pubescent throughout, erect or ascending; leaves 12 mm or more long sepals 5; petals 5 *Bergia*
- Bergia**
- B. texana* (Hooker) Seubert in Walpers ●Drying mud of ditch banks, marshes, ponds, and reservoirs; known only from a single collection in Doña Ana County, from a clay lakebed.
- Elatine**
- 1 Sepals and petals 4 in number; pedicels recurved in fruit; capsules 4-locular ..... *E. californica* A. Gray ●Shores of ponds and streams; reported for the state by Razifard et al. (2016) without locality, authentic specimens not known to us.
- 1 Sepals 2-3; petals 3; pedicels erect or absent; capsules 3-locular
- 2 Stamens 1-6, variable within a single plant; stipules about 1 mm long ..... *E. heterandra* ●Muddy ground; known from McKinley County.
- 2 Stamens 3; stipules 0.5-0.6 mm long
- 3 Stipule margins entire; seed pits 3-5 times longer than wide, in 6 rows; leaves green to reddish green ..... *E. chilensis* ●Catron, San Juan, and Taos counties.
- 3 Stipule margins dentate; seed pits 1-2 times longer than wide, in 6-10 rows; leaves reddish green
- 4 Capsules 1-1.7 mm diam; seeds 0.3-0.5 mm long; seed pits (9)14-17 per row ..... *E. brachysperma* A. Gray ●Mud or shallow water at the edges of ponds or reservoirs.
- 4 Capsules 1.5-2.5 mm diam; seeds 0.5-0.7 mm long; seed pits 16-25(3) per row ..... *E. rubella* Rydberg ●Mud or shallow water at the edges of ponds or reservoirs.

**ERICACEAE HEATH FAMILY**

- 1 Plants lacking chlorophyll, not green, growing as mycorrhizal parasites on the roots of other plants (Monotropoideae)
- 2 Stems stout, reddish brown, glandular pubescent, the flowering stalks erect; flowers and fruits nodding ..... *Pterospora*
- 2 Stems slender, pale yellowish or pinkish, finely pubescent or smooth, the flowering stalks nodding during anthesis and becoming erect in fruit; flowers nodding, the fruits erect ..... *Monotropa*
- 1 Plants with chlorophyll and green, autotrophic, not parasitic
- 3 Plants woody shrubs or trees (may be low-growing)
- 4 Plants low, less than 50 cm tall
- 5 Stems erect; ovary inferior (Vaccinioideae) ..... *Vaccinium*
- 5 Stems creeping, decumbent; ovary superior (in *Gaultheria* the fruit is encased by an enlarged fleshy disk that simulates an inferior ovary) (Ericoideae)
- 6 Flowers solitary in the leaf axils; leaves oval to nearly orbicular ..... *Gaultheria*
- 6 Flowers in terminal racemes or panicles; leaves spatulate ..... *Arctostaphylos*
- 4 Plants taller, usually much more than 100 cm tall (Ericoideae)
- 7 Plants small trees; leaf blades 3-7 cm long ..... *Arbutus*
- 7 Plants shrubs; leaf blades 2-3(4) cm long ..... *Arctostaphylos*

- 3 Plants herbaceous (Pyroloideae)
- 8 Stems bearing several whorls of sharply serrate, oblanceolate leathery leaves; inflorescence umbel-like ..... *Chimaphila*
- 8 Stems leafy toward the base; leaves not in whorls, ovate or oval; inflorescence a raceme or flower solitary
- 9 Flower solitary, extremely fragrant..... *Moneses*
- 9 Flowers several on a stem, racemose
- 10 Leaves all basal or rarely absent; flowers in spirals around the stalk, the inflorescence not one-sided..... *Pyrola*
- 10 Leaves scattered along lower third of stem; flowers arranged on one-side of the stalk..... *Orthilia*
- Arbutus**
- 1 Leaf blades elliptic-lanceolate, acute at the apex, glabrous on both sides ..... *A. arizonica*  
(Gray) Sargent ●Canyon sides and gravelly foothills in the foothills of the bootheel region.
- 1 Leaf blades oblong to ovate, obtuse at the apex, pubescent on the lower side..... *A. xalapensis*  
Kunth ●Southeastern foothills, canyons, and rocky slopes in the mountains, with some disjunct plants in the bootheel, where it may hybridize with *Arbutus arizonica*.
- Arctostaphylos**
- 1 Low shrubs 10-25 cm tall, the stems trailing to prostrate and rooting ..... *A. uva-ursi*  
(Linnaeus) Sprengel ●Coniferous forests at medium to high elevations.
- 1 Well-developed shrubs 1-5 m tall, the stems ascending, never trailing or prostrate
- 2 Petiole 7-15 mm long; blades 1.5-4 cm wide..... *A. patula*  
Greene ●Ponderosa forests in the Chuska Mountains, San Juan County, known from only a few collections.
- 2 Petiole 4-8 mm long; blades 1-2 cm wide ..... *A. pungens*  
Kunth ●Pine and oak forests and woodlands at low to medium elevations.
- Chimaphila**
- C. umbellata* (Linnaeus) W.P.C. Barton ●Mountain canyons, mixed conifer forests; central and southwestern mountains. ♦Our material belongs to var. *acuta* (Rydberg) Blake.
- Gaultheria**
- G. humifusa* (Graham) Rydberg ●Moist soil at high elevations in the northern mountains, little known.
- Moneses**
- M. uniflora* (Linnaeus) Gray ●Moist forests, rotting humus, bogs; higher elevations in the mountains.
- Monotropa**
- M. hypopitys* Linnaeus ●Moist woods in mountains, on decaying humus; widespread.
- Orthilia**
- O. secunda* (Linnaeus) House ●Deep woods in mountains; widespread.
- Pterospora**
- P. andromedeae* Nuttall ●Mountain canyons, wooded slopes and parklands; widespread.
- Pyrola**
- 1 Flowers actinomorphic; style straight or nearly so, short, less than 2 mm long; anthers less than 1.5 mm long.....  
..... *P. minor*  
Linnaeus ●Spruce-fir forests in the northern and western mountains.
- 1 Flowers slightly zygomorphic; style obviously curved downward in anthesis, elongate, more than 3 mm long; anthers 2-5.5 mm long
- 2 Petals pinkish to purplish; bracts of the scape 7-15 mm long near the base of the scape..... *P. asarifolia*  
Michaux ●Marshy areas and moist subalpine forests in the northern mountains.
- 2 Petals creamy-white to greenish white; bracts of the scape 2-9 mm long near the base of the scape
- 3 Leaf blades white-mottled along the veins..... *P. picta*  
J.E. Smith ●Deep woods, mountain canyons, shady sites; northern and western mountains.
- 3 Leaf blades not white-mottled
- 4 Leaf blades mostly 1-3 cm long and shorter than the petioles ..... *P. chlorantha*  
Swartz ●Coniferous and subalpine forests; northern and western mountains.
- 4 Leaf blades mostly 3-7 cm long and longer than the petioles ..... *P. elliptica*  
Nuttall ●Forested mountain slopes in the northern and western mountains, uncommon.
- Vaccinium**
- 1 Twigs of the current season obscurely angled or nearly terete, not bright green ..... *V. cespitosum*  
Michaux ●Spruce-fir forests in the northern mountains, uncommon.
- 1 Twigs of the current season sharply angled, bright green
- 2 Berries bright red, 3-6 mm diameter; leaves 7-12 mm long; twigs rigidly branched and broom-like.....  
..... *V. scoparium*  
Leiberg ex Coville ●High elevations in spruce-fir or pine-fir forests, mostly in the northern mountains.
- 2 Berries purple to bluish or blackish, 5-9 mm diameter; leaves 20-30 mm long; twigs flexuous and not broom-like..... *V. myrtillos*  
Linnaeus ●Shaded slopes in the northern and western mountains.

## EUPHORBIACEAE SPURGE FAMILY

- 1 Leaves palmately 3- to 5-lobed ..... *Jatropha*
- 1 Leaves entire or toothed but not palmately lobed
- 2 Plants woody shrubs, at least the lower portions
- 3 Plants with milky juice; stems leafless (*Euphorbia antisiphilitica*) ..... *Euphorbia*
- 3 Plants without milky juice; stems leafy
- 4 Leaves obscurely toothed to entire, densely covered with stellate hairs, 3-7 cm long ..... *Croton*
- 4 Leaves obviously and coarsely toothed, sparsely stellate-pubescent, 1-2 cm long ..... *Bernardia*
- 2 Plants herbaceous
- 5 Plants with milky juice; flowers borne in a cup-shaped involucre (cyathium), which encloses the staminate flowers and a single pistillate flower; fruit on an elongated stalk and hanging out of the involucre at maturity ..... *Euphorbia*
- 5 Plants without milky juice (except *Stillingia*); flowers other than above, not borne in an involucre; fruit various; ovules and seeds 1 per chamber; flowers variously arranged
- 6 Herbage with a dense covering of stellate hairs that obscures the surface of the leaves ..... *Croton*
- 6 Herbage glabrous to variously pubescent, but not covered with a mat of stellate hairs
- 7 Plants with coarse stinging hairs; styles undivided ..... *Tragia*
- 7 Plants without stinging hairs, glabrous or pubescent; styles undivided or divided
- 8 Plants with milky juice, glabrous; styles undivided ..... *Stillingia*
- 8 Plants without milky juice, glabrous to pubescent; styles bifid or cleft
- 9 Filaments connate for most of their length to form a column; petals present ..... *Argythamnia*
- 9 Filaments free to the base or nearly so; petals absent ..... *Acalypha*
- Acalypha**
- 1 Plants perennial; inflorescence spikes terminal, bisexual, androgynous ..... *A. phleoides*  
Cavanilles • Mountain slopes, washes, woodlands, dry sandy ground; southern.
- 1 Plants annual; staminate spikes axillary, pistillate spikes terminal
- 2 Pistillate bracts divided, with filiform divisions greatly exceeding the body of the bract; upper leaves cordate at the base, 4-10 cm long ..... *A. ostryifolia*
- 2 Pistillate bracts acutely lobed, the central lobe much exceeding the others; upper leaves acute to rounded at the base, 1-3 cm long ..... *A. neomexicana*  
Müller Argoviensis • Mountain slopes, moist areas in canyon bottoms; southern and western mountains.
- Argythamnia**
- 1 Leaves sessile
- 2 Plants glabrous or nearly so; pistillate petals 5, more than 2.8 mm long ..... *A. cyanophylla*  
(Wooton & Standley) Ingram • Pine forests and piñon-juniper woodlands in mountains; scattered locations, uncommon.
- 2 Plants pubescent; pistillate petals 0 or 5, less than 0.5 mm long ..... *A. mercurialina*  
(Nuttall) Coulter • Dry plains, desert scrub; known only from Eddy County.
- 1 Leaves petiolate
- 3 Style branches terete; staminate sepals 1-2.5 mm long ..... *A. serrata*  
(Torrey) Müller Argoviensis • Desert scrub, rocky slopes, mesas, mountain canyons; southern.
- 3 Style branches flattened and dilated at the tip; staminate sepals 2.5-3.3 mm long ..... *A. humilis*  
(Engelmann & Gray) Müller Argoviensis • Dry grasslands, plains, desert scrub; southeastern.
- Bernardia**
- B. obovata* I.M. Johnston • Desert scrub, dry canyon bottoms; rare in the southern plains and foothills; known only from a few locations in Doña Ana and Eddy County.
- Croton**
- 1 Leaves toothed, with a whitish gland on each side of the midvein on the lower surface; plants annual .....  
..... *C. glandulosus*  
Linnaeus • Roadsides, waste places, disturbed areas, sandy areas; known only from Eddy and Lea counties.  
♦Ours are var. *lindheimeri* Müller Argoviensis.
- 1 Leaves entire, lacking glands as above; plants annual or perennial
- 2 Plants well-developed shrubs, woody well above the base ..... *C. fruticosus*  
Engelmann ex Torrey • Basalt or limestone hills across the southern tier of counties.
- 2 Plants ± herbaceous above, annuals or woody or semi-woody only at the base
- 3 Key in the field:
- 4 Plants annual
- 5 Leaves tending to be evenly distributed along the stem; herbage greenish, the lower stems nearly glabrous ..... *C. texensis*
- 5 Leaves tending to fall from the lower stem and to be present in clusters at the stem tips; herbage more grayish, the lower stems sparsely to moderately stellate pubescent
- 6 Most leaf blades 1-2 cm long ..... *C. monanthogynus*
- 6 Many leaf blades 2-8 cm long ..... *C. lindheimerianus*
- 4 Plants perennial (flowering first year in *C. dioicus*)

- 7 Petioles of mid-stem leaves  $\frac{1}{2}$  to  $1\frac{1}{2}$  times as long as the blades; styles exerted from the pistillate flowers, with 6 obvious segments, 1.5-3 mm long..... *C. pottsii*
- 7 Petioles of mid-stem leaves  $\frac{2}{5}$  or less as long as the blades; styles not exerted from the pistillate flowers, with 10 or more inconspicuous segments, 0.5-1.5 mm long..... *C. dioicus*
- 3 Key with dissection and magnification:
- 8 Styles only once-bifid, giving 4-6 ultimate segments; petals present in the staminate flowers, absent in the pistillate flowers
- 9 Plants perennial; mature calyx about half or less as long as the fruit ..... *C. pottsii*  
(Klotzsch) Müller Argoviensis •Desert scrub and grassland, rocky slopes; eastern and southern plains.
- 9 Plants annual; mature calyx half or more as long as the fruit
- 10 Styles 2, giving 4 ultimate segments; capsules 1-seeded ..... *C. monanthogynus*  
Michaux •Calcareous soils of prairies, woodlands, roadsides; known only from two collections in Eddy County.
- 10 Styles 3, giving 6 ultimate segments; capsules 3-seeded ..... *C. lindheimerianus*  
Scheele •Rocky arroyos, limestone slopes and outcrops, fields, playas; occasional, southern.
- 8 Styles 2-3 times bifid, giving 10 or more ultimate segments; petals absent in both staminate and pistillate flowers
- 11 Plants annual; lower portions of the stems green, nearly glabrous..... *C. texensis*  
(Klotzsch) Müller Argoviensis •Prairies, plains, sandy creek beds or moist areas, canyon bottoms, disturbed areas; widespread.
- 11 Plants perennial (but flowering first year); lower portions of the stems grayish, moderately to densely covered with stellate hairs and scales ..... *C. dioicus*  
Cavanilles •Arroyos, dry plains and rocky slopes, lower canyons, limestone soils; southern counties.

**Euphorbia**

- 1 Plants shrubby; stems leafless..... *E. antisiphilitica*  
Zuccarini •Known only from the dry, eastern slopes of the San Andres Mountains. Doña Ana County.
- 1 Plants herbaceous; stems leafy (though sometimes very small)
- 2 Stems usually prostrate, sometimes erect or ascending; leaves opposite, blades asymmetric at the base, stipules present and interpetiolar (species previously placed in Chamaesyce)
- 3 Plants perennial
- 4 Plants pubescent or glandular
- 5 Herbage and capsules glandular ..... *E. arizonica*  
Engelmann •Washes, rocky slopes, mesquite woodlands; southwestern counties.
- 5 Herbage and capsules pubescent, not glandular (capsules glabrous in *E. villifera*)
- 6 Cyathia borne in dense glomerules (a few also solitary) ..... *E. capitellata*  
Engelmann •Washes, rocky slopes, desert scrub, desert grassland; a few scattered locations, southern.
- 6 Cyathia solitary
- 7 Capsules glabrous ..... *E. villifera*  
Scheele •Woodlands, plains. ♦*Euphorbia villifera* has been reported for the state, but no vouchers are known; it occurs just south in El Paso and Culberson counties, Texas.
- 7 Capsules pubescent
- 8 Blades finely (almost minutely) puberulent above and below, the margins decidedly revolute (rolled downwards), the herbage with a pale purplish cast; capsules greater than 2.8 mm long ..... *E. lata*  
Engelmann •Mountain slopes, canyons, prairies, waste areas, often in calcareous or sandy soils; widespread.
- 8 Blades finely puberulent below, ± glabrous above, the margins flat or slightly involute (rolled upwards), the herbage with a grayish cast; capsules less than 2.5 mm long ..... *E. acuta*  
Engelmann •Desert scrub, sandy or rocky soils, often on limestone; south-central and southeastern regions.
- 4 Plants glabrous
- 9 Adjacent stipules united to form a whitish or pinkish scale, this entire to lacerate. *E. albomarginata*  
Torrey & Gray •Desert scrub, grasslands, rocky slopes; essentially throughout the state except the northeastern quarter.
- 9 Adjacent stipules distinct, bristle- or awl-like, not united
- 10 Blades broadly ovate to nearly orbicular ..... *E. fendleri*  
Torrey & Gray •Desert scrub, canyon bottoms, arroyos, grasslands; widespread.
- 10 Blades lanceolate to oblong-lanceolate, but decidedly narrower than ovate..... *E. chaetocalyx*  
(Boissier) Tidestrom •Rocky slopes, edges of washes, rock crevices; widespread.
- 3 Plants annual

- 11 Largest leaves more than 1.5 cm long
  - 12 Stems conspicuously pubescent, at least toward the tips, often densely so, easily visible without a lens
    - 13 Ovary and capsule hairy; hairs of the stems stiff, yellowish, broadest at the base and tapering to the tip ..... *E. hirta*  
Linnaeus ●Riparian woodlands, mesquite woodlands, grasslands, disturbed areas; known only from the bootheel region.
    - 13 Ovary and capsule glabrous; hairs of stems crisp to pilose, whitish, thread-like and not tapering.....*E. nutans*  
Lagasca ●Gravelly slopes, moist areas, grasslands, forest openings; mostly southwestern.
  - 12 Stems glabrous or only sparsely pubescent, not at all conspicuous, when pubescent then hardly visible without a lens
    - 14 Leaves toothed
      - 15 Cyathia in capitate glomerules; capsules 1.3-1.4 mm long.....*E. hypericifolia*  
Linnaeus ●Open, disturbed areas; collected in 2017 in Doña Ana County.
      - 15 Cyathia solitary or in small cymose clusters; capsules 1.5-1.6 mm long...*E. hyssopifolia*  
Linnaeus [●Disturbed areas, gardens, canyon bottoms; mostly southwestern.
    - 14 Leaves entire
      - 16 Plants usually erect; leaves linear, 2-5 times longer than wide; capsules 2-2.5 mm long .....*E. missurica*  
Rafinesque ●Plains, grasslands, calcareous soils; mostly on the eastern plains, but also a few other scattered locales.
      - 16 Plants prostrate; leaves ± ovate, at most 2 times longer than wide; capsules 4.5-6.5 mm long .....*E. carunculata*  
Waterfall ●Plants of sand dunes; known from Chaves and Lea Counties.
- 11 Largest leaves less than 1.5 cm long
  - 17 Herbage (stems and/or leaves) pubescent
    - 18 Leaves entire
      - 19 Capsules and cyathia pubescent; petal-like appendages divided into 3-5 attenuate segments, very noticeable ..... *E. setiloba*  
Engelmann ●Desert scrub, rocky slopes, dry washes; mostly central and southern.
      - 19 Capsules and cyathia glabrous; petal-like appendages undivided, not very noticeable .....  
.....*E. abramsiana*
    - 18 Leaves toothed, at least toward the apex
      - 20 Capsules glabrous
        - 21 Stems puberulent, the hairs very short, only about 0.1-0.2 mm long...*E. abramsiana*  
L.C. Wheeler ●Rocky desert slopes and grasslands; known only from Hidalgo and Luna Counties.
        - 21 Stems pubescent to pilose, though sometimes sparsely, the hairs at least 0.5 mm long
          - 22 Capsules 2-2.6 mm long, 3-3.6 mm in diameter; plants prostrate to ascending ...  
.....*E. serrula*  
Engelmann ●Desert scrub, grasslands, rocky slopes; throughout the southern regions and scattered elsewhere.
          - 22 Capsules 1.4-1.8 mm long, 1.7-2.1 mm in diameter; plants prostrate .....  
.....*E. vermiculata*  
Rafinesque ●Grasslands, riparian areas, arroyos, juniper-oak woodlands; southwestern counties.
      - 20 Capsules puberulent or pubescent
        - 23 Petal-like appendages absent or vestigial; styles entire ..... *E. rayturneri*  
V.W. Steinmann & E. Jercinovic ●Desert grassland, dry washes; extreme southwestern.
        - 23 Petal-like appendages easily noticeable
          - 24 One pair of appendages much larger than the other pair, often obscuring the capsules.....*E. indivisa*  
(Engelmann) Tidestrom ●Grasslands, oak-mesquite woodlands, canyon bottoms, arroyos; southwestern.
          - 24 All appendages of similar size
            - 25 Styles entire to slightly emarginate; seeds pitted and mottled .....  
.....*E. stictospora*  
Engelmann ●Rocky hillsides, washes, disturbed areas; widespread.
        - 25 Styles bifid
          - 26 Capsules ± uniformly strigulose with appressed hairs; seeds with low, transverse, subregular ridges .....*E. maculata*

- Linnaeus ●Roadsides, sidewalk cracks, disturbed areas; occasional southern and central.
- 26 Capsules with at least some spreading hairs, pubescence usually concentrated on the angles, but deciduous on the sides; seeds with 5-7 low, sharp, irregular, transverse ridges..... *E. prostrata*  
Aiton ●Rocky slopes, plains, disturbed areas; widely scattered localities.
- 17 Herbage (stems and leaves) glabrous or nearly so
- 27 Leaves toothed, at least at the tip
- 28 Stems erect to strongly ascending.....*E. serpyllifolia*  
Persoon ●Desert scrub, desert grassland, wooded areas, fields, roadsides; essentially throughout the state.
- 28 Stems prostrate
- 29 Seeds with prominent transverse ridges which are continuous through the raised angles of the seed .....*E. glyptosperma*  
Engelmann ●Prairies, grasslands, arroyos, open disturbed areas, roadsides; widespread, scattered locales throughout the state.
- 29 Seeds with transverse wrinkles or faint ridges interrupted by the raised angles of the seed.....*E. serpyllifolia*  
Persoon ●Desert scrub, desert grassland, wooded areas, fields, roadsides; essentially throughout the state.
- 27 Leaves entire
- 30 Leaves linear, 5 or more times as long as broad; plants annual
- 31 Leaves with revolute margins; styles undivided; capsules less than 1.8 mm long at maturity..... *E. revoluta*  
Engelmann ●Desert scrub, grasslands, arroyos; widespread.
- 31 Leaves flat or folded, but not with revolute margins; styles bifid; capsules more than 2 mm long at maturity
- 32 Plants erect to ascending; gland appendages conspicuously larger than the glands, whitish, petal-lik ..... *E. missurica*  
Rafinesque ●Plains, grasslands, calcareous soils; mostly on the eastern plains, but also a few other scattered locales.
- 32 Plants prostrate; gland appendages smaller than the glands, not petal-like .....  
*E. parryi*  
Engelmann ●Sand dunes, very sandy soil; widely distributed throughout the state.
- 30 Leaves not linear, less than 3 times as long as broad
- 33 Capsules longer than 4 mm ..... *E. carunculata*  
Waterfall ●Plants of sand dunes; known from Chaves and Lea Counties.
- 33 Capsules less than 3 mm long
- 34 Seeds with 3 or 4 strong transverse ridges ..... *E. theriaca*  
L.C.Wheeler ●Igneous soils; known only from basaltic substrates in the West Potrillo Mountains of Doña Ana County. ♦Our plants belong to var. *spurca* M.C. Johnston.
- 34 Seeds smooth or wrinkled, but without transverse ridges
- 35 Glands without appendages ..... *E. micromera*  
Boissier ex Engelmann ●Desert scrub, rocky slopes, canyon bottoms, grasslands; mostly southern.
- 35 Glands with appendages (sometimes absent in *E. geyeri*)
- 36 Stipules united into a membranous scale..... *E. serpens*  
Kunth ●Desert scrub, prairies, grasslands, oak and juniper woodlands; scattered locations.
- 36 Stipules distinct or united, but not scale-like
- 37 Seeds terete to bluntly sub-angled in cross section, smooth .....  
*E. geyeri*  
Engelmann & Gray ●Sandy or gravelly soils, dunes; eastern plains, occasional in other scattered locales.
- 37 Seeds narrowly pyramidal-ovoid, four-angled in cross section, with faint transverse ridges or wrinkles .....*E. golondrina*  
L.C. Wheeler ●Sandy desert areas. ♦This species was discovered in Doña Ana County in 2017.
- 2 Stems ascending to erect; leaves symmetric at the base, stipules absent or minute and gland-like
- 38 Floral leaves with conspicuous white to pinkish margins 1-2 mm wide .....*E. marginata*  
Pursh ●Grasslands, disturbed areas; mostly on the eastern plains, but also other scattered locales.

38 Floral leaves without such margins

39 Plants perennial from taproots or creeping roots or rhizomes

40 Involucres crinkly puberulent, with peduncles 4-12 mm long; glands surrounded by a minute yellowish appendage..... *E. strictior*

Holzinger ●Grassland, sandy ground; mostly in the eastern plains.

40 Involucres glabrous, with peduncles less than 3 mm long; glands without appendages

41 Stems succulent, mostly 6-8 mm wide; leaves fleshy, prominently mucronate; involucre glands with horns, horns thick and dilated at the tip; capsules 5-7 mm long..... *E. myrsinites*

Linnaeus ●Cultivated in gardens and occasionally escaping; known from Santa Fe County.

41 Stems not succulent; leaves not fleshy or mucronate; capsules less than 5 mm long

42 Plants from thick, woody rootstock; seeds shallowly pitted

43 Peduncles of cyathia 1-3 mm long; capsules 4.3-5 mm long.....*E. chamaesula*

Boissier ●Pine forests, mountain roadsides, creek banks; west-central and southwestern mountains.

43 Peduncles of cyathia 0.3-1 mm long; capsules 2.8-4 mm long

44 Involucre gland margins entire to sometimes slightly crenate or dentate; horns longer than any marginal teeth..... *E. brachycera*

Engelmann ●Lower mountain forests, canyon bottoms, foothills; widespread.

44 Involucre gland margins distinctly crenate or dentate; horns absent or equaling to slightly longer than marginal teeth..... *E. lurida*

Engelmann ●Open pine-oak forests, dry slopes and canyons; western counties, also Otero County.

42 Plants from slender rhizomes; seeds smooth

45 Stems 10-30(-40) cm tall; mature leaves 0.5-3 mm wide..... *E. cyparissias*

Linnaeus ●Fields, roadsides, disturbed areas. ♦*Euphorbia cyparissias* is an introduced species from Europe, found in several gardens in Raton, and to be looked for escaping along roads in this area, as it has done in Colorado.

45 Stems 30-90 cm long; mature leaves 3-8 mm wide..... *E. virgata*

Waldstein & Kitaibel ●Fields, roadsides, open woods; occasional in scattered locations in northern counties; native to Europe.

39 Plants annual or biennial from taproots

46 Stem leaves mostly opposite

47 Leaf blades toothed

48 Herbage mostly glabrous..... *E. bifurcata*

Engelmann ●Canyons and foothills in southern and southeastern mountains.

48 Herbage mostly stiffly puberulent to strigose

49 Glands of the cyathia four or five in number, each with a whitish petal-like appendage..... *E. exstipulata*

Engelmann ●Rocky slopes, grasslands, arroyos, lower mountain canyons; widespread.

49 Glands of the cyathia single, without a petal-like appendage

50 Leaves linear or linear-lanceolate to elliptic or ovate; capsules pubescent.....

..... *E. cuphosperma*

(Engelmann) Boissier ●Open and canyon forests, foothills, dry hills and flats; occasional in scattered areas.

50 Leaves ovate to ovate-lanceolate; capsules glabrous..... *E. davidii*

Subils ●Mountains, foothills, valleys, plains, dry hills; widespread.

47 Leaf blades entire

51 Cauline leaves strongly decussate, 4-ranked, 5-15 cm long; floral leaves cordate, 2-6 cm long; capsules 8-15 mm in diameter..... *E. lathyris*

Linnaeus ●Roadsides, waste places; known from a single collection in the eastern Sandia Mountains, Bernalillo County.

51 Leaves and capsules not as above

52 Glands of the cyathia without petal-like appendages..... *E. cuphosperma*

(Engelmann) Boissier ●Open and canyon forests, foothills, dry hills and flats; occasional in scattered areas.

52 Glands of the cyathia with whitish petal-like appendages

53 Glands and petal-like appendages bilobed; mature capsules ca. 2 mm long.....

..... *E. bilobata*

Engelmann ●Southern and west central mountains, foothills, grasslands.

53 Glands and petal-like appendages entire, not lobed; mature capsules more than 4 mm long..... *E. hexagona*



- Nuttall ex Sprengel ● Forests, plains, sandy soils in damp areas; scattered locations.
- 46 Stem leaves mostly alternate, at least at mid-stem and above
- 54 Involucral glands with appendages,
- 55 Appendages fringed and folded over the glands; capsules canescent..... *E. eriantha*  
Bentham ● Dry slopes and canyons, drainages; known only from Eddy County.
- 55 Appendages entire; capsules glabrous ..... *E. graminea*  
Jacquin ● Disturbed weedy areas; known only from a 2019 observation in Doña Ana County; also scattered locales in southern United States; native to Mexico and Central America.
- 54 Involucral glands without appendages
- 56 Involucre with 1 gland
- 57 Gland subsessile, the opening oblong, shallowly bilabiate, about 1 mm long; inflorescence bracts red at the base ..... *E. cyathophora*  
Murray ● Canyon bottoms, moist woodlands; known from Eddy, Doña Ana, and Otero Counties.
- 57 Gland stipitate, the opening circular, much less than 1 mm long; inflorescence bracts pale at the base but not red ..... *E. heterophylla*  
Linnaeus ● Lower mountain canyons, foothills, arroyos; known only from Hidalgo County.
- 56 Involucral with 4(5) glands
- 58 Blades entire; glands of the cyathium crescent-shaped with 2 horns
- 59 Capsules 2.5-3 mm long, smooth on the lobes..... *E. crenulata*  
Engelmann ● Foothills, woodlands; known only from a single specimen from McKinley County.
- 59 Capsules 1.5-2 mm long with a pair of longitudinal wings on each lobe.....  
..... *E. peplus*  
Linnaeus ● Waste ground, disturbed areas; known from Doña Ana County; native to Europe.
- 58 Blades toothed; glands of the cyathium elliptic and symmetrical, without horns
- 60 Capsules papillate, the papillae raised. 0.2-0.5 mm ..... *E. alta*  
Norton ● Roadsides, disturbed areas in mountains of southern counties.
- 60 Capsules verrucose, the protrusions low and round, 0.1-0.2 mm *E. spathulata*  
Lamarck ● Mountains, foothills, grassland, plains; widespread.

**Jatropha**

*J. macrorhiza* Bentham ● Rocky slopes, desert scrub, grama grasslands, sandy plains at low elevations; southern.

**Stillingia**

- 1 Leaves linear, 6-12 times longer than broad; capsules about 6 mm in diameter ..... *S. texana*  
I.M. Johnston ● Sandy soil, dunes, roadsides; reported for the eastern plains by M&H and W&S, but no authentic specimens are known; it occurs in central Texas and Oklahoma.
- 1 Leaves lanceolate to elliptic to oblanceolate, generally 4-7 times longer than broad; capsules about 12 mm in diameter ..... *S. sylvatica*  
Garden ex Linnaeus ● Sandy soil, dunes, roadsides; eastern plains.

**Tragia**

- 1 Stems with a rather dense covering of tiny curved or crinkled hairs beneath the longer stiffer strigose hairs, giving the stems a grayish appearance; stipules green, even on older stems..... *T. amblyodonta*  
(Müller Argoviensis) Pax & K. Hoffmann ● Rocky slopes, grassland, desert canyons, desert scrub; mostly southwestern.
- 1 Stems lacking an undercovering of tiny hairs, or only sparsely so, the stems appearing greenish; stipules often turning brown, but sometimes green
- 2 Styles connate  $\frac{1}{4}$  to  $\frac{1}{2}$  their length, not or scarcely papillate (15x); leaves usually lanceolate to narrowly oblong in outline, but sometimes broader ..... *T. ramosa*  
Torrey ● Desert grassland, desert scrub, canyon bottoms, woodlands, rocky slopes and hills; widespread.
- 2 Styles free nearly to the base, distinctly papillate (15x); leaves usually ovate in outline, but often narrower ....  
..... *T. nepetifolia*  
Cavanilles ● Mountain canyons, foothills, rocky slopes, desert grassland; in scattered locations, mostly central and eastern.

**FABACEAE (LEGUMINOSAE) PEA or LEGUME FAMILY**

[Keys adapted in part from Isely 1998]

- 1 Plants woody, at least in the lower half, definite half-shrubs to well-developed trees and shrubs ..... KEY A
- 1 Plants herbaceous
- 2 Flowers actinomorphic, in dense heads or compact racemes; stamens 5 or numerous ..... KEY B

Dicotyledonous Plants - Fabaceae

- 2 Flowers zygomorphic (only slightly so in some); stamens 10 or fewer
  - 3 Corolla not strictly papilionaceous, sometimes nearly actinomorphic, the upper petal inside the others; stamens 10 or fewer..... KEY C
  - 3 Corolla papilionaceous, differentiated into banner, wings, and keel (much reduced or lacking in some), the upper petal outside the others; stamens 10 or 5
    - 4 Stems and shoots twining-vining, sometimes with tendrils ..... KEY D
    - 4 Stems and shoots not twining-vining
      - 5 Leaves palmately compound and/or with 1-3 leaflets ..... KEY E
      - 5 Leaves pinnately compound and with 4-numerous leaflets ..... KEY F

**KEY A: Woody Plants**

- 1 Leaves simple, often deciduous
    - 2 Leaves ovate-cordate, 3-10 cm long and sometimes as broad..... *Cercis*
    - 2 Leaves otherwise, much longer than broad
      - 3 Leaves and stems beset with glandular dots; stems not profusely thorny..... *Psororhannus*
      - 3 Leaves and stems lacking glands; stems profusely thorny from the axils of the leaves..... *Ahagi*
  - 1 Leaves compound
    - 4 Herbage glandular-dotted, at least below
      - 5 Leaflets filiform and less than 1 mm wide
        - 6 Leaves with 17-41 leaflets; most leaflets longer than 4 mm ..... *Parryella*
        - 6 Leaves with 5-11 leaflets; most leaflets less than 4 mm long (*D. formosa*)..... *Dalea*
      - 5 Leaflets lanceolate to broader and more than 1 mm wide
        - 7 Leaves 2-3 cm long ..... *Dalea*
        - 7 Leaves 4 cm or more long
          - 8 Leaflets with a tiny mucro or bristle at the tip; petals 1 ..... *Amorpha*
          - 8 Leaflets lacking a tiny mucro or bristle; petals 5
            - 9 Leaves once pinnately compound, the leaflets attached to primary rachises..... *Eysenhardtia*
            - 9 Leaves twice pinnately compound, the leaflets attached to secondary rachises ..... *Erythrostemon*
    - 4 Herbage lacking glands
      - 10 Leaflets 3 in number, 4-10 cm wide ..... *Erythrina*
      - 10 Leaflets 5 or more in number, less than 4 cm wide
        - 11 Stems and twigs armed, sometimes sparsely so, sometimes viciously so
          - 12 Leaves once-compound
            - 13 Leaflets less than 2 mm wide ..... *Parkinsonia*
            - 13 Leaflets 6 mm or more wide ..... *Robinia*
          - 12 Leaves twice- or more compound
            - 14 Plants with coiled pods, nearly always on the tree or littering the ground (*P. pubescens*)..... *Prosopis*
            - 14 Plants with pods otherwise, not coiled
              - 15 Leaflets 3-8(10) mm long
                - 16 Rachis upon which the leaflets are borne 10 cm or more long ..... *Parkinsonia*
                - 16 Rachis upon which the leaflets are borne 1-4 cm long
                  - 17 Leaflets 1-2 mm wide or more
                    - 18 Leaves 6-12 cm long ..... *Mimosa*
                    - 18 Leaves 1-4 cm long
                      - 19 Leaflets mostly 1-2 mm wide; flowers with 8-10 stamens each, in globose heads..... *Mimosa*
                      - 19 Leaflets mostly 2-3 mm wide; flowers with numerous (>10) stamens each, in globose heads or elongate spikes ..... *Senegalia*
          - 17 Leaflets 0.2-1 mm wide
            - 20 Stems with  $\pm$  straight spines, the bases terete or nearly so and only 1-2 times wider than the spine ..... go to *Acacia* s.l.
            - 20 Stems with curved spines (prickle-like), the bases conspicuously flattened and 2-4 times wider than the spine (*M. biuncifera*) ..... *Mimosa*
      - 15 Leaflets 10-30 mm long
        - 21 Stems prickly, but stout spines (paired or single) absent at the nodes .... *Caesalpinia*
        - 21 Stems not prickly, but stout spines present
          - 22 Trunks heavily armed with branching thorns; leaflets 6-10 mm wide .. *Gleditsia*
          - 22 Trunks unarmed (the stems are armed with straight spines at the nodes); leaflets 2-6 mm wide..... *Prosopis*
- 11 Stems and twigs unarmed
  - 23 Leaves once-compound; leaflets 3-20 mm wide or more
    - 24 Leaflets even-pinnate, with a terminal pair of leaflets
      - 25 Leaflets in 1-2 pairs ..... *Senna*
      - 25 Leaflets in 4-6 pairs

- 26 Leaflets oblong, the apices rounded; flowers zygomorphic, papilionaceous, with banner, wings, and keel..... *Caragana*
- 26 Leaflets elliptic, the apices acuminate; flowers nearly actinomorphic, not papilionaceous (*S. hirsuta*)..... *Senna*
- 24 Leaflets odd-pinnate, with a single terminal leaflet
- 27 Leaflets thickish, ± leathery; pods semi-woody, the seeds reddish; flowers bluish-purple (whitish), in drooping racemes; known only in the southeastern region ..... *Dermatophyllum*
- 27 Leaflets thin, not at all leathery; pods not at all woody; flowers yellowish, whitish, pinkish, in erect to divergent racemes; not known in the southeastern region
- 28 Most leaflets with a definite apical, membranous bristle or mucro; flowers pinkish/whitish, commonly bicolored, 4-6 mm long; pods less than 1 cm long, 1-seeded, not bladderly; known only from native vegetation in the southwestern corner..... *Indigofera*
- 28 Few leaflets, if any, with an apical bristle or mucro, sometimes with a minute protuberance; flowers yellowish, 15-20 mm long; pods 5-7 cm long, bladderly-inflated, many-seeded; escaped ornamental so far known only in the northern counties..... *Colutea*
- 23 Leaves twice-compound; leaflets 1-10 mm wide
- 29 Leaves 8-30 cm or more long; plants escaped ornamentals or native plants
- 30 Pinnae in 2-4 pairs; flowers in dense yellowish balls..... *Leucaena*
- 30 Pinnae in 5-10 pairs; flowers in dense red-white balls or loose red-yellow-orange racemes
- 31 Leaflets strongly asymmetric, the midvein submarginal, the apex offset to one side and acute-pointed; flowers in dense, red-white, powder-puff balls; small trees, generally single-trunked..... *Albizia*
- 31 Leaflets weakly asymmetric, the midvein central, the apex central and rounded-retuse with a tiny mucro; flowers in loose, red-yellow-orange racemes; small shrubs, generally many-trunked..... *Caesalpinia*
- 29 Leaves 1-6 cm long; plants native
- 32 Plants scarcely woody below; leaves with a definite crateriform gland borne on the rachis between the two lowermost pinnae..... *Desmanthus*
- 32 Plants small but definitely woody in the lower half at least; leaves lacking a gland as above
- 33 Leaves sparsely but obviously pubescent; stamens united at the bases; pod with heavy cord-like margins thicker than the rest of the fruit (*C. eriophylla*)..... *Calliandra*
- 33 Leaves glabrous or nearly so; stamens separate; pod not with heavy cord-like margins as above
- 34 Sub-shrubs 30-100 cm tall, always completely unarmed..... *Acaciella*
- 34 Well-developed shrubs 1-3 m tall or more, only rarely completely unarmed, usually at least some vestige present of stipular spines at the nodes
- 35 Flowers in elongate spikes; pinnae in 6-10 pairs..... *Mariosousa*
- 35 Flowers in ovoid heads; pinnae in 4-6 pairs..... *Vachellia*

**KEY B: Plants herbaceous, flowers actinomorphic**

- 1 Stamens more than 10, usually more than 15, per flower; anthers minute, about 0.2 mm long..... *Calliandra*
- 1 Stamens 10 or fewer per flower; anthers 0.4 mm long or longer
- 2 Plants unarmed, herbaceous or slightly woody only at the very base..... *Desmanthus*
- 2 Plants armed with prickles, commonly woody well above the base..... *Mimosa*

**KEY C: Plants herbaceous, flowers zygomorphic, corolla not papilionaceous**

- 1 Leaflets glandular-dotted beneath..... *Pomaria*
- 1 Leaflets not glandular-dotted
- 2 Leaves twice-compound..... *Hoffmannseggia*
- 2 Leaves once-compound
- 3 Leaflets 2..... *Senna*
- 3 Leaflets several to numerous
- 4 Leaflets 2.5 cm or more long; petiolar glands slender or stipitate or absent..... *Senna*
- 4 Leaflets 2 cm or less long; petiolar glands disc-shaped..... *Chamaecrista*

**KEY D: Plants herbaceous, flowers zygomorphic, corolla papilionaceous, stems twining-vining**

- 1 Leaf stalks terminating in tendrils
- 2 Style pubescent in a tuft or ring at the apex; wings of corolla adherent to the keel..... *Vicia*
- 2 Style pubescent down one side; wings of corolla essentially free from the keel..... *Lathyrus*
- 1 Leaf stalks lacking tendrils
- 3 Foliage glandular-dotted..... *Rhynchosia*

3 Foliage lacking glandular dots

- 4 Keel of the corolla straight or slightly curved, not coiled, twisted, or rolled
  - 5 Flowers 1-3 in the axils of the leaves, seemingly without a common peduncle; calyx 4-lobed (2 of the 5 fused) ..... *Cologania*
  - 5 Flowers 1-several borne on a common, often elongate, peduncle; calyx 5-lobed ..... *Galactia*
- 4 Keel of the corolla coiled, twisted, or rolled in some fashion
  - 6 Foliage, especially the petioles, densely and conspicuously pilose ..... *Macroptilium*
  - 6 Foliage, including the petioles, glabrous or nearly so, or with minute uncinata pubescence
    - 7 Inflorescence capitate; keel of the corolla incurved or coiled but not twisted ..... *Strophostyles*
    - 7 Inflorescence racemose; keel of the corolla spirally twisted ..... *Phaseolus*

**KEY E: Plants herbaceous, flowers zygomorphic, corolla papilionaceous, leaves palmately compound and/or with 1-3 leaflets**

- 1 Leaflets (4)5-11 in number, palmately compound
  - 2 Foliage glandular-dotted ..... *Pediometum*
  - 2 Foliage lacking glands
    - 3 Corolla bluish to whitish; stamens monadelphous, all united in one group ..... *Lupinus*
    - 3 Corolla yellow or orange; stamens diadelphous, with 9 united and 1 free ..... *Acmispon*
- 1 Leaflets 1-3 in number
  - 4 Margins of leaflets toothed
    - 5 Leaves palmately compound ..... *Trifolium*
    - 5 Leaves pinnately compound
      - 6 Corollas persistent, enclosing the straight fruit ..... *Trifolium*
      - 6 Corollas deciduous, not enclosing the straight, curved, to coiled fruit
        - 7 Leaflets toothed only along the distal 1/2 or less; racemes compact; pods curved to spirally coiled ..... *Medicago*
        - 7 Leaflets toothed along the distal 1/2 or more; racemes elongate; pods straight ..... *Melilotus*
  - 4 Margins of leaflets entire
    - 8 Foliage glandular-dotted
      - 9 Stems twining ..... *Rhynchosia*
      - 9 Stems not at all twining
        - 10 Stipules minute; corolla wings attached to staminal tube ..... *Dalea*
        - 10 Stipules conspicuous; corolla wings free from the staminal tube
          - 11 Floral bracts readily deciduous; calyx not enlarging or elongating in fruit ..... *Ladearnia*
          - 11 Floral bracts persistent; calyx usually elongating or enlarging in fruit ..... *Pediometum*
    - 8 Foliage lacking glands
      - 12 Stipules of the upper leaves nearly as large as and similar to the leaflets; flowers yellow
        - 13 Plants commonly prostrate, decumbent, to ascending, usually less than 20 cm tall (though the stems to 50 cm long); leaflets 5-17 mm long ..... *Lotus*
        - 13 Plants erect, 20-100 cm tall; leaflets 20-80 mm long ..... *Thermopsis*
      - 12 Stipules small and scale-like (larger but papery in *Kummerowia*); flower color and size various
        - 14 Keel of the corolla coiled, twisted, or prominently curved
          - 15 Foliage, especially the petioles, densely and conspicuously pilose or short-pilose ..... *Macroptilium*
          - 15 Foliage, including the petioles, glabrous or nearly so, or with minute uncinata pubescence
            - 16 Inflorescence racemose; pubescence finely uncinulate (minutely hooked), at least on the pulvini in glabrous species; keel coiled 2-3 turns ..... *Phaseolus*
            - 16 Inflorescence capitate; pubescence variously glabrous to pubescent, but not uncinulate; keel curved but not coiled ..... *Strophostyles*
    - 14 Keel of the corolla straight or slightly curved, not coiled or twisted
      - 17 Flowers 1-3 in the axils of the leaves, seemingly without a common peduncle; calyx 4-lobed (2 of the 5 fused) ..... *Cologania*
      - 17 Flowers 1-several borne on a common, often elongate, peduncle; calyx 5-lobed
        - 18 Stems twining or sometimes tangle-forming; pods markedly hairy
          - 19 Keel curving upwards and to the right, with a dark purple beak; flowers 5-8 mm long (*S. leiosperma*) ..... *Strophostyles*
          - 19 Keel straight, not curving, the beak not darkened; flowers 10-14 mm long. *Galactia*
        - 18 Stems not at all twining; pods hairy to glabrous
          - 20 Leaflets 4-10 cm wide; petioles often with prickles; flowers red ..... *Erythrina*
          - 20 Leaflets less than 2 cm wide; petioles lacking prickles; flower color various but usually not reddish
            - 21 Leaflets subtended by tiny stipels (stipule-like bracts at base of leaflets); fruit with hooked hairs, strongly constricted between the seeds (at least on one side), breaking into segments when mature ..... *Desmodium*
            - 21 Leaflets lacking stipels; fruit glabrous or pubescent but without hooked hairs,

- not constricted nor breaking into segments
- 22 Stipules large, brownish-papery
- 23 Plants annual, definitely caulescent; rare exotic plants of weedy sites ...  
..... *Kummerowia*
- 23 Plants perennial, acaulescent from thatched caudices; native plants of  
high elevations in the mountains ..... *Trifolium*
- 22 Stipules small, not brownish-papery
- 24 Filaments monadelphous, all united and forming a tube
- 25 Anthers of two kinds, 5 subglobose and attached to the filament  
at the middle of the anther, and 5 linear and attached to the  
filament at the end of the anther; leaflets glabrous or nearly so ...  
..... *Crotalaria*
- 25 Anthers all alike; leaflets densely silky-hairy (*D. jamesii* & *D.*  
*nana*)..... *Dalea*
- 24 Filaments diadelphous, 9 united and forming a tube, 1 free
- 26 Flowers in spikes or racemes; corolla color various, usually not  
yellow or orange..... *Astragalus*
- 26 Flowers solitary or in umbellate or capitate clusters; corolla  
yellow or orange
- 27 Stipules well-developed, nearly as large as the leaves;  
peduncles 4-10-flowered ..... *Lotus*
- 27 Stipules gland-like or obsolete; peduncles mostly 1-3-  
flowered ..... *Acmispon*

**KEY F: Plants herbaceous, flowers zygomorphic, corolla papilionaceous, leaves pinnately compound and with 4-numerous leaflets**

- 1 Leaf stalks terminating in tendrils
- 2 Style pubescent in a tuft or ring at the apex; wings of corolla adherent to the keel ..... *Vicia*
- 2 Style pubescent down one side; wings of corolla essentially free from the keel ..... *Lathyrus*
- 1 Leaf stalks lacking tendrils
- 3 Foliage glandular-dotted
- 4 Inflorescence terminal on the stem or on axillary branches, sometime opposing the leaf, but not axillary
- 5 Fruit with a single seed; hairs of calyx not spirally twisted in age; foliage scarcely glandular-dotted, if  
at all ..... *Marina*
- 5 Fruit with 2 seeds; hairs of calyx spirally twisted in age and/or foliage conspicuously glandular-dotted  
..... *Dalea*
- 4 Inflorescence axillary
- 6 Pod armed with hooks, not constricted between the seeds; longest leaflets 2.5-5.5 cm long *Glycyrrhiza*
- 6 Pod unarmed, constricted between the seeds; longest leaflets 1-3 cm long ..... *Hedysarum*
- 3 Foliage lacking glands
- 7 Leaflets toothed ..... *Trifolium*
- 7 Leaflets entire
- 8 Flowers in umbels, loose heads, or 1- to 3-flowered racemes, the axis of the head (not the peduncle)  
very short or none, or solitary
- 9 Leaflets 3-5 in number; flowers yellow or orange ..... *Acmispon*
- 9 Leaflets more than 9 in number; flowers pink to pink-purple ..... *Securigera*
- 8 Flowers in definite racemes or spikes, the axis of the raceme or spike elongated at least somewhat
- 10 Keel petals much longer than the wings; fruit a 1- to few-seeded loment, flattened and indehiscent
- 11 Pod not spiny, with 2-7 seeds, the constrictions noticeable long before maturity ... *Hedysarum*
- 11 Pod with spiny edges and with a single seed, lacking any constrictions..... *Onobrychis*
- 10 Keel and wing petals about the same length; fruit various
- 12 Stipules spiny; flowers dirty whitish; calyx viscid-glandular ..... *Peteria*
- 12 Stipules not spiny; flowers various; calyx usually not viscid-glandular
- 13 Filaments all distinct; fruit terete to somewhat flattened, tardily dehiscent; flowers bluish  
to whitish, in terminal racemes ..... *Vexibia*
- 13 Filaments united, either monadelphous or diadelphous; fruit variously compressed or not,  
usually dehiscent; flowers various, in axillary or terminal racemes
- 14 Filaments monadelphous, all united into a single group
- 15 Fruit 2-3 mm long with a single seed, gland-dotted; banner with a few small  
glands..... *Marina*
- 15 Fruit 20 mm or more long with several seeds, lacking glands; banner without  
glands..... *Tephrosia*
- 14 Filaments diadelphous, 9 united and 1 free
- 16 Style barbellate below the stigma; corolla brick-red when fresh; plants adventive  
from a creeping rootstock or rhizome..... *Sphaerophysa*

- 16 Style glabrous; corolla not brick-red; plants native, tufted or rhizomatous
- 17 Keel petals abruptly drawn out into an horizontal beak; plants acaulescent, the leaves basal (except in one variety)..... *Oxytropis*
- 17 Keel petals not drawn out into a beak, sometimes pointed vertically; plants often caulescent with leafy stems, but also acaulescent with basal leaves....  
..... *Astragalus*

**Acacia** : The genus *Acacia* has been redefined, and North American species all belong to these segregate genera: **Acaciella**, **Mariosousa**, **Senegalia**, and **Vachellia**. Our species are keyed below.

**1 Plants unarmed**

- 2 Sub-shrubs 30-100 cm tall, always completely unarmed..... *Acaciella angustissima*
- 2 Well-developed shrubs 1-3 m tall or more, only rarely completely unarmed, usually at least some remnants of stipular spines present at the nodes
- 3 Flowers in elongate spikes; pinnae in 6-10 pairs..... *Mariosousa millefolia*
- 3 Flowers in ovoid heads; pinnae in 4-6 pairs..... *Vachellia constricta*

**1 Plants armed with spines or prickles**

- 4 Plants with scattered prickles along the internodes, not paired only at the nodes..... *Senegalia*
- 4 Plants with paired spines at the nodes, none scattered along the internodes
- 5 Pinnae in 1-2(3) pairs; leafstalks 0.3-1.5 cm long; flowers in ovoid heads..... *Vachellia vernicosa*
- 5 Pinnae in 4-10 pairs; leafstalks 2-15 cm long; flowers in heads or elongate spikes
- 6 Flowers in ovoid heads; pinnae in 4-6 pairs; leafstalks 2-3.5 cm long..... *Vachellia constricta*
- 6 Flowers in elongate spikes; pinnae in (4)6-10 pairs; leafstalks 6-15 cm long..... *Mariosousa millefolia*

**Acaciella**

*A. angustissima* (Miller) Britton & Rose •Desert mountains, foothills, and plains, rocky bajadas, washes, canyons; mostly in the southern half of the state, with an outlier in San Juan County.

**Acmispon**

1 Leaflets usually 3 in number, the terminal leaflet borne at the tip of the short rachis (appearing to be on a long stalk), the lateral leaflets borne at the base of the rachis, very close to the stem; plants annual; stems usually erect or at least ascending, with scattered loose spreading hairs..... *A. americanus* (Nuttall) Rydberg •Open ground in desert scrub, woodlands, and pine forests in the southwestern foothills and mountains; not common.

1 Leaflets mostly 4-7 in number, all the stalks of the leaflets about the same length, plant duration and habit various

- 2 Flowers and pods small, the flowers 3-7 mm long, the pods 6-12 mm long; keel slightly longer than the wings; plants low, mat-forming annuals..... *A. brachycarpus* (Bentham) D.D. Sokoloff •Coniferous forests and pine-oak woodlands in the southwestern region.
- 2 Flowers and pods large, the flowers 8-20 mm long, the pods 17-32 mm long; keel shorter than the wings; plants various, low to erect perennials
- 3 Stem pubescence densely and markedly spreading short-pilose; stems prostrate to decumbent.....  
..... *A. neomexicanus* (Greene) L. Brouillet •Brushy slopes and woodlands, southwestern mountains.
- 3 Stem pubescence appressed or incurved, not densely spreading short-pilose; stems sprawling, ascending, to erect
- 4 Nearly all leaflets manifestly pinnate, with at least one or more leaflets borne on the rachis below the terminal 3 leaflets; many to most leaflets (at least below) 2-4 times longer than wide..... *A. plebeius* (Brandege) Allred •Desert scrub, brushy slopes, woodlands and lower pine forests, mostly in the southern half of the state, with very few outliers northward.
- 4 All leaflets essentially digitate at the tip of a very short rachis (the rachis sometimes lacking); most to all leaflets 4-10 times longer than wide..... *A. wrightii* (A. Gray) L. Brouillet •Pine-oak woodlands and ponderosa forests in the mountains and foothills, western half of the state.

**Albizia**

\**A. julibrissin* Durazzini •An uncommon escape from cultivation, and perhaps not persisting long, native to Asia; occurrences in the wild are somewhat more diverse than what are shown by herbarium collections.

**Alhagi**

\**A. maurorum* Medikus •Fields, ditches, rocky hillsides, roadsides, along train tracks; scattered locales.

**Amorpha**

- 1 Plants 1-3 m tall; petioles typically longer than the width of the lowermost leaflet, 1-4 cm long; leaflets generally 2-5 cm long and 1-3 cm wide, their stalks 2-4 mm long..... *A. fruticosa* Linnaeus •Along streams, springs, and wet areas, canyon bottoms, roadsides, ditches and canals; widespread.
- 1 Plants 0.3-0.8(1) m tall; petioles typically shorter than the width of the lowermost leaflet, 0.1-0.8 cm long; leaflets generally 1-2 cm long and 0.3-0.8 cm wide, their stalks 1-2 mm long
- 2 Foliage and/or calyces conspicuously hairy to the unaided eye and often gray-canescens..... *A. canescens* Pursh •Plains, prairies, woodlands, forested mesas; mostly in the northeastern quarter of the state, with a few scattered locales elsewhere.

- 2 Foliage and calyces glabrous or nearly so, at least not conspicuously hairy to the unaided eye, never gray-canescens
- 3 Leaflets appearing epunctate or at least the punctate glands on the lower surface not discernible without magnification; racemes usually clustered and mostly in groups of 3-10 ..... *A. canescens*  
Pursh ●Plains, prairies, woodlands, forested mesas; mostly in the northeastern quarter of the state, with a few scattered locales elsewhere.
- 3 Leaflets conspicuously punctate and the glands readily visible without magnification; racemes solitary ..... *A. nana*  
Nuttall ●Questionably present in the state; reported by Wilbur (1975) from 2 localities in approximately Lincoln and Otero counties, but no specimens are known.

**Astragalus** [Keys adapted from Isely (1998) and Welsh (2007)]

- 1 Leaves with 5-7 spinulose-tipped leaflets; plants prostrate to ascending ..... *A. kentrophyta*  
Gray ●Scattered localities mostly in the northern half of the state, in a variety of habitats.
- 1 Leaves with a various number of leaflets, but these not spinulose-tipped; plants of various habits
- 2 Plants with 3-foliate leaves, dolabriform hairs, large connate sheathing stipules, and unilocular pods ..... *A. sericoleucus*  
Gray ●Prairies, grassy plains, hills, knolls; mainly northeaster quadrant, with a few isolated occurrences westward.
- 2 Leaves, hairs, stipules, and pods not all as above
- 3 Calyx ovoid, densely hairy, inflated with age, and finally deciduous with the small enclosed pod ..... *A. oocalycis*  
M.E. Jones ●Brushy foothills, sagebrush and piñon-juniper communities, northwestern region.
- 3 Calyx not as above
- 4 Some or all leaves simple or reduced to filiform phyllodes (expanded leaf-like petioles) ..... KEY A
- 4 Leaves compound, with leaflets
- 5 Pods bladdery-inflated, or if somewhat inflated, then with thick papery or leathery valves .... KEY B
- 5 Pods not bladdery-inflated, or if somewhat inflated, then with thin papery valves
- 6 Pods stipitate or stalked, the stalk 1 mm long or more
- 7 Stipules not connate opposite the petiole, though some may be clasping ..... KEY C
- 7 At least the lower stipules connate-sheathing opposite the petiole, forming a complete ring around the stem ..... KEY D
- 6 Pods sessile or substipitate up to 1 mm
- 8 Pods bilocular or nearly so, with an internal septum ..... KEY E
- 8 Pods unilocular or subunilocular, sometimes appearing almost bilocular if both sutures are sulcate, but an internal septum lacking
- 9 Flowers 1-3(4) in number per inflorescence ..... KEY F
- 9 Flowers mostly 4-many in number per inflorescence
- 10 Stipules connate-sheathing (at least the lower ones), forming a complete ring around the stem ..... KEY G
- 10 Stipules free, not connate-sheathing, though the lower ones may be clasping .... KEY H

**KEY A: At least some leaves simple or reduced to filiform phyllodes.**

- 1 Pods bladdery-inflated, conspicuously mottled; stipules connate-sheathing ..... *A. ceramicus*  
Sheldon ●Sandy ground, plains, foothills, grasslands, woodlands; northeastern region.
- 1 Pods not bladdery-inflated nor mottled; stipules various
- 2 Pods exserted-stipitate 4-12 mm
- 3 Flowers whitish; pods dorsally compressed ..... *A. lonchocarpus*  
Torrey. Desert shrub to piñon-juniper communities, widespread across the northern tier of counties.
- 3 Flowers lavender to pink-purple; pods laterally compressed ..... *A. canovirens*  
(Rydberg) Barneby ●Juniper and mountain brush communities in the Four Corners region.
- 2 Pods sessile or substipitate to 1.5 mm
- 4 Stipules free, not connate-sheathing; pods 4-6 mm wide; flowers 10-15 mm long ..... *A. episcopus*  
S. Watson ●Desert scrub in the Four Corners region, rare.
- 4 Stipules connate-sheathing; pods 2-4 mm wide; flowers 5-11 mm long ..... *A. wingatanus*  
S. Watson ●Desert scrub and juniper communities in the northwest region.

**KEY B: Leaves compound; pods bladdery-inflated.**

- 1 Pods bilocular, ascending to spreading
- 2 Lower stipules connate; pods pustulate-hairy ..... *A. cicer*  
Linnaeus ●Weedy and disturbed habitats, uncommon in the northern counties; native to Europe.
- 2 Lower stipules free; pods variously pubescent or glabrous, but not pustulate ..... *A. lentiginosus*  
Douglas ex Hooker ●Widespread in the state in various habitats and soils, including semi-desert grasslands and shrublands, piñon-juniper woodlands, desert flats and arroyos, bajadas and foothills, canyon bottoms, roadsides, bluffs, and mesas.
- 1 Pods unilocular, spreading to declined
- 3 Stipules sheathing-connate; plants from subterranean origin

- 4 Flowers 14-18 mm long; calyx tube 4.5-8 mm long; pods stipitate to 4 mm
  - 5 Pods membranous papery, somewhat translucent, 10-16 mm in diameter ..... *A. castetteri*  
Barneby ●Dry slopes of piñon-juniper woodlands of the San Andres (Doña Ana County) and Caballo (Sierra County) mountains.
  - 5 Pods rigidly papery, not at all membranous, 6-12 mm in diameter ..... *A. hallii*  
Gray ●Plains and woodlands scattered across the northern and western tiers of counties.
- 4 Flowers 6-10 mm long; calyx tube 2-4 mm long; pods sessile or nearly so
  - 6 Leaflets 1-11 in number, 3-30 times longer than wide, the terminal leaflet confluent with the rachis .....  
..... *A. ceramicus*  
Sheldon ●Sandy ground, plains, foothills, grasslands, woodlands; northeastern region.
  - 6 Leaflets 9-23 in number, 2-8 times longer than wide, the terminal leaflet jointed with the rachis
    - 7 Pods mottled when mature, 10-12 mm in diameter; flowers 6-8 mm long ..... *A. fucatus*  
Barneby ●Desert shrub communities, mainly in the Four Corners region with some outliers southward.
    - 7 Pods not mottled, 2-9 mm in diameter; flowers about 10 mm long ..... *A. flexuosus*  
Douglas ex G. Don ●Widespread in much of the state.
- 3 Stipules free; plants from superficial origin
  - 8 Herbage thinly short-villous; pods with a narrow partial septum to 0.6 mm; plants 3-20 cm tall; northern tier of counties .....  
..... *A. cerussatus*  
Sheldon ●Dry plains and foothills in northcentral New Mexico; known in New Mexico only from a few collections in Rio Arriba and Taos counties.
  - 8 Herbage glabrous to strigulose; pods without a trace of a septum; plants 10-60 cm tall; widespread
    - 9 Pods globose, the beak almost obsolete, smaller than below, 6-13 mm long, 6-13 mm wide *A. thurberi*  
Gray ●Arid plains, foothills, and canyons in the southwestern region.
    - 9 Pods nearly globose to longer than wide, strongly beaked, larger than above, 10-20 mm long, 6-20 mm wide .....  
..... *A. allochrous*  
Gray ●Widespread throughout the western half of the state, desert scrub and grasslands, piñon-juniper woodlands, upwards to within pine-Douglas fir communities, often in disturbed ground.

**KEY C: Leaves compound; pods stipitate, not bladderly-inflated; stipules free.**

- 1 Plants leafless at the base, erect with ascending branches; leaflets oblong to filiform-involute, mostly 8-30 times longer than wide; terminal leaflet generally continuous with the rachis (except some *A. canovirens*); pods spreading to drooping
  - 2 Pods dorsally compressed; flowers white to cream-colored ..... *A. lonchocarpus*  
Torrey ●Desert shrub to piñon-juniper communities, widespread across the northern half of the state, with a few outliers southward.
  - 2 Pods laterally compressed; flowers pink-purple or yellow
    - 3 Flowers pink-purple; leaflets all jointed to the rachis; pods glabrous ..... *A. canovirens*  
(Rydberg) Barneby ●Juniper and mountain brush communities in the Four Corners region.
    - 3 Flowers yellow; terminal leaflet commonly confluent with the rachis; pods sparsely pubescent .. *A. ripleyi*  
Barneby ●Rabbitbrush, juniper, ponderosa, and fir communities in the north-central mountains; also adjacent Colorado.
- 1 Plants generally leafy at the base, the habit various; leaflets broader, mostly 2-6 times longer than wide; terminal leaflet jointed to the rachis; pods various
  - 4 Plants conspicuously villous with spreading hairs, the hairs 1-2 mm long from minute, pustulate bases; pods glabrous; flowers 18-24 mm long, reflexed, white with a spotted keel ..... *A. drummondii*  
Douglas ex Hooker ●Short-grass plains and foothills, ponderosa pine parklands, in the north-central and northeastern tier of counties.
  - 4 Hairs, pods, and flowers not all as above
    - 5 Pods laterally compressed or trigonous; plants not stinking of selenium
      - 6 Flowers 12-20 mm long; stipe of pod 6-15 mm long ..... *A. eremiticus*  
Sheldon ●Arid semi-desert grassland in the bootheel; disjunct from its distribution in the intermountain region.
      - 6 Flowers 7-12 mm long; stipe of pod 1-5 mm long ..... *A. robbinsii*  
(Oakes) Gray ●Stream banks, meadows, and wet thickets in the northern mountains, uncommon, known from few collections.
    - 5 Pods nearly terete and somewhat inflated or fleshy, or dorsally compressed; plants stinking of selenium
      - 7 Corolla and calyx whitish (or calyx greenish) ..... *A. praelongus*  
Sheldon ●Widespread nearly throughout the state, except extreme southern desert regions; commonly on seleniferous but also non-seleniferous soils; salt-desert shrub, sagebrush, piñon-juniper woodlands.
      - 7 Corolla and calyx purplish-reddish (corolla rarely whitish)
        - 8 Plants 12-50 cm tall; leaflets 5-10 mm wide; peduncles erect; pods glabrous to pubescent .....  
..... *A. preussii*  
A. Gray ●Desert scrub communities on seleniferous soils, Four Corners region; not common.



8 Plants 8-20 cm tall; leaflets 1-5 mm wide; peduncles weakly ascending to reclining; pods glabrous ..  
 ..... *A. eastwoodiae*

M.E. Jones •To be looked for in piñon-juniper woodlands and desert shrub communities in the Four Corners region.

**KEY D: Leaves compound; pods stipitate, not bladdery-inflated; stipules connate-sheathing.**

1 Pods bilocular or semi-bilocular

2 Plants stoloniferous and carpet-forming; pods usually with blackish hairs.....*A. alpinus*  
 Linnaeus •Meadows and moist woods in the north-central counties; above 8000 ft.

2 Plants not stoloniferous nor carpet-forming; pods usually lacking blackish hairs

3 Plants conspicuously villous with spreading hairs, the hairs 1-2 mm long from minute, pustulate bases; pods glabrous; flowers 18-24 mm long, reflexed, white with a spotted keel ..... *A. drummondii*  
 Douglas ex Hooker •Short-grass plains and foothills, ponderosa pine parklands, in the north-central and northeastern tier of counties.

3 Hairs, pods, and flowers not all as above

4 Flowers 17-22 mm long, cream-colored; pods dorsally sulcate and glabrous.....*A. scopulorum*  
 T.C. Porter •Mountain brush, pine, piñon-juniper, and aspen communities, meadows, bluffs, floodplains, in the northern counties; also roadsides, coal mine revegetation sites, and similar disturbed habitats.

4 Flowers 6-12 mm long, variously colored; pods various

5 Flowers 6-8 mm long, white to greenish cream-colored; pods dorsally sulcate, glabrous.....  
 .....*A. egglestonii*  
 (Rydberg) Kearney & Peebles •Meadows and open pine woods in the west-central mountains and plains.

5 Flowers 7-12 mm long, lavender-purple; pods trigonous, appearing blade-like when pressed, not sulcate, pubescent..... *A. robbinsii*  
 (Oakes) Gray •Stream banks, meadows, and wet thickets in the northern mountains, uncommon, known from few collections.

1 Pods unilocular or nearly so

6 Pods 2-grooved on the ventral surface, oblong and smooth or ellipsoid and reticulate .....*A. bisulcatus*  
 (Hooker) Gray •Plains, foothills, forests across the northern half of the state; expected in Taos County as well.

6 Pods not as above

7 Pods laterally compressed, not sulcate

8 Stipules (and sometimes the leaves) often becoming black upon drying; leaflets of the upper leaves only moderately narrower than those of the lower leaves; plants arising from a superficial crown .....  
 .....*A. multiflorus*  
 (Pursh) Gray •Plains grasslands, mountain brush, sagebrush, conifer woodlands and forests, aspen glades; northern half of the state.

8 Stipules and leaves not becoming black upon drying; leaflets of the upper leaves often linear-filiform and much narrower than those of the lower leaves; plants arising from rhizomes or a subterranean crown.....*A. wingatanus*  
 S. Watson •Desert scrub and juniper communities in the northwest region.

7 Pods not laterally compressed, sulcate or not

9 Flowers 13-20 mm long

10 Stems from a superficial crown, erect, clump-forming, to 50 cm high; flowers yellowish to cream-colored; pods 3-sided, ventrally keeled and dorsally sulcate .....*A. racemosus*  
 Pursh •Bluffs, hills, and plains mainly in the northeastern region.

10 Stems from a subterranean caudex, ascending to decumbent-spreading, generally no more than 20 cm high; flowers purple or pale; pods turgid to inflated, nearly terete, the ventral and dorsal faces not as above .....*A. hallii*  
 Gray •Plains and woodlands scattered across the northern and western tiers of counties.

9 Flowers 5-12 mm long

11 Pods 6-10 mm long, deciduous; flowers purple.....*A. bodinii*  
 Sheldon •Though reported by earlier New Mexico works, authentic specimens are currently unknown; to be looked for in wet meadows and stream banks in the far northern mountains adjacent to the Colorado border.

11 Pods 10-25 mm long, persistent; flowers variously colored

12 Plants from a superficial or slightly subterranean crown; pods with a narrow partial septum  
 13 Pods not sulcate, stipitate 2-5 mm; stipules subcoriaceous..... *A. robbinsii*  
 (Oakes) Gray •Stream banks, meadows, and wet thickets in the northern mountains, uncommon, known from few collections.

13 Pods sulcate, stipitate 5-6 mm; stipules membranous.....*A. altus*  
 Wooton & Standley •Sacramento Mountains (Otero Co.), pine-oak woodlands and forests; endemic to New Mexico.

12 Plants rhizomatous from a subterranean crown; pods strictly unilocular

14 Leaflets 7-11 in number, 6-12 times longer than wide; flowers 6-7.5 mm long; pods 10-15 mm long; ovules 6-10 per pod ..... *A. proximus*  
 (Rydberg) Wootton & Standley ●Foothills, canyon bottoms, roadsides, badlands, with sagebrush, juniper, ponderosa pine, in the north-central and northwestern mountains and plains.

14 Leaflets 12-23 in number, 2-6 times longer than wide; flowers 7-11 mm long; pods 10-20 mm long; ovules 15-25 per pod ..... *A. flexuosus*  
 Douglas ex G. Don ●Widespread in much of the state.

**KEY E: Leaves compound; pods sessile or subsessile, bilocular or nearly so, not bladderly-inflated.**

- 1 Plants annual; pods oblong, narrow, 2-4 mm wide, straight or curved, dorsally sulcate; flowers 4-11 mm long; stipules free
- 2 Keel acute and narrower than below; flowers 4-7 mm long; inflorescence 0.3-1.5 cm long in fruit (sometimes longer); pods persistent, dehiscent on the plant ..... *A. nuttallianus*  
 A.P. de Candolle ●Widespread, essentially throughout the state; desert grasslands and shrublands, piñon-juniper woodlands, plains, mesas, foothills, riverbeds, bajadas, canyon bottoms, roadsides, disturbed ground.
- 2 Keel obtuse, often broad, to 2 mm wide; inflorescence 1-3 cm long in fruit; pods persistent or deciduous
- 3 Pods substipitate 0.3-1 mm, persistent and dehiscent on the racemes; calyx hairs usually  $\geq 0.5$  mm long (var. *macilentus*) ..... *A. nuttallianus*  
 A.P. de Candolle ●Widespread, essentially throughout the state; desert grasslands and shrublands, piñon-juniper woodlands, plains, mesas, foothills, riverbeds, bajadas, canyon bottoms, roadsides, disturbed ground.
- 3 Pods sessile, promptly deciduous and dehiscent at both ends on the ground; calyx hairs usually  $< 0.5$  mm long ..... *A. emoryanus*  
 (Rydberg) Cory ●Widespread in desert scrub, juniper woodland, and mixed grasslands.
- 1 Plants perennial (sometimes flowering the first year), otherwise not as above
- 4 Pods thickly tomentose (sometimes thinning in age) so the surface is completely hidden; plants tomentose ....  
 ..... *A. mollissimus*  
 Torrey ●Widespread throughout the state in a variety of habitats, desert grasslands, prairies, shrublands, conifer woodlands, ponderosa forests, fields, roadsides, mesas, plains, hills, mountains slopes, loam to sandy soils.
- 4 Pods not as above; plants variously pubescent
- 5 Plants villous-tomentose (thinning with age) and with glabrous pods
- 6 Leaves 10-35 cm long, the larger leaflets 3-5 cm long; pods 8-12 mm in diameter ..... *A. giganteus*  
 S. Watson ●Openings in piñon-juniper woodlands and lower pine forests in the White, Gallinas, and Sacramento mountains, with a single puzzling collection from Hidalgo County; also west Texas.
- 6 Leaves 5-20 cm long, the larger leaflets 2-3 cm long; pods 4-8 mm in diameter ..... *A. mollissimus*  
 Torrey ●Widespread throughout the state in a variety of habitats, desert grasslands, prairies, shrublands, conifer woodlands, ponderosa forests, fields, roadsides, mesas, plains, hills, mountains slopes, loam to sandy soils.
- 5 Plants not both villous-tomentose and with glabrous pods
- 7 Pods 1-3 cm in diameter, not sulcate, fleshy and succulent when immature, generally quickly lying on the ground; plants strongly caulescent; pubescence basifixed
- 8 Pods cylindrical; leaflets pubescent above ..... *A. gypsodes*  
 Barneby ●Gypsum clay soils in Eddy County; adjacent Texas.
- 8 Pods nearly spheroid; leaflets glabrous above ..... *A. crassicaerpus*  
 Nuttall ●Widespread in the state in a variety of habitats, including plains, prairies, hills and mesas, canyons, outcrops and benches.
- 7 Pods less than 1 cm in diameter, or sulcate; pubescence and plants various
- 9 Peduncles filiform with 1-5 whitish or pale, widely-spaced flowers 4-7 mm long; leaflets 5-13 in number, oblong to linear; pods 1-2 cm long, somewhat inflated and plump ..... *A. brandegeei*  
 Porter ●Gravelly sites in brushlands and piñon-juniper woodlands; northwestern quadrant.
- 9 Not as above
- 10 Lower stipules sheathing-connate; plants plainly caulescent
- 11 Flowers 6-8 mm long; leaflets 4-10(15) mm long ..... *A. cobrensis*  
 Gray ●Pine-juniper-oak-brush communities of the western and southwestern mountains and foothills.
- 11 Flowers 10 mm or more long; leaflets generally 10 mm or more long
- 12 Pubescence basifixed; inflorescence subcapitate; pods villous with hairs 1-2 mm long; plants rhizomatous ..... *A. agrestis*  
 Douglas ex G. Don ●Grasslands, meadows, and woodlands in the northern and northwestern mountains, foothills, mesas, and plains.
- 12 Pubescence dolabriform; inflorescence spicate; pods strigose to glabrate; plants

- rhizomatous or not
- 13 Flowers cream-colored to greenish white; pods 10-15 mm long, exserted from the calyx; plants rhizomatous..... *A. canadensis*  
Linnaeus ●Rich soils and plains in the northeastern region.
- 13 Flowers pink-purple; pods 7-12 mm long, partly concealed by the calyx; plants not rhizomatous..... *A. luxmannii*  
Jacquin ●Gravelly or rocky plains and hillsides, mostly northeastern region, with a few outliers westward. ♦Our plants belong to var. *robustior* (Hooker) Barneby & Welsh.
- 10 Lower stipules free; plants caulescent or not
- 14 Pubescence dolabriform, silvery ..... *A. calycosus*  
Torrey ex S. Watson ●Desert shrublands, sagebrush flats and slopes, piñon-juniper woodlands, ponderosa pine forests; mainly northwest region, but extending southward.
- 14 Pubescence basifixed (also shortly dolabriform in *A. cottamii*), the color various
- 15 Plants thickly villous-tomentose, the longer hairs 1-3 mm long; pods sparsely villous ..... *A. mollissimus*  
Torrey ●Widespread throughout the state in a variety of habitats, desert grasslands, prairies, shrublands, conifer woodlands, ponderosa forests, fields, roadsides, mesas, plains, hills, mountains slopes, loam to sandy soils.
- 15 Plants not villous-tomentose; pod pubescence various
- 16 Plants acaulescent to shortly caulescent, stems when present generally lying on the ground; pods pubescent
- 17 Flowers 19-23 mm long; pods straight
- 18 Plants mainly 3-11 cm tall; peduncles 1-2(4) cm long; flowers white to pinkish..... *A. nutriosensis*  
Sanderson ●Juniper-blue grama hills in Catron County; also adjacent Arizona.
- 18 Plants mainly 10-28 cm tall; peduncles (2)3-15 cm long; flowers purple...  
..... *A. waterfallii*  
Barneby ●Arid plains and grasslands in the southeastern region.
- 17 Flowers 8-17 mm long; pods curved
- 19 Pubescence basifixed, villous or short-villous ..... *A. feensis*  
M.E. Jones ●Juniper hills in the central region of the state, with a single inexplicable collection from Hidalgo County (perhaps an introduction); endemic to New Mexico.
- 19 Pubescence basifixed and dolabriform, strigulose..... *A. cottamii*  
Welsh ●Sandstone rimrock, ledges, hogbacks, salt-desert shrub and piñon-juniper woodlands; known on New Mexico only in San Juan County.
- 16 Plants plainly caulescent, ascending, decumbent, or mat-forming, if prostrate then the pods glabrous
- 20 Flowers 4-7 mm long; pods 6-12 mm long, filiform-beaked ..... *A. vaccarum*  
Gray ●Seasonally moist to wet sites near springs and ponds in the southwest corner, with *Distichlis spicata* and *Sporobolus airoides*; known from only two collections in New Mexico (1851 Grant Co. and 1982 Hidalgo Co.), also southeast Arizona and adjacent Mexico.
- 20 Flowers 8-21 mm long; pods 15 mm or more long, deltoid-beaked
- 21 Flowers 8-12 mm long; keel conspicuous, broad, porrect (resembling a parrot's beak)..... *A. nothoxys*  
Gray ●Dry hillsides and canyons in the bootheel region.
- 21 Flowers 12-21 mm long; keel not porrect
- 22 Leaflets 25-35 in number, becoming smaller toward the tip of the rachis; pods coarsely cross-ridged ..... *A. neomexicanus*  
Wootton & Standley ●Piñon-juniper to ponderosa pine forests in the Sacramento and White Mountains; endemic to New Mexico.
- 22 Leaflets 7-25 in number, scarcely becoming smaller distally; pods not cross-ridged
- 23 Stems prostrate; pods semibilocular ..... *A. iodopetalus*  
(Rydberg) Barneby ●Dry slopes with scrub oak, sagebrush, and piñon in the north-central mountains.
- 23 Stems ascending to prostrate; pods completely bilocular .....  
..... *A. lentiginosus*  
Douglas ex Hooker ●Widespread in various habitats and soils, including semi-desert grasslands, shrublands, piñon-

juniper woodlands, desert flats, arroyos, bajadas, foothills,  
canyon bottoms, roadsides, bluffs, and mesas.

**KEY F: Leaves compound; pods sessile or subsessile, unilocular or nearly so, not bladderly-inflated;  
flowers 1-3 in number**

- 1 Leaflets spinose-tipped, stiff, about 1 mm wide ..... *A. kentrophyta*  
Gray ● Scattered localities mostly in the northern half of the state, in a variety of habitats.
- 1 Leaflets not as above
- 2 Flowers 14-26 mm long
- 3 Plants loose, bushy, not at all cushion-like, 3-23 cm tall; San Juan County ..... *A. zionis*  
M.E. Jones ● Dry shrub, woodland, and forest communities in the Four Corners region; uncommon,  
known in New Mexico only from western San Juan County.
- 3 Plants dense, cushion-like, 1-4 cm tall; northeastern plains ..... *A. wittmannii*  
Barneby ● Short-grass plains, bluffs, and roadsides of the northeastern prairie; endemic to New Mexico.
- 2 Flowers 1-12 mm long, 1-3 on the peduncle
- 4 Flowers 8-12 mm long; plants acaulescent, mound- or mat-forming ..... *A. siliceus*  
Barneby ● Rocky, cherty or flinty knolls and plains, mainly in Torrance County, with nearly isolated  
occurrences in adjacent Guadalupe and San Miguel counties; endemic to New Mexico.
- 4 Flowers 5-8 mm long; plants various
- 5 Leaflets 5-9 in number, appearing somewhat palmately arranged ..... *A. micromerius*  
Barneby ● Ledges, sandstone cliffs, and talus in the Four Corners region; endemic to New Mexico.
- 5 Leaflets 7-15 in number, plainly pinnately arranged
- 6 Leaflets 1-2 mm long, readily deciduous and leaving the sub-spinose leafstalks on the plants;  
pubescence dolabriform ..... *A. humillimus*  
Gray ex Brand ● On Mancos shale in San Juan County and adjacent Colorado.
- 6 Leaflets 2-12 mm long, not quickly deciduous; pubescence dolabriform or basifixed
- 7 Plants annual; stipules free ..... *A. sabulonum*  
Gray ● Sandy slopes in the Four Corners region.
- 7 Plants perennial; stipules connate-sheathing, at least the lowermost (sometimes only clasping in  
*A. heilii*)
- 8 Ovules 16-18 per pod; leaflets 2-4 mm wide ..... *A. kerrii*  
Knight & Cully ● Disturbed ground, juniper to pine communities in the Capitan Mountains,  
Lincoln County; endemic to New Mexico.
- 8 Ovules 8-10 per pod; leaflets 1-2 mm wide ..... *A. heilii*  
Welsh & Atwood ● Sandstone ledges and rim rock of the Mesa Verde Group, piñon-juniper  
woodlands, McKinley County; endemic to New Mexico.

**KEY G: Leaves compound; pods sessile or subsessile, unilocular or nearly so, not bladderly-inflated;  
flowers more than 3 per inflorescence; stipules connate-sheathing.**

- 1 Pods laterally compressed their entire length, flat or turgid, not sulcate
- 2 Keel conspicuous, exceeding the wings; pods turgid ..... *A. miser*  
Douglas ● Upper elevations in the far north-central mountains near the Colorado border, known in New  
Mexico only in Rio Arriba County, from only a few collections. ● Our plants belong to var. *oblongifolius*  
(Rydberg) Cronquist
- 2 Keel not conspicuous, exceeded by the wings; pods flat or turgid
- 3 Stipules and commonly the leaflets blackening on drying; plants not rhizomatous; flowers whitish, cream-  
colored, to sometimes pinkish ..... *A. multiflorus*  
(Pursh) Gray ● Plains grasslands, mountain brush, sagebrush, conifer woodlands and forests, aspen  
glades; northern half of the state.
- 3 Stipules and leaflets not blackening on drying; plants sub-rhizomatous with buried basal stems; flowers  
pink-purple to pale so
- 4 Leaflets 5-7 in number, to 1 mm wide; flowers 4-6 mm long; pod 2.5-3 mm wide ..... *A. cliffordii*  
Welsh & Atwood ● Rimrock ledges of Mesa Verde Group of sandstone, sagebrush and piñon-juniper  
woodlands; northwest region.
- 4 Leaflets mostly 7-15 in number, 0.5-3.5 mm wide; flowers 5.5-8 mm long; pod 3-4.5 mm wide .....  
..... *A. wingatanus*  
S. Watson ● Desert scrub and juniper communities in the northwest region.
- 1 Pods not laterally compressed their entire length, of various shapes, commonly sulcate
- 5 Calyx ovoid, densely hairy, inflated with age, and finally deciduous with the small enclosed pod .....  
..... *A. oocalycis*  
M.E. Jones ● Brushy foothills, sagebrush and piñon-juniper communities, northwestern region.
- 5 Calyx not as above
- 6 Pods 7-12 mm long, partially enclosed by the calyx, and bisulcate ..... *A. flavus*  
Nuttall ● Desert-shrub and piñon-juniper communities of the northwest region, always on seleniferous  
soils from shale and sandstone formations.
- 6 Pods not as above

## 7 Plants rhizomatous

- 8 Pods 4-9 mm long, generally boat-shaped, cross-rugose; inflorescence commonly lax and flexuous; flowers 5-8 mm long ..... *A. gracilis*  
Nuttall ●Short-grass plains in the northeastern region.
- 8 Pods 8-25 mm long, not cross-rugose; inflorescence not lax; flowers various
- 9 Flowers 13-19 mm long; pods turgid or distinctly inflated
- 10 Pods leathery to papery, usually somewhat inflated; pubescence stiff and appressed. *A. hallii*  
Gray ●Plains and woodlands scattered across the northern and western tiers of counties.
- 10 Pods leathery, turgid; pubescence soft and not appressed or stiff and appressed. *A. puniceus*  
Osterhout ●Woodlands and grasslands in the northern plains and foothills.
- 9 Flowers 7-11 mm long; pods not inflated (except *A. flexuosus greenii*)
- 11 Aerial stems 1-3 cm long, arising from an extensive rhizome system; leaflets 2-8 mm long; pods 8-15 mm long ..... *A. pictiformis*  
Barneby ●Grasslands and woodlands mostly in the eastern half of the state.
- 11 Aerial stems 1-6 cm long, arising from a short rhizome system; leaflets 4-15 mm long; pods 11-20 mm long ..... *A. flexuosus*  
Douglas ex G. Don ●Widespread in much of the state.

## 7 Plants not rhizomatous

- 12 Plants bush-like, the stems ascending; inflorescence spike-like; flowers 13-17 mm long, white or cream-colored ..... *A. albulus*  
Wootton & Standley ●Badlands and woodlands in the northwestern and western plains and foothills.
- 12 Plants not bushy, the stems decumbent to ascending; inflorescence not spike-like; flowers 5-12 mm long, of various colors
- 13 Pubescence basifixed; flowers white to pink-purple
- 14 Flowers white ..... *A. chuskanus*  
Barneby & Spellenberg ●Pine-juniper communities of the Chuska Mountains (San Juan County), on soils derived from Chuska sandstone.
- 14 Flowers pink-purple
- 15 Plants mostly erect, the internodes nearly overlapping ..... *A. zionis*  
M.E. Jones ●Dry shrub, woodland, and forest communities in the Four Corners region; uncommon, known in New Mexico only from western San Juan County.
- 15 Plants straggling on the ground or on other plants, the internodes very widely separated ..... *A. bodinii*  
Sheldon ●Though reported by earlier New Mexico works, authentic specimens are currently unknown; to be looked for in wet meadows and stream banks in the far northern mountains adjacent to the Colorado border.
- 13 Pubescence at least partly but clearly dolabriform; flowers variously colored
- 16 Flowers 15-20 mm long or more, pink-purple; pods straight ..... *A. missouriensis*  
Nuttall ●Widespread throughout the state; plains, prairies, wooded foothills, brushy slopes and hills, grassy forest openings; most common in the northern ¼ of the state, with relatively few collections from the southern tier of counties.
- 16 Flowers 5-12 mm long, variously colored; pods straight to curved
- 17 Leaflets 2-4 times longer than wide; flowers 5-6 mm long; pod 3-4 mm thick ..... *A. knightii*  
Barneby ●Piñon-juniper scrub, sandstone terraces; endemic to New Mexico, known only from southwestern Sandoval County.
- 17 Leaflets 4-8 times longer than wide; flowers 6-12 mm long; pod 4-6 mm thick ..... *A. humistratus*  
Gray ●Widespread throughout the western ¾ of the state, generally in piñon-juniper woodlands and pine forests.

**KEY H: Leaves compound; pods sessile or subsessile, unilocular or nearly so, not bladderly-inflated; flowers more than 3 per inflorescence; stipules free**

- 1 Plants acaulescent, subacaulescent, or with short (10 cm or less) prostrate stems
- 2 Pubescence dolabriform, silvery
- 3 Pods 5-7 mm long, with 7-10 ovules ..... *A. gilensis*  
Greene ●Dry pine forests and juniper woodlands, common in the Mogollon Mountains and adjacent ranges, but extending northward to the Jemez Mountains.
- 3 Pods 10 mm or more long, with 25 or more ovules
- 4 Calyx tube cylindric, 5-10 mm long; flowers 14-28 mm long
- 5 Pods persistent, generally straight ..... *A. missouriensis*  
Nuttall ●Widespread throughout the state; plains, prairies, wooded foothills, brushy slopes and hills, grassy forest openings; most common in the northern ¼ of the state, with relatively few collections from the southern tier of counties.

- 5 Pods deciduous, generally curved ..... *A. amphioxys*  
Gray ●Plains, hillsides, sandy valleys, desert shrub to piñon-juniper woodlands; widespread in the state, mostly in the western half; variation is centered about the Four Corners region.
- 4 Calyx tube campanulate, 3-6 mm long; flowers 7-14 mm long  
6 Calyx tube 4-6 mm long; corolla 9-12 mm long; pods about 15 mm long ..... *A. missouriensis*  
Nuttall ●Widespread throughout the state; plains, prairies, wooded foothills, brushy slopes and hills, grassy forest openings; most common in the northern ¾ of the state, with relatively few collections from the southern tier of counties.
- 6 Calyx tube 5-8 mm long; corolla 8-14 mm long; pods 14-30 mm long ..... *A. lotiflorus*  
Hooker ●Plains and prairies, bluffs, benches, roadsides, grasslands to woodlands, generally in the northeastern quarter of the state, with a few outliers westward and southward.
- 2 Pubescence basifixed, various in color  
7 Pods very densely pubescent, the surface completely hidden by hairs ..... *A. newberryi*  
Gray ●Grassland and piñon-juniper plains and foothills in the northwestern quarter of the state.
- 7 Pods not as above, glabrous to variously pubescent, but the surface not concealed  
8 Leaflets 7-13 in number, 2-10 mm long; pods generally mottled  
9 Pods villous with sinuous, slightly bulbous-based hairs to 2 mm long ..... *A. desperatus*  
Jones ●Desert scrub and juniper communities, often on sandstone rimrock; Four Corners region; known only from San Juan County in New Mexico.
- 9 Pods strigulose with straight, short hairs ..... *A. naturitensis*  
Payson ●Sandstone outcrops, sagebrush and juniper communities in the Four Corners region.
- 8 Leaflets 11-29 in number, at least some of them more than 10 mm long; pods not mottled (sometimes mottled in *zionis*)  
10 Leaflets more than 21 on many or most leaves  
11 Pods 2.5-5 cm long, unilocular to nearly bilocular, the ripe valves woody and 1-2 mm thick ....  
..... *A. cyaneus*  
Gray ●Dry hillsides and foothills, upper Rio Grande valley; endemic to New Mexico.
- 11 Pods mostly less than 2.5 cm long, unilocular, the ripe valves not woody and less than 1 mm thick ..... *A. tephrodes*  
Gray ●Arid grasslands and scrublands, conifer woodlands and ponderosa pine forests; widespread and common in the southwestern half of the state, with outliers northward.
- 10 Leaflets less than 21 on nearly all leaves  
12 Pods typically 8-18 mm thick, straw-colored to dark, generally not mottled; calyx villous, contrasting with the silvery strigose herbage; northeastern quarter of the state ..... *A. shortianus*  
Nuttall ●Northeastern and northcentral plains and foothills, roadsides, ridges and bluffs, grasslands.
- 12 Pods typically 5-12 mm thick, generally purplish-mottled; calyx pubescence similar to that of the herbage; San Juan County ..... *A. zionis*  
M.E. Jones ●Dry shrub, woodland, and forest communities in the Four Corners region; uncommon, known in New Mexico only from western San Juan County.
- 1 Plants plainly caulescent, if stems prostrate, then some more than 10 cm long  
13 Flowers 5-9 mm long  
14 Pods villous with sinuous, slightly bulbous-based hairs to 2 mm long; plants shortly caulescent with 2-3 nodes ..... *A. desperatus*  
Jones ●Desert scrub and juniper communities, often on sandstone rimrock; Four Corners region; known only from San Juan County in New Mexico.
- 14 Pods strigulose or shortly villous with hairs less than 1 mm long; plants plainly caulescent  
15 Corolla 5-7 mm long; plants annual ..... *A. sabulorum*  
Gray ●Sandy slopes in the Four Corners region.
- 15 Corolla 7-14 mm long; plants perennial ..... *A. desperatus*  
Jones ●Desert scrub and juniper communities, often on sandstone rimrock; Four Corners region; known only from San Juan County in New Mexico.
- 13 Flowers 9-25 mm long  
16 Plants large, 50-100 cm tall, clump-forming, smelling of selenium  
17 Stems scarcely succulent, rarely to 5 mm thick, generally reddish; calyx tube subcylindric, 6.5-8.5 mm long; keel rarely maculate ..... *A. pattersonii*  
Gray ●Sagebrush scrub, ponderosa-oak-juniper woodlands, grassland, washes; seleniferous soils; mostly northwestern but scattered elsewhere in the northern half of the state.
- 17 Stems commonly succulent and to 5 mm thick, not reddish; calyx tube campanulate, 4.5-7 mm long; keel typically maculate ..... *A. praelongus*  
Sheldon ●Widespread nearly throughout the state, except extreme southern desert regions; commonly on seleniferous but also non-seleniferous soils; salt-desert shrub, sagebrush, piñon-juniper woodlands.
- 16 Plants smaller, less than 50 cm tall, not smelling of selenium

- 18 Calyx tube 3-4 mm long ..... *A. desperatus*  
 Jones ●Desert scrub and juniper communities, often on sandstone rimrock; Four Corners region;  
 known only from San Juan County in New Mexico.
- 18 Calyx tube 7-10 mm long  
 19 Leaflets 25-35 in number, becoming smaller towards the tip of the rachis; pods hairy .....  
 ..... *A. neomexicanus*  
 Wootton & Standley ●Piñon-juniper to ponderosa pine forests in the Sacramento and White  
 Mountains; endemic to New Mexico.
- 19 Leaflets 17-25 in number, not becoming noticeably smaller distally; pods glabrous .....  
 ..... *A. iodopetalus*  
 (Rydberg) Barneby ●Dry slopes with scrub oak, sagebrush, and piñon in the north-central  
 mountains.

**Caesalpinia**

- 1 Inflorescence glandular; leaflets 3-8 mm long; stems never prickly ..... go to *Erythrostemon*
- 1 Inflorescence eglandular; leaflets 10-25 mm long; stems commonly prickly ..... *C. pulcherrima*  
 (Linnaeus) Swartz ●Commonly cultivated in the warm, southern regions, not yet known to escape to the wild,  
 but expected eventually in the southern regions.

**Calliandra**

- 1 Plants definitely woody half-shrubs; petioles 3-5 mm long ..... *C. eriophylla*  
 Bentham ●Rocky desert slopes and plains in the southwestern region.
- 1 Plants herbaceous; petioles 10-30 mm long ..... *C. humilis*  
 Bentham ●Desert grassland, piñon-juniper-oak woodlands, ponderosa pine forest.

**Caragana**

\**Caragana arborescens* Linnaeus ●Escaped from cultivation to piñon-juniper woodlands around Santa Fe;  
 native to northern Asia.

**Cercis**

- 1 Leaves abruptly short-acuminate at the apex; flowers 9-12 mm long ..... *C. canadensis*  
 Linnaeus ●Reported for New Mexico by Hopkins (1942) based on a single specimen of dubious origin, and  
 not likely from the state; no other reports from the wild are known.
- 1 Leaves rounded or emarginate at the apex; flowers 12-15 mm long ..... *C. occidentalis*  
 Torrey ex A. Gray ●Not known in the wild; to be looked for in the Four Corners region, as it occurs in native  
 populations in southeastern Utah and northeastern Arizona.

**Chamaecrista**

- 1 Flowers small, 8-10 mm across, the largest petal 4-7 mm long, the sepals 4-6 mm long ..... *C. nictitans*  
 (Linnaeus) Moench ●Rocky slopes and washes in the desert grassland, sometimes also ruderal areas. ♦Our  
 plants belong to var. *leptadenia* (Greenman) Gandhi & Hatch
- 1 Flowers larger, 2-4 cm across, the largest petal 13-20 mm long, the sepals 8-13 mm long  
 2 Leaflets in 8-22 pairs; plants annual ..... *C. fasciculata*  
 (Michaux) Greene ●Eastern plains and grasslands; this species ranges from the southeastern US to the  
 Great Plains, known in New Mexico from only a few collections in Quay County.
- 2 Leaflets in 5-12 pairs; plants suffrutescent perennial (var. *wrightii*) ..... *C. serpens*  
 (Linnaeus) Greene ●Dry hillsides and plains, southern desert. ♦Our plants belong to var. *wrightii* (Gray)  
 Irwin & Barneby

**Cologania**

- 1 Leaflets 5-12 cm long, 3-10 times longer than wide, less than 1 cm wide, oblong or linear ..... *C. angustifolia*  
 Kunth ●Lower mountain woodlands, arid grasslands; mostly southwestern region, with a verified outlier in  
 Quay County.
- 1 Leaflets 1-4 cm long, 1-3 times longer than wide, often more than 1 cm wide, elliptic  
 2 Petioles (not petiolules) 1-5(8) mm long, the leaves nearly sessile, not prominently stalked; leaflets 1-2 times  
 longer than wide, the apices rounded to obtuse (but often with a tiny cusp) ..... *C. obovata*  
 Schlechtendal ●Open ponderosa pine forests; known in New Mexico only from a recent collection in Grant  
 County, south through Mexico.
- 2 Petioles (not petiolules) 10 mm or more long, the leaves prominently stalked; leaflets 2-3 times longer than  
 wide, the apices generally acute ..... *C. pallida*  
 Rose ●Mountain foothills and grassy hills; scattered locales in the southern half of the state.

**Colutea**

\**C. arborescens* Linnaeus ●Escaped from cultivation; scattered locales in the northern half of the state,  
 roadsides; native to Europe.

**Crotalaria**

*C. pumila* Ortega ●Southwestern mountain foothills and canyon bottoms, plains grasslands.

**Dalea**

- 1 Key to woody shrubs or semi-woody half-shrubs ..... KEY A
- 1 Key to all species ..... KEY B

**KEY A: Woody shrubs or semi-woody half-shrubs** (see species in KEY B for full content)

- 1 Leaves pubescent
  - 2 Calyces short-villous, the lobes deltate, shorter than the tube ..... *D. bicolor*
  - 2 Calyces long-pilose, the lobes setaceous, generally equal to or longer than the tube
    - 3 Leaflets 9-19 in number; calyx hairs about 1 mm long; young twigs smooth or finely glandular ..... *D. versicolor*
    - 3 Leaflets 3-9(11) in number; calyx hairs 1-2 mm long; young twigs warty-glandular ..... *D. pulchra*
- 1 Leaves glabrous or glabrate
  - 4 Calyces glabrous with lobes to 1.2 mm long, much shorter than the tube ..... *D. frutescens*
  - 4 Calyces pubescent with plumose lobes 2-8 mm long
    - 5 Flowers generally 12-16 mm long; calyx lobes 5-8 mm long, conspicuously plumose with hairs 1-2 mm long; nearly throughout the state ..... *D. formosa*
    - 5 Flowers generally 9-11 mm long; calyx lobes 2-4 mm long, plumose with hairs 1-1.5 mm long; Hidalgo County ..... *D. versicolor*

**KEY B: All species**

- 1 Plants annual
  - 2 Leaflets definitely mucronate-tipped ..... *D. exigua*  
Barneby ●Pine-oak woodlands, grassland; southwestern counties, known from very few collections.
  - 2 Leaflets rounded or emarginate at the tip
    - 3 Calyx tube glabrous from the base upwards, pubescent at the apex around the orifice and on the teeth
      - 4 Floral bracts early deciduous; leaflets in 5-14 pairs ..... *D. urceolata*  
Greene ●Pine woodlands and meadows; Mogollon Mountains of Catron and Grant counties, with a single odd collection in the White Mountains of Lincoln County (along a highway; perhaps an adventive occurrence).
      - 4 Floral bracts persistent; leaflets in 2-4 pairs ..... *D. polygonoides*  
Gray ●Pine-oak forests, woodland grasslands; scattered in most of the mountain ranges of the state, but more common in the southwestern regions.
    - 3 Calyx tube pubescent from the base upwards
      - 5 Most leaves with 6-20 pairs of leaflets ..... *D. leporina*  
(Aiton) Bullock ●Pine-oak woodlands and meadows, prairies, desert scrub, and grassland; widespread.
      - 5 All leaves with 1-5 pairs of leaflets
        - 6 Leaflets filiform, thread-like, of uniform width, less than 1 mm wide ..... *D. filiformis*  
Gray ●Oak-pine or piñon-juniper woodlands, grassland; southwestern mountains.
        - 6 Leaflets oblong-oblanceolate, wider toward the apex, usually 1.5 mm or more wide
          - 7 Calyx teeth extending well beyond the floral bracts, easily visible; flowers yellow when fresh, fading pale bluish or brownish ..... *D. brachystachya*  
Gray ●Foothills, piñon-juniper-oak woodland/grassland, desert scrub, washes; generally southwestern quarter, with infrequent outliers eastward and northward.
          - 7 Calyx teeth scarcely extending beyond the floral bracts, obscured; flowers pale purplish ..... *D. polygonoides*  
Gray ●Pine-oak forests, woodland grasslands; scattered in most of the mountain ranges of the state, but more common in the southwestern regions.
  - 1 Plants perennial, herbaceous to woody
    - 8 Leaves both appressed sericeous and lacking glands; flowers yellowish when fresh, fading to brownish or pale purplish
      - 9 Leaves trifoliate ..... *D. jamesii*  
(Torrey) Torrey & Gray ●Dry hills, juniper plains, desert scrub, rocky slopes, grassland; widespread, except for the northwest region.
      - 9 Leaves 5- to 7-foliate
        - 10 Leaflets acute; calyx lobes about twice as long as the tube ..... *D. wrightii*  
Gray ●Dry hills, rocky slopes, desert grasslands and scrub, often calcareous soil; along the southern tier of counties, with a few collections northward.
        - 10 Leaflets obtuse; calyx lobes about as long as the tube or slightly longer
          - 11 Spikes relatively loose, at least in age; bracts mostly broadly ovate to elliptic-acuminate, mostly 1-2 times as long as wide; substrates mostly non-calcareous or sandy (rarely not) ..... *D. nana*  
Torrey ex Gray ●Throughout much of the state (but apparently absent in the northwest quarter) on non-calcareous sands.
          - 11 Spikes densely congested and cone-like; bracts lanceolate to ovate-lanceolate, mostly 3-5 times as long as wide; substrates calcareous, not sandy (rarely not) ..... *D. rubescens*  
S. Watson ●Uncommon on limestone rubble, caliche, or gypsum, mainly in the southern deserts and plains.
    - 8 Leaves glabrous and/or glandular; flowers white, yellow, rose, bluish, or purplish
      - 12 Flowers white



- 13 Leaves silky-pubescent, with 8-20 pairs of leaflets.....*D. albiflora*  
Gray ●Mountain canyons, foothills, rocky slopes, desert grassland; southwestern region.
- 13 Leaves glabrous, with 2-6 pairs of leaflets
- 14 Inflorescence loosely flowered, the flowers separated by distinct intervals; calyx teeth 3-7 mm long.....*D. enneandra*  
Nuttall ●Dry plains, prairies, roadsides; common on the eastern plains, with scattered occurrences westward mainly along highways.
- 14 Inflorescence dense, compact and cylindrical, the flowers tightly packed together; calyx teeth 1-2.5 mm long
- 15 Calyx densely hairy, the spike appearing hairy; inflorescence bracts pilose. *D. cylindriceps*  
Barneby ●Piñon-juniper woodlands, rangeland, sandy plains, dunes; widely scattered areas throughout the state.
- 15 Calyx glabrous to shortly pilose, the spike not appearing very hairy; inflorescence bracts glabrous.....*D. occidentalis*  
(Britton & Kearney) Isely ●Roadsides, desert and plains grasslands and scrubland, mountain woodlands and forests, floodplains, washes and arroyos; throughout the state.
- 12 Flowers yellow, rose, bluish, or purplish, sometimes mixed with white
- 16 Calyx tube glabrous externally
- 17 Plants woody shrubs or sub-shrubs, the stems erect or divergent.....*D. frutescens*  
Gray ●Rocky hills and flats, grasslands, roadsides, generally limestone; mostly southeastern quarter of the state, with outliers elsewhere.
- 17 Plants herbaceous, sometimes somewhat woody at the base, the stems ± prostrate or sprawling
- 18 Stamens 5 in number; inflorescence bracts early deciduous; banner petal 7-8 mm long.....*D. scariosa*  
S. Watson ●Endemic to New Mexico; known only from the central Rio Grande basin, from central Sandoval County south to central Socorro County.
- 18 Stamens 10 in number; inflorescence bracts persistent; banner petal 2.5-4.5 mm long.....*D. lanata*  
Sprengel ●Deep sands and dunes on the eastern plains.
- 16 Calyx tube variously pubescent externally
- 19 Leaves and stems glabrous below the inflorescence
- 20 Stems woody throughout; plants shrubby.....*D. formosa*  
Torrey ●Desert scrub, piñon-juniper woodlands, rocky hills, dry plains, foothills and canyon bottoms; widespread.
- 20 Stems herbaceous throughout or only woody at the base; plants mostly herbaceous
- 21 Leaflets 15 or more in number; flowers white to pinkish.....*D. grayi*  
(Vail) L.O. Williams ●Southwestern pine-oak-juniper woodlands and grassland.
- 21 Leaflets 3-13 in number; flowers rose to purplish
- 22 Calyx teeth (2.5)3-7 mm long, subulate-tipped; inflorescence looser than below.....*D. pogonathera*  
Gray ●Southern plains, low hills, desert scrub, and mesquite grassland.
- 22 Calyx teeth 1-2.5 mm long, triangular; inflorescence very dense and compact
- 23 Leaflets in 2-4 pairs (4-9 in number); flowers white to pink....*D. cylindriceps*  
Barneby ●Piñon-juniper woodlands, rangeland, sandy plains, dunes; widely scattered areas throughout the state.
- 23 Leaflets in 1-2 pairs (2-5 in number); flowers purplish
- 24 Spike becoming loose, the flowers separated and the rachis visible; calyx teeth as long as or longer than the calyx tube.....*D. tenuifolia*  
(Gray) Shinners ●Grasslands, bluffs, roadsides, mainly on the eastern plains, with a few collections westward.
- 24 Spike permanently very dense, the rachis never visible; calyx teeth shorter than the calyx tube
- 25 Calyxes generally 5-6 mm long, the tube 3-4 mm long, the teeth hairy only on the margins and in vertical lines running to sinuses between the teeth; spikes 10-15 mm wide; extremely rare, if present at all in the state.....*D. compacta*  
Sprengel ●Known from a single old specimen from Socorro (*Plank s.n.* in 1895, NY!); probably an introduction and no longer present in the state. ♦Our plants belong to var. *pubescens* (A. Gray) Barneby
- 25 Calyxes generally 3-5 mm long, the tube 1.5-3 mm long, the teeth generally hairy equally from base to summit; spikes 7-12 mm wide; common.....*D. purpurea*  
Ventenat ●Widespread throughout the state.

- 19 Leaves and stems variously and obviously hairy below the inflorescence
- 26 Stems prostrate to sprawling to decumbent-ascending at the tips
- 27 Leaflets often strongly undulate-cripsed; spikes remaining compact, 1-2 cm wide, the individual flowers obscured; calyx teeth copiously long-pilose, the hairs to 1 mm long or longer..... *D. neomexicana* (Gray) Cory ●Rocky slopes, grassland; uncommon in the southern regions; known from few collections.
- 27 Leaflets plane, not undulate-cripsed; spikes becoming elongate and somewhat loosely arranged, less than 1 cm wide, the individual flowers visible with maturity; calyx teeth short-pubescent
- 28 Calyx tube glabrous or nearly so, shiny, the lobes short-hairy; stems rarely lacking glands .....*D. glaberrima* S. Watson ●Sand dunes and drift-sand areas on the central and northwestern plains.
- 28 Calyx tube and lobes short-hairy, not shiny; stems rarely with glands..... *D. lanata* Sprengel ●Deep sands and dunes on the eastern plains.
- 26 Stems ascending to erect
- 29 Flowers yellow.....*D. aurea* Nuttall ex Pursh ●Open hills, plains, prairies, roadsides; eastern half of the state.
- 29 Flowers bluish, purplish, reddish
- 30 Young stems and petioles conspicuously warty-glandular with raised glands
- 31 Leaf rachises 3-8 cm long; plants herbaceous.....*D. lachnostachya* Gray ●Desert scrub, rocky slopes, grassland; southwest region.
- 31 Leaf rachises 1-3.5 cm long; plants shrubby
- 32 Calyces short-villous, the lobes deltate, shorter than the tube ... *D. bicolor* Humboldt & Bonpland ex Willdenow ●Southeastern foothills and mountains. ♦Our plants belong to var. *argyrea* (Gray) Barneby
- 32 Calyces long-pilose, the lobes setaceous, generally equal to or longer than the tube .....*D. pulchra* H.C. Gentry ●Rocky hills in piñon-juniper-oak scrub, grassland; known only from Hidalgo County.
- 30 Young stems and petioles not glandular as above, ± smooth
- 33 Leaflets 2-3 times long than wide, usually rounded to emarginate at the tip; petals bicolorous, white and rose-purplish; plants shrubby .....*D. versicolor* Zuccarini ●Grassland, desert scrub, pine-oak woodlands in lower mountains; known from Hidalgo County; also Arizona, Mexico. Our plants belong to var. *sessilis* (Gray) Barneby
- 33 Leaflets 4-12 times longer than wide, usually acute at the tip; petals rose-purplish; plants herbaceous
- 34 Leaflets of primary cauline leaves in 5-10 pairs, the terminal leaflet smallest, the foliage commonly villous-pilose; stems villous; calyx tube pleated; spikes loose, often sinuous or curved, the axis visible after anthesis .....*D. villosa* (Nuttall) Sprengel ●Sandy hills, dunes, and plains of the eastern prairie.
- 34 Leaflets of primary cauline leaves in 1-4 pairs, the terminal leaflet often the largest, the foliage pubescent to nearly glabrous but rarely villous-pilose; stems glabrous to short-hairy; calyx tube not pleated; spikes dense, straight, the axis generally not visible.....*D. purpurea* Ventenat ●Widespread throughout the state.

**Dermatophyllum**

- 1 Leaflets 1-2 cm long; pods ± compressed, less than 1 cm thick, obscurely appressed-pubescent..... *D. guadalupense* (Turner & Powell) B.L. Turner ●Limestone hills and gypsum outcrops in the Brokeoff and Guadalupe Mountains, Otero and (just barely) Eddy counties; also adjacent Culberson County, Texas.
- 1 Leaflets 3-8 cm long; pods turgid, 1-1.5 cm thick, densely pubescent..... *D. secundiflorum* (Ortega) Gandhi & Reveal ●Limestone hills and canyons in the Guadalupe Mountains, Eddy County.

**Desmanthus**

- 1 Plants erect or ascending, to 1 m tall or more; fruits broadly falcate-oblong (sometimes ± straight), 3-4 times longer than wide; pinnae in 7-10 pairs (sometimes fewer); seed laterally inserted in the pod ..... *D. illinoensis* (Michaux) MacMillan ex B.L. Robinson & Fernald ●Along water courses, ditches, roadsides, grassland; scattered locations in the state.
- 1 Plants nearly prostrate to ascending; fruits narrowly oblong to linear, generally straight, 4-10 times longer than wide; pinnae in 1-8 pairs; seeds longitudinally inserted in the pod

- 2 Leaflets with evident, raised, reticulate venation on the abaxial surface ..... *D. obtusus*  
S. Watson ●Rocky hills and flats, dry plains; known only from Eddy County.
- 2 Leaflets with a single midvein on the abaxial surface, this evident to obscure
- 3 Plants usually velutinous usually throughout, the leaflets puberulent abaxially; rachis glands minute, 0.3-0.6 mm diam ..... *D. velutinus*  
Scheele ●Limestone hills, grassland, roadsides; Eddy and Lincoln counties.
- 3 Plants pubescent only on the stems and rachises, the leaflets glabrous/glaucous or only ciliate; rachis glands larger, 0.5-3.2 mm diam/long
- 4 Stipules mostly early-deciduous, short, the longest 0.6-2.5 mm long, lanceolate and prominently winged or flared in the proximal ½-⅓; flower buds 21-37 per head; leaflets in 9-16 pairs; rachis glands 1 at or below the basal pinnae junction; styles exerted 3-5 mm beyond the stamens. *D. cooleyi* (Eaton) Trelease ●Widespread in canyon bottoms, foothills, grassland, washes, roadsides.
- 4 Stipules mostly persistent, longer, the longest 3-7 mm long, setiform and only slightly winged or flared in the proximal ½ or less; flower buds 9-20 per head; leaflets in 14-26 pairs; rachis glands 1 at the basal pinnae junction, and (in *glandulosa*) also at the terminal and sometimes intervening pinnae junctions; styles exerted or not beyond the stamens
- 5 Rachis glands 1 at the basal pinnae junction; flower buds elongate, apically acute; flowering peduncles 6-10 mm long; stamens 5 ..... *D. leptolobus*  
Torrey & Gray ●Fields and roadsides; known from a few collections in Hidalgo, Sierra, and Socorro counties; native to the southcentral Great Plains, adventive in New Mexico and apparently spreading along roadsides.
- 5 Rachis glands 1-4, at least some/many of the leaves with glands at the terminal and sometimes intervening pinnae junctions; flower buds obovate, apically rounded, 9-20 per head; flowering peduncles 18-30 mm long; stamens 10 ..... *D. glandulosus*  
(B.L. Turner) Luckow ●Limestone soils, rocky hills, roadsides; mainly southeastern region (Eddy Co.), with a single old collection from Doña Ana Co.

### Desmodium

- 1 Leaves all with a single leaflet ..... *D. psilophyllum*  
Schlectendal ●Reported by Vail (1896) and others, based on a single Charles Wright specimen collected in conjunction with the US-Mexican Boundary Survey and erroneously labeled as from New Mexico; specimens so labeled likely came from Texas or Arizona, where this species occurs; no authentic specimens are known from our state.
- 1 Leaves, at least many of them, with 3 leaflets
- 2 Plants annual (or appearing so) from a slender taproot, the stems solitary or branched near the base
- 3 Leaflets linear to linear-lanceolate, 7-10 times longer than wide; lomentis glabrous, not twisted, the segments mostly 2-4, their margins flat or essentially so ..... *D. rosei*  
Schubert ●Open woodland and desert scrub in the southwest region.
- 3 Leaflets lanceolate to broadly ovate, mostly 1-6 times longer than wide; lomentis puberulent (except sometimes the terminal one), twisted or not, the segments mostly 3-6, their margins flat to involute
- 4 Inflorescence branched; leaflets often more than 1.5 cm wide; lomentis mostly flat, not twisted, the segments 6-10 mm long at maturity, their margins flat, the terminal segment about the same size as the others ..... *D. psilocarpum*  
A. Gray ●Rocky canyons and woodlands in the southwestern mountains, rare.
- 4 Inflorescence simple; leaflets commonly less than 1 cm wide; lomentis flat to spirally twisted, the segments 3-4 mm long at maturity, their margins involute, the terminal segment often larger ..... *D. procumbens*  
(Miller) A.S. Hitchcock ●Piñon-juniper woodlands, canyons, in the southwestern mountains.
- 2 Plants perennial, the stems solitary or frequently clustered from a branching caudex or woody taproot
- 5 Leaflets of mid- to upper leaves broadly ovate to nearly orbicular, 1-1.5 times longer than wide, rounded at the tip ..... *D. grahamii*  
Gray ●Pine-oak-juniper woodlands in the southwestern forests.
- 5 Leaflets of mid- to upper leaves linear, lanceolate, to broadly elliptic, mostly 2-10 times longer than wide, acute at the tip
- 6 Fruit contorted or spirally twisted, the segments angled above and rounded below ..... *D. procumbens*  
(Miller) A.S. Hitchcock ●Piñon-juniper woodlands, canyons, in the southwestern mountains.
- 6 Fruit not contorted or twisted, the segments ± rounded both above and below
- 7 Leaves sessile or with short petioles to only 5 mm long ..... *D. arizonicum*  
S. Watson ●Pine-oak-juniper woodlands in the southwestern mountains; not common, known from only a few collection sites.
- 7 Leaves, at least the lower ones, with well-developed petioles much longer than 5 mm
- 8 Margins of the fruit equally constricted; terminal leaflet about the same size as the others ..... *D. psilocarpum*  
A. Gray ●Rocky canyons and woodlands in the southwestern mountains, rare.
- 8 Margins of the fruit unequally constricted, shallowly crenate above and more deeply notched

- below; terminal leaflet often larger/longer than the others  
 9 Leaflets 2-4 times longer than wide; plants decumbent to ascending; fruit segments 3-5 mm long ..... *D. batocaulon*  
 Gray ●Rocky pine-oak woodlands in the bootheel region.  
 9 Leaflets 4-5 times longer than wide; plants ascending to erect; fruit segments 5-6 mm long..... *D. metcalfei*  
 (Rose & Painter) Kearney & Peebles ●Rocky slopes and canyons in the southwestern mountains; known from very few collections; also Arizona and Mexico.

**Erythrina**

*E. flabelliformis* Kearney ●Pine-oak woodlands and canyons in the southwestern and southcentral mountains.

**Erythrostemon**

\**E. gilliesii* (Hooker) Klotzsch ●Planted as an ornamental throughout the state (and world) and escaped in many places, or persisting from old settlements; native to South America.

**Eysenhardtia**

*E. orthocarpa* (A. Gray) S. Watson ●Desert scrub and pine-oak woodlands in the bootheel.

**Galactia**

*G. wrightii* A. Gray ●Desert grasslands and oak woodlands, southwestern foothills and mountains.

**Gleditsia**

\**G. triacanthos* Linnaeus ●Widely cultivated, and infrequently escaping or more commonly persisting around old buildings; native to central and eastern United States.

**Glycyrrhiza**

*G. lepidota* Nuttall ex Pursh ●Weedy sites throughout the state, often along irrigation canals or other similar disturbed ground.

**Hedysarum**

*Hedysarum boreale* Nuttall ●Pine and aspen forests in the northern mountains; with a few outliers running along highways or from seed.

**Hoffmannseggia**

- 1 Leaves with glandular dots ..... go to *Pomaria*  
 1 Leaves without glandular dots  
     2 Flowers and flower stalks densely glandular ..... *H. glauca*  
         Eifert ●Widespread in desert scrub and grassland areas, roadsides.  
     2 Flowers and flower stalks not glandular..... *H. drepanocarpa*  
         A. Gray ●Desert scrub, rocky slopes, grassland; numerous scattered areas across the state.

**Indigofera**

*I. sphaerocarpa* A. Gray ●Rocky slopes, oak-juniper grassland; known only from Hidalgo County; also southern Arizona and northern Mexico.

**Kummerowia**

\**K. striata* (Thunberg) Schindler ●Roadsides, moist disturbed sites, perhaps seeded ground; known from a single collection in Catron County; native to China and Japan.

**Ladania**

*L. lanceolata* (Pursh) Egan & Reveal ●Sandy plains, dunes, grasslands, woodlands; widespread.

**Lathyrus**

- 1 Stems winged; all leaves with only 2 leaflets  
     2 Flowers small, 1-1.5 cm long; fruits hirsute with pustule-based hairs ..... *L. hirsutus*  
         Linnaeus ●Weedy sites in a few northern counties; native Europe.  
     2 Flowers large, 1.5-3 cm long; fruits glabrous  
         3 Plants perennial; flowers 4-15 (sometimes as few as 2) in number ..... *L. latifolius*  
             Linnaeus ●Escaping from cultivation as a garden ornamental; native to Europe.  
         3 Plants annual; flowers 1-2 (sometimes 3) in number ..... *L. tingitanus*  
             Linnaeus ●Known historically from a deliberate experimental planting in Socorro County; the plants have not persisted; native to Europe.  
 1 Stems not winged; leaves, at least some, with more than 2 leaflets  
     4 Flowers white or yellowish, small, 1-2 cm long  
         5 Tendrils absent or very short and bristle-like, less than 6 mm long if present, the plants usually erect and free-standing  
         6 Leaflets narrowly elliptic to linear, at least 7 times longer than wide, mostly 2-4 in number ..... *L. arizonicus*  
             Britton ●Widespread in the mountains and foothills throughout the state.  
         6 Leaflets elliptic to oblong, 2.5-6 times longer than wide, mostly 4-8 in number ..... *L. leucanthus*  
             Rydberg. ●Widespread in the mountains and foothills throughout the state.  
     5 Tendrils present, usually well developed and prehensile, at least longer than 6 mm, the plants often clambering on or attached to others  
         7 Leaflets narrowly linear, mostly 15 or more times longer than wide..... *L. graminifolius*  
             (S. Watson) White ●Pine-fir forests, oak-piñon-juniper woodlands; widespread in the western

- mountains, with a few collections in the Sangre de Cristo and Sacramento mountains.
- 7 Leaflets much broader than above, 1-6 times longer than wide
- 8 Leaflets broadly ovate or broadly elliptic, mostly 1-2 times longer than wide; flowers large, 15-22 mm long..... *L. laetivirens*  
Greene ex Rydberg ♦As defined here, this is a rather well-marked taxon with thin, broadly ovate leaflets, well-developed tendrils, and large white flowers; plants corresponding to this circumscription have not been seen from New Mexico; most reports of this for the state belong to *Lathyrus leucanthus*.
- 8 Leaflets narrower, elliptic to lanceolate to oblong, 2.5-6 times longer than wide; flowers small, 9-16 mm long
- 9 Leaflets 4-6 in number, thin and membranous and somewhat vaguely veined; tendrils mostly simple..... *L. leucanthus*  
Rydberg ●Widespread in the mountains and foothills throughout the state.
- 9 Leaflets 6-10 in number, somewhat coriaceous and prominently veined; tendrils mostly branched..... *L. lanszwertii*  
Kellogg ●As delimited herein, not known in New Mexico; see *Lathyrus leucanthus*.
- 4 Flowers bluish, lavender, pinkish, or purplish, small to large, 1.2-3 cm long
- 10 Tendrils absent or very short and bristle-like; leaflets short silky-pubescent ..... *L. decaphyllus*  
Pursh ●Known in the state only from a single collection in Torrance County, but to be looked for in the northeastern plains. ♦Our plants belong to var. *incanus* (J.G. Smith & Rydberg) S.L. Broich
- 10 Tendrils present, often well developed, sometimes reduced but at least 6 mm or more long; leaflets glabrous or only sparsely and minutely pubescent (or densely pubescent in *L. venosus* var. *intonsus*, with well-developed tendrils)
- 11 Stipules 2-3 cm long, foliaceous and toothed (at least those subtending the peduncles); keel 2-3 mm shorter than the wings..... *L. pauciflorus*  
Fernald ●Sometimes reported, but not definitely known to us from New Mexico.
- 11 Stipules 0.5-1.5 cm long, not foliaceous nor toothed; keel about equal to the wings
- 12 Leaflets 10-12 in number (occasionally fewer); racemes with 8-15 (or more) flowers.....  
..... *L. venosus*  
Muhlenberg ex Willdenow ●Sacramento Mountains; known from very few collections, the latest in 1970; native eastward.
- 12 Leaflets 4-10 in number; racemes with 2-5 flowers
- 13 Calyx 5-8 mm long; fruit sessile; leaflets mostly 1.5-3 cm long and 2-5 mm wide (sometimes wider); Four Corners region ..... *L. brachycalyx*  
Rydberg ●Juniper woodlands and slopes in the northwestern region. ♦Our plants belong to var. *zionis* (C.L. Hitchcock) Welsh
- 13 Calyx 8-12 mm long; fruit stipitate; leaflets 2.5-6 cm long and 5-10 mm wide; widespread..... *L. eucosmus*  
Butters & St. John ●Widespread across the northern tier of counties, with a few outliers southward in the mountains.

**Lespedeza**

\**L. cuneata* (Dumont) G. Don ●Roadsides, disturbed ground, old fields, seeded areas; known from a few reclamation areas in Grant and Socorro counties; native to Asia.

**Leucaena**

*L. retusa* Bentham ●Steep, rocky hillsides and limestone bluffs; known only from southern Eddy County.

**Lotus**

1 Stipules well-developed, as large as the leaflets; peduncles mostly 4-10-flowered ..... *L. corniculatus*  
Linnaeus ●Widely distributed in the state (but poorly documented) in lawns, roadsides, and other moist disturbed sites; native to Eurasia and northern Africa.

1 Stipules gland-like or obsolete; peduncles mostly 1-3-flowered ..... go to *Acmispon*

**Lupinus**

1 Plants annual

2 Cotyledons petiolate, not connate, generally absent by anthesis; pods mostly 3-7-seeded

3 Leaflets glabrate adaxially; pods generally 4-7-seeded..... *L. sparsiflorus*  
Bentham ●Washes, disturbed sandy ground, arid scrub communities along the western tier of counties; known from only two collections. ♦Our plants belong to the weakly defined var. *mohavensis* (Dziekanowski & D. Dunn) S.L. Welsh

3 Leaflets shaggy villous adaxially; pods generally 3-4-seeded..... *L. concinnus*  
Agardh ●Desert scrub and grasslands in the southern deserts.

2 Cotyledons sessile, connate basally into a cup, usually persisting to anthesis (often withered by late fruiting stage but leaving a circular scar); pods 2-3-seeded

4 Plants 10-40 cm tall; calyx lobes unequal to subequal, the upper lip ½ to nearly as long as the lower .....  
..... *L. kingii*  
S. Watson ●Desert scrub and grassland to lower ponderosa pine forests, widespread in the western half

of the state.

- 4 Plants 5-10 cm tall; calyx lobes strongly unequal, the upper lip less than 1/2 as long as the lower
- 5 Pedicels 0.5-1.5 mm long; racemes head-like; calyx appendages absent; seed faces convex, smooth.....  
..... *L. brevicaulis*  
S. Watson ●Open sandy or gravelly ground, desert scrub to piñon-juniper, widespread in western half of the state.
- 5 Pedicels to 3 mm long; racemes usually elongate; calyx appendages present or absent; seed faces concave, wrinkled or ridged ..... *L. pusillus*  
Pursh ●Sandy soil of deserts and woodlands, mostly in the northern region.

1 Plants perennial

- 6 Calyx tube gibbous or spurred at the base..... *L. argenteus*  
Pursh ●Widespread, nearly throughout the state except for the southeastern region.
- 6 Calyx tube not gibbous nor spurred at the base
- 7 Plants acaulescent or only short-caulescent, the stems (when developed) shorter than the longer leaves; floral bracts filamentous, usually persisting after anthesis; fruits 1-1.5 cm long (var. *utahensis*) .....  
..... *L. lepidus*  
Douglas ex Lindley ●Mountains of the Four Corners region; known from very few collections. ♦Our plants belong to var. *utahensis* (Watson) C.L. Hitchcock
- 7 Plants caulescent or acaulescent; floral bracts deciduous; fruits longer than 1.5 cm
- 8 Plants from deep, subterranean, branched caudices, rhizome-like, forming patches, the stems generally unbranched
- 9 Calyx 8-9 mm long; fruit 8-9 mm wide; banner with a conspicuous dark patch in the middle (var. *argophyllus*)..... *L. argenteus*  
Pursh ●Widespread, nearly throughout the state except for the southeastern region.
- 9 Calyx 4-6 mm long; fruit 5-6 mm wide; banner lacking a dark medial patch (var. *ammophilus*) .....  
..... *L. polyphyllus*  
Lindley ●Pine-oak-juniper woodlands and forests, canyons, sagebrush, roadsides.
- 8 Plants lacking rhizomes, often from a branched caudex near ground level, the stems generally branched
- 10 All leaves cauline, no long-petioled basal leaves present at anthesis
- 11 Plants greenish, inconspicuously pubescent (magnification usually necessary) if at all
- 12 Leaflets 2-4 cm long; calyx about 6 mm long; fruits about 2 cm wide .... *L. neomexicanus*  
Greene ●Mostly mixed coniferous forests in the mountains.
- 12 Leaflets 3-7 cm long; calyx about 8-10 mm long; fruits less than 1 cm wide .....  
..... *L. sierrae-blancae*  
Wootton & Standley ●Meadows, open slopes, roadsides; endemic to the White and Sacramento Mts of south-central New Mexico, 5900-10,000 ft.
- 11 Plants grayish or silvery green, the pubescence easily seen without magnification
- 13 Banner pubescent on the back ..... *L. sericeus*  
Pursh ●Pine-oak-fir woodlands and forests in the northern region.
- 13 Banner ± glabrous on the back ..... *L. argenteus*  
Pursh ●Widespread, nearly throughout the state except for the southeastern region.
- 10 At least some leaves basal, with long-petioles
- 14 Leaves mostly cauline, with a few basal leaves; pods 2-2.5 cm long ..... *L. argenteus*  
Pursh ●Widespread, nearly throughout the state except for the southeastern region.
- 14 Leaves mostly basal, with a few cauline leaves; pods 2.5-4 cm long (var. *prunophilus*) .....  
..... *L. polyphyllus*  
Lindley ●Pine-oak-juniper woodlands and forests, canyons, sagebrush, roadsides.

**Macroptilium**

*M. gibbosifolium* (Ortega) A. Delgado ●Pine-oak woodlands and grassy slopes in the southwestern mountains and foothills.

**Marina**

*M. calycosa* (Gray) Barneby ●Desert scrub in the bootheel region.

**Mariosousa**

*M. millefolia* (S. Watson) Seigler & Ebinger ●Desert grasslands and scrubland; known in New Mexico only from extreme southwestern Hidalgo County; also Arizona and Mexico.

**Medicago**

- 1 Plants perennial, bushy, erect; flowers bluish or purplish ..... *M. sativa*  
Linnaeus ●Throughout the state, cultivated as a forage crop nearly everywhere irrigation is available, adventive along roadsides, fields, and trails; native to Eurasia.
- 1 Plants annual (rarely living longer), prostrate to ascending; flowers yellowish
- 2 Racemes 10-35-flowered; fruit reniform, not spirally coiled but incurved at the tip, 1-seeded, veiny, not bristly ..... *M. lupulina*  
Linnaeus ●A common weed of lawns, pastures, roadsides, and other moist disturbed ground; expected in

every county; native to Eurasia.

- 2 Racemes 2-10-flowered; fruit spirally coiled, several-seeded, bristly  
 3 Leaves densely hairy; stipules entire to somewhat dentate ..... *M. minima*  
 (Linnaeus) Linnaeus ex Bartalini ●A recent adventive, known as yet from weedy spots in Silver City  
 and Las Cruces, expected elsewhere; native to Mediterranean region.  
 3 Leaves glabrous or very sparsely hairy; stipules deeply toothed ..... *M. polymorpha*  
 Linnaeus ●Scattered sites in weedy ground, roadsides, open fields and lots; native to Eurasia.

### Melilotus

- 1 Flowers white, 3.5-5 mm long ..... *M. albus*  
 Medikus ●Adventive along moist roadsides, fields, cropland, widespread and expected in all counties; native  
 to Eurasia.  
 1 Flowers yellow, 2.5-7 mm long  
 2 Flowers 5-7 mm long; racemes 3-8 cm long in flower; fruit cross-veined or ridged ..... *M. officinalis*  
 (Linnaeus) Lamarck ●Adventive along moist roadsides, fields, cropland, widespread; expected in all  
 counties; native to Eurasia.  
 2 Flowers 2.5-3 mm long; racemes 1-2 cm long in flower; fruit faintly reticulate-veined or ridged ... *M. indicus*  
 (Linnaeus) Allioni ●Occasional in weedy ground, not common; native to Eurasia.

### Mimosa

- 1 Sprawling plants with ± herbaceous decumbent stems; fruit valves not breaking into segments at maturity  
 2 Leaflets with raised reticulate veins beneath, in addition to the midvein ..... *M. nuttallii*  
 (A.P. de Candolle) B.L. Turner ●Adventive in scattered locales along highways; native to the central  
 United States.  
 2 Leaflets smooth beneath except for the midvein, without raised reticulate veins ..... *M. rupertiana*  
 B.L. Turner ●Dunes and sandy ground on the eastern plains; eastern third of the state.  
 1 Bushy plants with trailing to erect woody stems; fruit valves breaking into segments at maturity  
 3 Leaf rachises 1-3 cm long  
 4 Leaves with 4-8 pairs of pinnae ..... *M. biuncifera*  
 Bentham ●Lower mountain canyons, desert hills and flats, arroyos; mostly southern regions.  
 4 Leaves with 1-4 pairs of pinnae  
 5 Pinnae in 1 pair; leaflets of largest leaves in 2(3) pairs; petals united basally at least ½ their length .....  
 ..... *M. turneri*  
 Barneby ●Canyons and rocky slopes of the southeastern foothills, Sacramento, Hueco, and  
 Guadalupe mountains; uncommon; also west Texas and Mexico.  
 5 Pinnae in (1)2-4 pairs; leaflets of largest leaves in 2-8 pairs; petals united or free  
 6 Prickles primarily along the internodes, sometimes also at the nodes; petals separate to the base;  
 pods shiny and light-colored, constricted and twisting between the seeds at maturity or the valves  
 breaking into 1-seeded segments; stems ± straight, not zig-zag ..... *M. borealis*  
 Gray ●Canyons and rocky slopes on the eastern plains and foothills.  
 6 Prickles single (rarely 2-3) at the nodes below the stipule, sometimes also a single one on the  
 internode; petals united for at least ½ their length; pods dark brown, straight and not twisting nor  
 breaking into segments at maturity; stems at least somewhat zig-zag ..... *M. texana*  
 (A. Gray) Small ●Rocky hills and washes; known from a single collection in Eddy County,  
 otherwise southwest Texas into Mexico.  
 3 Leaf rachises 3-9 cm long  
 7 Flowers in elongate, cylindrical spikes; prickles irregular along the internode, straight or curved; pods  
 sessile, 40-50 mm long; corollas densely silky-hairy ..... *M. dysocarpa*  
 Bentham ●Desert scrub and pine-oak woodlands in the southwestern region.  
 7 Flowers in globose heads; prickles paired and straight below the stipules, with 1 just below; pods  
 stipitate, 25-45 mm long; corollas glabrous ..... *M. grahamii*  
 Gray ●Desert scrub and grassland in the bootheel region, with an outlier in Luna County.

### Onobrychis

\**O. vicifolia* Scopoli ●Occasionally cultivated and adventive around irrigated fields, farmyards, and  
 roadsides.

### Oxytropis

- 1 Pods hanging down; flowers initially ascending, then deflexed in maturity ..... *O. deflexa*  
 (Pallas) A.P. de Candolle ●High elevations in the northern mountains, in spruce-fir, meadows, alpine tundra,  
 above 8500 ft. ♦Our plants belong to var. *sericea* Torrey & Gray  
 1 Pods and flowers erect or spreading  
 2 Flowers white, the keel with purple spots ..... *O. sericea*  
 Nuttall ●Plains, foothills, to open mountain slopes; widespread and common.  
 2 Flowers purplish or bluish  
 3 Leaflets mostly conspicuously whorled on the rachis; peduncle pilose with most hairs curly-spreading  
 and more than 1 mm long ..... *O. splendens*  
 Douglas ex Hooker ●Openings and meadows in spruce-fir forests in the northern mountains.

- 3 Leaflets mostly paired or irregularly arranged; peduncle variously pubescent, but the hairs either mostly appressed and/or shorter than 1 mm
- 4 Plants usually less than 10 cm tall; racemes 1-3-flowered..... *O. parryi*  
Gray ●Alpine tundra, ridge tops, and meadows in the far northern mountains; the type is from Taos County.
- 4 Plants mostly 15-50 cm tall; racemes 6-many-flowered..... *O. lambertii*  
Pursh ●Plains, foothills, mountains, slopes, canyons; common and widespread.

**Parkinsonia**

\**P. aculeata* Linnaeus ●Adventive along roadsides and highways in the southern desert region; native to the southwestern deserts of California, Arizona, and Texas, but exotic in New Mexico.

**Parryella**

*P. filifolia* Torrey & Gray ex Gray ●Sandy plains and dunes in the northeastern quarter of the state.

**Pediomelum**

- 1 Flowers 10-20 mm long, clustered into dense, spicate heads, mostly surpassed by the foliage; leaves mostly basal or nearly so, borne on very short stems, generally with very long petioles and broad (obovate or broadly elliptic) leaflets; plants mostly pubescent and appearing so
  - 2 Calyx lobes conspicuously unequal
    - 3 Upper 4 calyx lobes 6-8 mm long; leaves glabrate above..... *P. hypogaeum*  
(Nuttall ex Torrey & Gray) Rydberg ●Sandy ground of plains, grasslands, woodlands, roadsides, in the central and northeastern regions.
    - 3 Upper 4 calyx lobes 10-12 mm long; leaves pubescent above ..... *P. pentaphyllum*  
(Linnaeus) Rydberg ●Desert grassland and scrubland in the bootheel region; uncommon.
  - 2 Calyx lobes subequal
    - 4 Peduncles and petioles conspicuously spreading villous..... *P. esculentum*  
(Pursh) Rydberg ●Plains and grasslands in the northeastern region; known in New Mexico from a single collection, and also reported from Union County (not seen); otherwise Great Plains.
    - 4 Peduncles and petioles pubescent, but the hairs mostly appressed ..... *P. megalanthum*  
(Wooton & Standley) Rydberg ●Desert scrub and woodlands in the Four Corners region; uncommon.
- 1 Flowers 5-11 mm long, borne in loose racemes or in small axillary clusters; leaves cauline, borne on well-developed stems, generally with short petioles and narrower leaflets; plants variously pubescent or glabrous
  - 5 Herbage silvery- or gray-pubescent, at least the stems and lower surfaces of the leaflets
    - 6 Leaflets silky-hairy above, tending to 3 in number; herbage generally glandular..... *P. argophyllum*  
(Pursh) Grimes ●Grasslands in the northeastern region, roadsides; uncommon.
    - 6 Leaflets glabrous to sparsely pubescent above, tending to 5 in number; herbage generally eglandular except on adaxial leaf surfaces ..... *P. digitatum*  
(Nuttall ex Torrey & Gray) Isely ●Roadsides on the eastern plains; known in New Mexico from a single collection; otherwise central plains.
  - 5 Herbage glabrous to scantily pubescent, appearing glabrous, not silvery- or gray-pubescent
    - 7 Flowers whitish to pale purplish-tinged or -tipped; fruits globose (*L. lanceolatum*)..... go to *Ladeania*
    - 7 Flowers bluish or purplish; fruits ovoid
      - 8 Leaflets all linear..... *P. linearifolium*  
(Torrey & Gray) Grimes ●Scarcely known in the state from a single collection in Roosevelt County.
      - 8 Leaflets tending to oblanceolate or obovate in some degree..... *P. tenuiflorum*  
(Pursh) Egan ●Widely scattered throughout the state in plains, grasslands, woodlands, desert scrub; expected in every county.

**Peteria**

*P. scoparia* Gray ●Chihuahuan Desert scrub and woodland, dry hills and plains.

**Phaseolus**

- 1 Leaflets generally short and broad in outline, 1-2 times longer than wide
  - 2 Leaflets lobed (at least many of them), at least on one side
    - 3 Plants annual to short-lived perennials from slender taproots; stipules 1-3 mm long; inflorescences with 2-6 flowering nodes; corolla wings about 10 mm long; pods 2-3.5 cm long; seeds about 2-4 mm long..... *P. filiformis*  
Bentham ●Desert scrub, oak-pine and juniper woodlands, southwestern region.
    - 3 Plants perennial from thick, tuberous taproots; stipules 3-6 mm long; inflorescences with 3-14 flowering nodes; corolla wings 12-16 mm long; pods 3-5 cm long; seeds about 4-7 mm long ..... *P. scabrellus*  
Bentham ex S. Watson ●Pine-oak woodlands and canyons in the southwestern region, with a few collections in Eddy County.
  - 2 Leaflets unlobed, but may be expanded or humped basally
    - 4 Plants perennial from large, woody, tuberous taproots; lateral leaflets generally 3-7 cm long; pods 3-8 cm long; corollas pink-purple, generally not white; native plants ..... *P. maculatus*  
Scheele ●Pine-oak woodlands in the southwestern region.
    - 4 Plants annual from slender taproots; lateral leaflets generally 6-12 cm long; pods 8-20 cm long; corollas pink-purple to nearly white; escaped garden plants ..... *P. vulgaris*



Linnaeus •A waif from gardens, not persistent long; documented with a single collection, but to be expected elsewhere in moist ground.

- 1 Leaflets generally long and narrow in outline, (2)3-10 times longer than wide
- 5 Inflorescence with 1-2(3) flowers; stems 5-30(50) cm long; corolla wings 15-27 mm long; plants perennial from a bulb-like root ..... *P. parvulus*  
Greene •Dry pine forests in the southwest region.
- 5 Inflorescence with 4-many flowers; stems 30-200 cm or more long; corolla wings 10-12 mm long; plants annual to perennial, the roots fibrous to thick and tuberous
- 6 Plants annual from narrow fibrous roots; pods 3-7 cm long, 5-10-seeded..... *P. acutifolius*  
Gray •Desert scrub in the southwestern region.
- 6 Plants perennial from thick, woody, tuberous taproots; pods 2-3 cm long, 3-4-seeded.... *P. angustissimus*  
Gray •Widely scattered in the western parts of the state in semi-desert scrub, piñon-juniper woodlands, and pine forests.

#### **Pomaria**

*P. jamesii* (Torrey & Gray) Walpers •Plains, mesas, desert scrub, grassland, arroyos; throughout the state.

#### **Prosopis**

- 1 Fruit coiled in a tight spiral, like a cork-screw; leaflets in 5-8 pairs, mostly less than 10 mm long ...*P. pubescens*  
Bentham •Flood plains and similar riparian areas in the southern arid region.
- 1 Fruit not coiled; leaflets in 10-20 pairs (or more), often more than 10 mm long
- 2 Pinnae in a single pair; leaflets glabrous, mostly 1-4 cm long ..... *P. glandulosa*  
Torrey •Widespread nearly throughout the plains and arid range lands of the state, but generally absent from the northwest region.
- 2 Pinnae in 1-2(3) pairs; leaflets pubescent, mostly 0.6-1.3 cm long .....*P. velutina*  
Wootton •Creosote bush scrub, sandy arroyos and washes; southwestern region; infrequent.

#### **Psorothamnus**

*P. scoparius* (Gray) Rydberg •Perennial; deep sands and washes, widely scattered in the state.

#### **Rhynchosia**

*R. texana* Torrey & Gray •Widely scattered in the southern half of the state in desert scrub, grasslands, and wooded canyon slopes, with an odd outlier in southern San Juan County; amphitropical disjunction in southwestern U.S. and Argentina, Paraguay.

#### **Robinia**

- 1 Leaf rachises and twigs densely hispid and/or glandular; flowers pinkish to purplish, sometimes white; rare escapes from cultivation ..... *R. hispida*  
Linnaeus •Escaping from cultivation in the northeastern region, rare; native to southeastern U.S.; known from a single report for Union County (Great Plains Flora Assoc. 1977).
- 1 Leaf rachises and twigs glabrous to puberulent, but not at all hispid nor glandular; flowers pinkish, purplish, white; common natives and not uncommon escapes
- 2 Leaflets 2-6 cm long, glabrous or scarcely pubescent beneath; base of petiole markedly expanded, almost bulbous, 2-3 mm wide; flowers mostly whitish ..... *R. pseudoacacia*  
Linnaeus •Widely cultivated and sometimes escaping to roadsides, old fields, and woodlands, adventive in weedy lots and yards; native to the eastern United States.
- 2 Leaflets 1.5-3 cm long, sparsely but evidently sericeous or appressed-pubescent beneath; base of petiole hardly expanded, 1.5-2 mm wide; flowers mostly pinkish to purplish.....*R. neomexicana*  
Gray •Nearly throughout the state in canyons and rocky mountain slopes, foothills, sometimes to quite high elevations.

#### **Securigera**

\**S. varia* (Linnaeus) Lassen •Roadsides, ruderal moist sites, fields; scattered locales about the state; native to Eurasia.

#### **Senegalia**

- 1 Leaflets in 4-6 pairs, 3-6 mm long; flowers in elongate spikes .....*S. greggii*  
(Gray) Britton & Rose •Desert scrub in southwestern and southeastern regions.
- 1 Leaflets in 5-12 pairs, 5-12 mm long; flowers in ovoid heads.....*S. roemeriana*  
(Scheele) Britton & Rose •Brushy country in the southeastern region.

#### **Senna**

- 1 Leaves with a single pair of leaflets
- 2 Leaflets 4-8 times longer than wide, apically pointed; fruit straight to slightly curved.....*S. roemeriana*  
(Scheele) Irwin & Barneby •Deserts, plains, and woodlands in the eastern half of the state, with a few outliers westward.
- 2 Leaflets 2-3 times longer than wide, apically rounded-obtuse; fruit falcate-curving.....*S. bahinioides*  
(Gray) Irwin & Barneby •Southern deserts, plains, bajadas, washes, roadsides; common across the southern half or so of the state.
- 1 Leaves mostly with 2-10 pairs of leaflets
- 3 Leaflets 3-8 mm long; rachis glands absent..... *S. wislizeni*  
(Gray) Irwin & Barneby •Bajadas, arroyos, desert canyons in the southwest corner.

- 3 Leaflets 10-80 mm long; rachis glands present at petiole base or between the leaflets
- 4 Rachis glands at the base of the petiole; leaflets 5-8 cm long, lanceolate-acuminate..... *S. hirsuta*  
(Linnaeus) Irwin & Barneby ●To be looked for in canyons and washes in the bootheel.
- 4 Rachis glands between the pairs of leaflets; leaflets 1-4 cm long, oblong-elliptic-obovate
- 5 Leaves with 2-4 pairs of leaflets; stipules to 1 mm wide; racemes 2-8-flowered..... *S. covesii*  
(Gray) Irwin & Barneby ●Desert scrub, washes, hills, southwestern corner.
- 5 Leaves with 4-8 pairs of leaflets; stipules 1-3 mm wide; racemes 5-25-flowered
- 6 Lower stems with stiff hairs 2-3 mm long, otherwise finely puberulent to glabrate; leaflets glaucous beneath; pods 3-7 mm wide; pedicels 0-5 mm long..... *S. orcuttii*  
(Britton & Rose) Irwin & Barneby ●Known only from a few old collections, Guadalupe Mountains, Otero County; otherwise west Texas, Mexico.
- 6 Lower stems villous to tomentose with shorter hairs; leaflets not glaucous; pods 5-9 mm wide; pedicels 6-22 mm long..... *S. lindheimeriana*  
(Scheele) Irwin & Barneby ●Scrubland, woodland, grassland, across the southern tier of counties, with a few collections northward.

**Sphaerophysa**

\**S. salsula* (Pallas) A.P. de Candolle ●Floodplains, roadsides, weedy moist ground, irrigated fields, irrigation ditches; widespread; native to Asia.

**Strophostyles**

- 1 Flowers 8-12 mm long; keel prominently curved and protruding well above the wings; fruit becoming glabrous at maturity; calyx tube nearly glabrous; seeds pubescent..... *S. helvola*  
(Linnaeus) Elliott ●Weedy ground and old fields; known in New Mexico only from an old collection in Socorro County, considered adventive and probably no longer present in the state; native to central to eastern United States and Canada.
- 1 Flowers 5-8 mm long; keel less curved and largely enveloped by the wings; fruit permanently pubescent; calyx tube pubescent; seeds glabrous..... *S. leiosperma*  
(Torrey & Gray) Piper ●Weedy ground of fields and irrigation canals; not common.

**Tephrosia**

*T. vicioides* Schlechtendal ●Desert mountains, foothills, bajadas, southwestern corner; known from few collections; also Texas and Mexico.

**Thermopsis**

- 1 Pods both stiffly erect and straight, pubescent..... *T. montana*  
Nuttall ●Mountain slopes, meadows, canyons, foothills, a few collections on the adjacent plains.
- 1 Pods divergent and straight to curved, nearly glabrous to pubescent
- 2 Plants 30-90 cm tall; leaflets more than 3 cm long, the lateral veins in 7-10 pairs; stipules narrowly elliptic to ovate; pods straight to arcuate..... *T. divaricarpa*  
A. Nelson ●Mountain slopes; northern counties.
- 2 Plants mostly 10-30 cm tall; leaflets less than 3 cm long, the lateral veins in 5-7 pairs; stipules usually broadly ovate; pods strongly curved to a half circle..... *T. rhombifolia*  
(Nuttall ex Pursh) Nuttall ex Richardson ●Plains grasslands, semi-desert shrublands, commonly sandy or loose soil; northern tier of counties.

**Trifolium**

- 1 Corollas bright yellow; leaflets often ± pinnately arranged, at least some of them; plants annual
- 2 Corollas plainly striate, 4-7 mm long; leaflet blades impressed-veined, corrugated abaxially; flower heads usually 20+-flowered..... *T. campestre*  
Schreber ●Weedy spots along roads and fields, gardens, edges of lawns; native to Europe; currently known from Colfax and Santa Fe counties from only a few collections.
- 2 Corollas scarcely striate, 3-4 mm long; leaflet blades not impressed-veined, smooth abaxially; flower heads usually 2-20-flowered..... *T. dubium*  
Sibthorp. ●Weedy sites along roads and fields; Roosevelt County.
- 1 Corollas pink-purple, reddish, lavender, whitish, not bright yellow; leaflets all palmately arranged; plants annual to perennial
- 3 Plants essentially acaulescent, the leaves all basal from dense caudices
- 4 Leaflets pubescent, at least below
- 5 Leaflets distinctly toothed, 1-3 times longer than wide..... *T. gymnocarpon*  
Nuttall ●Sagebrush, piñon-juniper plains, occasionally into the forests to about 8,000 ft, northwestern quadrant.
- 5 Leaflets entire or only minutely and obscurely toothed, 4-10 times longer than wide
- 6 Flowers ascending to divaricate to ultimately strongly reflexed; calyces and herbage villous-pilose..... *T. attenuatum*  
Greene ●Alpine slopes, rocky ledges, openings in forests, at high elevations in the northern mountains; a report from Socorro County has not been verified, but seems unlikely.
- 6 Flowers persistently erect-ascending; calyces and herbage strigose, sometimes glabrous..... *T. dasphyllum*

Torrey & Gray •Reported from rocky alpine tundra and subalpine cliffs and rocky slopes in spruce-fir vegetation, northern mountains, Colfax County; needs verification.

4 Leaflets glabrous or essentially so

7 Flowering heads in fruit enlarging to a dense, globose, fuzzy ball, the calyces becoming bladdery-inflated ..... *T. fragiferum*  
Linnaeus •Weedy wet sites, ditchbanks, roadsides, edges of fields, at low elevations; native to Eurasia.

7 Flowering heads in fruit not as above, the calyces not bladdery-inflated

8 Flowers ultimately strongly reflexed or pendent; flower heads not involucrate ..... *T. brandegeei*  
S. Watson •Spruce-fir forests and meadows in the northern mountains.

8 Flowers persistently erect-ascending; flower heads involucrate, the bracts fused at least below

9 Heads usually 2-flowered (1-4); leaflets 3-10(14) mm long; plants generally 2-8 cm tall .....  
..... *T. nanum*  
Torrey •Uncommon in alpine tundra, meadows, rocky slopes, in the northern mountains.

9 Heads 10-20-flowered; leaflets 10-40 mm long; plants generally 5-25 cm tall ..... *T. parryi*  
Gray •Wet meadows and stream banks in spruce-firs forests of the northern mountains.

3 Plants caulescent, stem leaves present and common

10 Leaves 3-10 times longer than wide ..... *T. longipes*

10 Leaves 1-3 times longer than wide

11 Flower heads sessile or nearly so, without an evident stalk beyond the terminal leaves and their much-expanded stipules ..... *T. pratense*  
Linnaeus •Mountain woods and riparian areas, urban areas, roadsides; native to Europe.

11 Flower heads distinctly pedunculate, on an evident stalk beyond the terminal leaves

12 Flower heads elongate, lanceolate to cylindrical, 2-4 times longer than wide; corollas bright crimson-red, the banner forming a basal tube enclosing the other petals; calyx lobes setaceous-pilose; plants annual ..... *T. incarnatum*  
Linnaeus •Planted in 1957 in plots at Bosque del Apache Wildlife Refuge (Socorro Co.); not persisting and not otherwise known from the state; native to Europe.

12 Flower heads globose to ovoid, 1-2 times longer than wide; corollas white, pinkish, pale reddish, purplish, the banner not forming a tube; calyx lobes not both setaceous and pilose; plants perennial (sometimes short-lived)

13 Flowering heads in fruit enlarging to a dense, globose, fuzzy ball, the calyces becoming bladdery-inflated ..... *T. fragiferum*  
Linnaeus •Weedy wet sites, ditchbanks, roadsides, edges of fields, at low elevations; native to Eurasia.

13 Flowering heads in fruit not as above, the calyces not bladdery-inflated

14 Bracts subtending the heads fused into an involucre, deeply lacinate .. *T. wormskioldii*  
Lehmann •Moist mountain and foothill habitats, meadows, streamsides, lower elevations in wet sites; widespread.

14 Bracts subtending the heads not fused, sometimes minute

15 Stems decumbent, creeping, stoloniferous, rooting at the nodes; sinuses of the calyx lobes often purple-spotted; flowers usually white, sometimes pale pink .....  
..... *T. repens*

Linnaeus •Throughout the state in moist weedy sites, lawns, roadsides, edges of fields, mountain meadows and along trails; native to Eurasia; expected in all counties.

15 Stems sprawling to erect, not rooting at the nodes; sinuses of the calyx lobes never purple-spotted; flowers whitish to pinkish or purplish

16 Flowers 10-18 mm long; herbage distinctly pubescent; plants native, generally in natural communities ..... *T. longipes*  
Nuttall •Pine woods, spruce-fir forests, mountain meadows, aspen groves, medium to high elevations.

16 Flowers 6-10 mm long; herbage glabrous or nearly so; plants exotic, adventive in weedy sites

17 Flower heads 1.3-3 cm wide, commonly bicolored, the upper erect flowers whitish, the lower reflexed flowers pinkish to eventually brownish; calyx tube whitish, the lobes green to whitish, about the same length as the tube or slightly longer; leaflets 10-40 mm long ..... *T. hybridum*  
Linnaeus •Weedy ground, old pastures, fields, roadsides, ditchbanks; foothills and mountain regions associated with the central cordillera; apparently absent from the western mountains; native to Europe.

17 Flower heads 1-1.5 cm wide, not bicolored as above, usually ± concolorous, but the corollas themselves sometimes bicolored; calyx

tube commonly reddish, contrasting with the green lobes, some of the lobes more than twice as long as the tube; leaflets 3-15 mm long ..... *T. gracilentum* Torrey & Gray ●A single specimen is reported from Lincoln County (Isely 1998), which we have not found; probably a waif that has not persisted; native to western U.S. and northern Mexico.

**Vachellia**

- 1 Pinnae in 1-2(3) pairs; rachises (including petiole) 0.3-1.5 cm long; leaflets mostly 1-2 mm long ... *V. vernicosa* (Britton & Rose) Seigler & Ebinger ●Desert plains and foothills, mostly from Doña Ana County eastward, infrequent westward.
- 1 Pinnae in 4-6 pairs; rachises (including petiole) 2-3.5 cm long; leaflets mostly 2-3 mm long..... *V. constricta* (Bentham) Seigler & Ebinger ●Arid slopes and flats, mostly from Doña Ana County westward, infrequent eastward.

**Vexibia**

- 1 Leaflets linear, 0.5-2(3) mm wide; corollas bluish ..... *V. stenophylla* (Gray) W.A. Weber ●Sand dunes and other sandy ground, loose ground of hills and plains, roadsides; widespread but not common.
- 1 Leaflets ovate to oblanceolate, 3-15 mm wide; corollas whitish (calyces may be gray-bluish)..... *V. nuttalliana* (B.L. Turner) W.A. Weber ●In every county, plains grasslands and woodlands, roadside swales and ditches.

**Vicia**

- 1 Racemes sessile or subsessile, bearing only 1-2 (sometimes 3) flowers; flowers 1-3 cm long ..... *V. sativa* Linnaeus ●Disturbed, moist ground; known definitely only from Rio Arriba County; native to Eurasia. ♦Our material belongs to var. *angustifolia* Linnaeus
- 1 Racemes pedunculate, 1- to several-flowered; flower length various, 0.5-2.5 cm long
  - 2 Flowers large, 12-25 mm long
    - 3 Herbage rather densely to sparsely villous; racemes densely 10-20-flowered; calyx gibbous so the pedicel appears to be attached laterally ..... *V. villosa* Roth ●Scattered locales, generally associated with agriculture, roadsides, old fields, garden escapes; native to Europe.
    - 3 Herbage glabrous to sparsely pilose; racemes loosely 1- to 9-flowered; calyx not or only slightly gibbous so the pedicel appears to be attached basally ..... *V. americana* Muhlenberg ex Willdenow ●Widespread throughout much of the state in mountainous regions, except the eastern plains.
  - 2 Flowers small, 5-10 mm long
    - 4 Flowers whitish or cream-colored; peduncles bearing 10-20 flowers; plants perennial ..... *V. pulchella* Kunth ●Mountain forests and meadows in many parts of the state.
    - 4 Flowers bluish; peduncles bearing 1-15 flowers; plants annual or perennial
      - 5 Leaflets 6-16; pods glabrous; calyx with appressed, whitish hairs; plants annual ..... *V. ludoviciana* Nuttall ex Torrey & Gray ●Woodlands, grasslands, roadsides; widespread.
      - 5 Leaflets 4-6; pods silky pubescent; calyx with spreading, usually yellowish, hairs; plants perennial ..... *V. leucophaea* Greene ●Mountain slopes and canyons, conifer forests; southwestern region.

**FAGACEAE BEECH FAMILY**

**Quercus**

- 1 Inner surface of acorn shell tomentose; bark of main trunk hard and furrowed, black or dark gray (red or black oaks)
  - 2 Leaves densely whitish stellate-tomentose beneath, 5-10 cm long ..... *Q. hypoleucoides* A. Camus ●Pine-oak woodlands and forests of the southwestern mountains.
  - 2 Leaves nearly glabrous beneath, except for a small patch of floccose hairs along the base of the midrib, 2-6 cm long ..... *Q. emoryi*
- 1 Inner surface of acorn shell glabrous or essentially so; bark of main trunk soft and flaky, light colored (white oaks)
  - 3 Leaves dark to bright green above, not leathery, deciduous in the fall, hence the plants leafless in the winter
    - 4 Leaves moderately to deeply lobed, the lobes extending at least 1/2 the distance to the midrib ... *Q. gambelii* Nuttall ●Widespread throughout the state in the mountains and foothills, commonly with ponderosa pine, uncommon on the plains and absent from the deserts.
    - 4 Leaves entire to toothed to shallowly lobed, the lobes extending no more than 1/3 the distance to the midrib
      - 5 Leaves 10-20 cm long, regularly undulate-toothed with numerous (6-10 on a side) rounded teeth from base to apex, sometimes with very shallow lobes ..... *Q. muehlenbergii* Engelmann ●Canyons and mountain slopes in the Guadalupe and Capitan mountains, also Ute Creek, generally below 7500 ft.
  - 5 Leaves mostly less than 10 cm long, entire to shallowly lobed with 5 or fewer teeth or lobes on a side

- 6 Leaf blades usually strongly convex, broadly ovate, 4-8 cm wide, the upper surface usually rugose  
 Néé •Pine-oak and coniferous forests at low- to mid-elevations in the southwestern mountains. *Q. rugosa*
- 6 Leaf blades not as above
- 7 Low rhizomatous sub-shrub mostly to 1 m tall (rarely taller); acorns large, 25 mm or more long; plants of the eastern sandhills ..... *Q. havardii*
- 7 Shrubs more than 1 m tall; acorns small, 10 mm or less long; plants widespread, mostly in the mountains and foothills ..... *Q. ×undulata*  
 Torrey •Widespread and common throughout the state.
- 3 Leaves bluish, grayish, or yellowish green, never bright green, often thick or leathery, mostly persisting until the appearance of the new leaves, hence the plant leafy all the time
- 8 Leaves all small, 1-3 cm long
- 9 Leaves shiny above; bark of pencil-thick twigs cracking and peeling; acorns sessile, on stalks about 2 mm long; plants uncommon in rocky woodlands of Hidalgo County ..... *Q. toumeyii*  
 Sargent •Rocky brushy slopes and hills in the bootheel.
- 9 Leaves dull above; bark of pencil-thick twigs smooth and tight; acorns on stalks 6-40 mm long; plants widespread and common
- 10 Leaves usually spinose-toothed ..... *Q. turbinella*  
 Greene •Widespread in the juniper and oak woodlands, most common in the western half of the state.
- 10 Leaves entire or with a few blunt teeth ..... *Q. grisea*  
 Liebmann •Widespread in the state in grasslands and woodlands, commonly with juniper and piñon, where it prefers soils of igneous origin.
- 8 Leaves more than 3 cm long, at least many or most of them
- 11 Lower leaf surface with a prominent waxy cuticle and much paler than the upper surface, densely golden-glandular when young ..... *Q. chrysolepis*  
 Liebmann •Pine-oak forests of the far-western southwestern mountains; known only from the Apache Box in Grant County.
- 11 Lower leaf surface lacking a waxy cuticle, concolorous or if paler beneath, this due to a hairy tomentum, not densely golden-glandular
- 12 Leaf blades glabrous or nearly so at maturity, sometimes with scattered hairs near the veins
- 13 Leaves yellowish-gray-green; blades mostly toothed; apex acute ..... *Q. emoryi*  
 Torrey •Pine-oak woodlands of the southwestern mountains.
- 13 Leaves definitely bluish, particularly on the upper surface; blades essentially entire; apex rounded ..... *Q. oblongifolia*  
 Torrey •Pine-oak forests of the bootheel region.
- 12 Leaf blades pubescent at maturity with branched hairs, at least on the lower surface
- 14 Blades with a prominent whitish dense tomentum beneath, shiny above
- 15 Blades lanceolate-elliptic, the apex acuminate; southwestern mountains ..... *Q. hypoleucoides*  
 A. Camus •Pine-oak woodlands and forests of the southwestern mountains.
- 15 Blades broadly elliptic-ovate, the apex obtuse to acute; northeastern and southeastern plains and canyons ..... *Q. mohriana*  
 Buckley ex Rydberg •Canyons in the northeast counties, and foothills of the Guadalupe Mountains, commonly on limestone, not common.
- 14 Blades variously pubescent, but lacking a whitish dense tomentum, shiny or dull above
- 16 Leaf blades usually strongly convex, broadly ovate, 4-8 cm wide, the upper surface usually rugose ..... *Q. rugosa*  
 Néé •Pine-oak and coniferous forests at low- to mid-elevations in the southwestern mountains.
- 16 Leaf blades not as above
- 17 Plants low rhizomatous shrubs mostly to 1 m tall (rarely taller); plants of the eastern sandhills ..... *Q. havardii*  
 Rydberg •Deep sands of the eastern plains, with disjunct plants in the Four Corners region.
- 17 Plants large shrubs or trees mostly taller than 2 m; plants widespread, absent from the eastern sandhills
- 18 Leaf blades usually entire, gray-green, dull, rarely longer than 3.5 cm; venation not very prominent (without magnification) ..... *Q. grisea*  
 Liebmann •Widespread in the state in grasslands and woodlands, commonly with juniper and piñon, where it prefers soils of igneous origin.
- 18 Leaf blades usually toothed, at least near the tip, dark green, shiny or sublustrous, commonly longer than 3.5 cm; venation prominent (without magnification)

- 19 Veins 8-11 on each side of the midrib; leaf blades usually flat with 1-6 teeth on each side, the upper surface ± smooth or rugose; acorns 11-15 mm long ..... *Q. arizonica* Sargent ●Rocky stream beds and arroyos of the foothills and plains in the southcentral and southwestern regions.
- 19 Veins 5-8 on each side of the midrib; leaf blades usually strongly undulate on the margins with 3-5 coarse teeth or lobes on each side, the upper surface with swollen-based hairs that are harsh to the touch; acorns 9-10 mm long ..... *Q. pungens* Liebmann ●Pine-oak woodlands associated with the southern mountains.

**FOUQUIERIACEAE OCOTILLO FAMILY**

**Fouquieria**

- F. splendens* Engelman ●Rocky hills and uplands in the Chihuahuan Desert and adjacent arid scrublands.

**FRANKENIACEAE FRANKENIA FAMILY**

**Frankenia**

- 1 Annual herbaceous plants; leaf blades ±flat, 1-3 mm wide, the margins slightly to loosely revolute ..... *F. pulverulenta* Linnaeus ●Dry saline dry lake shores and salt flats, known in New Mexico only from Sierra County; native to Eurasia and Africa.
- 1 Perennial shrubs; leaf blades subterete, 0.5-1 mm wide, the margins tightly revolute ..... *F. jamesii* Torrey ex Gray ●Occasional in sandy alkaline and gypsum soils on plains, lake shores, salt flats.

**GARRYACEAE SILKTASSEL FAMILY**

**Garrya**

- 1 Mature leaves essentially glabrous or inconspicuously appressed short-sericeous when young ..... *G. wrightii* Torrey ●Pine-oak-juniper woodlands, bajadas, foothills, and low mountain slopes, our common *Garrya*.
- 1 Mature leaves woolly-pubescent or strigose-sericeous
  - 2 Leaf surfaces densely tomentulose, the hairs coiling to recurved, sometimes erect; abaxial leaf epidermis gray-greenish; leaf margins usually callose-muricate-roughened; internodes of pistillate aments 4+ mm long ..... *G. goldmanii* Wooton & Standley ●Pine-oak-juniper woodlands, bluffs and slopes; foothills of the southern mountains.
  - 2 Leaf surfaces strigose-sericeous, the hairs antrorsely appressed; abaxial leaf epidermis whitish; leaf margins smooth, not callose-muricate-roughened; internodes of pistillate aments about 1 mm long ..... *G. flavescens* S. Watson ●Reported by various works, but authentic specimens are unknown to us.

**GENTIANACEAE GENTIAN FAMILY**

- 1 Petals free nearly to the base, the lobes much longer than the short tube
  - 2 Corolla large, 3 cm or more long, blue or purple ..... *Eustoma*
  - 2 Corolla smaller, 2 cm or less long, blue, whitish, pink, or greenish
    - 3 Flowers greenish to greenish white, 4-merous; style filamentous; plants of relatively dry habitats. *Frasera*
    - 3 Flowers blue, pink, or white, but not greenish, 4- or 5-merous; style short or absent; plants of relatively wet or moist habitats
      - 4 Plants perennial from a sub-rhizomatous base; basal leaves 4-22 cm long ..... *Swertia*
      - 4 Plants annual or biennial; basal leaves 1-5 cm long
        - 5 Style absent, the stigmas decurrent along the carpels; flowers blue or white; leaves lanceolate to linear; native boggy places in the northern mountains ..... *Lomatogonium*
        - 5 Style present; flowers pink (rarely white); leaves ovate to lance-ovate; adventive waste places in the south ..... *Sabatia*
  - 1 Petals united into a well-developed tube, the lobes shorter than to only slightly longer than the tube
    - 6 Flowers pinkish or rose-colored; anthers spirally twisted after anthesis (*Centaurium* s.l.) ..... *Zeltnera*
    - 6 Flowers other than pinkish and the anthers not twisted
      - 7 Corollas yellowish, each lobe with a spur projecting downward; plants annual ..... *Halenia*
      - 7 Corollas mostly bluish or whitish (rarely pale yellow), the lobes lacking spurs; plants annual or perennial
      - 8 Corolla with conspicuous folds or plaits in the sinuses of the lobes, these extended upwards into lacerate segments between the lobes; plants annual to perennial (*Gentiana* s.l.)
        - 9 Plants small, 5-15 (25) cm tall, annual or biennial; flowers single and terminal on the flowering stem; cauline leaves ± appressed-ascending; capsules obviously stipitate when mature, the stipe raising the capsule beyond the corolla ..... *Chondrophylla*
        - 9 Plants generally taller than 15 cm, perennial; flowers terminal or axillary; cauline leaves mostly spreading; capsules sessile even when mature, remaining within the corolla
          - 10 Corollas white or yellowish with dull purple pleats; leaves mostly basal, the cauline ones

- reduced ..... *Gentianodes*  
 10 Corollas blue to violet, rarely pale; leaves mostly cauline ..... *Pneumonanthe*  
 8 Corolla lacking folds, plaits, or appendages in the sinuses; plants annual (*Gentianella* s.l.)
- 11 Corolla lobes distinctly fringed on the margins, lacking a fringed corona at their bases; flowers 2-7 cm long ..... *Gentianopsis*  
 11 Corolla lobes not fringed on the margins, but with a fringed corona at their bases; flowers 0.5-3 cm long  
 12 Flowers borne singly on an elongated naked peduncle longer than the subtending internode; plants less than 15 tall; each corolla lobe with 2 fringed coronae ..... *Comastoma*  
 12 Flowers borne in clusters on short peduncles shorter than the subtending internode; plants 10-50 cm tall; each corolla lobe with a single fringed corona ..... *Gentianella*

**Chondrophylla**

- 1 Flowers predominantly white or pale blue; cauline leaves conspicuously white-margined, 1-2 mm wide; capsules less than 3 times longer than wide ..... *C. fremontii* (Torrey) A. Nelson ●Upper montane to alpine meadows, clearings in forests, and tundra.  
 1 Flowers deep blue; cauline leaves obscurely or not white-margined, 1-4 mm wide; capsules more than 4 times longer than wide ..... *C. prostrata* (Haenke) J.P. Anderson ●High-elevation wet meadows; known only from a single collection in Taos County at nearly 12,000 ft.

**Comastoma**

- C. tenellum* (Rotboell) Toyokuni ●Upper subalpine to alpine meadows, forested openings, glacial cirques; known from very few collections.

**Eustoma**

- E. exaltatum* (Linnaeus) Salisbury ex G. Don ●Moist meadows, alkaline flats, springs and seeps, marshy ground, canyon bottoms; scattered throughout much of the state on plains and foothills.

**Frasera**

- 1 Leaves not white-margined; inflorescence spicate, scarcely branched, the flowers nestled among leaf-like bracts ..... *F. speciosa* Douglas ex Grisebach ●Widespread in all the mountain ranges, wooded to open slopes, from mid- to very high elevations.  
 1 Leaves white-margined; inflorescence diffusely branched, the flowers widely separated from any leaf-like bracts  
 2 Stem leaves opposite; petal glands broad, 2-lobed at the base ..... *F. paniculata* Torrey ●Salt-desert shrub and juniper communities in the northwest region.  
 2 Stem leaves in whorls of 4; petal glands narrow, 2-lobed at the apex ..... *F. albomarginata* S. Watson ●Sagebrush and piñon-juniper woodlands; Four Corners region; scattered in the southwest.

**Gentianella**

- 1 Flowers borne singly on an elongated naked peduncle; plants commonly less than 15 tall (*C. tenella*) ..... go to *Comastoma*  
 1 Flowers borne in clusters on short peduncles; plants 10-50 cm tall  
 2 Corolla large, 1.8-2.5 cm long, cream-colored to yellowish; rare, southwestern ..... *G. wrightii* (Gray) Holub ●Known only from a single collection in 1880 (the type of *Amarella cobrensis* Greene) at "Santa Rita del Cobre," near present-day Hanover, Grant County; also southern Arizona.  
 2 Corolla not both large and cream-colored/yellowish, less than 2 cm long; common, widespread  
 3 At least 1 calyx lobe broadly foliaceous and enveloping or overlapping the others, free nearly to the base, not forming a cup, the other calyx lobes much narrower; fimbriae at base of lobes connate basally, forming a scale ..... *G. heterosepala* (Engelmann) Holub ●Somewhat dry to moist places in the mountains, usually in the shade, sometimes also at lower elevations along ditches and canals.  
 3 Calyx lobes ± equal to unequal in size and shape, 1 or 2 may be longer than the others but none enveloping or overlapping the others, united below and forming a cup; fimbriae at base of lobes not connate, remaining as separate segments ..... *G. acuta* (Michaux) Hult n ●Moist meadows and grassy banks in the mountains.

**Gentianodes**

- G. algida* (Pallas) A.&D. Love ●High-elevation meadows, scree and cobble slopes, tundra, grassy banks; above 9000 ft.

**Gentianopsis**

- 1 Plants perennial, though short-lived, less than 10 cm tall; flowers sessile or on peduncles to 0.7 cm long, closely subtended by leaf-like bracts; corolla lobes oblong ..... *G. barbata* (Engelmann) Itlis ●Subalpine to alpine grassy slopes; Sangre de Cristo mountains in the northern counties; poorly known from few collections.  
 1 Plants annual, commonly 20-60 cm tall; flowers borne on long naked peduncles 2-15 cm long, not closely subtended by leaf-like bracts; corolla lobes obovate ..... *G. thermalis*

(Kuntze) Ilits ●Subalpine to alpine meadows and wet slopes; Sangre de Cristo mountains in the northern counties; well-known from numerous collections.

**Halenia**

*H. rothrockii* Gray ●Moist ground in the southwestern mountains, uncommon.

**Lomatogonium**

*L. rotatum* (Linnaeus) Fries ex Fernald ●Wet meadows in the subalpine communities, northern mountains; known from very few collections. ●Our plants belong to var. *fontanum* (A. Nelson) J.S. Pringle

**Pneumonanthus**

- 1 Floral leaves large, foliaceous, broadly ovate and ± boat-shaped, often concealing the calyces; distal cauline leaves ovate..... *P. parryi* (Engelmann) Greene ●Mountain meadows, moist forest clearings and roadbanks, mountain brush, pine-spruce-fir communities; northern mountains; 8000-12,000 ft.
- 1 Floral leaves smaller, not foliaceous, narrowly lanceolate, not boat-shaped, never concealing the calyces; distal cauline leaves lanceolate..... *P. affinis* (Grisebach) Greene ●Mesic clearings in woods and forest, along streams, moist meadows, canyon bottoms; widespread in nearly all the mountain ranges of the state; 5500-11,800 ft.

**Sabatia**

- 1 Branches of the inflorescence mainly opposite, the inflorescence appearing trichotomous ..... *S. angularis* (Linnaeus) Pursh ●Moist weedy sites and disturbed gardens, adventive; known from a single collection in Doña Ana County, perhaps not persisting; native to central and eastern United States.
- 1 Branches of the inflorescence mainly alternate, the inflorescence appearing dichotomous ..... *S. campestris* Nuttall ●Fields, roadsides, flood plains, other weedy sites, adventive; known from a single collection in Bernalillo County along the Rio Grande; perhaps not persisting; native eastward, Texas and the Mississippi River states.

**Swertia**

*S. perennis* Linnaeus ●Moist sites in subalpine to alpine meadows and stream banks; northern mountains.

**Zeltnera**

- 1 Corolla lobes 2-7 mm long; anthers 0.5-1.5 mm long when twisted (longer before twisting); corollas generally 4-lobed
- 2 Corolla lobes 4-7 mm long; basal rosette absent at flowering; cauline leaves many, in 3-6 pairs, extending into the inflorescence; Four Corners region ..... *Z. exaltata* (Grisebach) Mansion ●Wet meadows, marshes, drainage ditches, springs, riparian zones; in New Mexico, known only from San Juan County.
- 2 Corolla lobes 2-4 mm long; basal rosette present at flowering (sometimes absent on very small plants); cauline leaves few, in 1-3 pairs, not extending into the inflorescence; southern border region .. *Z. nudicaulis* (Engelmann) Mansion ●Moist soil of desert washes and seeps, commonly limestone substrates; south-central counties adjacent to the border.
- 1 Corolla lobes mostly 6-15 mm long; anthers 1.5-3.5 mm long when twisted (longer before twisting); corollas generally 5-lobed
- 3 Plants mostly 20-70 cm tall, taller than wide; flowers relatively few and borne erect; plants of moist to wet habitats, widespread ..... *Z. arizonica* (Gray) Mansion ●Wet habitats, along streams, ponds, springs, ditches, bosques, cienegas, moist canyon bottoms; widespread in scattered localities.
- 3 Plants mostly 3-20 cm tall, about as wide as tall; flowers numerous and variously spreading; plants of xeric habitats, southeast region..... *Z. maryanniana* (B.L Turner) Mansion ●Xeric habitats, gypsum soils and outcrops, hills, and ridges, often roadsides; southcentral-southeast region.

**GERANIACEAE GERANIUM FAMILY**

- 1 Leaves palmately veined and palmately lobed or divided, rarely if ever compound with leaflets separated by naked rachis; stylar portion of the fruit remaining attached at the apex of the stylar column and recoiling upwards ..... *Geranium*
- 1 Leaves, at least the larger ones, pinnately veined and pinnately lobed, dissected, or usually compound with the leaflets separated by naked rachis; stylar portion of the fruit becoming free from the column, separating from the top downward and falling free ..... *Erodium*

**Erodium**

- 1 Blades of the leaflets confluent, not truly distinct and compound, merely 3-lobed; beaks of fruits 4-7 cm long. ... *E. texanum* Gray ●Disturbed ground of plains, mesas, and foothills in the southern tier of counties.
- 1 Blades of the leaflets distinct from each other, most or many of them truly compound; beaks of the fruits 2-4 cm long..... *E. cicutarium* (Linnaeus) L'Héretier ex Aiton ●Disturbed ground in the spring, nearly throughout the state, expected in all counties; native to Mediterranean region.



**Geranium**

- 1 Plants annual, rarely biennial
- 2 Fertile stamens 5, 5 filaments lacking anthers; mature fruit segments (beak) 9-11 mm long..... *G. pusillum*  
Linnaeus ●Adventive in moist disturbed ground, vacant lots, garden beds, roadsides, etc.; native to Europe.
- 2 Fertile stamens 10, all filaments with anthers; mature fruit segments (beak) 14-25 mm long. *G. carolinianum*  
Linnaeus ●Open, moist, ruderal sites scattered locales, known from very few collections.
- 1 Plants perennial
- 3 Petals 5-10 mm long; sepals 4-8 mm long
- 4 Nectaries glabrous; style branches 4-5 mm long ..... *G. lentum*  
Wootton & Standley ●Forests of the western mountains, in diverse habitats, including lava beds.
- 4 Nectaries hairy on the dorsal surface; style branches 1-3 mm long ..... *G. wislizeni*  
S. Watson ●Coniferous forests of the southwestern mountains, uncommon and little-collected.
- 3 Petals 10-20 mm long; sepals 7-11
- 5 Petals white, the veins sometimes pink or purple; style branches 2-5 mm long; nectaries dorsally lanate ....  
..... *G. richardsonii*  
Fischer & Trautvetter ●Moist, shady sites in the mountains; nearly throughout the state.
- 5 Petals pink to purplish or shades of lavender, sometimes white; style branches 5-8 mm long; nectaries dorsally glabrous but with a tuft of hair at the top
- 6 Flowers nodding, with strongly reflexed petals; petals 3-4 times longer than wide ... *G. dodecatheoides*  
P.J. Alexander & Aedo ●Pine-oak forests, canyons in the southern mountains; endemic to New Mexico, as yet known only from the White and Capitan mountains of Otero and Lincoln counties.
- 6 Flowers erect to horizontal, with spreading petals; petals 1-2 times longer than wide
- 7 Blades of lower leaves 7-16 cm across and 4 cm or more from sinus to apex; plants 20-100 cm tall  
..... *G. viscosissimum*  
Fischer & C.A. Meyer ●Piñon and ponderosa pine communities, mountain brush; scattered locales in the northern mountains; little collected.
- 7 Blades of lower leaves 2-8 cm across and less than 4 cm from sinus to apex; plants mostly 10-50 cm tall ..... *G. caespitosum*  
James ●Diverse mountain and foothill communities throughout the state.

**GROSSULARIACEAE GOOSEBERRY FAMILY****Ribes**

Key A: Emphasizing flower and fruit features [Adapted from Holmgren 1997].

- 1 Stems armed with nodal spines and/or internodal bristles (*Grossularia*)
- 2 Berries glabrous
- 3 Hypanthium 2-3.5 mm long; pedicels 2-5 mm long ..... *R. inerme*  
Rydberg ●Moist sites at mid- to high elevations, mostly in the northern mountains, but extending sporadically southward.
- 3 Hypanthium 4-5.5 mm long; pedicels about 1 mm long ..... *R. leptanthum*  
Gray ●Widespread in piñon-juniper to coniferous forests, usually at mid-elevations (6,000-8,500 ft), but extending up to 10,000 ft in some cases.
- 2 Berries spiny and/or stipitate-glandular
- 4 Pedicels not jointed; berries armed with stout yellowish spines, sometimes also sparingly stipitate-glandular at the base ..... *R. pinetorum*  
Greene ●Coniferous forests and meadows, commonly above 8000 ft; widespread in the western and southern mountains.
- 4 Pedicels jointed just below the flower, represented by a slight swelling or rim around the pedicel; berries stipitate-glandular but not spiny
- 5 Hypanthium stipitate-glandular, as well as the berry; berries bright red when mature ... *R. montigenum*  
McClatchie ●Open slopes and exposed ridges, mostly in the high, northern mountains, but a few collection southward along the central cordillera.
- 5 Hypanthium glabrous; berries black or dark purple when mature ..... *R. lacustre*  
(Persoon) Poiret ●Moist woods and streambanks, sheltered forests, usually below 8500 ft.
- 1 Plants unarmed (*Ribes*, s.s.)
- 6 Hypanthium shallowly cup- to saucer-shaped, 0.5-2 mm long
- 7 Ovary and berry glabrous ..... *R. inerme*  
Rydberg ●Moist sites at mid- to high elevations, mostly in the northern mountains, but extending sporadically southward.
- 7 Ovary and berry stipitate-glandular
- 8 Flowers pink, arising from last year's growth; flower and fruit clusters lax, drooping; leaves lobed about halfway to the midrib, the lobes pointed (acute); bracts subtending the flowers inconspicuous, less than half as long as the pedicel ..... *R. laxiflorum*  
Pursh ●Subalpine forests of the north-central mountains; known from only a few collections.
- 8 Flowers white, arising from current year's growth; flower and fruit clusters held erect; leaves lobed

only about a third or less to the midrib, the lobes rounded (obtuse); bracts subtending the flowers conspicuous, more than half as long as the pedicel ..... *R. wolfii*  
 Rothrock ●Moist, subalpine forests and meadows in the western and central mountains; one of our more common species of *Ribes*.

- 6 Hypanthium tubular-campanulate to cylindrical, 3-13 mm long
  - 9 Lower surface of leaves with scattered crystalline yellowish dots (sessile glands); berries glabrous.....  
 .....*R. americanum*  
 Miller ●Moist slopes, canyons, meadows, in scattered locales in the mountains of the state.
  - 9 Lower surface of leaves lacking yellowish dots as above, sometimes glandular but these not yellowish and mostly stipitate; berries glabrous to stipitate-glandular
    - 10 Flowers bright yellow at anthesis, sometimes orange or pinkish in age, nearly always glabrous; berries glabrous; leaves mostly 3-lobed, glabrous; anthers without a cup-shaped gland at the apex ....  
 .....*R. aureum*  
 Pursh ●Along ditches, stream banks, and meadows, in the foothills and plains of the central region; commonly cultivated, and some of the records are escapes from gardens or yards.
    - 10 Flowers white to pinkish white or greenish white, pubescent; berries mostly stipitate-glandular (rarely glabrate); leaves 3- to 5-lobed, mostly pubescent or glandular; anthers with a cup-shaped gland at the apex
      - 11 Leaf blades mostly 3-8 cm long or wide; petals 2.5-4 mm long.....*R. viscosissimum*  
 Pursh ●Known from a single collection in Union County.
      - 11 Leaf blades mostly 1-3 cm long or wide; petals 1-2 mm long
        - 12 Berries bright red or orange-red at maturity; sepals about ½ or less the length of the hypanthium; hypanthium at least 3 times longer than wide; petals 1-2 mm long ..*R. cereum*  
 Douglas ●Widespread throughout the state in mountains, plateaus, and plains, low to high elevations.
        - 12 Berries black at maturity; sepals about ½ as long as the hypanthium; hypanthium about 2 times longer than wide; petals about 1 mm long .....*R. mescalerium*  
 Coville ●Forested and open slopes at mid-elevations in the southern mountains, adjacent Texas, and Mexico.

**Key B: Based on vegetative features:** use only as a guide [Adapted from Van Arsdel & Geils 2004].

- 1 Stems armed with nodal spines and/or internodal bristles (*Grossularia*)
  - 2 Stems with only nodal spines; internodal bristles mostly absent or very sparse (the following three species are frequently impossible to distinguish without flowers)
    - 3 Nodal spines mostly 3 .....*R. pinetorum*
    - 3 Nodal spines mostly 1
      - 4 Blades tending to be larger, 1-5 cm wide .....*R. inerme*
      - 4 Blades tending to be smaller, 0.5-2 cm wide .....*R. leptanthum*
  - 2 Stems with both nodal spines and internodal bristles, the bristles usually very conspicuous
    - 5 Nodal spines 1-3 in number; leaves 1-2 cm wide, the blades densely pubescent-glandular ..*R. montigenum*
    - 5 Nodal spines 5-9 in number; leaves 2-4 cm wide, the blades appearing glabrous but with widely spaced stalked glands and the veins and margins pubescent.....*R. lacustre*
- 1 Stems unarmed, lacking spines and bristles (*Ribes*, s.s.)
  - 6 Leaf lobes nearly entire; blades glabrous when mature .....*R. aureum*
  - 6 Leaf lobes mostly toothed; blades mostly pubescent to glandular (*R. inerme* sometimes glabrous)
    - 7 Lower surface of leaves with scattered crystalline yellowish dots (sessile glands).....*R. americanum*
    - 7 Lower surface of leaves lacking yellowish dots as above, sometimes glandular but these not yellowish and mostly stipitate
      - 8 Stems weak, trailing, clambering; leaf lobes noticeably acute in outline.....*R. laxiflorum*
      - 8 Stems erect, stiff, not weak, trailing, nor clambering (sometimes low-growing in *R. wolfii*); leaf lobes mostly obtuse in outline
        - 9 Many leaves deeply lobed halfway or more the distance to the midrib .....*R. inerme*
        - 9 Most leaves more shallowly lobed to about 1/3 the distance to the midrib
          - 10 Most blades 1-3 cm wide .....*R. cereum* and *R. mescalerium*
          - 10 Most blades 3-10 cm wide
            - 11 Leaf veins markedly impressed above and raised beneath.....*R. wolfii*
            - 11 Leaf veins not markedly impressed nor raised.....*R. viscosissimum*

**HALORAGACEAE WATER MILFOIL FAMILY**

- 1 Leaves all entire; flowers mostly perfect, with a single stamen (*Hippuris*) ..... go to PLANTAGINACEAE
  - 1 Leaves pinnatifid to capillary-dissected, at least the submersed ones; flowers mostly unisexual, with more than 1 stamen.....*Myriophyllum*
- Myriophyllum** [Key adapted from Aiken 1981]
- 1 Emergent leaves 2.5-7 cm long, with 16-40 uniform linear divisions, each 4-8 mm long; petiole 5-9 mm long; plants dioecious, only the pistillate white flowers known in North America.....*M. aquaticum*

(Vellozo) Verdcourt ●Scattered localities; native to South America, escaping from aquaria (or sometimes deliberately placed in native waters as a nursery source), and now spreading in the southern states.

- 1 Emergent leaves always less than 2 cm long, entire to pectinate, any divisions less than 4 mm long; petiole absent or less than 2 mm long; plants monoecious, the lower flowers pistillate and usually pink, the upper ones staminate
  - 2 Uppermost flowers alternate; submersed leaves whorled and alternate; stamens 4..... *M. pinnatum* (Walter) Britton, Sterns, & Poggenburg ●Harding County, perhaps also Quay County, but unverified; perhaps adventive here, more common eastward.
  - 2 Uppermost flowers and all submersed leaves whorled; stamens 8
    - 3 Upper bracts pectinate; lower bracts pectinate, usually more than twice as long as the adjacent pistillate flowers..... *M. verticillatum* Linnaeus ●A few collections from Catron and Doña Ana counties.
    - 3 Upper bracts entire; lower bracts entire to pectinate, not more than twice the length of the adjacent pistillate flowers
      - 4 Stem thickened below the inflorescence to almost double the width of the lower stem, typically curved to lie parallel with the water's surface; 2-3 scales at the nodes of the inflorescence; turions not produced..... *M. spicatum* Linnaeus ●Scattered sites around mountain lakes and ponds; native to Europe.
      - 4 Stem not thickened below the inflorescence, straight; 0-2 scales at the nodes of the inflorescence; turions produced late in the season..... *M. sibiricum* Komarov ●Widely dispersed in the western and northern tiers of counties.

### HELIOTROPIACEAE HELIOTROPE FAMILY

Contributed by Robert C. Sivinski

- 1 Plants glabrous, green or glaucous and somewhat succulent; inflorescence naked; fruit usually separating into four 1-seeded nutlets..... *Heliotropium*
  - 1 Plants hairy, never glaucous or succulent; inflorescence irregularly leafy bracteate; nutlets often cohering in pairs..... *Euploca*
- Euploca**
- 1 Plants perennial, rhizomatous, but dying back to ground level each season..... *E. greggii* (Torrey) Halse & Feuillet ●Bajadas and blowouts in desert scrub of the south-central and southeastern regions.
  - 1 Plants annual, not rhizomatous
    - 2 Corolla 10-22 mm across; style elongate, many times longer than the stigma..... *E. convolvulacea* Nuttall ●Widespread in sandy areas and dunes.
    - 2 Corolla 2-5 mm across; style short, about as long as the stigma..... *E. fruticosa* (Linnaeus) J.I.M. Melo & Semir ●Rarely observed in Grant and Hidalgo counties on rocky hills in desert scrub or oak woodland.

#### Heliotropium

*H. curassavicum* Linnaeus ●Widespread, along ponds, river, and playas.

### HYDRANGEACEAE HYDRANGAEA FAMILY

- 1 Stamens more than 20 in number, the filaments terete and subulate; leaf blades generally with 3 primary veins..... *Philadelphus*
- 1 Stamens 10 or fewer in number, the filaments flat and broad; leaf blades with 1-3 primary veins
  - 2 Flowers small, the sepals 1-2 mm long, the petals 2-4 mm long..... *Fendlerella*
  - 2 Flowers larger, the sepals 1.5-9 mm long, the petals 5-21 mm long, sometimes shorter
    - 3 Leaves with a single main vein, mostly more than 8 mm wide; anthers 0.7-1.1 mm long..... *Jamesia*
    - 3 Leaves with 3 main veins, mostly less than 6 mm wide; anthers 2-4 mm long..... *Fendlera*

#### Fendlera

*F. rupicola* Engelmans & Gray ●Widespread on foothills, mountain slopes, and canyons.

#### Fendlerella

*F. utahensis* (S. Watson) Heller ●Limestone outcrops, mostly at lower elevations, mostly in the southern and southwestern mountains and foothills. ♦Our material aligns with var. *cymosa* (Greene ex Wootton & Standley) Kearney & Peebles

#### Jamesia

*J. americana* Torrey & Gray ●Rocky forested and often shaded slopes in the mountains, widespread and common.

#### Philadelphus [Key adapted from Frazier 1995]

- 1 Leaves about the same color on both surfaces; stamens fewer than 20; axillary buds exposed; plants with maple syrup odor..... *P. mearnsii* W.H. Evans ex Rydberg ●Limestone outcrops and soils in the southern foothills and lower mountain canyons.
- 1 Leaves a lighter color below; stamens more than 20; axillary buds enclosed in nodal pouches; plants with no particular odor (other than the flowers)..... *P. microphyllum*

Gray ●Limestone and igneous substrates, oak, pine, juniper woodlands and forests, canyons, open slopes, wooded plains.

**HYDROPHYLLACEAE WATERLEAF FAMILY**

Contributed by Robert C. Sivinski

- 1 Flowers several to many in a cyme
  - 2 Flowers in scorpioid cymes; leaves rarely longer than 15 cm; plants tap-rooted annuals and perennials; leaves and stems without watery juice..... *Phacelia*
  - 2 Flowers in dichotomously branched cymes; larger leaves 15-30 cm long; plants fibrous-rooted perennials from short rhizomes; leaves and stems with watery juice..... *Hydrophyllum*
- 1 Flowers solitary in the leaf axils
  - 3 Inflorescence stipitate-glandular; southern New Mexico..... *Eucrypta*
  - 3 Inflorescence lacking stipitate glands; northern New Mexico ..... *Ellisia*

**Ellisia**

*E. nyctelea* (Linnaeus) Linnaeus ●Moist disturbed ground, gardens, roadsides; barely entering the state in Union County.

**Eucrypta**

*E. micrantha* (Torrey) Heller ●Shaded places in foothills and bajadas among Chihuahuan Desert scrub vegetation; southwestern counties.

**Hydrophyllum**

*H. fendleri* (Gray) Heller ●Meadows, canyons, moist slopes, shaded streamsides in the mountains, from mid-to high elevations; widespread.

**Phacelia**

- 1 Leaves with entire margins, simple or with one or few basal lobes and/or having leaflets that are much smaller than the terminal segment
  - 2 Plants biennial or perennial; flowers whitish, usually summer blooming; ovules 4 ..... *P. heterophylla* Pursh ●Openings in pine and mixed conifer forests of most mountain ranges.
  - 2 Plants ephemeral spring annuals; corolla lobes lavender; ovules more than 4
    - 3 Leaves broadly ovate or orbicular; corolla conspicuous, 6-11 mm long; style 1.5-4 mm long; flowers in short racemes with fruiting pedicels of proximal flowers 1-4 mm long ..... *P. demissa* Gray ●Rare with desert salt scrub on Mancos Shale in San Juan County.
    - 3 Leaves elliptic to oblong; corolla inconspicuous, barely surpassing the calyx, 3-5 mm long; style about 1-1.5 mm long; flowers in dense sessile clusters ..... *P. cephalotes* Gray ●Rare in desert salt scrub on Chinle Shale in McKinley County.
- 1 Leaf margins crenate, serrate, pinnatifid or pinnately divided
  - 4 Ovules more than 4, often numerous; seeds ± numerous, rarely only 4 per fruit
    - 5 Plants perennial from a branching caudex; inflorescence condensed to form what appears to be a single spike; stamens and style strongly exerted from corolla ..... *P. sericea* (Graham) Gray ●Alpine tundra or rocky openings in subalpine forest on the north-central mountain peaks.
    - 5 Plants taprooted annuals; each branch bearing a terminal cyme; stamens and style included in the corolla
      - 6 Inflorescence usually projected above the leafy parts of the plant; fruiting calyx lobes relatively broad and ± spatulate..... *P. affinis* Gray ●Arid slopes and canyons in southwestern counties near the Arizona border.
      - 6 Inflorescence usually among the leafy parts of the plant; fruiting calyx lobes linear to linear-lanceolate ..... *P. ivesiana* Torrey ●Sandy grassland, sagebrush and piñon-juniper woodland in northwestern region.
  - 4 Ovules 4; seeds 1-4 per fruit
    - 7 Seeds not indented or excavated on the ventral surface; corolla limb purple, bluish or pink
      - 8 Calyx densely spreading hispid; corolla about equaling the calyx, pale lavender to pink; stamens and style included..... *P. cryptantha* Greene ●Rocky slopes in arid mountains and canyons in southwestern counties near the Arizona border.
      - 8 Calyx short setose or puberulent; corolla exceeding the calyx, dark violet or blue; stamens and style exerted..... *P. bakeri* (Brand) Macbride ●Talus slopes and gravelly openings in subalpine forest and tundra of the north-central mountains.
    - 7 Seeds indented or conspicuously excavated on one or both sides of a ventral ridge; corolla limb white or various shades of pink, blue, or purple.
      - 9 Plants perennial; pubescence appressed, silvery villous on the leaves, and spreading hirsute in the inflorescence, gland-tipped hairs absent or very sparse; corolla white or pale violet-blue... *P. rupestris* Greene ●Cliffs and rocky slopes in arid mountains of the southern and central regions.
      - 9 Plants taprooted annuals or biennials; pubescence various, but with conspicuous amber or black gland-tipped hairs, at least in the inflorescence; corolla white or variously colored

- 10 Stamens included in corolla or weakly exerted up to 2 mm
- 11 Stems slender, branching freely from the base and above; corolla usually campanulate; seeds less than 3.5 mm long and distinctly corrugated on one or both ventral margins and ventral ridge ..... *P. caerulea*  
Greene ●Rocky slopes in desert scrub of central and southwestern counties.
- 11 Stems stout, usually branching above the base; corolla tubular with lobes barely spreading; seeds more than 3.5 mm long and not distinctly corrugated
- 12 Stamens and style exerted 1-1.7 mm; corolla lobes crenate ..... *P. cloudcroftensis*  
N.D. Atwood ●Rocky limestone slopes and dry canyon bottoms in piñon-juniper woodland up to mixed conifer forest on the west slope of the Sacramento Mountains in Otero County.
- 12 Stamens and style included; corolla lobes denticulate ..... *P. denticulata*  
Osterhout ●Gravelly soil or volcanic cinders with piñon-juniper and oak in the northeastern mountains.
- 10 Stamens conspicuously exerted from the corolla, usually by more than 2 mm
- 13 Corolla small, 4 mm long or less
- 14 Plants procumbent-spreading, diffusely branched from base; petals white with pinkish midvein or pale lavender with darker midvein ..... *P. arizonica*  
Gray ●Desert scrub on rocky slopes and plains in southwestern counties.
- 14 Plants erect, sparingly or diffusely branching from the base; petals white, blue or purplish without a darker midvein
- 15 Cauline leaves simple, margins coarsely serrate or irregularly toothed ..... *P. serrata*  
J. Voss ●Piñon-juniper woodland and pine forest on volcanic cinders in Cibola County.
- 15 Cauline leaves bipinnate or bipinnatifid with many of the primary divisions reaching the rachis
- 16 Corolla whitish or pale purplish; stamens exerted 2-4 mm; mature seeds 2.3-3 mm long ..... *P. alba*  
Rydberg ●Openings in pine and mixed conifer forests of most mountain ranges.
- 16 Corolla darker blue or purple; stamens exerted about 2 mm; mature seeds 3.2-3.3 mm long ..... *P. neomexicana*  
Thurber ex Torrey ●Pine and mixed conifer forests of the central and western mountain ranges.
- 13 Corolla 4 mm or longer
- 17 Plants usually glabrous on lower stems and leaves and pubescent and glandular only in the inflorescence ..... *P. splendens*  
Eastwood ●Salt scrub on Mancos Shale in McKinley and San Juan counties..
- 17 Plants with hairs and/or glands throughout
- 18 Leaf blades bipinnatifid or pinnately lobed with deep clefts to the rachis for half the length or more
- 19 Stems erect or ascending and usually branching from the base; ultimate leaf segments less than 4 mm wide; calyx lobes oval to oblanceolate ..... *P. popei*  
●Silty or clayey low areas in desert scrub and arid grassland mostly in the southeastern region, sporadic in a variety of habitats from south-central to north-central regions of the state.
- 19 Stems erect, simple or diffusely branching; ultimate leaf segments usually more than 5 mm wide; calyx lobes linear ..... *P. congesta*  
Hooker ●Rare in foothills and canyons of southern mountains on gravelly or rocky soil.
- 18 Leaf blades crenate, sinuate or shallowly pinnatifid, any deep clefts reaching the rachis are usually near the base
- 20 Corolla distinctly tubular with small lobes
- 21 Plants biennial; calyx about equal to the capsule; seeds <3 mm long; on gypsum substrates ..... *P. sivinskii*  
Atwood, Knight & Lowrey ●Endemic to outcrops of gypsum in the central and north-central regions.
- 21 Plants usually annual, rarely biennial; calyx 1.5-2 times the capsule length, seeds > 3 mm long; on volcanic soils ..... *P. pinkavae*  
N.D. Atwood ●Juniper savanna up to pine forest on volcanic substrates in the western and north-central mountains.
- 20 Corolla wider, campanulate or tubular-campanulate
- 22 Leaf blades oblong to ovate in outline; seeds with or without corrugations on ventral ridge or margins

- 23 Corolla intensely colored violet-blue; capsule globose; seeds corrugated on ventral margins ..... *P. bombycina*  
Wooton & Standley • Rocky slopes in desert scrub of southwestern counties.
- 23 Corolla lavender, rarely violet or white; capsule ovoid or ellipsoid; seeds with or without corrugations
  - 24 Corolla pale lavender or rarely white, herbage (at least upper stem) with black multicellular capitate glands ..... *P. pinkavae*  
N.D. Atwood • Juniper savanna up to pine forest on volcanic substrates in the western and north-central mountains.
  - 24 Corolla lavender, herbage with amber or brown capitate glands .....  
..... *P. integrifolia*  
Torrey • Nearly state-wide on sandy soil (rarely on sandy gypsum) in piñon-juniper woodland down to low desert.
- 22 Leaf blades narrowly elliptic to narrowly lanceolate in outline; seeds corrugated on one or both ventral margins and/or ventral ridge
  - 25 Corolla violet-blue or purple; anthers yellow ..... *P. crenulata*  
Torrey ex S. Watson • Western two-thirds of the state on a variety of soils at medium elevations.
  - 25 Corolla lavender, anthers greenish blue ..... *P. integrifolia*  
Torrey • Nearly state-wide on sandy soil (rarely on sandy gypsum) in piñon-juniper woodland down to low desert.

**HYPERICACEAE ST. JOHN'S WORT FAMILY**

**Hypericum**

- 1 Petals 2-4 mm long, no longer than the sepals; black glands absent ..... *H. mutilum*  
Linnaeus • Only recently found in marshy ground in the bootheel region.
- 1 Petals 7-12 mm long, longer than the sepals; black glands usually on leaves, sepals, and petals
  - 2 Plants slender, sparingly branched, shortly rhizomatous; flowers few, in axillary clusters; blades broadly elliptic ..... *H. scouleri*  
Hooker • Moist meadows and stream banks in the mountains; widespread.
  - 2 Plants bushy, profusely branched, lacking rhizomes; flowers numerous in flat-topped clusters; blades narrowly oblong ..... *H. perforatum*  
• Disturbed ground in the foothills of the northern mountains; native to Europe and Asia.

**JUGLANDACEAE WALNUT FAMILY**

- 1 Branchlets with solid and homogeneous pith; distal leaflets largest; husk of fruit completely or partially dehiscent (pecan) ..... *Carya*
- 1 Branchlets with chambered pith; leaflets uniform in size or median leaflets largest; husk of fruit indehiscent (walnut) ..... *Juglans*

**Carya**

\**C. illinoiensis* (Wangenheim) K. Koch • Not known in the wild in New Mexico; native to southcentral United States and northern Mexico.

**Juglans**

- 1 Leaflets mostly 9-15 in number; fruits (including husk) large, 2-3.5 cm in diameter ..... *J. major*  
(Torrey) Heller • Riparian areas of foothills, canyons, and mountains.
- 1 Leaflets mostly 17-25 in number; fruits large or small
  - 2 Terminal leaflets smaller than the side ones and often absent; fruits (including husk) large, 4-6 cm in diameter; plants escaped from orchards ..... *J. nigra*  
Linnaeus • Escaped at Bandelier National Monument, and growing in a cottonwood bosque along Rito de los Frijoles; native to the eastern United States.
  - 2 Terminal leaflets nearly as large as the side ones and usually present; fruits (including husk) small, 2-3.5 cm in diameter; plants of natural habitats ..... *J. microcarpa*  
Berlandier • Riparian areas of mesas, foothills, and mountain canyons.

**KOEBERLINIACEAE CRUCIFIXION-THORN FAMILY**

**Koerberlinia**

*K. spinosa* Zuccarini • Dry southern Chihuahuan Desert plains and foothills. ♦ Our plants belong to var. *wivaggii* Holmes, Yip, & Rushing

**KRAMERIACEAE RATANY FAMILY**

**Krameria**

- 1 Stems weak, decumbent, trailing along the ground, completely herbaceous ..... *K. lanceolata*  
Torrey • Plains, mesas, hillsides, foothills, bajadas; widespread in the desert and plains grasslands, absent

from the northwestern regions.

- 1 Stems shrubby, woody
- 2 Sepals reflexed; petaloid petals distinct; fruit spines with unicellular hairs basally and amber-colored recurved barbs to 1 mm near tip..... *K. bicolor*  
S. Watson •Desert scrub vegetation in the south-central region, not common, but present in the state (contrary to Simpson's [2016] suggestion that it is absent).
- 2 Sepals ± cupped inward or around the petals; petaloid petals connate basally; fruit spines with curved multicellular hairs on the basal ½ and retrorse barbs near the tip..... *K. erecta*  
Willdenow •Widespread in the southern deserts.

### LAMIACEAE (LABIATAE) MINT FAMILY

- 1 Plants woody shrubs
- 2 Leaves pinnately lobed or palmately compound; plants commonly cultivated for ornament, with a few known escapes to the wild
- 3 Leaves pinnately or bipinnately veined or lobed; corollas strongly bilabiate, the upper lip 4-lobed..... *Perovskia*
- 3 Leaves palmately compound; corollas weakly bilabiate, the upper lip 2-lobed..... *Vitex*
- 2 Leaves entire to toothed, not deeply lobed or compound; plants cultivated or wild
- 4 Leaves usually broader than linear and often toothed in some fashion..... *Salvia*
- 4 Leaves ± linear and entire
- 5 Cultivated shrubs, not known (to us) in the wild; leaves revolute, green above, white-tomentulose below; calyces whitish, densely canescent with very short hairs..... *Rosmarinus*
- 5 Wild shrubs, not known (to us) in cultivation; leaves generally plane and concolorous; calyces purplish, densely villous with long spreading hairs..... *Poliomnitha*
- 1 Plants herbaceous or woody only at the base, not shrubby
- 6 Stamens 2
- 7 Corolla nearly actinomorphic, regularly 4-lobed, small, up to about 5 mm long..... *Lycopus*
- 7 Corolla zygomorphic, bilabiate, larger, usually at least 8 mm long
- 8 Anther sacs separated by a much elongated connective that is joined to the filament, the upper sac fertile and the lower sac aborted or both fertile..... *Salvia*
- 8 Anthers sacs not separated, lying end to end on a slightly expanded connective, both sacs fertile
- 9 Woody sub-shrubs; twigs and foliage with a felt-like tomentum..... *Poliomnitha*
- 9 Herbs, or if low sub-shrubs then never tomentose
- 10 Calyx ± actinomorphic, the teeth about equal; upper lip of corolla elongate and arching..... *Monarda*
- 10 Calyx bilabiate, the teeth unequal; upper lip of corolla short, straight, not arching..... *Hedeoma*
- 6 Stamens 4
- 11 Corollas weakly zygomorphic or nearly actinomorphic
- 12 Inflorescence a dense terminal head subtended by broad dry bracts..... *Monardella*
- 12 Inflorescence not as above, the flowers in loose clusters or interrupted whorls, sometimes terminal and spike-like, but not a dense head, the subtending bracts hardly noticeable
- 13 Inflorescence of several whorls at the tips of the stems, these sometimes in axils of well-developed leaves; corolla 4-lobed, but one of the lobes tending to be larger and emarginate; plants strongly aromatic..... *Mentha*
- 13 Inflorescence of loose flowers in the axils; corollas 5-lobed, the lobes ± equal; plants hardly aromatic..... *Tetradlea*
- 11 Corollas strongly zygomorphic
- 14 Calyx lacking teeth, the tube bilabiate with entire lips, with a strong dorsal protuberance on the upper lip..... *Scutellaria*
- 14 Calyx toothed in some fashion, the tube bilabiate or not, lacking a dorsal protuberance
- 15 Calyx with 10 subulate lobes, the lobes rigid and hooked at the tip like fish-hooks; herbage white-wooly..... *Marrubium*
- 15 Calyx with 5 lobes, the lobes not hooked; herbage glabrous to variously pubescent
- 16 Blades deeply palmately 3- to 7-cleft or palmately lobed..... *Leonurus*
- 16 Blades not so lobed, but shallowly indented, serrate, crenate, or entire
- 17 Flowers borne on pedicels that themselves sit on peduncles in the axils of the leaves, the inflorescence open and paniculate; stamens long-arched beyond the corolla; leaves and flowers glandular; leaves entire or nearly so..... *Trichostema*
- 17 Flowers and/or leaves other than above
- 18 All or most of the flowers borne in the axils of ordinary foliage leaves
- 19 Leaves linear-lanceolate, entire or weakly toothed; calyx distinctly 2-lipped (*C. arkansum*)..... *Clinopodium*
- 19 Leaves cordate-orbiculate, crenate-toothed; calyx actinomorphic or nearly so
- 20 Corollas lacking stiff white hairs at the mouth on the lower lip; upper lip

- arched-hooded; plants annual from taproots ..... *Lamium*
- 20 Corollas with stiff white hairs at the mouth on the lower lip; upper lip straight; plants perennial from creeping and rooting stems ..... *Glechoma*
- 18 All or most of the flowers borne in distinctive terminal inflorescences (may be terminal on axillary branches) in the axils of floral bracts
  - 21 Corolla appearing unilabiate, the upper and lower lips of the corolla very unequal, the upper short and reduced, the lower long-protruding and much longer than the tube ..... *Teucrium*
  - 21 Corolla manifestly bilabiate, the upper lip obvious
    - 22 Flowers borne singly in the axils of bracts, thus paired at the nodes and forming elongate terminal racemes ..... *Phystostegia*
    - 22 Flowers borne in dense whorls with several at each node
      - 23 Inflorescence a single dense terminal head (*C. vulgare*) ... *Clinopodium*
      - 23 Inflorescence of several or many crowded whorls
        - 24 Stamens (at least 2 of them) markedly exerted beyond the corolla, easily observed ..... *Agastache*
        - 24 Stamens lying within the upper lip of the corolla and scarcely or not at all exerted
          - 25 Leaves entire or obscurely toothed
            - 26 Leaves sessile or nearly so, villous; stems erect; calyx actinomorphic (*S. rothrockii*) ..... *Stachys*
            - 26 Leaves, at least the lower, manifestly petiolate, hirsute to glabrous; stems erect to prostrate; calyx bilabiate ..... *Prunella*
          - 25 Leaves obviously toothed
            - 27 Calyx 5- to 10-nerved ..... *Stachys*
            - 27 Calyx 15-nerved
              - 28 Bracts and leaves subtending the flowers markedly spinose-toothed ..... *Dracocephalum*
              - 28 Bracts and leaves subtending the flowers entire or toothed but not at all spinose ..... *Nepeta*

**Agastache**

- 1 Calyx tube 1.5-3 mm long; upper calyx teeth about 1.5 times or more longer than the lower teeth; corolla tube (under normal growing conditions) 5 mm or less long
  - 2 Corollas white or sometimes pale violet, the tube 2.5-3.5 mm long; leaf blades mostly 2.5-3 times longer than wide; middle and upper inflorescence internodes about the same length as the calyces; upper calyx teeth mostly 2-2.5 times longer than wide, only margins or upper 1/2 lacking chlorophyll ..... *A. micrantha* (Gray) Wooton & Standley ●Southwestern and south-central mountains and foothills in grama grasslands to pine-juniper woodlands, with a few populations on the eastern slopes of the northern mountains.
  - 2 Corollas pale violet to pale blue, the tube 3.5-5 mm long; leaf blades mostly 1.5-2 times longer than wide; middle and upper inflorescence internodes mostly 2-4 times longer than calyces; upper calyx teeth mostly 3-5 times longer than wide, the upper 2/3 lacking chlorophyll ..... *A. wrightii* (Greenman) Wooton & Standley ●Rocky slopes, canyon bottoms, pine-oak woodlands of the southwestern foothills and lower mountain slopes.
- 1 Calyx tube 3-10 mm long; upper calyx teeth about equal to or shorter than the lower teeth; corolla tube (under normal growing conditions) 6-30 mm long
  - 3 Corollas more than 20 mm long, more than twice as long as the calyx; peduncles well-developed in the distal 2/3 of the inflorescence, in addition to the pedicels; stems semi-woody with exfoliating bark at the base
    - 4 Upper leaf blades lanceolate-elliptic-ovate, 8-14 mm long, 2-3 times longer than wide, the margins mostly entire, with dense minute hairs on the lower surfaces ..... *A. cana* (Hooker) Wooton & Standley ●Rocky canyons, cliffs, among boulders in the southern foothills and mountains, desert scrub to lower juniper zones.
    - 4 Upper leaf blades linear-lanceolate, 20-50 mm long, 6-15 times longer than wide, the margins entire to toothed, with matted curled hairs on the lower surfaces ..... *A. rupestris* (Greene) Standley ●Rocky foothills and among boulders, upper grasslands and woodlands to lower ponderosa zones in the southwestern mountains.
  - 3 Corollas not more than 20 mm long, usually not more than twice as long as the calyx; peduncles absent in the distal 2/3 of the inflorescence, sometimes weakly developed in the lowermost whorls, the pedicels developed; stems herbaceous, lacking exfoliating bark
    - 5 Calyx tube 0.5-1.5 mm (sometimes to 2 mm when pressed) diam at mouth during anthesis, in fruit the base swelling to larger diam than the mouth; secondary veins of the calyx teeth about or almost equaling the primary veins in thickness and usually indistinct from the marginal cartilage
    - 6 Inflorescence typically interrupted; leaf blades (middle and distal ones) triangular-lanceolate, 1.5-2.5 times longer than wide; calyx tube usually arching, the veins bowed or curved; upper calyx teeth 3-6



times longer than wide, the secondary veins fusing with primary veins; Organ Mts ..... *A. pringlei* (Briquet) Lint & Epling ●Endemic to the state, and known only from pine-oak vegetation in the Organ Mountains, Doña Ana County. ♦Our plants belong to var. +*verticillata* (Wooton & Standley) R. Sanders

6 Inflorescence typically continuous or the longer ones interrupted in the lower ½; leaf blades all delatate-ovate to broadly ovate, 1-1.6 times longer than wide; calyx tube rigidly straight, the veins straight; upper calyx teeth 1.5-3.5 times longer than wide, the secondary veins ending free; bootheel region ..... *A. breviflora* (Gray) Epling ●Mountain riparian areas and moist slopes, pine-oak vegetation in the mountains of the bootheel.

5 Calyx tube 2-4 mm diam at mouth during anthesis (occasionally less than 2 mm in *A. pallidiflora* var. *hvardii*), in fruit the base not swelling to larger diam than the mouth; secondary veins of the calyx teeth no greater than ½ the thickness of the primary veins and easily distinguished from the marginal cartilage

7 Calyx obconic, the veins straight and prominent, giving the calyx a plicate appearance; upper calyx teeth 3-6 times longer than wide, the apices stiffly aristate; bootheel ..... *A. mearnsii* Wooton & Standley ●Pine-oak woodlands of the southwestern mountains, known only from Hidalgo County from only one or two collections gathered after the publication of Sanders (1987) work, who did not record it from New Mexico; southward in Mexico.

7 Calyx campanulate, the veins flexuous, not giving the calyx a plicate appearance; upper calyx teeth usually less than 3.5 times longer than wide, if more then noticeably falcate, the apices not aristate; widespread ..... *A. pallidiflora* (Heller) Rydberg ●Widespread throughout the western and central mountains and plains of the state.

### Clinopodium

1 Flowers nearly sessile in dense clusters in the leaf axils, the calyces densely spreading-hispid ..... *C. vulgare* (Linnaeus) Fritsch ●Riparian areas and canyon bottoms; scattered locales in the mountains.

1 Flowers pedicellate in very loose clusters in the leaf axils, the calyces glabrous or obscurely puberulent ..... *C. arkansanum* (Nuttall) Briquet ●Springs and seeps in the Sacramento Mountains, Otero County; disjunct from central Texas and eastward.

### Dracocephalum

*D. parviflorum* Nuttall ●Widespread in most of the state on moist foothills and mountain slopes, often somewhat disturbed ground.

### Glechoma

\**G. hederacea* Linnaeus ●Moist woods and various disturbed sites; native of Eurasia; not yet known from the state, but to be expected in the northern counties.

### Hedeoma

1 Leaves noticeably and obviously toothed

2 Basal leaves glabrous, entire or nearly so; cauline leaves inconspicuously toothed ..... *H. oblongifolia* (Gray) Heller ●Widespread in the western and central foothills and mountains, pine-oak-juniper woodlands and scrublands.

2 Basal leaves pubescent, toothed; cauline leaves evidently toothed

3 Leaf blades noticeably plicate because of prominently elevated straight and unbranched veins on the lower surface ..... *H. plicata* Torrey ●Juniper-pine-oak vegetation of the southern desert hills and low mountains.

3 Leaf blades not plicate, the veins not noticeably elevated and usually curved and branched

4 Corollas 10-20 cm long; plants with hirsute-villous hairs; leaves less than 2 times longer than wide ..... *H. costata* Gray ●Rocky limestone hills near Kingston and in the southern and southeastern mountains. ♦Our plants belong to var. *pulchella* (Greene) Irving

4 Corollas 8-9 mm long; plants with puberulent or hirtellous hairs; leaves at least twice as long as wide ..... *H. dentata* Torrey ●Juniper-oak vegetation of the southwestern and south-central desert hills and lower slopes of adjacent mountains.

1 Leaves entire or only scarcely toothed

5 Calyx teeth convergent at maturity, closing the orifice or nearly so, the tube narrowing from base to apex

6 Plants annuals or herbaceous perennials, rarely somewhat woody at the base, smelling like peppermint; leaves 3-5 times longer than wide; calyx weakly hirsute; widespread ..... *H. drummondii*

6 Plants semi-woody at the base, smelling like camphor; leaves gray or dark green, mostly less than 3 times longer than wide; calyx coarsely hirsute to villous; southeastern (var. *serpyllifolium*) ..... *H. reverchonii* Gray ●In New Mexico known only from the Guadalupe Mountains region, with a possible outlier from the plains just west of the Gallinas Mountains in Torrance County (det. R. Irving), common eastward and southward in Oklahoma and Texas. ♦Our plants belong to var. *serpyllifolia* (Small) Irving

5 Calyx teeth not convergent at maturity, at least the upper ones spreading to reflexed, the tube ± equal diameter from base to apex

- 7 Plants tufted and often forming dense mats or mounds, 4-15(30) cm tall; flowers solitary or in clusters of 2-3 in the upper leaf axils, 2-3 cm long; corollas yellowish, orange-red, to pink
- 8 Leaves obtuse or acute at the apex; corolla about 3 cm long, orange-red, rarely yellowish; anthers exerted ..... *H. todsenii*  
Irving ●Known only from dry limestone foothills of the southern mountains.
- 8 Leaves apiculate at the apex; corolla about 2 cm long, pink or lavender; anthers included . *H. apiculata*  
Stewart ●Endemic to the Guadalupe Mountains, New Mexico and Texas, on steep limestone walls and crevices.
- 7 Plants looser, not forming mats or mounds, of various heights; flowers usually in clusters of 3 or more in the axils, less than 2 cm long; corollas bluish, purplish, to pinkish
- 9 Leaves linear to narrowly elliptic, mostly 1-2.5 mm wide, the lateral veins straight and ± parallel to each other ..... *H. hyssopifolia*  
Gray ●Uncommon in the southwestern mountains on rocky slopes and canyons; most collections from Catron, Grant, and Hidalgo counties, with a few outliers northward and eastward; reports from Socorro County now belong in Catron County; also Mexico.
- 9 Leaves ovate, broadly elliptic, to rhomboidal, mostly 3-10 mm wide, the lateral veins not straight nor ± parallel to each other
- 10 Corolla 6-9 mm long; calyx tube notably saccate at the base at maturity, the pouch forming about ½ or more the length of the tube, the tube about 3 times longer than wide ..... *H. nana*  
(Torrey) Briquet ●Widespread on dry, rocky, slopes of foothills, bluffs, ridges, and lower mountain slopes.
- 10 Corolla 10-16 mm long; calyx tube only moderately saccate, the pouch usually less than ½ the length of the tube, the tube 4-5 times longer than wide
- 11 Leaf blades acute at the apex, ± apiculate, many with slightly crenulate margins; corollas pinkish ..... *H. oblongifolia*  
(Gray) Heller ●Widespread in the western and central foothills and mountains, pine-oak-juniper woodlands and scrublands.
- 11 Leaf blades rounded to obtuse at the apex, entire; corollas bluish-purplish ..... *H. pulcherrima*  
Wootton & Standley ●Endemic to coniferous forests and woodlands in the Capitan, Sacramento, and White Mountains of southern New Mexico.

**Lamium**

- 1 Floral leaves sessile, clasping, green, usually wider than long; corolla tube glabrous inside ..... *L. amplexicaule*  
Linnaeus ●Moist disturbed ground and waste places, lawns and gardens; scattered locales throughout the state; native to Eurasia and north Africa.
- 1 Floral leaves petiolate, purplish-tinged, usually longer than wide; corolla tube puberulent inside below the filaments ..... *L. purpureum*  
Linnaeus ●Moist weedy ground, gardens; known from a single collection in Taos County but expected elsewhere; native to Eurasia.

**Leonurus**

- \**L. cardiaca* Linnaeus ●Disturbed sites, riparian areas, canyon bottoms, and meadows, mostly in the western mountains, expected elsewhere; native to Eurasia.

**Lycopus**

- 1 Leaves tapering to petioles, the margins deeply toothed to pinnatifid ..... *L. americanus*  
Muhlenberg ex W. Barton ●Moist ground along ponds, marshes, rivers, riparian areas; scattered throughout the state.
- 1 Leaves sessile or nearly so, the margins serrate ..... *L. asper*  
Greene ●Marshy areas and wet ground; mostly Rio Grande and San Juan river drainages.

**Marrubium**

- \**M. vulgare* Linnaeus ●Widespread and common in disturbed ground, waste areas, roadsides, parking lots, cattle pens, etc; expected in all counties; native to Eurasia.

**Mentha** [Key adapted from Poland & Clement 2009; Tucker 2018]

- 1 Flowers in axillary, interrupted whorls subtended by ordinary foliage leaves
- 2 Leaves gradually reduced distally in size, the blades generally lanceolate to lance-ovate; plants native ..... *M. canadensis*  
Linnaeus ●Widespread throughout the state in moist to wet soils of marshes, cienegas, ponds, riparian areas, wet meadows, springs, and other similar habitats.
- 2 All leaves ± equal in size, the blades generally ovate to orbicular; plants exotic, often cultivated and escaping to weedy sites around dwellings or residences ..... *M. arvensis*  
Linnaeus ●Not definitely known in the wild, but there are a few old collections that might be this, but it is unclear whether they were taken from the wild or from gardens or residences; native to Europe.
- 1 Flowers in terminal spikes, any subtending leaves distinctly different; plants exotic, often cultivated and escaping in weedy sites
- 3 Petioles 4-15 mm long
- 4 Plants often purplish, of wet to aquatic habitats; rhizomes often emerging as stolons; leaf blades generally

ovate, with 5-15 teeth per side; inflorescence leafy, condensed and head-like ..... *M. aquatica*  
 Linnaeus •Not known in the wild in New Mexico; grown in gardens; native to Europe.

4 Plants not purplish, of moist to wet habitats; rhizomes not emerging as stolons; leaf blades generally lanceolate to ovate, with 11-25 teeth per side; inflorescence not leafy, ± drawn-out and spike-like .....  
 ..... *M. ×piperita*  
 Linnaeus •Moist places, fields, canyon bottoms, gardens; native to Europe.

3 Petioles 0-3 mm long

5 Leaf blades rugose-crinkled

6 Blades lanceolate to oblong, glabrous to hairy abaxially, generally not tomentose ..... *M. spicata*  
 Linnaeus •Adventive in moist ground of stream banks, ponds, ditch banks, and water courses; native to Europe; scattered about the state, but less common than *Mentha canadensis*.

6 Blades ovate to orbicular, tomentose abaxially ..... *M. suaveolens*  
 Ehrhart •Not known from the state, but grown in gardens; native to southern Europe.

5 Leaf blades not rugose-crinkled

7 Blades broadly oblong to ovate or orbiculate ..... *M. ×rotundifolia*  
 (Linnaeus) Hudson •Disturbed wet sites from a few collections, also grown in gardens; native to Europe.

7 Blades lanceolate to lance-oblong

8 Leaf blades widest near the base, commonly deeply serrate with acuminate teeth, with 6-12 teeth per side; plants generally spearmint-scented ..... *M. spicata*  
 Linnaeus •Adventive in moist ground of stream banks, ponds, ditch banks, and water courses; native to Europe; scattered about the state, but less common than *Mentha canadensis*.

8 Leaf blades widest near the middle, mostly serrate but not deeply so, with 10-20 teeth per side; plants generally musty-scented ..... *M. longifolia*  
 (Linnaeus) Linnaeus •Not known from the state, but sometimes found in gardens; native to Eurasia.

### Monarda

1 Flower clusters terminal and solitary; plants rhizomatous, perennial ..... *M. fistulosa*  
 Linnaeus •Mountain meadows, glades, shaded slopes, stream courses, canyon bottoms; nearly throughout the state in mountain and foothill areas. ♦Our plants belong to var. *mentifolia* (Graham) Fernald

1 Flower clusters several in the axils of the upper leaves; plants annual or perennial

2 Calyx lobes aristate ..... *M. citriodora*  
 Cervantes ex Lagasca •Diverse habitats of plains, grasslands, foothills, and mountain slopes; roadsides, pine-oak-juniper woodlands, ponderosa forests, semi-desert scrub; throughout the state.

2 Calyx lobes acute (sometimes acuminate)

3 Upper lip of corolla white, yellow, or pink, often with maroon spots, lower lip white, yellow, or pink with or without maroon spots and a margin the same color as the corolla background; leaves 4-7 cm long .....  
 ..... *M. punctata*  
 Linnaeus •Mesas, foothills, canyons, meadows of the western mountainous regions, with scattered records elsewhere. ♦Our material belongs to var. *occidentalis* (Epling) Palmer & Steyermark

3 Upper lip of corolla lavender to purple, unspotted, lower lip white with irregular purple spots and a nearly continuous purple margin; leaves 2-4(5) cm long ..... *M. humilis*  
 (Torrey) Prather & Keith •Endemic to sandy soil of juniper scrub vegetation and grassy plains and dunes of central-western New Mexico.

### Monardella

*M. odoratissima* Bentham •Open slopes, clearings, and roadsides among pines in the western mountains.

♦Our plants belong to var. *glauca* (Greene) H. St. John

### Nepeta

\**N. cataria* Linnaeus •Adventive in moist, shaded places, around dwellings, old gardens, along stream banks; scattered locales in the state; native to Eurasia.

### Perovskia

\**P. atriplicifolia* Bentham •Commonly cultivated nearly throughout the state; known in the wild from a few occurrences in southern desert regions; native to Asia.

### Physostegia

*P. virginiana* (Linnaeus) Bentham •Canyon bottoms and moist drainages on limestone in the Guadalupe Mountains, Eddy County; also a few records from around old gardens. ♦Our wild plants belong to var. *arenaria* Shimek

### Poliomintha

*P. incana* (Torrey) Gray •Gypsum sands and plains in the south, and sandy dunes and breaks in the Four Corners region.

### Prunella

1 Stems and lower leaf surfaces densely hispid-pilose; leaves ovate to ovate-lanceolate, 1-1.5 times longer than wide; upper lip of the corolla hispid on the back ..... *P. hispida*  
 Bentham •Weedy ground, lawns, on the eastern plains; known from a single gathering in Quay County, also

Texas; native to Eurasia.

- 1 Stems and lower leaf surfaces glabrous or sparsely pilose; leaves lanceolate, 1.5-3 times longer than wide; upper lip of the corolla glabrous or nearly so on the back ..... *P. vulgaris* Linnaeus ●Very widespread in meadows, shady slopes, stream banks, aspen glades, and other moist sites in pine and mixed conifer forests in the mountains. ♦Our plants belong to var. *lanceolata* (W. Barton) Hultén

**Rosmarinus**

\**R. officinalis* Linnaeus ●A popular ornamental shrub throughout the state; not yet known in the wild in the state, but escaped plants are known in the Franklin Mountains of adjacent El Paso, Texas; native to the Mediterranean region.

**Salvia**

- 1 Leaves, at least the lower ones, incised-pinnatifid to lobed to compound
  - 2 Flowers bluish, in dense widely-interrupted whorls at the summit of leafless scapes; plants annual ..... *S. columbariae* Bentham ●Desert hills of Grant County; known from only a few collections; this is the easternmost limit of its wide distribution westward.
  - 2 Flowers red, pinkish, to purplish, in pairs or few-flowered clusters in the axils of the upper leaves or bracts; plants perennial
    - 3 Corollas red or crimson; lower lip of the corolla shorter than the upper lip, corolla tube abruptly expanded just above the calyx ..... *S. henryi* Gray ●Desert hills and dry mountain slopes and canyons, generally below 6500 ft, preferring limestone; more common southward, but with scattered occurrences northward.
    - 3 Corollas pink to purplish with blue dots; lower lip of the corolla much longer than the upper lip; corolla tube gradually expanded from the base to its mouth ..... *S. summa* A. Nelson ●Shaded limestone cliffs, crevices, ledges, and outcrops in the southern desert mountains.
- 1 Leaves entire to toothed, but not pinnatifid, lobed, or compound
  - 4 Plants annual herbs, from taproots
    - 5 Calyx and upper flowering stems with slender stalked glands; leaves coarsely toothed to shallowly incised ..... *S. subincisa* Bentham ●Widespread on gravelly to sandy ground of mesas, bluffs, foothills, rocky canyons, and lower slopes of the mountains.
    - 5 Calyx and upper flowering stems with short appressed hairs, the calyx with sessile punctate glands; leaves entire to few-toothed ..... *S. reflexa* Hornemann ●Throughout the state on plains and prairies, mesa land, wooded hills, and forested slopes.
  - 4 Plants perennial herbs, from taproots, branched caudices, or fibrous-rooted, or woody shrubs
    - 6 Flowers generally reddish to scarlet or somewhat orangish
      - 7 Leaf blades entire to minutely crenulate, elliptic to obovate, glabrous ..... *S. greggii* Gray ●Commonly cultivated ornamental; not known in New Mexico in the wild, but potentially escaping from cultivation; native to Texas, Mexico.
      - 7 Leaf blades evidently toothed, triangular-ovate, glabrous to puberulent
        - 8 Well-developed shrubs, usually woody in the upper portions; leaf blades mostly about as wide as long, the surface glands reddish to dark orange; hairs on corolla hood white ..... *S. vinacea*
        - 8 Half-shrubs, woody only in the lower portions; leaf blades mostly 1.5-3 times longer than wide, the surface glands yellow, light golden, or clear; hairs on corolla hood red ..... *S. lemmonii* Gray ●Known only from a few sites in the Hatchet Mountains, Hidalgo County, in piñon-oak communities; also in southern Arizona, Mexico.
    - 6 Flowers generally bluish to purplish, sometimes whitish
      - 9 Plants well-developed woody shrubs
        - 10 Leaves oblong to elliptic, entire or the upper ones obscurely dentate; flowers in slender open racemes ..... *S. lycioides* Gray ●Foothills and lower mountain slopes and canyons in the southern mountains, often on limestone with mountain brush; also Texas, Mexico.
        - 10 Leaves ovate to deltoid-ovate, obviously crenate; flowers in dense racemes
          - 11 Leaf blades strongly bicolorous, greenish above, densely whitish canescent below, the whitish hairs obscuring the dark glands; calyx limb green to bluish; flowers blue to lavender ..... *S. pinguiifolia* (Fernald) Wooton & Standley ●Rocky foothills and canyon in the southern desert mountains; also Arizona, Texas, Mexico.
          - 11 Leaf blades not or only obscurely bicolorous, glabrous to finely pubescent, the glands not at all obscured, but evident and giving the lower surface a rusty or reddish appearance; calyx limb wine-colored; flowers dark pinkish to purplish ..... *S. vinacea* Wooton & Standley ●Rocky bajadas, foothills, canyon, and lower mountain slopes in the southern half of the state; also Arizona, Texas, Mexico.
    - 9 Plants herbaceous, or half-shrubs semi-woody only at the base
      - 12 Herbage densely clothed with bristly hairs; floral bracts equal to or exceeding the calyx. *S. texana*

- (Scheele) Torrey ●Known in New Mexico only from a few collections in Carlsbad National Park, Eddy County; common eastward in central Texas, also northern Mexico.
- 12 Herbage lacking bristly hairs; floral bracts rarely as long as the calyx
- 13 Leaves linear to narrowly oblong; upper lip of corolla  $\frac{1}{2}$  or less the length of the lower lip
- 14 Calyx  $\pm$  actinomorphic, scarcely or equally cleft, densely tomentulose on the exterior, the teeth minute; lower stems lacking stipular lines circling the node ..... *S. farinacea*  
Bentham ●Limestone soils of grasslands, plains, and foothills surrounding the southeastern and southcentral mountains; also Texas.
- 14 Calyx bilabiate and unequally cleft, sparingly hairy to glabrous on the exterior, the teeth or lips conspicuous; lower stems with conspicuous stipular lines circling the node .....  
..... *S. azurea*  
Michaux ex Vahl ●Roadsides, widely scattered locales; native to the lower Central Great Plains, eastward to the Atlantic. ♦Our adventive plants belong to var. *grandiflora*  
Bentham
- 13 Leaves broader, oblong, elliptic, to ovate; upper lip of corolla about the same length as the lower lip
- 15 Leaves chiefly basal, the blades 6-18 cm long, to 7 cm wide ..... *S. pratensis*  
Linnaeus ●Adventive at a few locales in the Jemez Mountains; native to Europe.
- 15 Leaves basal and cauline, the blades 3-5 cm long, to 3 cm wide
- 16 Leaf blades glabrous, deciduous ..... *S. arizonica*  
Gray ●Not known in the wild in New Mexico, but to be looked for in the far southwestern mountains along the border, or in the Guadalupe Mountains in the southeast, on rocky forested slopes, among boulders and in canyons; Arizona, Texas.
- 16 Leaf blades finely canescent-pubescent, evergreen ..... *S. officinalis*  
Linnaeus ●Not known in the wild in New Mexico, but commonly grown in herb gardens; native to Europe.

### Scutellaria

- 1 Plants well-developed small shrubs, woody well above the base, intricately branched, the branches stiffly divaricate, whitish; calyces inflated-bladdery in fruit ..... *S. mexicana*  
(Torrey) Paton ●Not known to occur in the wild in New Mexico; plants are occasionally cultivated and may escape; known from west Texas, Arizona, California, Mexico.
- 1 Plants herbaceous throughout or woody only at the base, the branches generally ascending from the base or little-branched, not as above; calyces not at all inflated or bladdery
- 2 Plants rhizomatous, not forming rounded-bushy clumps, 10-100 cm tall or more, the stems single or few together; leaves bright green, the blades commonly 2-6 cm or more long; flowers 2.5-3 cm long
- 3 Leaves strongly petiolate, most of the petioles 5-30 mm long; leaf blades coarsely serrate, many of them 2 cm or more wide; flowers borne in terminal or axillary racemes ..... *S. lateriflora*  
Linnaeus ●Attributed to New Mexico from a single report (Great Plains Flora Assoc. 1977) from the plains of Mora County.
- 3 Leaves sessile or short-petiolate, the petioles 0-5 mm long; leaf blades weakly serrate to nearly entire, rarely as much as 2 cm wide; flowers borne singly (paired at the node) in the leaf axils
- 4 Flowers 1.5-2 cm long; leaves usually obscurely to definitely serrate-crenate, commonly plane, clearly net-veined; stems commonly branched in the upper portions; plants of wet meadows, streambanks, riparian areas ..... *S. epilobiifolia*  
Hamilton ●Wet soil of riparian areas, marshy ground, and floodplains; uncommon in the northern tier of counties.
- 4 Flowers 2-3 cm long; leaves usually entire or nearly so, often loosely revolute, obscurely net-veined; stems commonly unbranched in the upper portions; plants of dry forest clearings and adjacent plains .....  
..... *S. brittonii*  
Porter ●Little known by a few collections from dry forest clearings and slopes at mid-elevations in the northern mountains.
- 2 Plants lacking rhizomes, from taproots or woody crowns, commonly forming low rounded-bushy clumps 10-40 cm tall, the stems usually many together from the base of the plant; leaves gray-yellow-green, the blades commonly 0.5-2 cm long; flowers 1-2 cm long
- 5 Plants annual from a taproot; herbage villous with gland-tipped hairs 0.6-1 mm or more long; nutlets covered with laterally flattened overlapping tubercles (like shingles on a roof) ..... *S. drummondii*  
Bentham ●Lower mountain slopes, grassy plains, alkaline flats, and canyon bottoms; southeastern quarter of the state. ♦Our plants belong to var. *edwardsiana* B.L. Turner
- 5 Plants perennial from a woody branched crown (sometimes flowering 1<sup>st</sup> season and appearing annual); herbage puberulent with hairs 0.2-0.6 mm long, lacking glandular hairs, or if glandular hairs present, these mixed in  $\pm$  equal proportions with shorter, appressed, curved, or spreading eglandular hairs about  $\frac{1}{2}$  the length of the longer glandular hairs; nutlets covered with vertically flattened/rounded tubercles (like tightly packed dinner rolls in a baking pan) ..... *S. potosina*

Brandegee ●Rocky drainages, arroyos, dry canyons of lower mountains slopes; scattered locales in the southern tier of counties.

**Stachys**

- 1 Corolla bright red, conspicuously longer than the calyx; leaves long-petiolate..... *S. coccinea*  
 Jacquin ●Rocky canyons, cliff bases, around large boulders in drainages and arroyos; southwestern desert mountains.
- 1 Corolla pink or purplish, only slightly exceeding the calyx; leaves sessile or the petioles less than 5 mm long  
 2 Plants woolly with soft hairs; stems not more than 20 cm tall; leaves obtuse at the apex..... *S. rothrockii*  
 Gray ●Lake edges, meadows, creek sides, and riparian areas in the foothills and lower mountains; western and southern mountains, northern intermountain valleys.
- 2 Plants hirsute with stiff hairs; stems much more than 20 cm tall; leaves acute at the apex..... *S. pilosa*  
 Nuttall ●Wet meadows and marshy ground in the mountains and adjacent high plains; widespread.

**Tetradlea**

*T. coulteri* Gray ●Plains, bajadas, foothills, lower mountain slopes, roadsides, outcrops, in the southern half of the state.

**Teucrium**

- 1 Leaves serrate but not lobed; calyx 5-toothed..... *T. canadense*  
 Linnaeus ●Marshy places, flood plains, and bosques, known from a few scattered locales across the state.
- 1 Leaves strongly lobed; calyx deeply 5-lobed  
 2 Corollas 14-22 mm long, seldom less, the largest lobes 9-13 mm long; plants seldom more than 15 cm tall, always perennial with a below ground caudex; leaves 15-55 mm long..... *T. laciniatum*  
 Torrey ●Plains and foothills, meadows, wooded slopes, desert grassland, roadsides; widespread in the eastern 2/3 of the state.
- 2 Corollas 6-15 mm long, the largest lobes 5-8 mm long; plants often 30 cm or more tall, if less (commonly ours), then definitely annual from a taproot; leaves 5-15 mm long..... *T. cubense*  
 Jacquin ●Desert or semi-desert plains and flats, weedy sites; southern and southeastern regions. ♦Our plants belong to var. *densum* Jepson

**Trichostema**

*T. arizonicum* Gray ●Desert canyons and foothills, in the southwestern counties; reports from Eddy, San Juan, and Taos counties are in error.

**Vitex**

\**Vitex agnus-castus* Linnaeus ●Escaped from cultivation in a few scattered locales across the state; native to southern Europe and Asia.

**LENTIBULARIACEAE BLADDERWORT FAMILY**

**Utricularia**

*U. vulgaris* Linnaeus ●Ponds, lakes, slow-moving streams, and other aquatic sites; northwestern half of the state. ♦Our material belongs to subsp. *macrorrhiza* (LeConte ex Torrey) R.T. Clausen

**LINACEAE FLAX FAMILY**

**Linum** [Key adapted from Rogers 1984]

- 1 Flowers blue, occasionally white  
 2 Stigmas linear to clavate-shaped; margins of inner sepals minutely ciliate..... *L. usitatissimum*  
 Linnaeus ●An escape from cultivation in waste ground, uncommon in a few locales; native to Eurasia.
- 2 Stigmas capitate; margins of inner sepals entire, not ciliate  
 3 Plants perennial; styles 4 mm long or more; mountains..... *L. lewisii*  
 Pursh ●Common and widespread in a variety of well-drained habitats and elevations; expected in all counties.
- 3 Plants annual; styles mostly 3 mm long or less; plains..... *L. pratense*  
 (Norton) Small ●Eastern plains and meadows.
- 1 Flowers yellow to orange  
 4 Styles separate  
 5 Plants annual or biennial; stipular glands absent..... *L. neomexicanum*  
 Greene ●Wooded slopes in the central and southwestern mountains.
- 5 Plants perennial; stipular glands present at the base of most or all the leaves  
 6 Lower leaves whorled; petals 3-6 mm long..... *L. schiedeanum*  
 Schlechtendal & Chamisso ●Southeastern foothills and rocky slopes.
- 6 Lower leaves opposite or alternate; petals 7-11 mm long..... *L. rupestre*  
 (Gray) Engelm ex Gray ●Rocky calcareous slopes in the southeastern mountains.
- 4 Styles clearly united  
 7 Sepals entire (sometimes fringed in age), not glandular-toothed..... *L. hudsonioides*  
 Planchon ●Eastern plains; known from only a few collections.
- 7 Sepals glandular-toothed  
 8 Plants long-lived perennials with woody branching bases and thick lateral roots..... *L. allredii*

- Sivinski & Howard ●Arid gypsum Yeso Hills in the southeastern region; also known across the border in Texas.
- 8 Plants annual or short-lived taprooted perennials
- 9 Plants markedly grayish puberulent throughout ..... *L. puberulum*  
(Engelmann) Heller ●Dry open places, sandy to rocky ground, throughout the state, expected in every county.
- 9 Plants glabrous or nearly so throughout
- 10 False hyaline septa of the capsules incomplete, the inner margins fringed; sepals tending to persist on mature fruits
- 11 Plants annual; stipular glands usually present; foliage green; petals yellow-orange or salmon, reddish below the middle ..... *L. vernale*  
Wootton ●Dry plains and foothills in the southern region.
- 11 Plants usually perennial, rarely annual; stipular glands absent; foliage glaucous; petals lemon yellow, rarely with pale red streaks ..... *L. subteres*  
(Trelease) Winkler ●Dry rocky slopes in northwestern region.
- 10 False hyaline septa of the capsules complete, the inner margins not fringed; sepals tending to fall from mature fruits
- 12 Stipular glands absent
- 13 Styles 3-4 mm long; petals 6-11 mm long ..... *L. compactum*  
A. Nelson ●Grasslands and prairies, eastern plains.
- 13 Styles 6-11 mm long; petals 10-18 mm long ..... *L. rigidum*  
Pursh ●Eastern plains.
- 12 Stipular glands usually present, at least on the lower leaves
- 14 Styles 2-4 mm long; petals 5-10 mm long ..... *L. australe*  
Heller ●Dry open plains, foothills, and woodlands, widespread.
- 14 Styles 4-9 mm long; petals (8)10-19 mm long
- 15 Sepals narrowly lanceolate, acuminate-aristate, the very narrow terminal portion nearly as long as the broader basal portion; plants usually much-branched from the base .....  
..... *L. aristatum*  
Engelmann ●Widespread throughout the state, sandy plains and foothills.
- 15 Sepals broadly lanceolate to narrowly ovate, acute-aristate, the narrow terminal portion much shorter than the broader basal portion; plants usually branched in the middle or upper parts ..... *L. berlandieri*  
Hooker ●Eastern plains and foothills.

## LINDERNIACEAE FALSE-PIMPERNEL FAMILY

**Lindernia**

*L. dubia* (Linnaeus) Pennell ●Gravel bars, muddy ground along streams and ponds; known from only 2 collections in the northern counties. ♦Our plants belong to var. *anagallidea* (Michaux) Cooperrider

## LOASACEAE STICKLEAF FAMILY

Contributed by John J. Schenk, Josh Brokaw, and Larry Hufford

- 1 Sepals longer than petals; stamens 5; fruit a cypsela; seed 1; stinging hairs present ..... *Cevallia*
- 1 Sepals shorter than petals; stamens 10 or more; fruit a capsule; seeds usually more than one; stinging hairs absent ..... *Mentzelia*

**Cevallia**

*C. sinuata* Lagasca ●Gypsum and limestone hills and gravelly flats of open grassland scrub vegetation.

**Mentzelia**

- 1 Outermost stamens opposite sepals petal-like (with or without anthers); seeds with a peripheral wing
- 2 Petals white
- 3 Anther epidermis papillate ..... *M. humilis*  
(Urban & Gilg) J. Darlington ●Sparsely vegetated areas in dry grasslands, knolls, and roadsides, level areas or gentle slopes in gravelly, clayey, and sandy gypsum substrates.
- 3 Anther epidermis smooth
- 4 Petals 13 mm wide or greater; androecia white to yellow ..... *M. decapetala*  
(Pursh ex Sims) Urban ●Rock outcrops and on slopes of dry short-grass prairies, riverbanks, and roadsides in loam, limestone, sandy, clay, and gravelly soils.
- 4 Petals less than 11 mm wide; androecia white
- 5 Petals 22.6-49 × 3.6-10.3 mm; bracts adnate to or subtending ovary pinnate ..... *M. nuda*  
(Pursh) Torrey & Gray ●Disturbed roadsides, hillsides, and creek banks in sandy and rocky soils.
- 5 Petals 14.7-22(-24.4) × 1.9-4.4 mm; bracts adnate to or subtending ovary entire to slightly toothed ..  
..... *M. strictissima*  
(Wootton & Standley) J. Darlington ●Arid grasslands.
- 2 Petals light to golden yellow

- 6 Capsules with prominent longitudinal costal ridges ..... *M. rusbyi*  
 Wootton ●Mesic habitats along moist washes, roadsides and roadcuts, steep to gentle slopes in rocky soils composed of sand and loam or volcanic cinder.
- 6 Capsules without prominent longitudinal costal ridges
- 7 Petals with pubescent abaxial surfaces ..... *M. cronquistii*  
 H.J. Thompson & Prigge ●Washes, roadside banks, and steep slopes in sandy and rocky soils.
- 7 Petals with glabrous abaxial surfaces
- 8 Anther epidermis papillate
- 9 Flowers with more than 5 staminodes, the five outermost stamens opposite sepal lobes and the second whorl of stamens without anthers ..... *M. perennis*  
 Wootton ●Roadsides and hillside slopes in gypsum-rich soils; endemic to New Mexico.
- 9 Flowers with 5 staminodes, the five outermost stamens opposite sepal lobes lacking anthers and the second whorl fertile ..... *M. todiltoensis*  
 N.D. Atwood & S.L. Welsh ●Hillside slopes in hard clay soils rich with gypsum; endemic to New Mexico.
- 8 Anther epidermis smooth
- 10 Plants with multiple branches that arise from a subterranean branching caudex ..... *M. springeri*  
 (Standley) Tidestrom ●Sparsely vegetated steep talus and pumice slopes in the Jemez Mountains; endemic to New Mexico.
- 10 Plants with a single primary branch, or multiple branches that arise from ground-level caudex
- 11 Leaves of primary axis pinnatisect (sometimes becoming pinnate in *M. laciniata*)
- 12 Petals longer than or equal to 30 mm; the five outermost stamens opposite sepal lobes longer than 26 mm ..... *M. conspicua*  
 T.K. Todsen ●Slopes of piñon pine and juniper woodlands and grasslands, sparsely vegetated soils composed of red and brown loam in the Chama River basin; endemic to New Mexico.
- 12 Petals shorter than 26 mm; the five outermost stamens opposite sepal lobes shorter than 22 mm
- 13 Leaf lobes of primary shoot strongly angled toward leaf apex ..... *M. holmgreniorum*  
 J.J. Schenk & L. Hufford ●Dry sandy washes or volcanic cinder, along roadsides, and other disturbed areas.
- 13 Leaf lobes ½ of primary shoot perpendicular or slightly angled toward leaf apex
- 14 Leaf intersinus distance 1-2.4 mm, lobes perpendicular to leaf axis; seed coat cells with 42-48 central papillae; western McKinley and San Juan counties ..... *M. filifolia*  
 J.J. Schenk & L. Hufford ●Roadcuts and slopes in dark loam and rocky soils.
- 14 Leaf intersinus distance 1.4-4 mm, lobes slightly angled towards leaf apex; seed coat cells with 5-14 central papillae; Rio Arriba, Sandoval, Taos and eastern San Juan counties ..... *M. laciniata*  
 (Rydberg) J. Darlington ●Dry hillsides, roadcuts, and roadsides in sandy or clay soils.
- 11 Leaves on primary axis entire, dentate, serrate, to pinnately lobed
- 15 Anticlinal walls of seed coat cells straight
- 16 Capsules generally more than 2 times as long as wide; northeast New Mexico ..... *M. reverchonii*  
 (Urban & Gilg) H.J. Thompson & Zavortink ●Grasslands on eroded riverbanks, roadsides, roadcuts, and sparsely vegetated hillsides in sandy, gravelly, clayey, and occasionally gypsum soils.
- 16 Capsules less than or equal to 2 times as long as wide; southern New Mexico ..... *M. longiloba* (in part)  
 J. Darlington ●Roadsides, sand dunes, hills, and washes in dry clay or sandy soils.
- 15 Anticlinal walls of seed coat cells wavy to sinuate
- 17 Outermost stamens opposite sepal lobes with anther; San Juan County ..... *M. sivinskii*  
 J.J. Schenk & L. Hufford ●Knolls, slopes, and grassland roadsides in gypsum or brown clay soils, 4920-6235 ft.
- 17 Outermost stamens opposite sepal lobes without anther (sometimes present in *M. longiloba*); northwest or other New Mexico regions
- 18 Leaf intersinus distances at widest point no wider than 3.9 mm; petals light yellow ..... *M. procerca*  
 (Wootton & Standley) J.J. Schenk & L. Hufford ●Dry hillsides and roadsides in sandy, clayey, or silty soils.
- 18 Leaf intersinus distances at widest point of some leaves greater than 3.9 mm; petals light to golden yellow
- 19 Seed coat cells with 4-6 or 67-106 papillae per cell; petals light to golden yellow, (11.4)13.8-24.4(26.9) mm long; southern and western counties.....



- ..... *M. longiloba* (in part)  
 J. Darlington ●Roadsides, sand dunes, hills, and washes in dry clay or sandy soils.
- 19 Seed coat cells with 29-48 papillae per cell; petals golden yellow, 11.3-20.4 mm long; northern half of New Mexico ..... *M. multiflora*  
 (Nuttall) Gray ●Dry roadsides, hillsides, and washes in clay, rocky, and/or sandy soils.
- 1 Outermost stamens opposite sepals filiform or spatulate and all stamens have anthers; seeds without a peripheral wing
- 20 Petals abaxially pubescent on upper half; fruits erect or recurved downward from base (sometimes slightly curved in *M. oligosperma*); seeds oblong, oval, or pyriform, dorsiventrally flattened or trigonal and three ridged; seed coat testal cells oblong and usually sinuate, much longer than wide
- 21 Plants annual, to 2.5 dm; petals 5-8 mm; stamen nearly all of the same length ..... *M. asperula*  
 Wooton & Standley ●Rocky limestone or igneous slopes or arroyo bottoms in grasslands and oak woodlands.
- 21 Plants perennial, to 5 dm; petals (6)8-18.5 mm; outer stamen longer than inner stamens . *M. oligosperma*  
 Nuttall ex Sims ●Limestone, gypsum, or sandstone rock outcrops or cliffs in clay or loam flats.
- 20 Petals abaxially glabrous; fruits axillary curved to 45°-180°; seeds irregularly polygonal, angular, or rounded or triangular prisms; seed coat testal cells polygonal, nearly equal sided
- 22 Basal leaves not persisting; margins of proximal-most remaining leaves (proximal cauline) dentate or entire; leaves up to 60 mm ..... *M. thompsonii*  
 Glad ●Barren clay to silt slopes.
- 22 Basal leaves persisting; proximal-most leaves usually deeply to shallowly lobed, rarely entire; leaves up to 130-150 mm
- 23 Bracts green with entire margins, or if lobed, lateral lobes not prominent; capsules 8-28-35) mm (longest capsules usually more than 15 mm), axillary curved to 180° ..... *M. albicaulis*  
 (Douglas) Douglas ex Torr. & Gray ●Sand dunes, gravel fans, and washes.
- 23 Bracts either with toothed or lobed margins, or if entire, green with white base, margins usually 3-7-lobed, rarely entire, lateral lobes usually prominent; capsules 6-17(-20) mm, axillary curved to 45°.....  
 ..... *M. montana*  
 (Davidson) Davidson ●Open, disturbed slopes or flats, grasslands, sagebrush scrub, and coniferous forests.

#### LYTHRACEAE LOOSESTRIFE FAMILY

- 1 Plants large shrubs, in cultivation; leaves opposite; hypanthium in flower leathery, 2-5 cm across (pomegranate) ..... *Punica*
- 1 Plants woody only basally or herbaceous; leaves opposite or alternate; hypanthium in flower membranous, to 1 cm across
- 2 Leaves mostly alternate; plants perennial ..... *Lythrum*
- 2 Leaves mostly opposite; plants annual or perennial
- 3 Leaves petiolate; plants glandular-hispid ..... *Cuphea*
- 3 Leaves sessile or nearly so; plants glabrous ..... *Ammannia*
- Ammannia** [Key from Graham 1985]
- 1 Plants perennial, woody at the base; petals 6; stamens 10-14..... *A. grayi*  
 Graham & Gandhi ●Limestone seeps in highly alkaline soils, extreme southeastern New Mexico.
- 1 Plants annual; petals 0 or 4; stamens 4-8
- 2 Inflorescence a long-pedunculate, multiflowered, simple or compound cyme; peduncle nearly filiform, 3-9 mm long; flowers 3 or more per axil; petals deep rose-purple; fruits mostly 2.5 mm or less diam; plant delicate, slender in aspect ..... *A. auriculata*  
 Willdenow ●In shallow still water and drying mud of ponds, Doña Ana County; known from a single report by Graham (1985).
- 2 Inflorescence a sessile or short- to long-pedunculate, 1- to many-flowered cyme; peduncle, when present, stout, to 4(9) mm long; fruits mostly 3.5 mm or more diam; plant robust
- 3 Inflorescence sessile; flowers usually 1-3 per axil; petals pale lavender, occasionally with deeper purple veins; anthers yellow; fruits 4-6 mm diam ..... *A. robusta*  
 Heer & Regel ●Not known from the state, but plants have been found nearby in the Ciudad Juarez (Mexico) area; to be looked for.
- 3 Inflorescence a short- to long-pedunculate cyme, rarely completely sessile; flowers usually 3 or more per axil; petals deep rose-purple; anthers deep yellow; fruits 3.5-5 mm diam ..... *A. coccinea*  
 Rottboell ●Muddy ground of ditches, ponds, lakes, and river banks.
- Cuphea**
- C. wrightii* Gray [●Canyons and low hills in the southwest region; moist soil pockets on rocky hillsides, juniper-piñon-oak communities, in the southwest corner.

**Lythrum**

- 1 Flowers solitary in the axils of the bracts or leaves; middle and upper leaves alternate, rarely any of them as wide as 1 cm; petals 4-8 mm long ..... *L. californicum*  
Torrey & Gray •Marshes, wet meadows, other wet to moist places; southern half of state.
- 1 Flowers numerous in a terminal spike-like inflorescence; leaves opposite, except for the uppermost, the larger one 1-2 cm wide; petals 7-12 mm long ..... *L. salicaria*  
Linnaeus •Disturbed wet places, seeps, springs, and marshes; native to Eurasia; occasionally grown in flower gardens and escaping, potentially invasive.

**Punica**

\**P. granatum* Linnaeus •Commonly cultivated and sometimes found persisting around old dwellings; not known definitely in the wild, but some isolated plants in towns and villages suggest this; native to Eurasia.

**MALPIGHIACEAE MALPIGHIA FAMILY**

- 1 Flowers orange, the petals fringed; fruit nut-like, not winged; leaves lanceolate to ovate ..... *Aspicarpa*
- 1 Flowers yellow, the petals entire or slightly toothed; fruit winged like a propeller; leaves lance-linear ..... *Cottsia*

**Aspicarpa**

*A. hirtella* L.C.M. Richard •Crevices and soil pockets in bare rock; dry mountains of the bootheel.

**Cottsia**

*C. gracilis* (A. Gray) Anderson & Davis •Rocky slopes and bajadas, among boulders, dry foothills; southern tier of counties.

**MALVACEAE MALLOW FAMILY**

[Key adapted from Fryxell 1997]

- 1 Stamens 10 (5 fertile alternating with 5 sterile staminodes); petals with long coiled thread-like stalks and united at the broadened tips over the stamens ..... *Ayenia*
- 1 Stamens numerous, more than 10; petals without such thread-like stalks, united at the base
  - 2 Plants prostrate, decumbent, or sometimes ascending
    - 3 Leaves manifestly asymmetrical ..... *Malvella*
    - 3 Leaves symmetrical or essentially so
      - 4 Involucel present
        - 5 Corolla deep red or burgundy to pink (sometimes white, the petals often fimbriate distally; leaves triangular and unlobed or ± palmately dissected) ..... *Callirhoë*
        - 5 Corolla purple or lavender (sometimes white), the petals often notched distally; leaves sub-orbicular or reniform in outline, somewhat lobed ..... *Malva*
      - 4 Involucel absent
        - 6 Calyx notably inflated at maturity and completely enclosing the fruit; leaves ovate-oblong ..... *Rhynchosida*
        - 6 Calyx not inflating at maturity and the fruit usually not concealed; leaves various
          - 7 Leaves ovate-cordate; mericarps 3-seeded ..... *Herissantia*
          - 7 Leaves elliptic, ovate, or hastate, the base truncate to sub-cordate; mericarps 1-seeded
            - 8 Leaves ovate-triangular or hastately (rarely palmately) divided; mericarps (and styles) 8-20 in number, the lateral wall disintegrating at maturity ..... *Anoda*
            - 8 Leaves elliptic or oblong-ovate, unlobed; mericarps (and styles) 5-8 in number, the lateral walls indurate ..... *Sida*
  - 2 Plants mostly erect
    - 9 Fruits capsule-like, dehiscent, the carpels not falling separately at maturity; plants subshrubs to shrubs
      - 10 Involucel absent ..... *Abutilon*
      - 10 Involucel present
        - 11 Involucel bractlets 3 ..... *Gossypium*
        - 11 Involucel bractlets 5-numerous, or sometimes absent, but not 3 ..... *Hibiscus*
    - 9 Fruits schizocarpic, the carpels (mericarps) falling separately at maturity with the enclosed seeds; plants shrubby to herbaceous
      - 12 Plants robust perennial herbs with annual stems, 1.5-3 m tall; leaves palmately 5- to 7-lobed, large; often from wet habitats ..... *Iliamna*
      - 12 Plants and/or leaves otherwise
        - 13 Involucel present
          - 14 Involucel of 5 or more separate segments ..... *Alcea*
          - 14 Involucel of 3 segments
            - 15 Mericarps each 2- to 3-seeded ..... *Sphaeralcea*
            - 15 Mericarps each 1-seeded
              - 16 Corolla yellow; stigmas capitate ..... *Sphaeralcea*
              - 16 Corolla reddish, purplish, to pinkish (sometimes white); stigmas filiform
                - 17 Petals usually purple or lavender (sometimes white); emarginate or notched distally ..... *Malva*

17 Petals deep red or burgundy to pink or almost white; erose or fimbriate distally  
 ..... *Callirhoe*

13 Involucel absent

18 Stigmas filiform ..... *Sidalcea*

18 Stigmas capitate

19 Lower leaves notably petiolate, the upper leaves (immediately below the inflorescence)  
 sessile and clasping ..... *Herissantia*

19 Lower and upper leaves manifestly petiolate

20 Mericarps 2- to 6-seeded

21 Mericarps divided into a lower cell (1-seeded) and an upper cell (2-seeded) by  
 a constriction or protrusion ..... *Allowissadula*

21 Mericarps not divided into upper and lower cells ..... *Abutilon*

20 Mericarps 1-seeded

22 Lateral walls of mericarps disintegrating; mericarps with a dorsal spur or  
 spine; plants annual ..... *Anoda*

22 Lateral walls of mericarps persistent; mericarps usually not spiny (if so, the  
 spine apical rather than dorsal); plants perennial

23 Calyx notably inflated at maturity and enclosing the fruit ..... *Rhynchosida*

23 Calyx not inflating at maturity and the fruit not concealed

24 Corolla white; fruits inflated; leaf blades ovate, 2-7 cm long .....  
 ..... *Herissantia*

24 Corolla variously colored; fruits not inflated; leaf blades 1-2 cm long  
 ..... *Sida*

**Abutilon** [Key adapted from Peterson & Spellenberg 2005].

1 Styles and carpels mostly 5 or so in number; some pubescence stellate

2 Flowers in compact panicles; leaves mostly 4-7 cm long; calyx 6-8 mm long; petals 9-15 mm long .....  
 ..... *A. malacum*

S. Watson ●Dry arid hills and slopes across the southern tier of counties.

2 Flowers solitary or in open panicles; leaves mostly 2-4(6) cm long; calyx 2-4 mm long; petals 4-7 mm long

3 Leaves stellate-pubescent, the leaf surface easily visible and the foliage greenish; leaf blades coarsely  
 dentate; corolla without a dark center; fruits minutely stellate-pubescent, 7-9 mm in diameter .....  
 ..... *A. parvulum*

Gray ●Widespread on dry rocky hills and slopes, lower canyons and foothills, gravelly plains; common  
 in the southern mountains and plains, with a few records northward.

3 Leaves densely tomentulose, the leaf surface obscured and the foliage grayish-bluish; leaf blades

irregularly serrulate or crenulate; corolla with a dark center; fruits tomentulose, about 6 mm in diameter .  
 ..... *A. incanum*

(Link) Sweet ●Dry desert slopes of the southern mountains.

1 Styles and carpels 6 to 15 in number; pubescence stellate or not

4 Stem often more than 1 m long; carpels (8-)10-15 in number

5 Larger leaves to 5(-10) cm long; calyx and petals 9-12 mm long ..... *A. abutiloides*  
 (Jacquin) Garcke Garcke ex Hochreutiner ●Known only from a single 1939 collection in Hidalgo  
 County.

5 Larger leaves 10-20 cm long; calyx and petals 3-10 mm long

6 Calyx 5-9 mm long; carpels with divergent awns; plants annual ..... *A. theophrasti*  
 Medikus ●Uncommon in moist, weedy ground in scattered locales in the state.

6 Calyx 3-5 mm long; carpels with short mucros; plants perennial ..... *A. mollicomum*  
 (Willdenow) Sweet ●Dry desert slopes in the southwestern region.

4 Stems less than 0.6 m long; carpels 6-9 in number

7 Petioles 0.5-0.75 times the blade length; calyx 2-5 mm long; petals 5-10 mm long ..... *A. fruticosum*  
 Guillemin & Perrotet ●Dry rocky slopes and foothills in the southeastern region; poorly collected.

7 Petioles 0.9-1.2 times the blade length; calyx 8-20 mm long, petals 14-18 mm long

8 Plants procumbent to ascending; leaves prominently dentate, about as long as wide; fruits 10 mm long  
 (shorter than the calyx); petals pale yellow ..... *A. wrightii*

Gray ●Dry rocky slopes of the Guadalupe Mountains, Eddy County.

8 Plants erect; leaves obscurely crenulate-serrulate, longer than wide; fruits 8-17 mm long (as long as  
 the calyx); petals orange ..... *A. pinkavaea*

P. Fryxell ●Not yet known from New Mexico, but occurring just south of the border in northern  
 Chihuahua.

**Alcea**

\**A. rosea* Linnaeus ●Commonly cultivated in gardens, and sometimes escaping to moist waste ground; to be  
 expected in almost all the counties.

**Allowissadula**

*A. holosericea* (Scheele) Bates ●Dry, rocky soils of the southeastern corner, known only from the Guadalupe

## Mountains and surrounding plains.

**Anoda**

- 1 Corollas lavender; sepals much exceeding the carpels; carpels long-hirsute  
 2 Plants decumbent to sometimes erect; petals obviously exceeding the calyx, 8-30 mm long; mericarps with a spur 1.5-4 mm long..... *A. cristata* (Linnaeus) Schlectendal ●Widespread and common in much of the state, in crop fields and weedy moist ground.  
 2 Plants erect; petals barely exceeding the calyx, 4-7 mm long; mericarps with a spur to 1 mm long *A. thurberi* Gray ●Dry open shrublands in the bootheel; known from only a few collections.
- 1 Corollas yellow, sometimes purplish at the base; sepals only slightly exceeding the carpels; carpels puberulent to long-hirsute  
 3 Flowers in panicles; carpels puberulent to short-hirsute..... *A. pentaschista* Gray ●Uncommon in the southwestern valleys, roadsides, disturbed ground.  
 3 Flowers axillary; carpels long-hirsute..... *A. lanceolata* Hooker & Arnott ●Uncommon in often disturbed sites the southwestern foothills.

**Ayenia** [Key adapted from Dorr 2015]

- 1 Flowers borne on short shoots, along with several leaves; petals not notched at apex, lacking an abaxial appendage..... *A. microphylla* Gray ●Rocky slopes and arroyos in the foothills of southwestern desert mountains.  
 1 Flowers borne in the axils of leaves, not on short shoots; petals notched at apex, with an abaxial appendage  
 2 Blades of proximal leaves ovate to orbiculate; blades of distal leaves oblong to linear, the bases rounded to truncate, usually stellate-puberulent..... *A. filiformis* S. Watson ●Rocky or gravelly slopes and arroyos in the foothills of southwestern desert mountains, often on limestone.  
 2 Blades of proximal leaves ovate to orbiculate; blades of distal leaves ovate to oblong, the bases cordate, usually with simple hairs (sometimes also with stellate hairs)..... *A. pilosa* Cristóbal ●Rocky or gravelly desert ground in the southwest region; little known.

**Callirhoe**

- 1 Calyx not subtended by bractlets..... *C. alcaeoides* (Michaux) Gray ●Roadsides, open valley bottoms, known only in the mountain foothills west of Las Vegas.  
 1 Calyx subtended by 3 bractlets..... *C. involvulata* (Torrey & Gray) Gray ●A common weed in moist gardens and cultivated ground; in scattered locales mostly in the northern half of the state, but expected in many counties.

**Gossypium**

- \**G. hirsutum* Linnaeus ●Adventive along cultivated fields, roadsides, waste ground in areas of cotton agriculture, not persisting long; native to Mexico south to northern South America, expected in other counties.

**Herissantia**

- H. crispa* (Linnaeus) Brizicky ●Rocky slopes of the southern desert mountains and hills.

**Hibiscus**

- 1 Leaves, at least the upper ones, deeply parted to nearly compound  
 2 Plants annual; calyx inflated and conspicuously nerved in fruit..... *H. trionum* Linnaeus ●Old fields, gardens, roadsides, ditch banks, and other disturbed moist ground; scattered throughout the state but more common in the northern counties; native to Eurasia, Africa, Australia.  
 2 Plants perennial; calyx not inflated, inconspicuously nerved..... *H. coulteri* Harvey ex Gray ●Western slopes and foothills of the Sacramento Mountains, among limestone boulders.
- 1 Leaves not or only slightly lobed  
 3 Leaf blades mostly 1-3 cm long; petals 2-2.8 cm long..... *H. denudatus* Bentham ●Desert hills, bajadas, and lower mountain slopes across the southern tier of counties.  
 3 Leaf blades mostly 8-15 cm long; petals 7-8 cm long..... *H. moscheutos* Linnaeus ●Roadside ditches, along ponds and wet places in the southern arid regions.

**Iliamna**

- 1 Involucel bractlets 2-3 mm wide, ¼ the length of the calyx; calyx 11-18 mm long..... *I. grandiflora* (Rydberg) Wiggins ●Shaded, moist areas in the mountains, often along streams or in adjacent meadows.  
 1 Involucel bractlets 1 mm wide, ½-¾ the length of the calyx; calyx 5-10 mm long..... *I. rivularis* (Douglas) Greene ●Shaded streambanks and wet meadows in the northern mountains. ♦Reported for New Mexico by both Bates (2015) and Bodo Slotta (2000), but no specimens have been located; included here provisionally.

**Malva**

- 1 Petals 15-25 mm or more long, mostly 2-4 times the calyx length..... *M. sylvestris* Linnaeus ●Adventive in disturbed ground, waste places, roadsides; as yet known only in a few scattered locales; native to Eurasia.  
 1 Petals 4-13 mm long, mostly 1-2 times the calyx length  
 2 Petals about equaling or only slightly exceeding the sepals, 3-5 mm long..... *M. parviflora* Linnaeus ●Weedy ground, disturbed sites; widespread, often in cool mountain terrain; native to Eurasia.

- 2 Petals about twice as long as the sepals, 5-13 mm long
- 3 Plants erect; flowers subsessile in axillary clusters; staminal column glabrous; pedicels shorter than the calyx, stout and rigid in fruit ..... *M. verticillata*  
Linnaeus ●Disturbed ground, old gardens, roadsides; known only from Grant and Otero counties from very few collections; native to Eurasia and Africa.
- 3 Plants prostrate to ascending; flowers evidently pedicelled; staminal column pubescent; pedicels several times longer than the calyx, slender and flexible in fruit ..... *M. neglecta*  
Wallroth ●Widespread throughout the state in weedy ground, waste areas, roadsides, gardens, along sidewalks, and similar sites from low to medium elevations; expected in all counties; native to Eurasia.

**Malvella**

- 1 Leaves wider than long, ± reniform; pubescence predominantly stellate; involucrel usually present; calyx lobes ovate, the bases not overlapping ..... *M. leprosa*  
(Ortega) Krapovickas ●Dry saline soils, widespread in scattered locales.
- 1 Leaves longer than wide, ovate to triangular; pubescence ± silvery-lepidote; involucrel usually absent; calyx lobes ± cordate, the bases plicate-overlapping
- 2 Leaves triangular, dentate to the apex, 1-2(3) times longer than wide; involucrel sometimes present; petals sometimes with a reddish spot at the base ..... *M. lepidota*  
(Gray) Fryxell ●Heavy, saline soils of playas, mud flats, and similar places in the southern region.
- 2 Leaves narrowly triangular, entire except for a few hastate teeth at the base, 3-5 times longer than wide (rarely narrower); involucrel absent; petals lacking a reddish spot at the base ..... *M. sagittifolia*  
(Gray) Fryxell ●Heavy, saline soils of playas, mud flats, and similar places, in scattered locales throughout the state.

**Rhynchosida**

- R. physocalyx* (Gray) Fryxell ●Rocky plains, bluffs, and hills in the southern half of the state.

**Sida**

- 1 Stems procumbent, lying on the ground; leaf blades less than 2 cm long; pubescent above and beneath ..... *S. abutilifolia*  
Miller ●Desert plains and hills, foothills of the southern mountains; native to Mexico, Central America, and northern South America.
- 1 Stems erect; leaf blades 2-4.5 cm long; glabrous above, sparsely and minutely pubescent beneath ..... *S. neomexicana*  
Gray ●Rocky canyons, woodland slopes and plains, gravelly slopes in the mountains, from juniper to ponderosa communities, generally at higher elevations than the preceding; throughout much of the state.

**Sidalcea**

- 1 Flowers white ..... *S. candida*  
Gray ●Roadsides, open meadows and grassy plains, riparian areas; mountains and associated plains of the central cordillera.
- 1 Flowers purplish ..... *S. neomexicana*  
Gray ●Meadows, fields, riparian drainages and zones, often in very wet soil; in all the mountain regions of the state.

**Sphaeralcea**

- 1 Herbage conspicuously silvery-lepidote, with radiating hairs united basally ¼ or more their length; upper blades simple and filiform, lower blades deeply parted into filiform segments ..... *S. leptophylla*  
(Gray) Rydberg ●Widespread in scattered locales in generally the western or central regions, on dry rocky slopes and plains; flowering spring-summer.
- 1 Herbage stellate-pubescent, the branched or radiating hairs scarcely united basally if at all; blades various
- 2 Blades of at least the mid-stem leaves (sometimes also the lower or the upper) deeply palmately or pedately 3-5-parted completely or almost to the petiole
- 3 Leaf blades appearing strictly palmate or digitate, the divisions not or scarcely lobed themselves (sometimes the central segment lobed); anthers purple ..... *S. digitata*  
(Greene) Rydberg ●Dry, rocky slopes, open canyons, desert plains, common in the western and southern regions; flowering spring-summer.
- 3 Leaf blades not so palmate-appearing, the divisions usually lobed themselves; anthers yellow or purple
- 4 Upper non-reticulate dehiscent part of mericarp only 10-35% of the total; involucrel bractlets deciduous ..... *S. coccinea*  
(Nuttall) Rydberg ●Very common and widespread throughout the state on open plains and dry regions; flowering spring-fall.
- 4 Upper non-reticulate dehiscent part of mericarp 55-80% of the total; involucrel bractlets persistent, green, tan, to red-brown
- 5 Blades lanceolate to narrowly ovate in outline, most longer than wide; plants 10-40 cm tall ..... *S. pumila*  
Wootton & Standley ●Plains, hills, rocky to sandy slopes and draws, southern plains and deserts.
- 5 Blades broadly ovate to orbicular in outline, most about as wide as long; plants 30-200 cm tall
- 6 Plants 90-200 cm or more tall; upper flowering portion of the plants eventually widely branched

- and diffuse (but the individual flowering branches narrow), the tips leafy (in spring forms, the branching will short and not yet flowering) ..... *S. polychroma*  
 La Duke ●Desert grasslands, plains, scrublands, and adjacent dry juniper slopes, generally paralleling the Rio Grande corridor from near Albuquerque southward into Texas; flowering late spring-fall.
- 6 Plants 20-100 cm tall; upper flowering portion of the plants narrow, the tips not leafy  
 7 Stems greenish; petals red-orange; mericarps 2-4 mm long; northern counties .....  
 ..... *S. grossularifolia*  
 (Hooker & Arnott) Rydberg ●Mesas, open hills, and woodlands, rocky, sandy, gypsum ground, in the northwestern quarter of the state, poorly collected; flowering spring-summer.  
 7 Stems whitish; petals red-orange, pink, to lavender; mericarps 4-7 mm long; southern counties.....*S. wrightii*  
 A. Gray ●Rocky slopes and plains in the Chihuahuan Desert, grasslands and scrublands in the southern part of the state, known from few collections; flowering spring-early summer.
- 2 Blades of mid-stem and usually other leaves unlobed to deeply lobed, but mostly not in a palmate manner nor nearly to the petiole
- 8 Mid- and lower leaf blades obviously moderately to deeply 3-7-lobed, parted, or divided, the divisions sometimes with lobes themselves
- 9 Stems mostly 10-40 cm tall/long; blades 1-2 cm long; inflorescence racemose, narrow, the flowers crowded..... *S. hastulata*  
 Gray ●Widespread throughout much of the western, central, and southern regions of the state; flowering spring-fall.
- 9 Stems mostly 40-200 cm or more tall/long; blades and/or inflorescences other than above
- 10 Inflorescences open, long-branched, few-flowered, the flowers widely spaced, the distal portions not leafy; involucellar bractlets red-purple (the *laxa* phase).....*S. laxa*  
 Wooton & Standley ●Mostly dry juniper woodlands in the southwestern region; flowering spring-fall.
- 10 Inflorescences crowded, many-flowered, the flowers crowded or clustered, the distal portions leafy or not; involucellar bractlets green to tan
- 11 Plants 40-100 cm tall; leaves usually greenish-grayish, rarely yellowish; distal flowering portions of the plants little branched, leafy or not; petals red-orange.....*S. fendleri*  
 Gray ●Very widespread in the state, open plains and fields from the desert zone to the mountains with pines and oaks; flowering spring-fall.
- 11 Plants mostly 80-300 cm tall; leaves commonly yellowish-whitish, rarely green without a yellowish cast; distal flowering portions of mature plants much branched, leafy; petals white, pink, lavender, purple, red-orange, or red ..... *S. polychroma*  
 La Duke ●Desert grasslands, plains, scrublands, and adjacent dry juniper slopes, generally paralleling the Rio Grande corridor from near Albuquerque southward into Texas; flowering late spring-fall.
- 8 Mid- and lower leaf blades unlobed to weakly lobed or with basal bulges or shoulders
- 12 Stems yellow to yellow-green, rubbery when fresh; blades ovate-triangular, yellowish with dense very fine hairs..... *S. incana*  
 Torrey ex Gray ●Widespread in scattered locales, on plains, rocky hills and slopes, canyons, and foothills; flowering summer.
- 12 Stems greenish, grayish, to whitish, usually brittle and not rubbery; blades ovate to ovate-lanceolate, greenish to grayish green or whitish, not yellowish, the hairs more coarse
- 13 Leaf blades narrowly lanceolate, 3-8 (or more) times longer than wide, mostly unlobed but sometimes with shallow hastate to sharply angular lobes at the base; inflorescences with well-developed leaves nearly to the tip; plants stout, mostly 60-200 cm tall ..... *S. angustifolia*  
 (Cavanilles) G. Don ●Very common and found throughout the state in arid or semi-arid habitats, open fields, wide canyons, hills, and plains; flowering spring-fall.
- 13 Leaf blades mostly 1-2 times longer than wide, variously shaped, but often weakly lobed in some fashion; inflorescences leafy or not; plant stature various
- 14 Lower blades ovate, cordate-ovate, orbicular, or reniform, nearly as wide as long or wider, the petioles equaling or longer than the blade lengths
- 15 Inflorescences open, long-branched, few-flowered, the flowers widely spaced; involucellar bractlets red-purple (the *ribifolia* phase).....*S. laxa*  
 Wooton & Standley ●Mostly dry juniper woodlands in the southwestern region; flowering spring-fall.
- 15 Inflorescences crowded, many-flowered, the flowers usually crowded or clustered; involucellar bractlets usually green to tan, sometimes red-purple .....*S. parvifolia*  
 A. Nelson ●Dry, sandy ground in the northwest region; flowering summer.
- 14 Lower blades lanceolate to ovate in outline, longer than wide, the petioles equaling or

shorter than the blade lengths

- 16 Stems 40-200 cm tall/long, typically erect; inflorescences mostly with 3 or more flowers per node, generally 20-60 or more overall ..... *S. lobata* Wooton ●Very common and found throughout the state in arid or semi-arid habitats, open fields, wide canyons, hills, and plains; flowering spring-fall.
- 16 Stems 10-40 cm tall/long, typically curving-decumbent-based; inflorescences mostly with 1-3 flowers per node, generally less than 12 flowers overall ..... *S. hastulata* Gray ●Widespread throughout much of the western, central, and southern regions of the state; flowering spring-fall.

#### MARTYNIACEAE DEVIL'S-CLAW FAMILY

##### Proboscidea

- 1 Plants perennial, arising from a tuberous root; corollas pale yellow, yellow, to bronze; fruit sometimes crested on two sides ..... *P. atheifolia* (Bentham) Decaisne ●Sand dunes, sandy plains, and sandy bajadas in the southwestern deserts.
- 1 Plants annual, arising from a slender taproot; corollas purplish, reddish, pinkish, cream-colored, or whitish; fruit crested on a single side
- 2 Sepals united only at the basal ¼ or less; seeds spindle-shaped, more than 3 times longer than wide; flowers almost hidden within the foliage, often not immediately noticeable; corolla lobes purplish ..... *P. sabulosa* Correll ●Sandy plains and dunes; on the eastern plains and along the central Rio Grande.
- 2 Sepals united more than ¼ their length; seeds ovoid to rhomboid, less than 3 times longer than wide; flowers commonly conspicuous (sometimes hidden in *P. parviflora*); corolla lobes various colors, including purplish
- 3 Upper 2 lobes of the corolla each lacking a single large purplish splotch (but may have numerous small spots); corollas in face view generally whitish to pale pink (rarely darker) ..... *P. louisiana* (Miller) Thellung ●Sandy plains and prairies, disturbed ground, on the eastern side of the state.
- 3 Upper 2 lobes of the corolla each with a single large splotch, sometimes the entire corolla dark and the splotches not much different from surrounding tissue; corollas in face view dark pink, magenta, purple, to maroon, if pale pink or whitish, then the darker splotches evident
- 4 Inflorescences nestled among or barely exceeding the foliage; flowers fewer than 10 per inflorescence, corollas to 2 cm long, white, pale pink, to purplish ..... *P. parviflora* (Wooton) Wooton & Standley ●Plains, washes, roadsides, grassy valleys and flats; southern and western desert and plains areas, scattered elsewhere.
- 4 Inflorescences raised above the foliage; flowers more than 15 per inflorescence, corollas to 4 cm long, purplish to maroon ..... *P. fragrans* (Lindley) Decaisne ●Disturbed ground, sandy to rocky soils; known in New Mexico only from Eddy County; also west Texas and Mexico.

#### MELIACEAE CHINABERRY or MAHOGANY FAMILY

##### Melia

\**M. azedarach* Linnaeus ●CHINABERRY has been planted extensively for ornament, and occasionally escapes to roadsides or adjacent moist ground, or persists around old dwellings, probably escaping in more counties than shown; native to southeast Asian and northern Australia.

#### MENYANTHACEAE BUCKBEAN FAMILY

##### Menyanthes

*M. trifoliata* Linnaeus ●Wetlands, ponds, marshes; known from a few collections above 10,000 ft in Rio Arriba County.

#### MOLLUGINACEAE CARPETWEED FAMILY

##### Mollugo

- 1 Plants prostrate to ascending; leaves not glaucous; inflorescences sessile and axillary ..... *M. verticillata* Linnaeus ●Desert grassland, mountain foothills, plains, roadsides, creek bottoms.
- 1 Plants erect; leaves glaucous; inflorescences stalked, axillary and terminal ..... *M. cerviana* (Linnaeus) Seringe ●Arroyos, mesas, bajadas, dry mountain slopes; native to Europe, Asia, and Africa.

#### MONTIACEAE MINER'S-LETTUCE FAMILY

- 1 Leaves opposite and cauline, at least some
- 2 Leaves mostly basal except for one pair of opposite cauline leaves; stolons absent ..... *Claytonia*
- 2 Leaves scattered along the stem; stolons present ..... *Montia*
- 1 Leaves alternate or basal, none opposite and cauline
- 3 Leaves all basal, or essentially so, lacking any obvious cauline leaves
- 4 Capsule circumscissile; leaves definitely flattened (look for older mature leaves) ..... *Lewisia*
- 4 Capsule longitudinally 3-valved, splitting from the apex; leaves terete or indistinctly flattened .....

- ..... *Phemeranthus*
- 3 Leaves, at least some, obviously cauline  
 5 Stigmas 2; capsule 2-valved; inflorescence generally scorpioid..... *Calyptridium*  
 5 Stigmas 3; capsule 3-valved; inflorescence not scorpioid  
 6 Plants annual; sepals persistent in fruit..... *Calandrinia*  
 6 Plants perennial; sepals mostly deciduous..... *Phemeranthus*
- Calandrinia**  
*C. menziesii* (Hooker) Torrey & Gray •Grassy slopes in the bootheel region; westward to Pacific coast.
- Calyptridium**  
*C. monandrum* Nuttall •Desert plains, rocky slopes; known from a single collection in Grant County.
- Claytonia**  
 1 Stem leaves perfoliate, completely encircling and clasping the stem; plants annual..... *C. perfoliata*  
 Donn ex Willdenow •Barely entering the state in the bootheel region, rockslides and talus slopes. ♦Our plants belong to subsp. *mexicana* (Rydberg) J.M. Miller
- 1 Stems leaves petiolate, not encircling the stem; plants perennial  
 2 Plants lacking tubers, growing from stout woody caudices and with fleshy purplish roots; basal leaves numerous, the petioles winged; cauline blades oblanceolate, broadest toward the tip..... *C. megarhiza* (Gray) Parry ex S. Watson •Talus and gravelly slopes at high elevations in the northern mountains.  
 2 Plants with globose tubers or corms; basal leaves few or none; cauline blades linear to ovate, broadest toward the base  
 3 Cauline blades lanceolate to ovate; inflorescences with a single bract (rarely 2)..... *C. lanceolata* Pallas ex Pursh •Foothills to high elevations in the northern and western mountains and plains; seldom collected; a report from Grant County has not been verified.  
 3 Cauline blades linear; inflorescences with several bracts (rarely 1), the lowermost leaf-like, the others reduced to membranous scales..... *C. rosea* Rydberg •Pine forests in the southwestern and northern region; known from very few collections.
- Lewisia**  
*L. pygmaea* (Gray) B.L. Robinson •Rocky slopes, talus, meadows, springs, grassy slopes, in the mountains, at medium to high elevations.
- Montia**  
*M. chamissoi* (Ledebour ex Sprengel) Durand & Jackson •Wet sites along streams and creeks, in the (mostly) northern mountains.
- Phemeranthus**  
 1 Flowers yellowish, the inflorescence shorter than or only slightly over-topping the leaves; Grant or Hidalgo counties  
 2 Leaves mostly less than 3 cm long, narrowed at the base and appearing petiolate; flowers usually less than 8 mm across..... *P. parvulus* (Rose & Standley) Ferguson & Price •Peloncillo Mts of the bootheel region; known from a single collection; also Arizona and Mexico.  
 2 Leaves mostly more than 3 cm long, not appearing petiolate; flowers usually more than 8 mm across..... *P. humilis* Greene •Southwestern region; gravelly soils over igneous substrates; relatively rare and of conservation concern.
- 1 Flowers white, pink, magenta, rose, etc, the inflorescence various, slightly to much over-topping the leaves; various distributions, including Grant or Hidalgo counties  
 3 Stems mostly vertical; inflorescence with a long slender peduncle, held erect, usually exceeding the leaves  
 4 Stamens 25 or more in number..... *P. calycinus* (Engelmann) Kiger •Sandy ground in shin-oak communities on the far eastern plains; known from only a few collections.  
 4 Stamens 4-10 in number  
 5 Seeds with arcuate or concentric ridges..... *P. longipes* (Wootton & Standley) Kiger •Dry plains and deserts in the central and southern regions.  
 5 Seeds nearly smooth, lacking arcuate or concentric ridges..... *P. parviflorus* (Nuttall) Kiger •Widespread, probably occurring in more counties than mapped.
- 3 Stems mostly procumbent to horizontal; inflorescence small, appearing axillary, not erect and often not exceeding the leaves (sometimes exceeding the leaves in *P. validulus*)  
 6 Inflorescence on a long peduncle to 6.5 cm long..... *P. validulus* (Greene) Kiger •Woodlands and bare slopes in the western or southcentral mountains; known from a single collection in Lincoln County, also in Arizona.  
 6 Inflorescence on a short peduncle to 1.5 cm long  
 7 Leaves acute; flowers usually magenta (rarely white), the petals usually acute; sepals acute, persistent in fruit; inflorescence indeterminate and usually with 3 to 5 flowers (occasionally 1 or more than 5); fruit persistent at maturity but very delicate..... *P. brevicaulis* (S. Watson) Kiger •Central plains and southern deserts, on calcareous substrates.



- 7 Leaves usually obtuse or blunt; flowers white to magenta, the petals usually obtuse; sepals usually obtuse, early deciduous; inflorescence 1-flowered (rarely 2); fruit deciduous upon dehiscing.....  
 ..... *P. brevifolius*  
 (Torrey) Hershkovitz ●Shallow soil pockets, limestone talus and outcrops; generally in the northwest portions of the state and extending south along the western band of counties, in mountain and foothill regions.

**MORACEAE MULBERRY FAMILY**

- 1 Margins of leaf blades entire; branchlets thorny; leaf venation pinnate ..... *Maclura*  
 1 Margins of leaf blades toothed; branchlets unarmed; leaf venation weakly palmate, usually 3- to 5-veined at the base  
 2 Leaves 12-25 cm long and 10-18 cm wide, consistently deeply lobed and fragrant; fruit a pear-shaped fig ..... *Ficus*  
 2 Leaves 4-15 cm long and 3-12 cm wide, toothed to lobed, not fragrant; fruit a cluster of drupelets ..... *Morus*

**Ficus**

\**F. carica* Linnaeus ●Commonly cultivated as a residential ornamental in the southern regions of the state; as yet known in the wild only from a few escapes and relicts around old settlements.

**Maclura**

\**M. pomifera* (Rafinesque) Schneider ●Escaped or persisting from old plantings, widely scattered localities and probably more common in the wild than indicated; native to Arkansas, Oklahoma, Texas, introduced and naturalized in much of the eastern half of the United States.

**Morus**

- 1 Mature leaf blades less than 7 cm long, harshly scabrous above ..... *M. microphylla*  
 Buckley ●Canyons and rocky foothills in the southern half of the state.  
 1 Mature leaf blades usually more than 8 cm long, scarcely scabrous above ..... *M. alba*  
 Linnaeus ●An occasional escape from cultivation, or persisting around old home sites; native to Asia.

**NAMACEAE NAMA FAMILY**

**Nama**

- 1 Plants obviously perennial from a woody or shrubby base  
 2 Plants shrubby, 20-40 cm tall; leaves linear and strongly revolute; corolla whitish ..... *N. carnosa*  
 (Wooton) C. L. Hitchcock ●Central and southeastern plains and mesas on gypsum sands and outcrops.  
 2 Plants tufted from a woody base, 5-10 cm tall; leaves oblanceolate to oval, weakly revolute; corolla pink, rarely white..... *N. xylopoda*  
 (Wooton & Standley) C. L. Hitchcock ●Crevice in limestone outcrops and cliffs in the Guadalupe and Brokeoff mountains of the southeast region.  
 1 Plants annual, rarely persisting a second year, the base not woody  
 3 Herbage with stalked glands; leaf margins flat; entire corolla not or scarcely exceeding the calyx, about 5 mm long, tubular-campanulate ..... *N. dichotoma*  
 (Ruiz & Pavon) Choisy ●Widespread in piñon-juniper and pine-oak woodlands; occasionally lower in desert scrub or higher on subalpine rock outcrops.  
 3 Herbage lacking stalked glands (but may be glandular-sticky in *N. hispida*); leaf margins flat to strongly revolute; entire corolla equaling to much exceeding the calyx, 4-15 mm long  
 4 Corolla 4-7 mm long, the limb narrow and mostly erect; stems erect, fastigiate; shorter stem hairs retrorse ..... *N. retrorsa*  
 J.T. Howell ●Piñon-juniper arroyos and sandy desert scrub in north-central and northwest regions.  
 4 Corolla 8-15 mm long, the limb broad and spreading; stems spreading, not fastigiate; shorter stem hairs spreading in all directions  
 5 Leaves linear-lanceolate, broadest near the middle, sessile, the margins strongly revolute; calyx pubescence closely appressed; filament bases dilated ..... *N. stevensii*  
 C.L. Hitchcock ●Desert scrub on gypseous soils in the southeast region. ♦An obligate gypsophile.  
 5 Leaves linear-oblong to obovate, broadest toward the apex, tapering at the base, the margins flat to revolute; calyx pubescence somewhat spreading; filament bases scarcely dilated ..... *N. hispida*  
 Gray ●Widespread on sandy or gravelly soils of semiarid plains, mesas, bajadas and foothills.

**NITRARIACEAE NITRARIA FAMILY**

**Peganum**

\**P. harmala* Linnaeus ●Disturbed roadsides and flats in the Chihuahuan Desert; native to northern Africa, southern Europe, Asia.

**NYCTAGINACEAE FOUR O'CLOCK FAMILY**

[Key adapted from Spellenberg 2003]

- 1 Stigmas linear, included within the perianth below the anthers; inflorescence a dense capitate cluster of 10-25 flowers

- 2 Wings of the fruit membranous, often transparent and veined ("cicada-like"), extending both above and below the fruit body; receptacle beset with peg-like pedicels about 2 mm long..... *Tripterocalyx*
  - 2 Wings of the fruit thick and leathery, not transparent and veined, extending only above the fruit body; receptacle ± smooth, lacking peg-like pedicels..... *Abronia*
  - 1 Stigmas capitate or peltate, commonly exerted from the perianth; inflorescence various
    - 3 Flowers subtended by (and often enveloped within) a definite involucre, the bracts many and separate or few and united
      - 4 Bracts of the involucre separate, many, subtending a many-flowered head; flowers reddish orange; fruit 10-ribbed..... *Nyctaginia*
      - 4 Bracts of the involucre united, few, subtending 1 to several flowers; flowers white to purple; fruit various
        - 5 Involucre subtending 3 zygomorphic flowers that open simultaneously and appear as a single actinomorphic flower; fruit with 2 rows of teeth or wings curving toward the dorsal surface... *Allionia*
        - 5 Involucre subtending 1-several flowers that rarely open simultaneously and do not appear as a single flower; fruit often ridged but lacking teeth or wings..... *Mirabilis*
    - 3 Flowers not subtended by an involucre, but subtended by 1-3 separate bracts
      - 6 Fruit with thin membranous wings..... *Acleisanthes*
      - 6 Fruit smooth or prominently ribbed but lacking membranous wings
        - 7 Perianth about as long as broad; fruit clavate, usually at least 3 times longer than broad
          - 8 Flowers pink to purplish, borne in racemes; fruit gibbous on one side, glabrous..... *Cyphomeris*
          - 8 Flowers of various colors but rarely in racemes; fruit not gibbous, glabrous or often with stalked glands
            - 9 Plants vine-like, climbing; flowers borne in umbels; perianth greenish white; fruit with conspicuous, stalked, sticky glands..... *Commnicarpus*
            - 9 Plants habit various, erect to procumbent, but rarely vine-like and climbing; flowers variously disposed; perianth varying from pale pink or rose to wine-red (rarely white or yellow); fruit glabrous or viscid-pubescent..... *Boerhavia*
        - 7 Perianth much longer than broad; fruit oblong to turbinate, 1-4 times longer than broad
          - 10 Perianth limb white or cream-colored, rarely suffused with pink or lavender (and if so then the limbs radially symmetrical); fruit oblong, with 5 prominent rounded ribs; leaves usually less than 3.5 cm broad..... *Acleisanthes*
          - 10 Perianth limb pink or rose, if nearly white then slightly bilaterally symmetrical; fruit about as broad as long, usually sharply ribbed or merely with broad angles; leaves usually more than 6 cm broad..... *Anulocaulis*
- Abronia** [graceful or delicate, referring to the bracts below the calyx] SAND-VERBENA [5].
- 1 Plants perennial, acaulescent or nearly so, wings on fruit not dilated..... *A. bigelovii*  
Heimerl ●Shrubby gypsum hills in mostly the northern counties.
  - 1 Plants annual or perennial, caulescent, wings on fruit dilated or not
    - 2 Wings of fruit not dilated..... *A. fragrans*  
Nuttall ex Hooker ●Dry sandy soils, scrub and grasslands, nearly throughout the state.
    - 2 Wings of fruit dilated
      - 3 Plants annual..... *A. angustifolia*  
Greene ●Sandy soils, desert scrub in the southern half of the state.
      - 3 Plants perennial
        - 4 Perianth limb pale pink to magenta; fruits 4-7 mm long..... *A. nealleyi*  
Standley ●Calcareous or gypseous, clay or silty soils, shrublands; mostly southeastern.
        - 4 Perianth limb white; fruits 5-12 mm long..... *A. elliptica*  
A. Nelson ●Sandy or gravelly soils, desert scrub and grasslands.
- Acleisanthes**
- 1 Fruits with ridges, but not winged..... *A. longiflora*  
A. Gray ●Rocky to sandy soils in mostly desert areas, mostly southern.
  - 1 Fruits with thin, hyaline wings
    - 2 Perianth 4-15 mm long, limbs pink to lavender; young stems and leaves with minute, white, T-shaped hairs ..  
..... *A. chenopodioides*  
(A. Gray) R.A. Levin ●Dry, sandy, and gravelly areas, central and southern.
    - 2 Perianth 30-50 mm long, limbs greenish white to yellowish or cream; young stems with minute flattened hairs, not T-shaped
      - 3 Pubescence of minute flattened hairs and multicellular conic hairs; petioles 3-20 mm long; leaf margins undulate..... *A. diffusa*  
(A. Gray) R.A. Levin ●Dry clay and sandy calcareous soils, eastern 2/3 of the state.
      - 3 Pubescence of only minute flat, white hairs; petioles 0-3 mm long; petioles 0-3 mm long; leaf margins entire..... *A. lanceolata*  
(Wootton) R.A. Levin ●Widespread on gypsum hills and flats.

**Allionia**

- 1 Plants annual (sometimes perennial); flowers 4-7 mm long; fruits shallowly convex, the lateral wings developed as curved wings with 4-8 slender teeth ..... *A. choisyi*  
Standley •Widespread in the state throughout the desert, grassy plains, and mesas, absent from the mountains.
- 1 Plants perennial; flowers 5-15 mm long; fruits deeply convex, the lateral ribs developed as curved wings with 0-4 broad triangular teeth ..... *A. incarnata*  
Linnaeus •Plains, mesas, dry hills and slopes, foothills.

**Anulocaulis**

*A. leiosolenus* (Torrey) Standley •Gypsum outcrops in the southeastern region.

**Boerhavia**

- 1 Fruits glandular pubescent or minutely pubescent; plants perennial
- 2 Leaves mostly distributed throughout the plant; inflorescences axillary or terminal; branches spreading-villous to finely pubescent; flowers usually more than 5 per cluster ..... *B. coccinea*  
Miller •Roadsides, arroyos, waste places, grasslands, southern.
- 2 Leaves mostly in the lower ½ of the plant; inflorescences mostly terminal; branches glabrous or becoming so in age; flowers usually 1 per cluster ..... *B. gracillima*
- 1 Fruits glabrous; plants annual or perennial
- 3 Plants perennial; fruit ribs rounded or bluntly round-angled
- 4 Bracts at base of perianths soon deciduous after anthesis; perianths wine-red to brick-red.... *B. gracillima*  
Heimerl •Dry rocky sites, desert scrub; southern.
- 4 Bracts at base of perianths persistent after anthesis; perianths purplish-pink ..... *B. linearifolia*  
A. Gray •Arid sites in the southeastern grasslands and scrublands.
- 3 Plants annual; fruit ribs obtusely to acutely angled, the ribs sometimes wing-like, rarely bluntly round-angled
- 5 Branches of the inflorescence densely glandular-villous, rarely merely pubescent or glabrous, without sticky bands on the outer internodes; bracts at base of perianths persistent in fruit
- 6 Fruits mostly 4-, sometimes 5-, ribbed; inflorescences racemose or spicate, the axis 10-35 mm long ..... *B. wrightii*  
A. Gray •Sandy soil in the central and southwestern desert areas.
- 6 Fruits 5-ribbed; inflorescences subcapitate or capitate, the axis 0-2.5 mm long ..... *B. purpurascens*  
A. Gray •Sandy soils in desert grasslands, piñon-juniper woodlands, mostly southern.
- 5 Branches of the inflorescence usually glabrous, sometimes minutely pubescent but not glandular, often with sticky bands on the outer internodes; bracts of base of perianths deciduous in anthesis
- 7 Terminal portions of the inflorescences spicate or racemose
- 8 Fruits broadly obovoid, usually overlapping in the inflorescence; sulci and ribs slightly rugose; stems usually glandular and spreading-pilose at the base ..... *B. spicata*  
Choisy •Sandy and rocky soils in arid grasslands and desert scrub.
- 8 Fruits narrowly obovoid or obpyramidal, overlapping or remote in the inflorescence; sulci slightly rugose to smooth; stems puberulent or sparsely pilose, but only rarely glandular at the base
- 9 Epidermal sulci surfaces papillose; sulci 0.5-1 times as wide as base of ribs; sides of ribs strongly rugose ..... *B. torreyana*  
(S. Watson) Standley •Sandy soil in mixed grassland/shrub communities.
- 9 Epidermal sulci surfaces smooth; sulci 0.1-0.3 times as wide as the base of the ribs; sides of ribs smooth or slightly rugose ..... *B. coulteri*  
(Hooker f.) S. Watson •Desert scrubland in the southwestern region.
- 7 Terminal portions of the inflorescences subracemose to umbellate or capitate
- 10 Fruits 3-4-ribbed, ribs wing-like..... *B. pterocarpa*  
S. Watson •Disturbed areas, desert grasslands; known only from 2 collections in Luna County.
- 10 Fruits mostly 5-ribbed, ribs not wing-like
- 11 Terminal flower clusters usually true umbels, all pedicels from a single node; fruits 2-3.2 mm long ..... *B. triquetra*  
S. Watson •Sandy or gravelly ground in grasslands and deserts in the southwestern half of the state. ♦Our plants are var. *intermedia* (M.E. Jones) Spellenberg
- 11 Terminal flower clusters irregularly umbellate to subracemose, at least some fruiting pedicels attached well below the others; fruits 2.7-4mm long ..... *B. erecta*  
Linnaeus •Disturbed sites in the southwestern desert and plains.

**Commicarpus**

*C. scandens* (Linnaeus) Standley •Dry canyons, arroyos, among boulders or other shrubs.

**Cyphomeris**

*C. gypsophiloides* •Rocky slopes, washes, roadsides, on a variety of soils.

**Mirabilis**

- 1 Flowers 3-17 cm long

Dicotyledonous Plants - Nymphaeaceae

- 2 Flowers white, 7-17 cm long; 1 per involucre ..... *M. longiflora*  
Linnaeus ●Rocky canyons and slopes in the central and western regions of the state.
- 2 Flowers purplish red, 3-6 cm long, 6 per involucre..... *M. multiflora*  
(Torrey) A. Gray ●Washes, mesas, hillsides, piñon-juniper woodlands, ponderosa forests.
- 1 Flowers less than 2 cm long
  - 3 Leaf blades linear to linear-lanceolate, mostly less than 1 cm wide
    - 4 Involucres not or only slightly increasing in size after anthesis, greenish when mature, opaque, 4-8 mm long in fruit; perianth bright red-purple ..... *M. coccinea*  
(Torrey) Bentham & Hooker f. ●Dry, open hillsides, mixed woodlands, southwestern.
    - 4 Involucres greatly increasing in size after anthesis, becoming tan, translucent, 6-10 mm long in fruit; perianth white to rose-purple..... *M. linearis*  
(Pursh) Heimerl ●Widespread throughout the state.
  - 3 Leaf blades linear-lanceolate to ovate or cordate, mostly more than 1 cm wide
    - 5 Fruits weakly ribbed to smooth..... *M. oxybaphoides*  
(A. Gray) A. Gray ●Throughout the state in brushy areas, moist woodlands, creek banks or rocky areas.
    - 5 Fruits prominently 5-ribbed
      - 6 Fruits glabrous, sometimes very lightly puberulent ..... *M. glabra*  
(S. Watson) Standley ●Widespread and variable, grasslands, woodlands, scrublands.
      - 6 Fruits puberulent or pubescent, sometimes sparsely so
        - 7 Involucres green and blushed with dark violet or black; cross-walls of hairs on involucres and peduncles dark purple or black; leaf blades narrowly triangular-ovate to ovate ..... *M. melanotricha*  
(Standley) Spellenberg ●Western and central conifer woodlands and mountain meadows.
        - 7 Involucres green or blushed with red; cross-walls of hairs on involucres and peduncles usually pale; leaf blades lanceolate to ovate
          - 8 Leaf blades linear-lanceolate to lanceolate, 0.5-2.5 cm wide..... *M. albida*  
(Walter) Heimerl ●Grassy slopes, hillsides, dry meadows, sandy prairies.
          - 8 Leaf blades ovate-lanceolate to ovate or triangular, 2-6.5 cm wide
            - 9 Involucral bracts sparsely to densely pubescent, often viscid; fruits scarcely tuberculate ..... *M. comata*  
(Small) Standley ●Rocky slopes and flats in mixed woodlands and grasslands.
            - 9 Involucral bracts glabrous to glabrate, but with minute hairs on the margins, rarely pubescent; fruits strongly tuberculate ..... *M. nyctaginia*  
(Michaux) MacMillan ●Pine meadows, grassy plains and prairies; mostly in the northeastern counties, but a few records from the central and southwestern mountain regions.

**Nyctaginia**

*N. capitata* Choisy ●Dry grasslands and scrublands, southern.

**Tripterocalyx**

- 1 Perianth tube 6-18 mm long, limb 3-5 mm in diameter, lobes inconspicuous ..... *T. micranthus*  
(Torrey) Hooker ●Arid scrublands in the western half of the state.
- 1 Perianth tube 12-30 mm long, limb 8-13 mm in diameter, lobes conspicuous ..... *T. carneus*  
(Greene) Galloway ●Sandy soil in mixed desert-scrub communities.

**NYMPHAEEAE WATERLILY FAMILY**

- 1 Perianth nearly globose at anthesis, the sepals incurved, the flowers yellow; leaf venation essentially pinnate ..... *Nuphar*
- 1 Perianth widely spreading at anthesis, the sepals spreading, the flowers white, bluish, pink, or yellow; leaf venation essentially palmate..... *Nymphaea*

**Nuphar**

*N. polysepala* Engelman ●Ponds and small lakes known from only a few localities in the northern tier of counties, more common northwestward.

**Nymphaea**

- 1 Petals yellow; plants bearing stolons ..... *N. mexicana*  
Zuccarini ●Known only from a small pool near Kingston, Sierra County; considered exotic in New Mexico, native eastward.
- 1 Petals white to occasionally pinkish; plants lacking stolons..... *N. odorata*  
Aiton ●Infrequent in ponds and pools in the bootheel region; considered exotic in New Mexico, native eastward.

**OLEACEAE OLIVE FAMILY**

- 1 Leaves pinnately compound; fruit a winged samara..... *Fraxinus*
- 1 Leaves simple; fruit a winged samara or berry-like
  - 2 Leaves alternate above, opposite below; plants low shrubs or nearly herbaceous; corolla well-developed .. *Menodora*

- 2 Leaves opposite throughout; plants well-developed shrubs or small trees; corolla absent or only weakly developed, not prominent
  - 3 Leaves ovate to cordate, 1-8 cm wide; petiole prominent, sometimes as long as the blade
    - 4 Leaf blades mostly widest below the middle, entire; fruit a capsule ..... *Syringa*
    - 4 Leaf blades mostly widest at the middle, crenate to subentire; fruit a winged samara (*F. anomala*) ..... *Fraxinus*
  - 3 Leaves elliptic to oblanceolate, 0.5-2 cm wide; petiole not well-developed, usually much shorter than the blade
    - 5 Flowers and fruits in terminal panicles; corolla well-developed; plants escaped ornamentals *Ligustrum*
    - 5 Flowers and fruits in small axillary clusters; corolla essentially absent; plants native, occasionally cultivated ..... *Forestiera*

**Forestiera**

- 1 Leaf blades 3 or more times longer than wide; margins entire or slightly sinuate, ± revolute ..... *F. phillyreoides* (Bentham) Torrey ●Known only from Hidalgo County, Arizona, Mexico.
- 1 Leaf blades 1-3 times longer than wide; margins crenulate or serrulate, rarely entire ..... *F. pubescens* Nuttall ●Widespread throughout the state.

**Fraxinus**

- 1 Leaflets mostly single, occasionally 2-3, the terminal leaflet tending to orbicular ..... *F. anomala* Torrey ex S. Watson ●Canyons and rocky hills in the western tier of counties.
- 1 Leaflets 3-7 or more in number, the terminal leaflet lanceolate to spatulate
  - 2 Twigs prominently 4-angled; plants sometimes with a few unifoliate leaves (var. *lowellii*) ..... *F. anomala*
  - 2 Twigs rounded; plants never with unifoliate leaves
    - 3 Flowers and fruits borne on current year's growth near the ends of the branchlets; petals present; basal portion of samara flattened; leaflets mostly 0.5-1.5 cm wide, glabrous beneath, the venation only scarcely reticulate ..... *F. cuspidata* Torrey ●Dry, rocky ground, outcrops, and ledges of the western and central mountains and foothills.
    - 3 Flowers and fruits borne on the previous years growth, hence removed from the ends of the branchlets; petals absent; basal portion of samara round; leaflets mostly 1.5-3 cm wide, puberulent beneath, especially along the midrib, or less commonly glabrous, the venation conspicuously reticulate
    - 4 Leaflets mostly 7-9 in number; twigs and petioles mostly glabrous; commonly cultivated trees, only rarely escaping ..... *F. pennsylvanica* Marshall ●Adventive in the northwest region; native to eastern North America.
    - 4 Leaflets mostly 3-5 in number; twigs and petioles mostly puberulent; indigenous in natural habitats and also widely cultivated ..... *F. velutina* Torrey ●Washes and canyon in the mountains, foothills, and deserts; common in the southern half of the state.

**Ligustrum**

\**L. vulgare* Linnaeus ●Commonly cultivated as a hedge plant; found escaped in San Miguel County along the Pecos River; to be expected elsewhere; native to Europe.

**Menodora**

- 1 Corolla tube elongate, 2.5-5 cm long, salverform, entirely glabrous within ..... *M. longiflora* Gray ●Limestone slopes, ridges, and outcrops, gravelly plains; southern counties.
- 1 Corolla tube shorter, less than 1 cm long, rotate to short funnel-shaped, pilose at the opening ..... *M. scabra* Gray ●Rocky hills and slopes, washes, sandy arroyos, caprocks and mesas, desert plains to juniper foothills; widespread throughout the state.

**Syringa**

\**S. vulgaris* Linnaeus ●Roadsides, moist canyon areas, around old dwellings; escaped from cultivation, and expected in more counties than shown; native to southeastern Europe (Balkan Peninsula).

**ONAGRACEAE EVENING PRIMROSE FAMILY**

- 1 Leaves opposite, or the upper ones alternate and the lower ones opposite
  - 2 Sepals, petals, and stamens 2; fruit indehiscent, usually bearing hooked hairs ..... *Circaea*
  - 2 Sepals and petals 4; stamens 8; fruit dehiscent, without hooked hairs
    - 3 Sepals persistent on the fruit; seeds lacking a tuft of hairs; floral tube absent ..... *Ludwigia*
    - 3 Sepals deciduous before maturity of the fruit; seeds with a tuft of hairs at one end; floral tube absent to present ..... *Epilobium*
- 1 Leaves alternate or basal
  - 4 Seeds with a tuft of hairs at one end; floral tube absent; plants 0.5-2 m tall ..... *Chamaenerion*
  - 4 Seeds without a tuft of hairs at either end (sometimes pubescent all over); floral tube absent to present; plant size various
    - 5 Capsule 2-chambered; floral tube very short to absent ..... *Gayophytum*
    - 5 Capsule 4-chambered; floral tube generally well-developed
      - 6 Style with a peltate disk at the base of the stigma; stigma 4-lobed, peltate, or discoid ..... *Oenothera*

- 6 Style without a peltate disk at the base of the stigma; stigma hemispherical, globose, or cylindrical
- 7 Capsules pedicellate; seeds in 2 rows in each locule ..... *Chylismia*
- 7 Capsules sessile; seeds in 1 row in each locule
- 8 Flowers yellow, opening in the morning ..... *Camissonia*
- 8 Flowers white, opening in the evening ..... *Eremothera*

**Camissonia**

*C. parvula* (Nuttall ex Torrey & Gray) Raven •Desert grassland in the Four Corners region.

**Chamaenerion**

*C. angustifolium* (Linnaeus) Scopoli •Roadsides, moist disturbed ground, burned areas in the mountains; widespread in all the mountains. ♦Our plants belong to the tetraploid subsp. *circumvagum* (Mosquin) Moldenke

**Chylismia**

- 1 Capsules 1-2 mm wide, linear; inflorescence erect ..... *C. walkeri*  
A. Nelson •Desert scrub in the Four Corners region; on the eastern edge of its range and known from very few collections.
- 1 Capsules 2-4 mm wide, distinctly clavate; inflorescence nodding
- 2 Leaves nearly simple with few if any lobes/leaflets; petals mostly 2-5 mm long, yellow when fresh .....  
..... *C. scapoidea*  
Nuttall ex Torrey & Gray •Desertic clay hills in the Four Corners region.
- 2 Leaves usually pinnatifid, dissected, or with leaflets; petals mostly 4-10 mm long, white when fresh .....  
..... *C. claviformis*  
Torrey & Frémont •Southwestern deserts. ♦Our plants belong to subsp. *peeblesii* (Munz) W.L. Wagner & Hoch

**Circaea**

*C. alpina* Linnaeus •Cool, moist woods, along streams, wet places, in the mountains.

**Epilobium**

- 1 Plants annual, from taproots
- 2 Seeds with a tuft of hair at 1 end (easily detached); leaves distant, usually shorter than internodes; floral bracts much reduced, the flowers and fruits appearing to be in open nearly leafless racemes .....  
..... *E. brachycarpum*  
C. Presl •Weedy, often dry ground in the mountains.
- 2 Seeds lacking a tuft of hair; leaves crowded, usually longer than internodes; floral bracts not or hardly reduced, the flowers and fruits appearing to be crowded and axillary ..... *E. campestre*  
(Jepson) Hoch & W.L. Wagner •Shores of lakes and ponds, mud flats of stock tanks; known only from the mountains of Rio Arriba County.
- 1 Plants perennial, commonly lacking taproots, from rhizomes
- 3 Floral tubes 17-34 mm long; petals red-orange; plants commonly suffrutescent ..... *E. canum*  
(Greene) Raven •Dry rocky slopes in the southwestern foothills and mountains. ♦There are 3 intergrading and geographically overlapping varieties; our plants belong to var. *latifolium* (Hooker) N.H. Holmgren & P.K. Holmgren
- 3 Floral tubes 1-16 mm long; petals white, pink, to purplish; plants generally herbaceous
- 4 Plants with thread-like stolons
- 5 Inflorescence and stems glabrous or with very scattered hairs, the inflorescence glandular; stolons lacking bulb-like offsets (turions) ..... *E. oregonense*  
Haussknecht •Wet boggy ground at high elevations, often among mosses; known only from two recent collections in the northern mountains; found primarily throughout the Cascade-Sierra Nevada mountain ranges of Oregon and California, with scattered occurrences eastward.
- 5 Inflorescence and stems pubescent with minute hairs, the inflorescence glandular or non-glandular; stolons ending in turions
- 6 Leaves densely minutely pubescent; inflorescence minutely pubescent and glandular, erect in bud ...  
..... *E. leptophyllum*  
Rafinesque •Wet meadows and bogs, known for certain only from Lincoln County, from a single 1897 specimen.
- 6 Leaves minutely pubescent only on margins and midribs; inflorescence minutely pubescent, non-glandular, nodding in bud ..... *E. palustre*  
Linnaeus •Wet, low, boggy or marshy ground; not definitely known from New Mexico.
- 4 Plants lacking stolons
- 7 Plants low and spreading, the stems often in dense clumps, rarely over 20 cm tall; stems often S-shaped; leaves 8-20 mm long ..... *E. anagallidifolium*  
Lamarck •Upper montane, subalpine, to alpine habitats, wet fields, meadows, seeps, and along streams in the northern mountains.
- 7 Plants erect, the stems usually solitary or a few together, 10-40 cm or more tall; stems straight; leaves various, up to 50 mm long
- 8 Stems 30-100 cm or more tall and freely branched, especially above, sometimes shorter but the upper leaves numerous; mature seeds finely longitudinally ridged (use a lens) ..... *E. ciliatum*

Rafinesque ●Moist weedy ground and stream banks in the mountains; widespread.

- 8 Stems mostly 10-30 cm tall and unbranched above, the upper leaves fewer and scattered; mature seeds smooth or scattered-papillate

9 Plants not producing bulb-like offsets (turions) at the base of the stem

- 10 Petals white, rarely red-veined or fading pink; pedicels 15-45 mm in fruit; capsules 50-100 mm long; petioles 3-12 mm long, often winged..... *E. lactiflorum*  
 Haussknecht ●Subalpine to alpine stream banks and other wet sites in the (mostly) northern mountains.

- 10 Petals usually pink to rose-purple, rarely white; pedicels 5-15 mm long in fruit; capsules 35-65 mm long; petioles 3-9 mm long proximally, to absent distally, not winged .....  
 Reichenbach ●Montane, subalpine, to alpine stream banks and other wet sites in the mountains.

9 Plants producing bulb-like offsets (turions) at the base of the stem, the fleshy overlapping scales often persistent

- 11 Pedicels 8-40 mm long; leaves short-petiolate to sessile, but not clasping, the veins inconspicuous; inflorescences ± nodding in bud..... *E. hallianum*  
 Haussknecht ●Moist clearings and meadows in montane to subalpine forests.

- 11 Pedicels 0-5 mm long; leaves mostly sessile and often clasping, the veins conspicuous; inflorescences ± erect ..... *E. saximontanum*  
 Haussknecht ●Moist meadows and stream banks in the mountains.

### Eremothera

- 1 Petals 4-10 mm long; sepals 4-6 mm long; stigma exceeding the anthers at anthesis ..... *E. refracta*  
 (S. Watson) W.L. Wagner & Hoch ●Sandy desert plains in Hidalgo County; known from a single old collection, likely no longer present in the state.

- 1 Petals 1.5-3 mm long; sepals 1-2.5 mm long; stigma not exceeding the anthers at anthesis... *E. chamaenerioides*  
 (A. Gray) W.L. Wagner & Hoch ●Dry hills and plains in the southern deserts.

### Gayophytum

1 Seeds in each chamber crowded and overlapping

- 2 Petals 1.5-3 mm long; pedicels shorter than the capsules ..... *G. diffusum*  
 Torrey & Gray ●Dry open flats and plains in the northern regions. ♦Our plants belong to var. *strictipes* (Hooker) Dorn

- 2 Petals 0.7-1.5 mm long; pedicels longer than the capsules ..... *G. ramosissimum*  
 Torrey & Gray ●Dry, often sandy, plains, flats, and foothills in the northwest region.

1 Seeds in each chamber not crowded and overlapping

- 3 Capsules much constricted between the seeds; plants with 0-2 nodes between the branches..... *G. diffusum*  
 Torrey & Gray ●Dry open flats and plains in the northern regions. ♦Our plants belong to var. *strictipes* (Hooker) Dorn

- 3 Capsules not much constricted between the seeds; plants usually with 2-8 nodes between the branches .....  
 Lewis & Szweykowski ●Meadows, streambanks, moist slopes in the foothills and mountains; northwest counties.

### Ludwigia

- 1 Leaves alternate ..... *L. peploides*  
 (Kunth) Raven ●Ponds, lake shores, marshy ground.

1 Leaves opposite

- 2 Petals absent; capsules sessile, with broad green bands at the corners; bracteoles basal or nearly so, up to 1 mm long, or absent..... *L. palustris*  
 (Linnaeus) Elliott ●Marshy ground, around ponds and springs; known only from a few scattered collections in Eddy, Hidalgo, and Guadalupe counties.

- 2 Petals present; capsules on pedicels 0.3-1.5 mm long, without green bands; bracteoles borne on the ovary somewhat above the base, 1-4 mm long..... *L. repens*  
 J.R. Forster ●Wet ground or shallow water, usually aquatic and emergent, but persisting on drying mud.

### Oenothera

1 Plants acaulescent, the stems not or hardly developed

2 Petals white when fresh, aging to pinkish or rose-purple

- 3 Floral tube 1.5-3 cm long; plants annual; capsules 2-4 mm thick, evidently ribbed, but lacking adjacent tubercles..... *Oe. albicaulis*  
 Pursh ●Widespread, open plains and foothills, disturbed places; in every county.

- 3 Floral tube 3.5-16 cm long; plants perennial; capsules 5-10 mm thick, strongly ribbed, the ribs flanked by a tuberculate ridge or row of tubercles..... *Oe. cespitosa*  
 Nuttall ex Fraser ●Widespread throughout the western ¾ of the state.

2 Petals yellow or pale yellow when fresh, aging to orange, bronze, or reddish-purple

- 4 Leaves entire or slightly lobed, rarely pinnatifid; petals 3-6 cm long ..... *Oe. brachycarpa*

Gray ●Canyon bottoms, shaded crevices, stream banks in the lower slopes, foothills, and bajadas of the southern half of the state.

4 Leaves incised to pinnatifid; petals 1-4 cm long

5 Tips of the calyx segments united in the bud; herbage with conspicuous if short spreading hairs ..... *Oe. primiveris*

Gray ●Dry, open, sandy ground, southern plains and deserts, commonly with *Larrea*, also waste ground and disturbed areas.

5 Tips of the calyx segments free in the bud; herbage with appressed hairs or glabrous

6 Petals pale yellow; capsules woody, with wings 5-10 mm wide, often terminating in a hooked tooth at the widest part of the wing; plants annual or sometimes biennial ..... *Oe. triloba*

Nuttall ●Stream banks, moist canyon bottoms, grasslands, open fields and ditch banks; scattered locales on the eastern plains and foothills, with a few outliers in Lincoln and Socorro counties.

6 Petals bright yellow; capsules leathery, with wings 1-5 mm wide, never with a hooked tooth on the wing; plants perennial.....*Oe. flava*

(A. Nelson) Garrett ●Wet swales, flats, playas, ponds, mountain meadows, stream banks; widespread, but seemingly more common northward.

1 Plants caulescent, the stems developed and usually conspicuously so, at least 5 cm or more long

7 Fruit indehiscent, nut-like

8 Flowers borne in the axils of the upper leaves, which are scarcely reduced; petals narrowed to the base, not abruptly clawed .....*Oe. canescens*

Torrey & Frémont. Low, rhizomatous plants of dried lakes and ponds, clay soil; central to eastern plains.

8 Flowers borne in the axils of obviously reduced inflorescence bracts; petals abruptly clawed; plants generally otherwise

9 Floral tube filiform, scarcely widening upwards; filaments unappendaged .....*Oe. glaucifolia*

W.L. Wagner & Hoch ●Rocky outcrops and sandy disturbed ground on the central-eastern plains, with a few outliers in the southwest region.

9 Floral tube funnel-form, widening upwards; filaments appendaged (*Gaura*)

10 Coarse, single-stemmed taprooted annual or biennial up to 2 m tall; sepals 2-3.5 mm long; anthers about 1 mm long ..... *Oe. curtiflora*

W.L. Wagner & Hoch ●Throughout the state on plains and disturbed ground; expected in all counties.

10 More slender, several-stemmed biennials or perennials often much shorter; sepals usually longer than 4 mm; anthers at least 2 mm long

11 Fruits with notably slender stipes 3-10 mm long; floral tubes 2-5 mm long; plants densely villous ..... *Oe. cinerea*

(Wootton & Standley) W.L. Wagner ●Sandy eastern plains.

11 Fruits sessile, subsessile, or with a thick, stout stipe shorter than 3 mm; floral tubes and vestiture various

12 Ovary and fruit glabrous; capsules winged, furrowed between the wings

13 Floral tubes 10-20 mm long; petals 10-15 mm long; margins of leaves with short stiff hairs to nearly 0.5 mm long ..... *Oe. nealleyi*

(Coulter) Krakos & Wagner ●Dry plains and hills in the central/southern/eastern part of the state, with a single outlier westward in Catron County.

13 Floral tubes 6-10 mm long; petals 5-10 mm long; margins of leaves with tiny stiff hairs 0.1-0.2 mm long ..... *Oe. podocarpa*

(Wootton & Standley) W.L. Wagner & Hoch ●Southwestern foothills and mountains, with perhaps some outliers eastward.

12 Ovary and fruit pubescent; capsules angled but not winged, not furrowed

14 Stems erect, 40-70 cm tall; plants annual/biennial from taproots; cauline leaves 5-15 cm long; fruit spreading pubescent, ellipsoid to ovoid in the distal ½; floral tubes 10-11 mm long ..... *Oe. dodgeniana*

Krakos & Wagner ●Moist meadows in the central and northern mountains at mid-elevations.

14 Stems ascending, seldom over 40 cm tall; plants perennial from thick taproots or short rhizomes; cauline leaves 1-4 cm long; fruit appressed pubescent, strongly pyramidal in the distal ½; floral tubes 4-13 mm long.....*Oe. suffrutescens*

(Seringe) W.L. Wagner & Hoch ●Throughout the state in numerous habitats, desert shrub, grasslands, conifer woodlands; our most common species.

7 Fruit dehiscent, capsule-like

15 Stigma entire, lacking 4 evident lobes (*Calylophus*)

16 Sepals with a conspicuous keeled or winged midrib; stamens of two different lengths, 4 of them about 2 times the length of the others; flower buds sharply 4-angled

17 Petals 5-12(20) mm long; stigma surrounded by the anthers at anthesis..... *Oe. serrulata*



- Nuttall ●Sandy or rocky ground of plains, hillsides, roadsides, dunes, grasslands and scrublands to conifer woodlands; widespread.
- 17 Petals (6)10-25 mm long; stigma elevated above the anthers at anthesis.....*Oe. capillifolia*  
Scheele ●Sandy and rocky ground in the eastern plains; scattered elsewhere along highways.
- 16 Sepals plane, lacking a keeled midrib; all stamens subequal in length; flower buds ± round, not sharply angled
- 18 Floral tube mostly 5-25 mm long, very slender at the base, funnellform at least ½ its length; flowers opening near sunrise.....*Oe. tubicula*  
Gray ●Open slopes and limestone flats in the southeastern desert grasslands and scrublands.
- 18 Floral tube mostly 20-60 mm long, relatively stout at the base, funnellform no more than ½ its length; flowers opening in the afternoon or near sunset
- 19 Plants 8-15(20) cm high, the stems decumbent to ascending; stems and leaves whitish with appressed strigose short hairs, not glandular.....*Oe. lavandulifolia*  
Torrey & Gray ●Widespread in a variety of habitats, desert scrub, grasslands and plains, conifer woodlands, foothills, mountain slopes.
- 19 Plants usually taller; stems and leaves otherwise, not whitish, often glandular, if conspicuously pubescent, the hairs spreading
- 20 Free tips of the calyx lobes 3-12 mm long; fascicles of small leaves present in the axils.....*Oe. toumeyi*  
(Small) Tidestrom ●Pine-oak woodlands in the western mountains; known from few specimens; more common in southeastern Arizona and Mexico.
- 20 Free tips of the calyx lobes 1-3(4) mm long; fascicles of small leaves usually absent.....*Oe. hartwegii*  
Bentham ●Throughout the state in deserts, plains, and foothills; expected in all counties.
- 15 Stigma with 4 evident slender lobes (*Oenothera* s.s.)
- 21 Petals white to pink or rose when fresh, aging to pink, lavender, or rose-purple
- 22 Leaves small, 0.5-1.5 cm long, entire to minutely toothed.....*Oe. canescens*  
Torrey & Frémont ●Dried lakes and ponds, ditch banks, clay soil, central to eastern plains.
- 22 Leaves 2 cm or more long, sinuate-serrate to deeply pinnatifid, sometimes sub-entire
- 23 Plants rhizomatous or from creeping, rhizome-like roots
- 24 Capsules conspicuously club-shaped, the lower part narrower than the upper (though still somewhat thick), this evident even when young.....*Oe. speciosa*  
Nuttall ●Waste places, often along canals and ditches, open plains and prairies; native to the central United States.
- 24 Capsules cylindrical, not noticeably narrowed nor expanded at either end
- 25 Petals 1-1.5(2) cm long; leaves deeply pinnatifid, the lobes and rachis mainly 2.5 mm wide or less; throat of floral tube with copious, long, white hairs.....*Oe. coronopifolia*  
Torrey & Gray ●Sandy ground, rocky outcrops, hillsides, grasslands, woodlands, forests; common and widespread.
- 25 Petals typically 1.5-3 cm long; leaves sub-entire to variously lobed or pinnatifid, the lobes and rachis commonly over 3 mm wide; throat of floral tube glabrous or essentially so
- 26 Capsules erect or strongly ascending.....*Oe. neomexicana*
- 26 Capsules spreading to reflexed.....*Oe. pallida*
- 23 Plants taprooted
- 27 Stems villous, at least above
- 28 Foliage very densely villous; upper stem leaves sessile or nearly so; mature capsules bent downward.....*Oe. engelmannii*  
(Small) Munz ●Sandy ground, dunes, and waste places of the eastern plains.
- 28 Foliage sparsely to moderately villous; upper stem leaves, at least many, petiolate; mature capsule ascending to spreading, but not bent downward.....*Oe. neomexicana*  
(Small) Munz ●Shaded and wooded slopes, aspen glades, canyon bottoms, riparian zones; medium elevations in the southern and western mountains.
- 27 Stems nearly glabrous to strigulose
- 29 Floral tube 3-16 cm long; flowers erect when in bud; capsules 5-10 mm thick, strongly ribbed, the ribs flanked by a tuberculate ridge or row of tubercles.....*Oe. cespitosa*  
Nuttall ex Fraser ●Widespread throughout the western ¾ of the state.
- 29 Floral tube 1.5-3 cm long; flowers nodding when in bud; capsules 1-3 mm thick, not tuberculate

- 30 Plants annual, usually with a persistent rosette at the base; stems without an exfoliating outer layer; tips of the sepals fully united in the bud; capsule ascending-erect..... *Oe. albicaulis*  
 Pursh ●Widespread, open plains and foothills, disturbed places; in every county.  
 Pursh. Widespread, open plains and foothills, disturbed places; throughout the state.
- 30 Plants perennial, lacking any rosette leaves; stems with an exfoliating outer layer; tips of the sepals free in the bud, 1-2 mm long; capsule usually widely spreading, sometimes ascending-spreading..... *Oe. pallida*  
 Lindley ●Widespread, nearly throughout the state.
- 21 Petals yellow when fresh, aging to orange, bronze, or reddish-purple
- 31 Leaves ± entire or remotely toothed with shallow teeth or the lower ones sometimes merely sinuate-dentate toward the base, none conspicuously lobed to pinnatifid
- 32 Floral tube 6-19 cm long
- 33 Floral tubes 10-19 cm long; stems ascending to weakly erect, decumbent-based; seeds irregularly angled; Organ Mts..... *Oe. organensis*  
 Munz ●Endemic to the Organ Mountains of Doña Ana County, at seeps, springs, ponds, and rocky washes on the lower slopes and foothills.
- 33 Flora tubes 6-13 cm long; stems erect; seeds prismatic-angled; northwest region.....  
 ..... *Oe. longissima*  
 Rydberg ●Seasonally wet to nearly marshy areas in the Four Corners region; known in New Mexico from very few collections; westward to California and Nevada.
- 32 Floral tube 2-5.5 cm long
- 34 Flowers in terminal spikes, the upper leaves bract-like; petals noticeably rhombic, widest near the middle..... *Oe. rhombipetala*  
 Nuttall ex Torrey & Gray ●Sandy, disturbed ground of the southeastern plains.
- 34 Flowers borne in the axils of the upper leaves, which are smaller but not bract-like; petals widest near or at the tip
- 35 Stigma elevated above the anthers at anthesis, the style exerted 2-4 cm beyond the floral tube; petals 2.5-6.5 cm long; free sepal tips in the bud 2-7 mm long.....  
 ..... *Oe. elata*  
 Kunth ●Widely scattered and abundant in the state in mesic sites, meadows, along roads, ditch banks, and streams; lower foothills extending into the mountains, apparently absent from the eastern plains. ♦Our plants belong to the weakly differentiated subsp. *hirsutissima* (A. Gray ex S. Watson) Dietrich
- 35 Stigma surrounded by or below the anthers at anthesis, the style exerted up to about 1.5 cm beyond the floral tube; petals 1-2.5 cm long, sometimes longer; free sepal tips in the bud 1-3 mm long
- 36 Herbage appearing gray-hairy; stems, floral tube, sepals, and ovary densely pubescent; inflorescence rather loosely flowered..... *Oe. villosa*  
 Thunberg ●Open, moist sites, stream banks, roadsides, fields, scattered locations throughout the state. ♦Our plants belong to more western subsp. *strigosa* (Rydberg) W. Dietrich & P.H. Raven
- 36 Herbage appearing green; stems, floral tube, sepals, and ovary sparsely pubescent; inflorescence densely flowered..... *Oe. biennis*  
 Linnaeus ●Disturbed ground, roadsides, open fields; scattered sites; native eastward, east Texas to the Atlantic.
- 31 Leaves, at least many or most, conspicuously lobed to pinnatifid
- 37 Petals 2-4 cm long
- 38 Capsules strongly rib-angled; tips of the sepals united in bud plants; plants 5-25 cm tall..... *Oe. primiveris*  
 Gray ●Dry, open, sandy ground, southern plains and deserts, commonly with *Larrea*, also waste ground and disturbed areas.
- 38 Capsules terete or rounded; tips of the sepals free in the bud, 2-5 mm long; plants 20-60 cm tall..... *Oe. grandis*  
 (Britton) Smyth ●Sandy prairies and plains in the eastern region.
- 37 Petals 0.5-2 cm long
- 39 Young flower buds with floral tubes curved upward; free tips of the sepals in bud 1-3 mm long; lower, non-montane habitats..... *Oe. laciniata*  
 Hill ●Weedy ground of plains and prairies, non-montane habitats; little-known in the state.
- 39 Young flower buds with floral tubes nodding to recurved; free tips of the sepals in bud 0.1-1 mm long; montane habitats..... *Oe. pubescens*

Willdenow ex Sprengel ●Open, often weedy ground, foothills and forests, scattered locales in the state.

### OROBANCHACEAE BROOMRAPE FAMILY

- 1 Plants lacking chlorophyll entirely, well-developed green leaves absent
- 2 Entire plant yellowish and glabrous; calyx spathe-like, deeply cleft on the lower side and several-toothed on the upper side; upper lip of the corolla deeply concave ..... *Conopholis*
- 2 Plants with some purplish color and at least some viscid pubescence; calyx not spathe-like, ± equally lobed; upper lip of corolla straight to curved but not deeply concave ..... *Aphyllon*
- 1 Plants producing chlorophyll, well-developed green leaves present
- 3 Leaves opposite or whorled
- 4 Corolla bluish, reddish, purplish, greenish, or white, not yellowish ..... *Agalinis*
- 4 Corolla yellow or yellowish
- 5 Calyx 4-toothed; leaves sharply serrate ..... *Rhinanthus*
- 5 Calyx 5-toothed or lobed; leaves entire ..... *Brachystigma*
- 3 Leaves alternate or mostly all basal
- 6 Leaves crenate-toothed or pinnately cleft to compound with more than 7 pairs of lobes or divisions ..... *Pedicularis*
- 6 Leaves entire or pinnately 3- to 7-lobed or divided
- 7 Flowers on long pedicels; upper lip of corolla not forming a hood; leaves entire ..... *Brachystigma*
- 7 Flowers sessile or nearly so; upper lip of corolla forming a hood that encloses the anthers; leaves various, but often lobed or divided
- 8 Plants perennial; upper lip of corolla projecting forward forming a beak, much longer than the lower lip ..... *Castilleja*
- 8 Plants annual; upper lip of corolla beaked or not
- 9 Upper lip of corolla projecting forward forming a beak, much longer than the lower lip, which is often reduced and sometimes easily overlooked ..... *Castilleja*
- 9 Upper lip of corolla directed downward forming a hood, about the same length as the lower lip, which is easily observed
- 10 All leaves entire (*C. laxiflora*) ..... *Cordylanthus*
- 10 At least the uppermost leaves divided into filiform segments
- 11 Calyx unequally 4-lobed, cleft less than half its length, tubular and not bract-like ..... *Orthocarpus*
- 11 Calyx 2-lobed, cleft nearly to the base on one side and giving the appearance of a large bract (*C. wrightii*) ..... *Cordylanthus*

#### Agalinis

- 1 Pedicels 5-7 mm long; calyx lobes 5-15 mm long ..... *A. calycina*  
Pennell ●Known only from marshy ground at the Bitter Lakes area, Chaves County.
- 1 Pedicels 10-27 mm long; calyx lobes 1-2 mm long ..... *A. tenuifolia*  
(Vahl) Rafinesque ●Reported for New Mexico in various works, but authentic specimens are unknown; to be looked for in moist shady sites along streams and ponds, meadows, fields, in the northeastern region.
- Agalinis tenuifolia*

#### Aphyllon

- 1 Pedicels 3-20 cm long, 2-10 times longer than the flower
- 2 Flowers generally 5-20 or more per stem or branch; distal pedicels shorter than the stem; proximal pedicels longer than or about equal to the stem; primarily on *Artemisia*, *Eriogonum*, *Phacelia* ..... *A. fasciculatum*  
(Nuttall) Torrey & A. Gray ●Foothills, plains, woodlands, mountain forests and canyons, meadows, semi-arid grasslands; widespread and commonly collected.
- 2 Flowers generally 1-2 per stem or branch; distal pedicels longer than the stem; proximal pedicels generally 2-3 times longer than the stem; primarily Crassulaceae and Saxifragaceae, but also others ..... *A. purpureum*  
(Heller) Holub ●Pine forests, subalpine meadows, sagebrush plains, semi-arid grasslands and woodlands; widespread but not frequently collected.
- 1 Pedicels to 3 cm long, shorter than the flower (except for the lowermost flowers), and always shorter than the main plant axis
- 3 Corolla lobes rounded apically, and lacking an apical cusp
- 4 Corollas 14-20 mm long, the lips 3-6 mm long; anthers glabrous or with a few hairs along the sutures; principally on *Artemisia* and *Grindelia* ..... *A. ludovicianum*  
(Nuttall) A. Gray ●Prairies, sandy plains, in the eastern counties; principally a Great Plains species.
- 4 Corollas 18-36 mm long, the lips 5-12 mm long; anthers glabrous or hairy
- 5 Inflorescence corymbose, ± flat-topped; plants 5-12 cm tall; floral bracts 7-11 mm long; lowermost pedicels 3-20 mm long; filaments glabrous; anthers glabrous or hairy; commonly on *Artemisia* ..... *A. corymbosum*
- 5 Inflorescence spicate or racemose, not flat-topped; plants 10-50 cm tall; floral bracts 11-20 mm long; lowermost pedicels to 2-5 mm long; filaments pilose at base; anthers hairy; on *Artemisia*,

*Gutierrezia*, *Heterotheca*, and other Asteraceae..... *A. multiflorum*  
(Nuttall) A. Gray ●Widespread nearly throughout the state, plains, prairies, grasslands, woodlands, foothills, sandy to rocky ground.

3 Corolla lobes pointed apically, or with an apical cusp, or both

6 Corolla lobes with an apiculate tooth; anthers with glands near the connective.....*A. cooperi*  
A. Gray ●Dry washes, hillsides, bajadas, Chihuahuan Desert of southern New Mexico, south into Texas and Mexico. ●Our plants belong to subsp. *palmeri* (Munz) A.C. Schneider

6 Corolla lobes lacking an apiculate tooth; anthers lacking glands

7 Flowers scattered on the stems, loosely disposed, the stems and pedicels usually easily visible without moving the flowers (except distally when young); inflorescence paniculate; on *Holodiscus*.....

.....*A. pinorum*  
(Geyer ex Hooker) A. Gray ●Conifer forests, known only from the Sacramento and White mountain ranges, Lincoln and Otero counties.

7 Flowers congested on the stems, densely disposed, the stems mostly obscured and not easily visible without moving the flowers; inflorescence spicate or corymbose; various hosts, but not *Holodiscus*

8 Inflorescence corymbose, ± flat-topped; plants 5-12 cm tall; commonly on *Artemisia*.....  
.....*A. corymbosum*  
(Rydberg) A.C. Schneider ●Slopes and plains in sagebrush communities, northern counties.

8 Inflorescence spicate, not flat-topped; plants 5-35 cm tall

9 Corollas 18-34 mm long; calyces 12-24 mm long; commonly on *Artemisia*..... *A. corymbosum*  
(Rydberg) A.C. Schneider ●Slopes and plains in sagebrush communities, northern counties.

9 Corollas 13-20 mm long; calyces 7-12 mm long

10 Corolla tube whitish; piñon-juniper woodland habitats; on perennial plants of *Gutierrezia*.....  
.....*A. arizonicum*  
(L.T. Collins) A.C. Schneider ●Sandy ground of the high deserts, piñon-juniper woodlands along the western counties.

10 Corolla tube lavender or cream with purplish veins; riparian habitats; on annual plants of *Ambrosia*, *Dicoria*, and *Xanthium*..... *A. riparium*  
(L.T. Collins) A.C. Schneider ●Riparian habitats, streambanks, flood plains, sandy ground.

**Brachystigma**

*B. wrightii* (Gray) Pennell ●Rocky sites among scrub oak, Peloncillo Mountains, Hidalgo County.

**Castilleja**

1 Plants annual

2 Inflorescence predominantly yellowish, sometimes tinged with red or purple

3 Leaves and floral bracts cleft into narrow lobes, not wavy-margined.....*C. mexicana*

3 Leaves and floral bracts entire, not cleft or dissected, wavy-margined or not

4 Leaves and floral bracts not at all wavy-margined (var. *exilis*)..... *C. minor*  
Gray ●Western mountains slopes and foothills.

4 Leaves and floral bracts both strongly wavy-margined.....*C. ornata*  
Eastwood ●Low swales and seasonally wet areas in the grasslands of Animas Valley, Hidalgo County; also Chihuahua and Durango, Mexico.

2 Inflorescence predominantly reddish to purplish

5 Leaves and floral bracts deeply lobed with narrow segments; inflorescence purplish; corollas purplish, with white, yellow, or pinkish tips..... *C. exserta*  
(Heller) Chuang, & Heckard ●Open fields and grasslands in the bootheel.

5 Leaves and floral bracts entire; inflorescence reddish; corollas pale yellow throughout (var. *minor*).....  
.....*C. minor*  
Gray ●Western mountains slopes and foothills.

1 Plants perennial

6 Inflorescence predominantly yellowish, sometimes pale greenish white or tinged with red or purple

7 Herbage densely hairy

8 Corolla tube not exerted or only slightly so.....*C. lineata*  
Greene ●Meadows, grassy slopes and understories, dry hillsides, medium to high elevations in the northern and northwestern mountains.

8 Corolla tube greatly exerted

9 Calyx segments 2-6 mm long; lower lip of the corolla 6-9 mm long, glandular-puberulent; stems hispid-hirsute.....*C. mexicana*  
(Hemsley) Gray ●To be looked for in rocky grasslands and scrublands of the southcentral foothills; reported from the Culp Canyon area, Otero County, but the voucher is unknown; known from adjacent Trans-Pecos Texas and northern Mexico; awaits verification.

9 Calyx segments 8-14 mm long; lower lip of the corolla 5-6 mm long, not glandular-pubescent; stems short-villous to somewhat lanate..... *C. sessiliflora*  
Pursh ●Widely scattered localities in much of the state in sandy plains and rocky foothills, often

- on limestone or gypsum substrates.
- 7 Herbage glabrous or only sparsely hairy
  - 10 Plants less than 20 cm tall, the stems decumbent to ascending at the base; bracts tinged with purple ....  
..... *C. occidentalis*  
Torrey ●At or above timberline in the northern mountains.
  - 10 Plants more than 20 cm tall, the stems erect; bracts never tinged with purple ..... *C. septentrionalis*  
Rydberg ●Upper montane to timberline in the northern mountains; generally above 7700 ft.
- 6 Inflorescence predominantly orangish, reddish, to purplish
  - 11 Mid- and upper stem leaves mostly cleft and deeply lobed
    - 12 Inflorescence racemose, the individual flowers easily distinguished, loosely arranged on slender pedicels; leaves greenish, glabrous to weakly short-hispid; calyx asymmetrical, deeply cleft on one side but not on the other..... *C. patritica*  
Fernald ●Pine-oak forests in the bootheel region; known from few collections.
    - 12 Inflorescence compact, the individual flowers not easily distinguished and more densely arranged, sessile or nearly so; leaves grayish, short-hispid to villous; calyx symmetrical, ± equally cleft front and back
    - 13 Plants of alpine areas above timberline; inflorescence pinkish; plants 5-20 cm tall ... *C. haydenii* (Gray) Cockerell ●Rocky alpine slopes and ridges in the northern mountains; northern New Mexico and southwestern Colorado, and an old collection in southeastern Utah.
    - 13 Plants of usually much lower elevations well below timberline; inflorescence pinkish, reddish, purplish; plants 4-45 cm tall
      - 14 Corolla beak and lower lip usually included in the calyx tube and obscured .... *C. chromosa*  
A. Nelson ●Sandy mesas, sagebrush plains, rocky woodlands in the northwest region.
      - 14 Corolla beak and lower lip usually exerted from the calyx tube and visible
        - 15 Lowermost leaves smaller than the others and scale-like; root crown massive; inflorescence bright reddish to orangish; lower lip of corolla 1-2 mm long; Four Corners region ..... *C. scabrida*  
Eastwood ●Slickrock habitats in the Four Corners region; uncommon.
        - 15 Lowermost leaves not markedly reduced as above; root crown not particularly enlarged; inflorescence pale reddish to pale purplish; lower lip of corolla 5-6 mm long; absent from Four Corners region..... *C. sessiliflora*  
Pursh ●Widely scattered localities in much of the state in sandy plains and rocky foothills, often on limestone or gypsum substrates.
  - 11 Mid- and upper stem leaves mostly entire
    - 16 Most of the coloration of the inflorescence borne by the calyx (rather than the bracts); calyx cleft in front 2-4 times more than in back; calyx greatly exceeding bracts when fully developed; older stems commonly branched in the upper portions..... *C. linariifolia*  
Bentham ●Widespread throughout the central and northern regions of the state in non-desert communities, frequently in the foothills and mountains; commonly associated with and parasitic on sagebrush.
    - 16 Most of the coloration of the inflorescence borne by the bracts (rather than the calyx); calyx cleft in front 1-2 times more than in back; calyx not or only somewhat exceeding the bracts when fully developed; older stems rarely branched in the upper portions
    - 17 Uppermost leaves immediately below the inflorescence mostly cleft or incised, the rest entire
      - 18 Inflorescences pinkish, lavender; bracts shaggy-hairy; calyx equally cleft front and back; northern mountains ..... *C. haydenii* (Gray) Cockerell ●Rocky alpine slopes and ridges in the northern mountains; northern New Mexico and southwestern Colorado, and an old collection in southeastern Utah.
      - 18 Inflorescences reddish, orangish; bracts puberulent, not shaggy; calyx cleft much deeper in front than in back; southern mountains..... *C. wootonii*  
Standley ●Conifer forests in the Sacramento and White Mountains of Otero and Lincoln counties; also known from Jeff Davis County, Texas.
  - 17 Uppermost leaves below the inflorescence mostly entire
    - 19 Upper stems (at least) villous-canescens to woolly, giving a gray cast, the stem surface usually obscured by the hairs
      - 20 Bracts usually entire and distally broadly rounded, but some often with a pair of short lateral lobes in the upper third of the bract; bracts green proximally ..... *C. integra*  
Gray ●Widespread nearly throughout the state on dry hills, plains, and foothills or lower mountain slopes; perhaps our most common paintbrush,
      - 20 Bracts usually deeply divided with one pair of much longer, narrow lobes usually originating from well below the middle of the bract; bracts grey-green to greenish tinged with pale root-beer brown proximally
        - 21 Calyx lobes rounded apically; stem pubescence usually densely lanate, with branched or unbranched hairs..... *C. lanata*

- Gray ●Widespread in dry, rocky hills and canyons in the southern and southwestern mountains and foothills.
- 21 Calyx lobes sharply pointed apically; stem pubescence usually less dense, with unbranched hairs ..... *C. tomentosa*  
 A. Gray ●Desert grassland, known in New Mexico only from Hidalgo County; also known from type locality in Sonora, Mexico.
- 19 Upper stems glabrous to variously pubescent, if long-hairy, then never woolly and the stem surface easily seen through the rather straight hairs
- 22 At least some floral bracts cleft or lobed at least to the upper 1/4; inflorescence often with a powdery exudate ..... *C. miniata*  
 Douglas ex Hooker ●Widespread in the mountains, foothills, and plains nearly throughout the western half of the state.
- 22 Most of the floral bracts entire or with small lateral lobes in the upper 1/4; inflorescence rarely with a powdery exudate
- 23 Calyx asymmetrical, deeply cleft on one side but not on the other; herbage softly short-pilose with straight spreading hairs; corollas widely spreading at anthesis ..... *C. tenuiflora*  
 Bentham ●To be looked for in pine-oak communities in the southwestern region, perhaps in the Peloncillo Mts; not known unequivocally from the state.
- 23 Calyx symmetrical, ± equally cleft front and back; herbage variously pubescent to glabrous; corollas mostly erect-ascending at anthesis
- 24 Plants of subalpine meadows, aspen glades, and conifer forests in the northern mountains; inflorescence reddish, pinkish, to sometimes very pale; stems simple or sparingly branched, not bushy ..... *C. rhexifolia*  
 Rydberg ●Meadows, wooded and open slopes, aspen glades, and riparian zones in the northern mountains, subalpine to alpine vegetation.
- 24 Plants of lower elevation open pine forests, mixed conifer forests and woodlands, and mountain brush communities in the western and southwestern mountains and foothills; inflorescence mostly red to red-orange; stems bushy, freely branched
- 25 Leaves, at least some, 8-15 mm wide or more; plants widespread in the western and southwestern mountains ..... *C. nelsonii*  
 Eastwood ●Widespread and rather common in the western and southwestern mountains (also Los Alamos County); not known from Doña Ana County.
- 25 Leaves, at least many or most, 2-5 mm wide; plants known only from the Organ Mountains in Doña Ana County ..... *C. organorum*  
 Standley ●Endemic to mid- and upper elevations in the Organ Mountains, on steep, brushy, rocky slopes, canyons, and ravines.

**Conopholis**

*C. alpina* Liebmann ●Forested and wooded slopes in all the mountain ranges of the state; usually under *Quercus*, but also associated with *Juniperus* and *Acer*, 4,200-12,000 ft.

**Cordylanthus**

- 1 Leaves all entire, lanceolate; rare in the southwest region ..... *C. laxiflorus*  
 A. Gray ●Dry, rocky slopes and mesas, along creeks and washes; in New Mexico, known only from a single collection in Grant County; also in Arizona and northern Sonora, Mexico.
- 1 Leaves divided into filiform divisions, at least some of them; widespread in the western half of the state .....  
 ..... *C. wrightii*  
 Gray ●Dry plains and hills in the western regions.

**Orthocarpus**

- 1 Flowers yellow ..... *O. luteus*  
 Nuttall ●Wet to dry meadows, riparian areas, clearings in forests or woodlands; common in the mountains and associated plains, but apparently absent from the southeast mountains.
- 1 Flowers purple and white ..... *O. purpureoalbus*  
 Gray ex S. Watson ●Roadsides, wooded and brushy slopes, sagebrush plains; western and central mountain ranges.

**Pedicularis**

- 1 Plants nearly stemless, the flowers sitting at ground level amid a whorl of basal leaves; flowers more than 2 cm long, blooming in spring ..... *P. centranthera*  
 Gray ●Wooded bottoms and canyons, conifer woodland, ponderosa forests, pine-fir communities; central and western mountain regions.
- 1 Plants with erect stems and elevated flowers; flowers shorter than 2 cm, blooming in summer
- 2 Leaves crenulate, not pinnatifid; calyx lobes 2 in number
- 3 Upper lip or hood of the corolla with a long (5-8 mm), downward-curved beak, lacking marginal teeth

- near the tip; corollas pale yellow.....*P. racemosa*  
Douglas ex Bentham ●Damp spruce forests in the northern mountains. ♦Our plants belong to var. *alba*  
Pennell
- 3 Upper lip or hood of the corolla blunt and without a beak, with a small tooth on each side near the tip;  
corollas pale yellow, whitish, pink, or rose
- 4 Corollas pink or rose-colored; stems with pubescence in longitudinal lines.....*P. crenulata*  
Bentham ●Reported in error for San Miguel County; to be looked for in the northern mountain  
ranges, in moist meadows at medium to high elevations; known from adjacent Sangre de Cristo range  
northward in Colorado.
- 4 Corollas pale yellow to whitish; stems lacking longitudinal pubescence lines.....*P. angustifolia*  
Bentham ●Montane to subalpine coniferous forests in the Mogollon Mountains; also Mexico.
- 2 Leaves deeply pinnatifid or incised; calyx lobes 5 in number
- 5 Corolla pink, red, or purplish
- 6 Upper lip or hood of the corolla (galea), blunt and without a beak; inflorescences typically wooly-  
pubescent but sometimes glabrous; flowers crowded on a short spike.....*P. sudetica*  
Willdenow ●Wet meadows at very high elevations in the northern mountains. ♦Our plants belong to  
subsp. *scopulorum* (Gray) Hulten
- 6 Upper lip or hood of the corolla (galea) with a long, curved beak, the flower resembling an elephant's  
head; inflorescences glabrous or nearly so; flowers on an elongated spike.....*P. groenlandica*  
Retzius ●Wet mountain meadows, moist woods, streambanks, at medium to high elevations in the  
northern mountains.
- 5 Corolla white or yellowish (prominently marked with reddish striations in *P. procera*)
- 7 Leaves simple, shallowly to deeply pinnatifid
- 8 Corolla hood not narrowed into a short beak, but rounded with a small marginal tooth on each side  
near the tip; leaf segments broadly ovate in outline.....*P. canadensis*  
Linnaeus ●Moist woods and meadows at medium to high elevations in the northern and south-  
central mountains; also Colorado. ♦Our plants belong to subsp. *fluviallis* (Heller) Weber
- 8 Corolla hood narrowed into a short beak 1-3 mm long, lacking marginal teeth; leaf segments  
lanceolate in outline.....*P. parryi*  
Gray ●Upper montane to alpine slopes in the northern and western mountains.
- 7 Leaves divided into separate leaflets
- 9 Corollas prominently marked with reddish striations; corolla 25-36 mm long; calyx 10-16 mm long  
.....*P. procera*  
Gray ●Ponderosa, Douglas fir, and spruce-fir forests in all the mountain ranges.
- 9 Corollas not marked with reddish striations; corolla 20-26 mm long; calyx 7-10 mm long.....  
.....*P. bracteosa*  
Bentham ●Uncommon in spruce-fir forests and aspen groves, high elevations in the northern  
mountains; known from few collections. ♦Our plants belong to subsp. *paysoniana* (Pennell)  
Weber

**Rhinanthus**

- R. minor* Linnaeus ●Open moist meadows and clearings in spruce-fir forests in the northern counties.

**OXALIDACEAE WOODSORREL FAMILY****Oxalis** [Key adapted from Nesom 2009, 2016]

- 1 Petals yellow; plants with aerial stems bearing leaves and flowers
- 2 Leaves pinnately compound, the terminal leaflet on an extended petiolule, the lateral leaflets sessile; leaflets  
not lobed apically.....*O. frutescens*  
Linnaeus ●Reported for the state by Nesom (2016), without locality; specimens not yet known; also Texas,  
south through Mexico to Central America and South America; perhaps to be looked for in the southeastern  
or southwestern mountains.
- 2 Leaves palmately compound, all leaflets sessile
- 3 Stipule margins with wide, free flanges, the apical auricles free; stems prostrate to decumbent, often  
rooting at the nodes; rhizomes absent.....*O. corniculata*  
Linnaeus ●Common weed of lawns and gardens, disturbed moist sites; expected almost throughout the  
state.
- 3 Stipules rudimentary or the margins narrowly flanged or without free portions, the apical auricles slightly  
free or absent; stems erect, ascending, decumbent, or prostrate, rooting at the nodes or not; rhizomes  
absent or present
- 4 Stems villous; petioles with both septate and non-septate hairs; rhizomes present.....*O. stricta*  
Linnaeus ●Canyon bottoms, river banks, moist roadsides.
- 4 Stems variously pubescent but not villous; petioles glabrous or with only non-septate hairs; rhizomes  
present or absent
- 5 Hairs of the stems straight, antrorse, appressed to closely ascending; rhizomes present.....*O. dillenii*  
Jacquin ●River bottoms and stream sides, roadsides, pastures.

- 5 Hairs of the stems curved, crisped, spreading, to deflexed; rhizomes absent
  - 6 Hairs of the stems usually antrorsely curved or crisped, sometimes straight, the longer hairs 0.2-0.3(0.8) mm long ..... *O. albicans*  
Kunth ●Canyons and rocky drainages, oak-pine-juniper slopes and woodlands; southwestern mountains.
  - 6 Hairs of the stems spreading irregularly to deflexed, the longer hairs 0.6-1.2 mm long...*O. pilosa*  
Nuttall in Torrey & Gray ●Rocky canyon bottoms of the bootheel region.
- 1 Petals blue, lavender, purplish, pink, rose, to white; aerial stems mostly absent, the leaves and flowers arising from the base
  - 7 Leaflets mostly 4-11, rarely 3
    - 8 Leaflets mostly 4 (sometimes 5), obtriangular to obovate, lobed 1/5 - 1/2 their length, 5-22 mm long; outer bulb scales (3)5- to 7-nerved .....*O. caerulea*  
(Small) Knuth ●Rocky hillsides and slopes in the mountains, little known.
    - 8 Leaflets mostly 5-11 (sometimes 4), mostly narrowly oblong-oblancoelate to linear, lobed mostly 1/5 - 3/4 their length or more, 10-44 mm long; outer bulb scales 9- to 15-nerved or more ..... *O. decaphylla*  
Kunth ●Usually disturbed ground of open grasslands, thorn-scrub, pine-oak woodlands, and pine forests, most common in the southwestern region.
  - 7 Leaflets 3, rarely 4
    - 9 Outer bulb scales mostly 5- to 11-nerved; plants arising from a single bulb; oxalate deposits on the leaves absent .....*O. latifolia*  
Kunth ●A weedy species of moist roadsides and disturbed ground at low- to mid-elevations in scattered locales in the state.
    - 9 Outer bulb scales 3-nerved; plants arising from a dense cluster of sessile bulblets; oxalate deposits on the leaves in a thin marginal band on both sides of the notch base or at least on one side (rarely appearing to be absent).....*O. metcalfei*  
(Small) Knuth ●Widespread in coniferous forests.

**PAPAVERACEAE POPPY FAMILY**

- 1 Plants thistle-like, the herbage, sepals, and capsules armed with spines or prickles; leaves cauline; sepals 3 .....*Argemone*
- 1 Plants not thistle-like, the herbage, sepals, and capsules unarmed; leaves cauline or basal, sepals 2
  - 2 Flowers zygomorphic, yellow, white, pinkish, pale blue.....*Corydalis*
  - 2 Flowers actinomorphic, white, yellow, orange, pink, red, purple
    - 3 Sepals united and forming a cap, borne immediately above a cup or rim of the receptacle....*Eschscholtzia*
    - 3 Sepals distinct, not forming a cap and not borne above a cup or rim of the receptacle .....*Papaver*
- Argemone** [Key adapted from Ownbey 1997]
  - 1 Longest prickles on the capsules 8-15 mm long, usually branched .....*A. squarrosa*  
Greene ●Plains, foothills, arid slopes, and valleys, generally in the eastern half of the state.
  - 1 Longest prickles on the capsule 4-10 mm long, simple
    - 2 Leaf surfaces minutely prickly between the veins, as well as prickly on the veins .....*A. hispida*  
Gray ●Foothills of the northern mountains.
    - 2 Leaf surfaces rarely minutely prickly between the veins, but prickly on the veins
      - 3 Sepal horns terete; flower buds ellipsoid-oblong or subglobose; distal leaves clasping.....*A. polyanthemos*  
(Fedde) G. Ownbey ●Foothills and plains, scattered localities across the state.
      - 3 Sepal horns usually flattened adaxially; flower buds obovoid; distal leaves not clasping
        - 4 Capsules closely prickly, partially obscuring the surface; bud prickles often branched ...*A. pleiacantha*  
Greene ●Foothills and associated plains of the southwestern mountain ranges.
        - 4 Capsules sparingly prickly, scarcely obscuring the surface; bud prickles simple..... *A. pinnatisecta*  
(G. Ownbey) Cervantes & Bailey ●Endemic to the western slopes of the Sacramento Mountains.

**Corydalis**

- 1 Petals light pink to white; spur 9-16 mm long; plants perennial, the stems erect-ascending .....*C. caseana*  
Gray ●Mountain slopes in spruce-fir forests; known only from Rio Arriba County. ♦Our plants belong to the Rocky Mountain subsp. *brandegeei* (S. Watson) G. Ownbey
- 1 Petals pale to bright yellow; spur 4-5 mm long; plants annual, the stems sprawling ..... *C. aurea*  
Willdenow ●Canyon slopes and clearings, riparian areas, burned areas, foothills, washes; widespread and exceedingly common; expected in all counties.

**Eschscholtzia**

*E. californica* Chamisso ●Desert slopes and plains in the southwestern portion of the state. ♦Our material belongs to subsp. *mexicana* (Greene) C. Clark

**Papaver**

- 1 Leaves all basal, not borne on an elevated stem; plants perennial .....*P. coloradense*  
(Fedde) Fedde ex Wootton & Standley ●Rocky alpine ridges in the northern mountains; based on the occurrence on Taos Peak (*Bailey 853*) reported in W&S.
- 1 Leaves borne on an elevated stem, not all basal; plants annual (perennial in the garden plant *P. orientale*)



- 2 Stem leaves glaucous, the upper blades toothed or lobed but not deeply dissected, clasping the stem ..... *P. somniferum*  
 Linnaeus •Moist disturbed ground; a rare escape from cultivation, known only from a few old collections; native to Europe and Asia.
- 2 Stem leaves green to glaucous, the upper blades deeply dissected, not clasping the stem  
 3 Flowers 10 cm or more across; petals generally 4-6 in number; plants perennial ..... *P. orientale*  
 Linnaeus. •Not definitely known in the wild, but commonly cultivated and expected to eventually escape.
- 3 Flowers less than 10 cm across; petals generally 4 in number; plants annual  
 4 Distal portion of peduncle appressed-hispid; capsules mostly 2 or more times longer than wide .....  
 ..... *P. dubium*  
 Linnaeus. •Disturbed, weedy ground, sidewalks, roadsides, fields; a common escape in Bernalillo and Sandoval counties; native to Europe and Asia.
- 4 Distal portion of peduncle spreading-hispid; capsule mostly less than 2 times longer than wide ..... *P. rhoeas*  
 Linnaeus •Moist disturbed ground, sometimes along sidewalks, an escape from flower gardens; known only from Bernalillo and Hidalgo counties; native to Europe, Asia, Africa.

## PARNASSIACEAE PARNASSIA FAMILY

## Parnassia

- 1 Petals fimbriate in the lower half ..... *P. fimbriata*  
 König •Wet places in meadows and stream banks at high elevations in the northern mountains.
- 1 Petals entire throughout ..... *P. palustris*  
 Linnaeus •Marshes, wet meadows, seeps, creeks, and wetlands; scattered locales mostly in the northern mountains, with only a few collections from the southern mountains.

## PETIVERIACEAE PETIVERIA FAMILY

## Rivina

- R. humilis* Linnaeus •Washes and roadsides in the southeast and southwest corners, not common.

## PHRYMACEAE LOPSEED &amp; MONKEY-FLOWER FAMILY

## Erythranthe [Key adapted from Nesom 2012, 2014]

- 1 Corollas scarlet, brick-red, to red-orange, 3.3-6 cm long; plants perennial  
 2 Stems prostrate with leafy stolons; distal leaves 2-5 cm long; pedicels 1-4.5 cm long; northwest region .....  
 ..... *E. eastwoodiae*  
 (Rydberg) Nesom & N.S. Fraga •Sandstone seeps and rock crevices in the Four Corners region.
- 2 Stems erect to decumbent, rhizomatous; distal leaves 6-13 cm long; pedicels 4.5-15 cm long; southwestern region; not yet known from the state  
 3 Corolla tubes exerted 7-12 mm beyond the calyx; leaves 6-12 cm long, 2.5-4.5 cm wide, glabrous to minutely (use a lens) glandular, abaxially minutely short-glandular villous along the veins but glabrous on the lamina; anther thecae reflexed ..... *E. cinnabarina*  
 Nesom •Not known from the state, but to be looked for in moist canyons and stream banks in the southwestern mountains and foothills.
- 3 Corolla tubes exerted 13-25 mm beyond the calyx; leaves 5-7.5 cm long, 1.5-3 cm wide, sparsely to densely glandular-villous on both surfaces; anther thecae straight, spreading ..... *E. verbenacea*  
 (Greene) Nesom & Fraga •Not known from the state, but to be looked for in moist canyons and stream banks in the southwestern mountains and foothills.
- 1 Corollas yellow, 0.5-4 cm long, or if reddish (*E. rubella*), then smaller than 1 cm long; plants annual or perennial  
 4 Calyx lobes distinctly unequal, the upper lobe much longer; fruiting calyx strongly inflated  
 5 Fruiting calyces open at the throat, the lower lobes not turned upwards to close the throat ..... *E. geyeri*  
 (Torrey) Nesom •Common throughout the state at springs, stream sides, wet meadows, wet cliffs and ledges at river side, and similar habitats.
- 5 Fruiting calyces closed at the throat, the lower lobes turned upwards to close the throat  
 6 Corolla lobes lacinate to fimbriate ..... *E. parvula*  
 (Wootton & Standley) Nesom •Springs, mud flats, wet banks and cliffs; southwestern mountains.
- 6 Corolla lobes entire or only apically notched  
 7 Plants producing rhizomes, perennial  
 8 Rhizomes broader than filiform, usually single to few, not highly branched, not producing a mass; plants of low to medium elevations and widespread throughout much of the state .....  
 ..... *E. guttata*  
 (A.P. de Candolle) Nesom •Stream banks, seeps and springs, wet meadows; widespread in the state.
- 8 Rhizomes filiform, usually branching, prolifically produced and forming a mass; plants of high elevations in the northern mountains

- 9 Corolla tube (including the throat) 15-25 mm long, exerted 5-10 mm beyond the calyx; fruiting calyces not nodding..... *E. tilingii* (Regel) Nesom ●Reported for the state from riparian areas, springs, seeps, and stream banks in the northern mountains, but authentic specimens are unknown; awaits further verification.
- 9 Corolla tube (including the throat) 9-11 mm long, exerted 1-3 mm beyond the calyx; fruiting calyces nodding..... *E. minor* (A. Nelson) Nesom ●Stream banks, springs, and similar wet areas; northern mountains; above 8500 ft.
- 7 Plants tap- or fibrous-rooted, lacking rhizomes, annual (but may root at lower nodes)
  - 10 Fruiting calyces 4-7 mm long..... *E. floribunda* (Douglas ex Lindley) Nesom ●Pond edges, creek sides, around wet ground; scattered locales in the western and northern mountains.
  - 10 Fruiting calyces mostly 9-20 mm long
    - 11 Flowers pale yellow to nearly white; styles hirtellous; anther pairs at different levels, the stigma above the upper pair..... *E. unimaculata* (Pennell) Nesom ●Seeps and pools in the southern foothills and mountains; in New Mexico known only from the Organ Mountains of Doña Ana County.
    - 11 Flowers yellow; styles glabrous to minutely scabrous; anther pairs and stigmas at the same level
      - 12 Distal and bracteal leaves glabrous on both surfaces; fruiting calyces not spotted..... *E. cordata* (Greene) Nesom ●Springs, seeps, washes, stream banks, and similar habitats; southwestern foothills and mountains, also San Juan County.
      - 12 Distal and bracteal leaves hirtellous on the adaxial surfaces; fruiting calyces often purple-spotted..... *E. nasuta* (Greene) Nesom ●Rocky seeps and springs, wet cliff faces, stream banks, ditch banks; southwestern foothills and mountain slopes and canyons.
- 4 Calyx lobes ± equal; fruiting calyx not strongly inflated
  - 13 Plants perennial, mat-forming from slender rhizomes; corolla 14-20 mm long..... *E. primuloides* (Bentham) Nesom & N.S. Fraga ●Stream banks, moist sites, southwestern foothills and mountains; known from few collections.
  - 13 Plants annual; corollas 5-14 mm long
    - 14 Leaves petiolate, ovate to lanceolate; corolla yellow..... *E. floribunda* (Douglas ex Lindley) Nesom ●Pond edges, creek sides, around wet ground; scattered locales in the western and northern mountains.
    - 14 Leaves sessile (at last above the base), linear to lanceolate; corolla yellow or reddish
      - 15 Calyx lobes usually ciliate; plants open, loose, simple or few-branched, the internodes usually longer than the leaves; pedicels 7-21 mm long; plants 3-32 cm tall/long..... *E. rubella* (Gray) N.S. Fraga ●Springs, cienegas, wet meadows, creeks and stream banks, wet rock crevices, washes; widely scattered in the mountainous areas of the western half of the state.
      - 15 Calyx lobes not ciliate; plants compressed, much-branched, the internodes usually shorter than the leaves; pedicels 2-10 mm long; plants 1-3(7) cm tall/long..... *E. suksdorfii* (Gray) N.S. Fraga ●Moist to dry, often clay, sometimes barren, soils of sagebrush, piñon-juniper, to ponderosa pine forests in the central and northern mountains, not common.

PHYLLANTHACEAE PHYLLANTHUS FAMILY

Phyllanthus

- 1 Capsules 7-10 mm in diameter; flowers 6-12 per leaf axil..... *P. warnockii* G.L. Webster ●Widespread on very sandy ground and dunes.
- 1 Capsules less than 4 mm in diameter; flowers 1-3 per leaf axil
  - 2 Plants perennial for a woody caudex; main stems with well-developed leaves and flowers. *P. polygonoides* Nuttall ex Sprengel ●Foothills, rocky plains, calcareous or sandy soils; southern.
  - 2 Plants annual, though the stems sometimes appearing woody and perennial; main stems with scale-like leaves, the larger leaves and flowers borne on separate deciduous stems..... *P. abnormis* Baillon ●Sandy soil, grassland, plains; southeastern.

PHYTOLACCACEAE POKEWEED FAMILY

Phytolacca

- P. americana* Linnaeus ●Disturbed ground in the southeastern region, a waif, not common.

PLANTAGINACEAE PLANTAIN & SNAPDRAGON FAMILY

- 1 Plants aquatic, most of the plant submerged or floating on the water
  - 2 Leaves alternate, mostly basal; small plants 3-10 cm tall (*Limosella*)..... go to SCROPHULARIACEAE
  - 2 Leaves opposite or whorled, cauline

- 3 Leaves in whorls or 6 or more ..... *Hippuris*
- 3 Leaves in opposite pairs
- 4 Flowers minute, sepals and petals absent ..... *Callitriche*
- 4 Flowers showy, sepals and petals present and obvious, though they may be small
- 5 Flowers strongly bilabiate, commonly yellowish (*Mimulus*) ..... go to PHRYMACEAE
- 5 Flowers only slightly zygomorphic, commonly bluish or whitish
- 6 Stems mostly prostrate, floating on the water; flowers borne singly in the leaf axils; stamens 4 ....  
..... *Bacopa*
- 6 Stems mostly erect, emerging from the water; flowers borne in axillary racemes; stamens 2 .....  
..... *Veronica*
- 1 Plants not truly aquatic, growing on dry land, or if growing in mud or shallow water then most of the plant extending up out of the water
- 7 Corolla scarious (thin, dry, transparent); all leaves basal ..... *Plantago*
- 7 Corolla not scarious; leaves various
- 8 Leaves opposite or whorled
- 9 Stems prostrate or horizontal, rooting at the nodes
- 10 Sepals united into a 5-angled or 5-pleated tube (*Mimulus*) ..... go to PHRYMACEAE
- 10 Sepals separate to the base or nearly so, a tube not produced ..... *Veronica*
- 9 Stems erect to ascending, generally not rooting at the nodes
- 11 Corolla a definite yellow
- 12 Sepals united into a 5-angled or 5-pleated tube, the tube cleft less than half its length  
(*Mimulus*) ..... go to PHRYMACEAE
- 12 Sepals separate nearly to the base and a calyx tube not produced, or if a tube present, then not 5-angled or 5-pleated and often cleft more than half its length ..... *Mecardonia*
- 11 Corolla bluish, reddish, purplish, greenish, white, or light cream, not yellow
- 13 Fertile stamens 2
- 14 Corolla  $\pm$  radial, 4-lobed ..... *Veronica*
- 14 Corolla bilabiate, 5-lobed
- 15 Herbage glabrous (*Lindernia*) ..... go to LINDERNIACEAE
- 15 Herbage glandular-pubescent ..... *Gratiola*
- 13 Fertile stamens 4
- 16 Plants annual
- 17 Flowers with a gland-like staminode (sterile stamen); corolla papilionaceous-like with an upper lip (banner) and lower lip of 2 lateral wings and a central keel that encloses the stamens ..... *Collinsia*
- 17 Flowers lacking a staminode; corolla not papilionaceous-like
- 18 Leaves pinnatifid, the lobes often toothed ..... *Schistophragma*
- 18 Leaves entire or toothed, not pinnatifid (*Mimulus*) ..... go to PHRYMACEAE
- 16 Plants perennial
- 19 Sterile stamen absent; leaves often palmately veined (but pinnate in some species); calyx strongly 5-angled or 5-pleated (*Mimulus*) ..... go to PHRYMACEAE
- 19 Sterile stamen present (may be scale-like); leaves rarely palmately veined; calyx not 5-angled or 5-pleated ..... *Penstemon*
- 8 Leaves alternate or mostly all basal
- 20 Plants vine-like, twining, climbing, or clambering; leaves usually triangular-hastate with palmate veins
- 21 Pedicels 10-40 mm long; corolla throat nearly closed, with a yellowish hairy patch; seeds thick, tuberculate; leaves about as wide as long; plants perennial ..... *Maurandella*
- 21 Pedicels 5-10 mm long; corolla throat open, lacking a yellowish hairy patch; seeds thin, winged; leaves generally longer than wide plants annual ..... *Epixiphium*
- 20 Plants not vine-like or as above; leaves various
- 22 Flowers with a prominent basal spur; cauline leaves well-developed
- 23 Corolla yellow or orange-yellow; plants perennial; capsule 5-12 mm long ..... *Linaria*
- 23 Corolla bluish or purplish; plants annual; capsule 2-3.5 mm long ..... *Nuttallanthus*
- 22 Flowers lacking a basal spur; cauline leaves absent or scarcely developed, most leaves basal
- 24 Flowers all borne on individual pedicels at the base of the plant; flowering stalks absent (*Limosella*) ..... go to SCROPHULARIACEAE
- 24 Flowers borne in clusters on an elevated flowering stalk
- 25 Leaves entire ..... *Chionophila*
- 25 Leaves toothed ..... *Synthyris*

**Bacopa**

*B. rotundifolia* (Michaux) Wettstein •Wet clay soil, muddy ground around tanks, ponds, and creeks; little known in the state from the southeastern and southwestern corners.

**Callitriche**

- 1 Plants entirely submerged at maturity; upper leaves 1-nerved, slender, the apices usually bifid; floral bracts absent ..... *C. hermaphroditica*  
 Linnaeus • Still water of creeks and marshy ground, pond edges, wetlands and seeps; northwestern mountains at medium to high elevations.
- 1 Plants usually with a floating rosette of leaves at maturity, or terrestrial; upper leaves 3-several-nerved, broad, the apices rounded to bifid; floral bracts usually present
- 2 Mature fruit wingless, about as wide as long; fruit margins obtuse to rounded, often deeply cleft between the carpels; groove between carpels inconspicuous; pits on the faces of the mericarp mostly irregular and not in rows ..... *C. heterophylla*  
 Pursh • Slow-moving water of streams and creeks, ponds and pools, drying mud of springs and seeps; widespread in the northern and western mountains.
- 2 Mature fruit narrowly winged at least at the apex, slightly longer than wide; fruit margins obtuse, rounded or straight, rarely deeply cleft between the carpels; groove between the carpels evident; pits on the faces of the mericarp tending to be in vertical rows ..... *C. palustris*  
 Linnaeus • Seeps, springs, small streams, pond edges, still water of marshy ground; widespread in the northern and western mountains.

**Chionophila**

*C. jamesii* Bentham • Alpine meadows in the northern mountains, not common; as yet known only from Taos County, above 11,800 ft.

**Collinsia**

*C. parviflora* Douglas • Open pine woodlands, sagebrush plains and foothills, roadsides; northern counties; throughout much of the western United States.

**Epixiphium**

*E. wislizeni* (Engelmann ex Gray) Munz • Moist, sandy ground, ditch-banks, canals, clambering and climbing over shrubs; scattered sites in much of the state.

**Gratiola**

*G. neglecta* Torrey • Wet meadows, cienegas, stock ponds, springs, muddy ground; western and northern mountains; known from few collections in New Mexico, also throughout the United States.

**Hippuris**

*H. vulgaris* Linnaeus • Shallow water of small ponds, springs and seeps; mountainous terrain and upland plains in the northern counties, also Sacramento Mountains in Otero County.

**Linaria**

1 Leaves ovate or broadly lanceolate, 10-35 mm wide; seeds angular, scarcely winged; plant always glabrous ..... *L. dalmatica*  
 (Linnaeus) Miller • Adventive in disturbed ground, roadsides, ditchbanks, of forests, woodlands, and adjacent plains, a few collections from drier sites; scattered locales throughout the state.

1 Leaves linear, 2-6 mm wide; seeds disk-like, winged around the circumference; plants often glandular-pubescent above ..... *L. vulgaris*  
 Hill • Roadsides and disturbed ground of plains, foothills, and mountain slopes; scattered locales throughout the state.

**Maurandella**

*M. antirrhiniflora* (Humboldt & Bonpland ex Willdenow) • Moist canyons, creek bottoms, shaded foothill slopes; widespread across the state.

**Mecardonia**

*M. procumbens* (P. Miller) Small • Rocky arroyos, damp crevices, moist outcrops; known only from Hidalgo County.

**Nuttallanthus**

*N. texanus* (Scheele) D.A. Sutton • Dry rocky slopes, bajadas, and foothills; mainly across the southern counties, but with a few scattered collections northward.

**Penstemon** [Key adapted from Bleakly 1998]

- 1 Plants shrubby, rounded-bushy; leaves linear and less than 35 mm long
- 2 Corollas 14-28 mm long, the tube salverform, narrow and curved, the upper lobes reflexed, the lower lobes projecting ..... *P. ambiguus*  
 Torrey • Plains, mesas, foothills, bajadas, roadsides, sandy to gravelly soil, desert grasslands to piñon-juniper woodlands; widespread nearly throughout the state.
- 2 Corollas 8-14 mm long, the tube funnellform, ± straight, the lobes all spreading ± equally ..... *P. thurberi*  
 Torrey • Sandy to gravelly soils, plains, mesas, desert grasslands and scrublands in southern regions of the state.
- 1 Plants herbaceous or woody only at the base; leaves linear or broader, less than or more than 35 mm long
- 3 Leaves linear and short, less than 35 mm long
- 4 Corollas red, 25-32 mm long, tubular, strongly bilabiate; inflorescence secund, glandular; anthers explanate, glabrous; staminode bearded most of length with bright yellow hairs; base of lower lobes with long, flat, yellow hairs; stems woody well above base; leaves small, needlelike, crowded on lower part of stems ..... *P. pinifolius*

Greene ●Rocky areas in the southwestern mountains and foothills.

4 Corollas some shade of blue or purple

5 Stems and leaves puberulent with flat, appressed scale-like hairs, especially on lower leaves (scales much smaller and stems more uniformly retrorsely puberulent in var. *linarioides*); leaves scattered on flowering stems; calyx lobes acute or very short-acuminate, scarious-margined almost to tip.....  
..... *P. linarioides*

Gray ●Plains, foothills, and canyons with sagebrush, piñon-juniper, ponderosa pine, and oak; western half of the state.

5 Stems and leaves glabrous or puberulent with fine erect or retrorse hairs; leaves crowded and numerous on flowering stems; calyx lobes long-acuminate, scarious-margined only at base .....  
..... *P. crandallii*

A. Nelson ●Dry hillsides and foothills of piñon-juniper woodlands and pine forests in the northwestern and north-central counties. ♦Our plants belong to var. *glabrescens* (Pennell) Nisbet & Jackson

3 Leaves not linear or if linear, then much longer than 35 mm

6 Upper stem leaves connate-perfoliate, the margins usually serrate (upper stem leaves of *P. superbus* sometimes connate-perfoliate, but not serrate); corolla pink to rose, 25-35 mm

7 Corolla expanding gradually, pale pink to rose; staminode glabrous, included; anthers 1-1.3 mm long...  
..... *P. pseudospectabilis*

M.E. Jones ●Rocky places in piñon-juniper and ponderosa pine forests in the southwestern mountains. ♦Our plants belong to var. *connatifolius* (A. Nelson) C.C. Freeman

7 Corolla expanding abruptly, pale pink; staminode bearded, exerted; anthers 1.8-2.2 mm long .....  
..... *P. palmeri*

Gray ●Disturbed ground along roads and highways, scattered sites throughout the state; native to Arizona, Utah, Nevada.

6 Upper stem leaves sessile or subcordate, sometimes clasping, but not perfoliate, the margins entire to toothed; corollas various colors (rarely pink to rose or white)

8 Corolla some shade of red but not blue to purple, usually tubular or slightly expanding  
9 Corolla constricted at orifice and with long yellow hairs; staminode bearded near tip; anthers minutely spinescent on sutures, opening all but the connective, and minutely puberulent .....  
..... *P. cardinalis*

Wooton & Standley ●Rocky ground in brushy woodlands and pine forests in the southern mountains and foothills; known only from southern New Mexico and adjacent west Texas.

9 Corolla not constricted at orifice, with hairs or not; anthers glabrous or not, spinescent on sutures or not

10 Anther sacs dehiscent by a short slit across the connective, U-shaped, the tips remaining closed, the sutures denticulate; corolla glandular-pubescent, the upper lip projecting and forming a hood; staminode glabrous.....  
..... *P. rostriflorus*

Kellogg ●Woodland and forested slopes in the western mountains; known from few collections; also California, Arizona, Colorado, Nevada, Utah, western Mexico.

10 Anther sacs completely or partially dehiscent, the tips open

11 Anther sacs explanate, i.e., the anther sacs opened flat and dehiscent across the connective

12 Staminode glabrous

13 Staminodes 7-9 mm long; leaves not thick and leathery .....*P. alamosensis*  
Pennell & Nisbet ●Rare, rocky areas on limestone, in the Sacramento and San Andres mountains in southern New Mexico, and adjacent Hueco Mountains in Texas.

13 Staminodes 14-20 mm long; leaves thick and leathers .....*P. havardii*  
A. Gray ●Not known definitely from the state, but often confused with *Penstemon alamosensis*, which differs by its generally non-glaucous and non-leathery foliage, narrower leaf blades, and shorter staminodes.

12 Staminode bearded; foliage glaucous

14 Cauline leaves 5-25 mm wide; corollas generally rose-pink to purplish red, lined internally on both surfaces with dark nectar guides, glandular-pubescent and white-pilose internally on the lower surface; styles 13-15 mm long ..... *P. parryi*  
(A. Gray) A. Gray ●Known in the wild in New Mexico only from a few plants on the lower foothills and bajadas of the Organ Mts, Doña Ana County, presumably escapes from cultivation; native to Arizona, and Sonora, Mexico.

14 Cauline leaves (5)20-45 mm wide; corollas orange-pink to scarlet, unlined internally, glandular-pubescent but not white-pilose internally on the lower surface; styles 10-11 mm long ..... *P. superbus*  
A. Nelson ●Piñon-juniper and oak woodlands and ponderosa pine forests in the southwestern mountains; also Arizona and northern Mexico.

11 Anther sacs not explanate, the anther sacs spreading apart from each other but the sacs

- themselves not opened flat and not dehiscent across the connective
- 15 Corolla strongly bilabiate, the lower lobes long, narrow, reflexed, the upper lobes projecting; throat usually bearded ..... *P. barbatus*  
(Cavanilles) Roth ●Piñon-juniper and pine-oak woodlands, coniferous forests; very common and nearly throughout the state except for the eastern tier of counties.
- 15 Corolla weakly bilabiate, the lower lobes short, rounded, usually spreading; throat glabrous
- 16 Corolla barely bilabiate, almost regular; inflorescence glabrous or puberulent; anthers U-shaped, opening at tips only, minutely puberulent, sutures denticulate; staminode glabrous to slightly bearded at tip ..... *P. eatonii*  
Gray ●Dry, brushy and forested slopes and flats in the northwest region; known from few collections.
- 16 Corolla definitely bilabiate; inflorescence glandular; anthers opening almost completely, glabrous; staminode glabrous ..... *P. lanceolatus*  
Bentham ●Rocky canyons in the southwestern mountains at low elevations.
- 8 Corolla some shade of blue or purple (rarely white or pink)
- 17 Foliage glabrous and slightly to heavily glaucous; leaves usually thickened or fleshy; staminode tip expanded
- 18 Most of the inflorescence bracts prominent, often leaf-like; inflorescence compact, the very short internodes, pedicels, and peduncles giving the effect of a spike of flowers, not secund
- 19 Bracts lance-ovate or ovate, smaller, usually caudate; inflorescence congested; corolla sky-blue, violet-blue, or pinkish (often in same inflorescence ..... *P. angustifolius*  
Nuttall ●Commonly sandy ground, plains grassland, sagebrush plains, piñon-juniper woodland, scattered locales across the northern ½ of the state.
- 19 Bracts lance-ovate to orbicular, acute to short acuminate, large, conspicuous, often overlapping, clasping
- 20 Plants usually 5-10 dm tall; calyx lobes 7-13 mm long; flowers 35-48 mm long; inflorescence open; corolla pink, bluish lavender, or pale blue, abruptly inflated .....  
..... *P. grandiflorus*  
Nuttall ●Sandy to loamy soils along highways in Union County; common in the northern Great Plains.
- 20 Plants usually less than 5 dm tall; calyx lobes usually less than 7 mm long; flowers 12-20 mm long; inflorescence congested; corolla pale lavender-blue ..... *P. buckleyi*  
Pennell ●Sandy ground, dunes, on the eastern plains and grasslands.
- 18 Only the lower inflorescence bracts prominent; inflorescences not spike-like, usually open or interrupted, distinctly secund or not
- 21 Inflorescence not secund; corolla narrow and often curved, tubular-salverform
- 22 Flowers (particularly the corolla faces) bluish, often dark; leaves noticeably thick and fleshy ..... *P. pachyphyllus*  
Gray ex Rydberg ●Reported from juniper scrub in San Juan County, but authentic specimens are unknown.
- 22 Flowers (particularly the corolla faces) violet, purplish, pinkish, sometimes bluish; leaves not particularly thick and fleshy; common throughout the state ..... *P. fendleri*  
Torrey & Gray ●Widespread throughout nearly the entire state on plains and foothills.
- 21 Inflorescence at least ± secund, usually distinctly so; corolla broader, funnelform
- 23 Calyx margins broadly scarious, often pinkish or purplish; inflorescence usually strongly secund; pedicels and peduncles usually short ..... *P. secundiflorus*  
Bentham ●Rocky areas in the mountains; widespread.
- 23 Calyx margins narrowly scarious, usually not colored; inflorescence ± secund; peduncles and pedicels usually elongate ..... *P. lentus*  
Pennell ●Sandy and gravelly slopes, sagebrush, piñon, juniper woodlands, pine forests, in the northwestern foothills and mountains.
- 17 Foliage glabrous, puberulent, and/or glandular, but not glaucous; leaves not thickened; staminode tip expanded or not
- 24 Inflorescence and corollas glandular-pubescent externally
- 25 Anther sacs explanate, i.e., the anther sacs essentially flat and dehiscent across the connective
- 26 Corolla dull or dark purple-violet (rarely white), lower lobes projecting 3-8 mm beyond the upper erect to spreading lobes
- 27 Plants forming loose mats, the stems 2-8 cm tall/long; corollas 12-25 mm long; anthers puberulent ..... *P. bleaklyi*  
O'Kane & Heil ●Alpine scree of glacial cirques, granite substrate; 12,500-12,900 ft; currently known only from Taos County.

- 27 Plants with clustered stems, but not forming low mats, the stems 8-100 cm tall/long; corollas 20-30 mm long; anthers glabrous.....*P. whippleanus* Gray ●Montane, subalpine, to alpine slopes and meadows in nearly all the mountains of the state.
- 26 Corolla white, pale lavender, violet-blue, blue-purple, the lower lobes not projecting beyond the upper lobes as above
- 28 Corolla not bearded at base of lower lobes; staminode sparsely to moderately bearded
- 29 Corolla 1-2 cm long, densely glandular pubescent within and without, white (rarely pale lavender); tube funnellform and moderately inflated. *P. albidus* Nuttall ●Short-grass communities on the eastern plains.
- 29 Corolla 3.5-6 cm long, pale colored, densely glandular pubescent without but glabrous within; tube abruptly inflated.....*P. cobaeva* Nuttall ●Spreading westward along waysides from the Great Plains into New Mexico, known currently from scattered localities in the northern counties; native to the Great Plains.
- 28 Corolla bearded at base of lower lobes; staminode conspicuously bearded
- 30 Corolla 5-6 mm wide, the orifice as high or higher than wide; lower lip not glandular within; staminode not or barely exerted; throat gradually to ± abruptly inflated ..... *P. breviculcus* (Keck) Nisbet & Jackson ●Shrublands and woodlands in the northwestern region.
- 30 Corolla 8-19 mm wide, the orifice much wider than high; lower lip glandular within; staminode usually prominently exerted; throat abruptly inflated
- 31 Corolla 24-35 mm long; styles 17-18 mm long; capsules 10-16 mm long..... *P. jamesii* Bentham ●Widespread on plains and mesas, foothills, lower mountain slopes, roadsides; grasslands, shrublands, woodlands and forests; largely eastern half of the state.
- 31 Corolla 14-22 mm long; styles 11-13 mm long; capsules 6-11 mm long ..... *P. ophianthus* Pennell ●Western and northwestern mountains and associated foothills, plains, washes, mesas.
- 25 Anther sacs not explanate, the anther sacs spreading apart from each other but the sacs themselves not opened flat and not dehiscent across the connective
- 32 Staminode glabrous, not dilated at tip; corolla markedly ampliate; anthers U-shaped, sutures spinescent; leaves occasionally in fascicles..... *P. dasyphyllus* Gray ●Gravelly slopes and desert grasslands in the southwestern region; known from very few specimens.
- 32 Staminode bearded; corolla narrow to expanded; anthers not U-shaped and not spinescent; leaves never in fascicles
- 33 Leaves finely toothed; corollas pale lavender to pale pinkish, tubular, the floor narrow, 2-ridged; base of lower lobes white-pubescent ..... *P. gracilis* Nuttall ●Northeastern plains and foothills.
- 33 Leaves entire or undulate (occasionally denticulate); corollas commonly darker in color, funnellform, the floor ridged or not, base of lower lobes variously pubescent
- 34 Corolla floor with or without ridges; base of lower lobes villous; corolla 14-24 mm long, staminode slightly included to distinctly exerted, densely golden bearded for most its length; bracts relatively large
- 35 Stems arising from a simple or branched woody caudex; corolla scarcely bilabiate, corolla floor without ridges ..... *P. auriherbis* Pennell ●Uncommon in the northeastern plains, with an outlier in Rio Arriba County; known from few collections.
- 35 Stems arising from a slender, creeping, woody rhizome; corolla strongly bilabiate, corolla floor with ridges ..... *P. metcalfei* Wootton & Standley ●Cliffs and steep, north-facing slopes, and drainage bottoms in coniferous forests, Black Range, Grant and Sierra counties. ♦Endemic and rare, the populations decimated by fire in 2013.
- 34 Corolla floor deeply to moderately ridged; base of lower lobes with a few white or many yellow hairs; staminode usually included, densely bearded for half its length; bracts always reduced

- 36 Corolla floor deeply 2-ridged; base of lower lobes and floor of corolla and staminode densely covered with golden hairs; corolla 17-25 mm; flowers drooping to horizontal..... *P. griffinii*  
A. Nelson ●Rocky areas in forests and grasslands in the northcentral mountains and plains.
- 36 Corolla floor less strongly ridged, glabrous; base of lower lobes with a few white hairs; staminode orange-bearded; corolla 11-27 mm; flowers ascending to drooping
- 37 Corolla fairly abruptly but moderately inflated, 17-27 mm long; flowers ascending to horizontal; plants robust (1-7 dm); basal rosette usually gone at anthesis; all but uppermost cauline leaves usually well-developed and similar to basal ..... *P. inflatus*  
Crosswhite ●Moist foothills and meadows, piñon-juniper woodlands, pine forests in the Sangre de Cristo mountains, extending southward in the Sandia and Manzano mountains; endemic to New Mexico.
- 37 Corolla straight or little inflated, 11-20 mm long; plants smaller (1-4 dm); basal rosette often present at anthesis; basal leaves best developed; cauline leaves usually smaller than basal ..... *P. oliganthus*  
Wooton & Standley ●Meadows and moist woods in the mountains.
- 24 Inflorescence not glandular (glabrous or puberulent)
  - 38 Inflorescence not at all secund; flowers 10-14(20) mm long, in dense fascicles usually separated by long internodes ..... *P. rydbergii*  
A. Nelson ●Moist slopes, meadows, and forests in the northern mountains.
  - 38 Inflorescence at least somewhat secund, often distinctly so; flowers 15-40 mm long, not in dense fascicles, or if so, the fascicles not separated by long internodes
    - 39 Leaves large and broad, lance ovate or oblong; inflorescence usually broad and compact; corolla 30-40 mm long; stems usually densely leafy ..... *P. glaber*  
Pursh ●Plains, foothills, and coniferous mountain slopes in the northern counties, sometimes to high elevations.
    - 39 Leaves linear or lanceolate; inflorescence usually narrow and elongated; corolla 15-38 mm long
    - 40 Anthers glabrous
      - 41 Staminode with tuft of golden hairs at tip; corolla blue purple, violet purple, occasionally paler, 16-25 mm, base of lower lobes white bearded; sepals 4-9 mm ..... *P. deaveri*  
Crosswhite ●Uncommon, ponderosa pine to spruce-fir forests in the western mountains.
      - 41 Staminode glabrous
        - 42 Stems glabrous; corollas 25-35 mm long, 10-17 mm wide, sparsely to densely white-villous internally on the lower lip; sepals 4-8 mm long ..... *P. neomexicanus*  
Wooton & Standley ●Pine and pine-fir forests, piñon-juniper woodlands, clearings and meadows, mostly in the Capitan, Sacramento, and White mountains of Lincoln and Otero counties, with a few outliers in Socorro and Torrance counties.
        - 42 Stems glabrous or puberulent; corollas 17-27 mm long, glabrous to sparsely white-villous internally on the lower lip; sepals 2-4 mm long ..... *P. virgatus*  
Gray ●Meadows, stream-sides, roadsides, mixed conifer forests in the mountains, widespread.
  - 40 Anthers pubescent (sometimes very sparsely)
    - 43 Anthers with flexuous hairs less than the length of sac; staminode short bearded on distal half; calyx 8-10 mm long, segments usually lanceolate, acuminate or caudate, lower margins scarious, erose; corolla pale blue to lavender ..... *P. strictiformis*  
Rydberg ●Juniper and pine forests in the northwestern mountains.
    - 43 Anthers usually densely villous (sometimes sparsely so) with hairs greater than or equaling the length of the sac; staminode glabrous or with a few hairs at the tip; calyx 3-6 (8) mm long, segments usually ovate, rounded
    - 44 Inflorescence narrow, the cymes 1-2-flowered on short, usually appressed peduncles and pedicels; corolla deep blue, 18-32 mm long



- ..... *P. strictus*  
 Bentham ●Widespread in plains, forests, mountain meadows, and wooded slopes, expanding along roadsides.
- 44 Inflorescence usually broader, the cymes often much-branched, the peduncles and pedicels elongate & divaricate; corolla pale blue to lavender, 25-38 mm long ..... *P. comarrhenus*  
 Gray ●Sagebrush, woodland, and ponderosa forest in the Four Corners region.
- Plantago** [Adapted from Sivinski 2001]
- 1 Plants perennial (sometimes blooming the first year)
- 2 Leaves broad, the well-defined blade broadly elliptic or cordate, mostly 1.3 to 2.3 times longer than wide; seeds 6-30 in number ..... *P. major*  
 Linnaeus ●A common weed throughout the world, widespread in the state in moist ground, roadsides, lawns, and gardens; expected in all counties; native to Europe.
- 2 Leaves lanceolate, oblanceolate, or narrowly spatulate, blades mostly 2.5 to 10 times longer than wide; seeds 2-4 in number
- 3 Outer 2 sepals (adjacent the bract) connate, appearing as a 2-veined, entire or notched sepal; bracts acuminate or caudate-acuminate; seeds 2 ..... *P. lanceolata*  
 Linnaeus ●Roadsides, pastures, lawns, other disturbed ground throughout the state; expected in all counties; native to Eurasia.
- 3 Sepals distinct; bracts obtuse to acute; seeds 2-4
- 4 Plants conspicuously brown-fibrous woolly at the crown among the old leaf bases; spikes elongate, mostly 5-20 cm at maturity; alkaline wet places at low to moderate elevations ..... *P. eriopoda*  
 Torrey ●Moist, alkaline soils in cienegas and mountain valleys; known only from McKinley County.
- 4 Plants sparsely and inconspicuously brown-fibrous at the crown among the old leaf bases; spikes short, mostly less than 5 cm long at maturity; nonalkaline wet meadows at high elevations in the northern mountains ..... *P. tweedyi*  
 A. Gray ●Non-alkaline meadows and moist slopes of alpine and subalpine communities, northern mountains.
- 1 Plants annual (sometimes robust, but not persisting)
- 5 Sepals and bracts glabrous; seeds mostly 4-8 ..... *P. elongata*  
 Pursh ●Northwestern region and southwestern corner of the state on alkaline silts or clays in playas and similar low-lying areas.
- 5 Sepals and bracts villous or hirsute; seeds 2
- 6 Bracts at base of spike not keeled; corolla lobes ovate to oblong, spreading or reflexed during and after flowering
- 7 Corolla lobes 3.5-4 mm long; longest hairs on the upper part of the scape spreading at right angles; spike usually 8-12 mm wide ..... *P. helleri*  
 Small ●Silty soils and dry limestone slopes, mostly in the southeastern region.
- 7 Corolla lobes about 1.5-3.4 mm long; longest hairs on the upper part of the scape ascending or appressed; spike 4-8 mm wide
- 8 Bracts linear to linear-lanceolate, as long or much longer than the sepals; plants pale yellow-green or gray-green upon drying ..... *P. patagonica*  
 Jacquin ●Common throughout the state in various dry habitats of deserts, grasslands, woodlands, and forests; also western North America and southern South America.
- 8 Bracts oblong to ovate, shorter than the sepals; plants olive brown or dark yellow-green upon drying
- 9 Mature leaves acute, villous to sparsely sericeous (rarely glabrate); corolla lobes 1.5-2.5 mm long ..... *P. argyrea*  
 Morris ●Dry soils in piñon-juniper woodland and ponderosa pine forests common in the western half of the state.
- 9 Mature leaves obtuse or acute; glabrous or glabrate; corolla lobes 2.2-3.4 mm long *P. wrightiana*  
 Decaisne ●Sandy and gravelly ground of dry foothills, canyon slopes, and grassy flats; known from only a few scattered collections.
- 6 Bracts at base of spike keeled; corolla lobes lanceolate, usually erect and folded together before and after flowering
- 10 Outer sepals with green midvein extending beyond the scarious margins; bracts (2.2) 2.8-5.4 (5.8) mm long; seeds 1.5-3 mm long, reddish, usually with a hyaline margin on at least one side ..... *P. rhodosperma*  
 Decaisne ●Low-lying areas of desert grasslands along the southern tier of counties.
- 10 Outer sepals with green midvein not extending beyond scarious margins; bract 1.8-2.8 mm long; seed 1.0-1.7 mm long, yellow-brown, hyaline margin lacking ..... *P. virginica*  
 Linnaeus ●Moist ground of rocky bajadas and foothills, riparian communities in the southern counties; known from only a few collections.

**Schistophragma**

*Schistophragma intermedium* (Gray) Pennell •Shallow soil pockets, sandy openings in canyons, bajadas, western and southern mountains.

**Synthyris**

- 1 Flowers violet-purple; 4-6 smaller or bract-like leaves subtending the inflorescence; plants usually less than 15 cm tall ..... *S. alpina*  
Gray •High-elevation meadows and rocky slopes in the northern mountains; all known collections above 11,000 ft.
- 1 Flowers white or merely tinged with purple; numerous smaller or bract-like leaves subtending the inflorescence; plants usually taller than 15 cm
- 2 Capsules glabrous; sepals and bracts glabrous on the body, ciliate on the margin; leaves pubescent ..... *S. plantaginea*  
(James) Bentham •Moist meadows and forests in the northern and western mountains, widespread, low to high elevations; 6500-12,500 ft.
- 2 Capsules pubescent; sepals and bracts pubescent on the body and ciliate on the margin; leaves glabrous ..... *S. oblongifolia*  
(Pennell) Hufford & McMahan •Alpine meadows in the Sacramento mountains; all known collections above 11,000 ft; endemic to New Mexico.

**Veronica**

- 1 Flowers in axillary racemes; plants aquatic or semi-aquatic
- 2 Leaves all short-petiolate, serrate ..... *V. americana*  
Schweinitz ex Bentham •Wide variety of wet habitats at low to high elevations, stream sides, ponds, springs; throughout the state.
- 2 Leaves (most) sessile, entire to serrulate ..... *V. anagallis-aquatica*  
Linnaeus •Marshes, stream banks, wet bosques and meadows, and other wet and riparian sites; throughout the state; native to Europe.
- 1 Flowers in terminal racemes or solitary in the leaf axils; plants often in wet places but not true aquatics
- 3 Floral bracts abruptly smaller than the regular foliage leaves, the flowers thus in a terminal raceme; plants perennial from rhizomes
- 4 Racemes compact and head-like; flowers dark blue, 5-10 mm across; capsules slightly longer than wide ...  
..... *V. wormskjoldii*  
Roemer & Schultes •High-elevation lakes, ponds, stream banks, and wet meadows, generally above 8000 ft; northern mountains.
- 4 Racemes elongate, loose; flowers blue to nearly white, 4-8 mm across; capsules about as wide as long .....  
..... *V. serpyllifolia*  
Linnaeus •Wet meadows, stream banks, wet drainages and slopes; western and northern mountains, medium to high elevations.
- 3 Floral bracts only gradually and slightly reduced, the flowers thus axillary and single; plants annual
- 5 Pedicels 1-2 mm long
- 6 Flowers white or nearly so; styles very short, 0.1-0.3 mm long; cauline leaves narrowly oblong to oblanceolate, glandular ..... *V. peregrina*  
Linnaeus •Wet meadows and woods, stream banks, and similar wet ground; widespread nearly throughout the state. ♦Our plants belong to the native var. *xalapensis* (Kunth) Pennell
- 6 Flowers blue-violet; styles 0.4-1 mm long; cauline leaves ovate, pubescent but not glandular .....  
..... *V. arvensis*  
Linnaeus •Lawns, disturbed moist ground, stream banks; adventive in a few scattered sites in the southern counties; native to Eurasia.
- 5 Pedicels 6-30 mm long
- 7 Pedicels 15-30 mm long; corollas 8-12 mm across ..... *V. persica*  
Poiret •Adventive lawn and garden weed; as yet known from a few widely scattered locales in the state, expected elsewhere; native to Eurasia.
- 7 Pedicels 6-15 mm long; corollas 4-8 mm across ..... *V. polita*  
Fries •Adventive in moist cultivated ground, lawns, gardens; native to Eurasia.

**PLATANACEAE PLANE TREE or SYCAMORE FAMILY****Platanus**

- 1 Pistillate heads 3-7 per stalk; leaves usually deeply lobed
- 2 Blades usually 3-5 lobed, the terminal lobe  $\frac{1}{3}$ - $\frac{2}{3}$  the leaf length; leaf blades persistently tomentose abaxially, glabrescent adaxially; lateral heads of inflorescence sessile ..... *P. racemosa*  
Nuttall •Not known in the wild in New Mexico, but seen as an ornamental; native to California and northern Baja California.
- 2 Blades usually 5-7 lobed, the terminal lobe  $\frac{2}{3}$  of more the leaf length; leaf blades glabrescent abaxially and adaxially; lateral heads of inflorescence often pedunculate ..... *P. wrightii*  
Watson •Riparian woodlands and river banks in the southwestern region; uncommonly used as an

ornamental.

- 1 Pistillate heads 1-2 (rarely 3) per stalk; leaves usually less deeply lobed
  - 3 Fruiting heads solitary (rarely 2); lobes of the leaf wider than long ..... *P. occidentalis* Linnaeus ●Not known in the wild in New Mexico, but seen as an ornamental; native to the eastern United States and northeastern Mexico.
  - 3 Fruiting heads usually in pairs (rarely 3); lobes of the leaf about as wide as long ..... *P. ×hispanica* Miller ex Munchhausen ●Not known in the wild in New Mexico, but seen as a shade tree.

### PLUMBAGINACEAE LEADWORT FAMILY

#### Limonium

*L. limbatum* Small ●Marshy ground, cienegas, flood plains, saline wet grasslands, roadside ditches; central, southern, and eastern plains.

### POLEMONIACEAE PHLOX FAMILY

- 1 Leaves mostly opposite, at least below, sometimes also appearing to be whorled
  - 2 Leaves entire, not cleft or lobed
    - 3 Leaves linear-filiform, about 1 mm wide; corollas white or cream, sometimes with purplish tinges; plants annual (*L. bigelovii*) ..... *Linanthus*
    - 3 Leaves broader than above; corollas various colors, including white; plants annual or perennial
      - 4 Plants perennial; leaves all, or nearly all, opposite; corolla tubes 8-30 mm long ..... *Phlox*
      - 4 Plants annual; upper leaves alternate, lower leaves opposite; corolla tubes 4-8 mm long ..... *Microsteris*
  - 2 Leaves cleft or lobed into palmatifid or pinnatifid segments
    - 5 Flowers bright golden-yellow (*L. chrysanthus*) ..... *Leptosiphon*
    - 5 Flowers mostly white, sometimes pinkish, purplish, or pale yellowish
      - 6 Plants annual herbs, the stems highly branched above the base in age, with very long reddish internodes (*L. bigelovii*) ..... *Linanthus*
      - 6 Plants woody-based perennial subshrubs, the stems not much branched above the base
        - 7 Leaves stiff, pungent, the lower opposite, the upper mostly alternate (*L. pungens*) ..... *Linanthus*
        - 7 Leaves flexible, not pungent, mostly opposite (*L. nuttallii*) ..... *Leptosiphon*
  - 1 Leaves mostly alternate, even below
    - 8 Leaves palmatifid, sessile, stiff and pungent-tipped (*L. pungens*) ..... *Linanthus*
    - 8 Leaves various, but not both palmatifid and sessile
      - 9 Leaves pinnately compound, the leaflets with expanded blades ..... *Polemonium*
      - 9 Leaves simple to pinnately cleft or deeply parted, but the segments not definite leaflets with expanded blades
        - 10 Leaves simple and entire with definite broad blades 3-12 mm wide; plants annual ..... *Collomia*
        - 10 Leaves lobed or cleft into narrow segments, or if entire, then without definite broad blades and mostly narrower than 3 mm; plants annual or perennial
          - 11 Inflorescence a spiny-bracted head; calyx lobes unequal
            - 12 Upper leaves and floral bracts glabrous or glandular-pubescent, not wooly; anthers elliptic ..... *Navarretia*
            - 12 Upper leaves and floral bracts wooly or with entangled hairs; anthers sagittate ..... *Eriastrum*
          - 11 Inflorescence generally not as above; calyx lobes equal
            - 13 Leaves or leaf lobes strongly mucronate-tipped; upper leaves not reduced ..... *Ipomopsis*
            - 13 Leaves or leaf lobes not or only slightly mucronate tipped; upper leaves somewhat or very much reduced
              - 14 Corolla nearly rotate to bell-shaped, the lobes about twice as long as the throat and tube ..... *Giliastrum*
              - 14 Corolla narrowly trumpet-shaped to funnel-shaped, the lobes shorter than the tube or occasionally equal
                - 15 Glandular hairs on upper leaves, pedicels, and calyces colorless to yellowish; basal and lower leaves glabrous or mostly glandular; seeds not conspicuously gelatinous when wet ..... *Aliciella*
                - 15 Glandular hairs (when present) on leaves, pedicels, and calyces dark or reddish; basal and lower leaves with short, curled, or cobwebby hairs; seeds gelatinous when wet ..... *Gilia*

#### Aliciella

- 1 Rosette and stem leaves entire, linear, to 3 mm wide ..... *A. formosa* (Greene ex Brand) J.M. Porter ●Endemic to the badlands, hills, and plains of San Juan County, Nacimiento formation; piñon-juniper woodlands and desert scrub communities.
- 1 Rosette and lower stem leaves toothed to deeply lobed, not entire, wider than 3 mm (leaves may be reduced and entire upwards)
  - 2 Anthers long-exserted as much as the corolla tube length ..... *A. pinnatifidida* (Nuttall ex A. Gray) J.M. Porter ●Mountain slopes, pine and juniper woodlands, on sandstone, limestone,

and volcanic cinder, northern mountain regions.

2 Anthers included or only slightly exerted

3 Corolla tubes 3-6 mm long; calyces 1-3 mm long.....*A. leptomeria*

(A. Gray) J.M. Porter •Sandy grasslands and desert scrub vegetation, mostly Four Corners region, with an outlier in Socorro County; a common species of the Great Basin region.

3 Corolla tubes 8-15 mm or more long; calyces 3-6 mm long

4 Corollas deep scarlet to crimson when fresh; stamens ± attached a little below the summit of the corolla tube; leaf blades dentate to shallowly lobed no more than ½ the distance to the midrib.....*A. subnuda*

(Torrey ex Gray) J.M. Porter •Clay and shale hills of the northwest region.

4 Corollas bluish to purplish red when fresh; stamens equally attached at the sinuses of the corolla tube; leaf blades, at least some) deeply lobed or coarsely pinnatifid more than ½ the distance to the midrib

5 Corolla bluish to nearly white when fresh, drying pale blue; corolla lobes narrowly lanceolate, 2-3.5 mm wide; free portion of filaments 0.2-1.5 mm long.....*A. cliffordii*

J.M. Porter •Sandy or clay badlands, often on red soils, piñon-juniper to ponderosa pine communities, in the Chuska Mountains; also adjacent Arizona.

5 Corolla purplish red when fresh; drying blue or purplish red; corolla lobes oval to oblanceolate, slightly wider than above, 2-4.2 mm wide; free portion of filaments 0.8-2.7 mm long...*A. haydenii*

(A. Gray) J.M. Porter •Scattered localities in the northwest region.

**Collomia**

*C. linearis* Nuttall •Valley slopes, canyon bottoms, wet meadows, roadsides, prairie to ponderosa communities; northern ½ of the state.

**Eriastrum**

*E. diffusum* (Gray) Mason •Bajadas, rocky slopes, desert and grassland plains; widespread across the southern counties, extending northward to Colorado through the central counties.

**Gilia** Note: as used here, the term corolla tube includes only the proximal cylindrical portion, but not the more distal expanded throat portion.

1 Flowers borne in dense head-like clusters of 25-100 flowers, on naked peduncles .....*G. capitata*

Sims •Known only from Farmington, San Juan County; native to the Pacific States. •Our plants belong to subsp. *staminea* (Greene) V. Grant

1 Flowers not borne in head-like clusters as above

2 Basal leaves and lower stem with white, sharply bent, acute-tipped hairs ..... *G. stellata*  
Heller •Sandy desert flats, washes, desert foothills, shrublands and woodlands; southwestern region.

2 Basal leaves and lower stem glabrous or variously hairy, but not with white, sharply bent, acute-tipped hairs

3 Cauline leaves clasping or expanded at the base, the blade portion conspicuously wider than the lobes; stem bases and basal leaves usually glabrous, generally somewhat glaucous .....*G. sinuata*

Douglas ex Bentham •Sandy ground, mesas, foothills, desert scrub to piñon-juniper woodlands; northern counties.

3 Cauline leaves not clasping or expanded at the base as above, the blade portion similar in width to the lobes; stem bases and basal leaves usually hairy, generally not glaucous

4 Calyx ribs generally red to purplish, the lobes acuminate, the sinus membranes often with colored dots or splotches; corollas of mature flowers mostly (4)6-9 mm long or more from base to orifice (tube + throat, not the total length of the corolla), the tube proper included to clearly exerted beyond the calyx, the throat always exerted

5 Corolla tubes (not to include the expanded throat) clearly exerted at anthesis, about ½ or more of the tube extending beyond the calyx, the tube mostly 0.5-0.6 mm wide measured immediately above the calyx, 1.5-3 mm wide at the orifice; plants commonly highly branched with numerous stems from near the base, sometimes fewer ..... *G. ophthalmoides*

Brand •Clay flats and hills, desert scrub to piñon-juniper woodlands; northwestern quarter of the state; known from few collections.

5 Corolla tubes (not to include the expanded throat) not or obscurely exerted at anthesis, about ¼ or less extending beyond the calyx, the tube about 0.8-1 mm wide measured immediately above the calyx, 2-7 mm wide at the orifice; plants commonly little branched with a single or few stems from the base..... *G. lyndana*

Allred •Desert slopes, bajadas, canyons, desert scrub to piñon-juniper woodlands; generally western half of the state, but relatively infrequent in the northern counties and much more common southward.

4 Calyx ribs generally green, the lobes acute, the sinus membranes colorless; corollas of mature flowers 2-6 mm long from base to orifice (tube + throat, not the total length of the corolla), the tube proper not exerted beyond the calyx

6 Small flowers: corollas from base to orifice 4-6 mm long, the throat commonly exerted beyond the calyx in anthesis; northwestern and northcentral counties..... *G. clokeyi*

Mason •Desert scrub to piñon-juniper woodlands, northwestern and northcentral regions; western U.S.

- 6 Tiny flowers: corollas from base to orifice 2-3(4) mm long, the throat commonly included within the calyx at anthesis and the corolla lobes sitting on the apices of the calyx lobes; southwestern counties..... *G. mexicana*  
 A. & V. Grant ●Rocky and gravelly slopes and bajadas, foothills, dry desert mountain slopes; southwestern counties.

**Giliastrum**

- 1 Plants herbaceous; leaf blades and lobes broad, none needle-like, the margins incised-toothed..... *G. incisum*  
 (Bentham) J.M. Porter ●Dry cliffs and canyon bottoms at low elevations, Guadalupe Mountains, Eddy County.
- 1 Plants woody at the base; at least some leaf blades needle-like, the margins lobed but not toothed
- 2 Lower leaves with a few oblong, flat segments, the upper leaves acerose..... *G. rigidulum*  
 (Bentham) Rydberg ●Dry limestone and plains, grasslands and shrublands; southeast region; uncommon.
- 2 Lower leaves with few to numerous subulate segments, all leaves acerose..... *G. acerosum*  
 (A. Gray) Rydberg ●Desert scrub, juniper woodlands, brushy plains, gypsum hills; nearly throughout the state.

**Ipomopsis**

- 1 Flowers in dense spicate, capitate, or glomerate clusters
- 2 Corolla tubes with an abrupt S-shaped bend at about mid-length of the tube; flowers white or cream; Hidalgo County..... *I. pinnata*  
 (Cavanilles) V. Grant ●Known in New Mexico only from Animas Mountain, Hidalgo County, from very few collections; also southward along the Sierra Madre Occidentale in Mexico.
- 2 Corolla tubes not as above; flowers variously colored, including white
- 3 Inflorescence becoming spike-like as it matures, the flowers running down the stem from the apical capitate cluster; corollas 9-12 mm long; stems densely wooly tomentose; northeast corner of the state ..... *I. spicata*  
 (Nuttall) V. Grant ●Sandy hills and mesas, limestone knolls, caprock; northeast counties.
- 3 Inflorescence capitate or glomerate; corollas 3-9 mm long; stems variously glabrous to hairy
- 4 Plants perennial from simple to branched caudices, the lower stems ± woody
- 5 Cauline leaves gray-hairy and mostly entire; Doña Ana County ..... *I. wrightii*  
 (A. Gray) Shoiners ●Sandy ground of flats, bluffs, and hillsides, desert scrub communities, extreme southern Doña Ana County adjacent to the Mexico and Texas border; known from very few collections; also west Texas, presumably northern Mexico.
- 5 Cauline leaves green, nearly glabrous, and mostly entire, to gray-hairy and entire to pinnatifid (depending on subspecies); northwest counties ..... *I. congesta*  
 (Hooker) V. Grant ●Northwest region, in rocky outcrops, gravelly soils, desert scrub and piñon-juniper communities.
- 4 Plants annual from taproots
- 6 Lower cauline leaves predominantly linear and entire..... *I. gunnisonii*  
 (Torrey & Gray) V. Grant ●Washes and alluvial slopes and plains; mostly San Juan County, with a few outliers in Sandoval County.
- 6 Lower cauline leaves predominantly toothed or lobed
- 7 Outer inflorescence bracts leaf-like and toothed; stems with short, curly hairs; corolla tubes 3-5 mm long, the lobes 1-2 mm long ..... *I. polycladon*  
 (Torrey) V. Grant ●Desert mesas, washes, and dunes; northwest and southwest corners of the state.
- 7 Outer inflorescence bracts reduced, not leaf-like, entire; stems with wooly hairs; corolla tubes 4-8 mm long, the lobes 2-4 mm long..... *I. pumila*  
 (Nuttall) V. Grant ●Plains, valleys, dunes, bajadas, hills in desert scrub, grassland, and juniper vegetation; widespread throughout much of the state.
- 1 Flowers in more open or interrupted paniculate clusters or arrays, at least toward the lower half of the inflorescence
- 8 Inflorescences diffusely branched, open, the flowers single or in pairs, usually pedicelled; plants annual
- 9 Corolla tubes 25-50 mm long, the lobes 6-11 mm long; leaves generally glabrous to sparsely pubescent.... *I. longiflora*  
 (Torrey) V. Grant ●Nearly throughout the state in sandy soils, washes, deserts and plains.
- 9 Corolla tubes 8-20 mm long, the lobes 4-6 mm long; leaves conspicuously arachnoid-puberulent..... *I. laxiflora*  
 (Coulter) V. Grant ●Hills, plains, and mesas, generally east of the Rio Grande, with a few outliers westward.
- 8 Inflorescences open to narrow, the flowers several in lateral pedunculate clusters, short-pedicelled to subsessile; plants annual, biennial, to short-lived perennial
- 10 Corollas bluish, violet, lavender, to purplish, sometimes quite pale
- 11 Corolla tubes 30-50 mm long; stamens attached at different levels on the corolla tube; throat 4-6 mm wide..... *I. thurberi*

(Torrey ex Gray) V. Grant ●Dry canyons and mountain foothills in the southwestern mountains; not known definitely from the state.

- 11 Corolla tubes 5-25 mm long; stamens attached at equal or different levels; throat 1-3 mm wide
- 12 Corolla tubes 5-15 mm long, straight, the lobes spreading; filaments attached at the same level on the upper corolla tube or throat, the anthers conspicuously exerted, at least some filaments bent..... *I. multiflora*  
(Nuttall) V. Grant ●Widespread in the western half of the state on plains, rocky hills, canyons, dry creek beds, sandy ground and dunes, roadsides, meadows, and grasslands.
- 12 Corolla tubes 15-25 mm long, curved downward, the lobes reflexed; filaments attached at different levels on the tube, the anthers included to shortly exerted on straight filaments..... *I. macombii*  
(Torrey ex Gray) V. Grant ●Openings in pine, oak, and juniper communities, dry meadows, brushy canyon bottoms; southwestern mountains.
- 10 Corollas reddish, pinkish, cream, to whitish
- 13 Corolla tubes mostly 5-8 mm long, with an abrupt S-shaped bend at about mid-length of the tube; flowers white or cream; Hidalgo County..... *I. pinnata*  
(Cavanilles) V. Grant ●Known in New Mexico only from Animas Mountain, Hidalgo County, from very few collections; also southward along the Sierra Madre Occidentale in Mexico.
- 13 Corolla tubes mostly 15-40 mm long; flowers usually other than white or cream; widespread, including Hidalgo County
- 14 Corolla tubes 15-18 mm long; anthers located at about the middle of the corolla tube; San Miguel County..... *I. sancti-spiritus*  
Wilken & Fletcher ●Endemic to the Pecos River drainage of the Sangre de Cristo Mountains, San Miguel County.
- 14 Corolla tubes 20-40 mm long; anthers located above the middle of the tube, near the throat to at the orifice (or slightly exerted); widespread, including San Miguel County (*Ipomopsis aggregata* group)
- 15 At least some anthers exerted beyond the orifice of the corolla tube (subsp. *aggregata*, *formosissima*) ..... *I. aggregata*  
(Pursh) V. Grant ●Widely scattered throughout the western ¾ of the state in a variety of mountain and plains habitats and communities.
- 15 All anthers included within the corolla tube
- 16 Inflorescence congested, the internodes between the flower clusters 2 cm or less long (subsp. *candida*)..... *I. aggregata*
- 16 Inflorescence elongated, the internodes between the flower clusters 2.5 cm or more long
- 17 Calyx lobes triangular, 2 mm long; corolla tube 20-25 mm long, straight; flowers odorless (subsp. *collina*) ..... *I. aggregata*
- 17 Calyx lobes lanceolate-acuminate, 3-4 mm long; corolla tube 20-45 mm long, often curved; flowers fragrant ..... *I. tenuituba*  
(Rydberg) V. Grant ●Pine-oak woodlands in the Chuska Mountains, McKinley County, and coniferous forest in the Sacramento Mountains, Otero County; known only from a few collections.

**Leptosiphon**

- 1 Corolla mostly bright golden-yellow; individual flowers on elongated peduncles/pedicels; plants annual ..... *L. chrysanthus*  
J.M. Porter & R. Patterson ●Desert scrub, pine-oak woodlands, rocky bajadas; southwestern counties.
- 1 Corolla mostly white, but often tinged with purple or crimson; individual flowers sessile or on very short pedicels; plants perennial ..... *L. nuttallii*  
(A. Gray) J.M. Porter ●Canyon bottoms, open grassland understory, mountain meadows; juniper woodlands to ponderosa forests in the western and central mountains.

**Linanthus**

- 1 Plants woody-based, perennial; leaf lobes sharp-tipped..... *L. pungens*  
(Torrey) J.M. Porter & L.A. Johnson ●Sagebrush, juniper, and piñon communities mostly in the northern counties, with a few collections southward.
- 1 Plants annual; leaf lobes not sharp-tipped..... *L. bigelovii*  
(Gray) Greene ●Alluvium, loose sand, rock outcrops in the southwestern plains and mountain slopes.

**Microsteris**

*M. gracilis* (Hooker) Greene ●Juniper, piñon, ponderosa, fir, and aspen communities in the western half of the state.

**Navarretia**

*N. breweri* (A. Gray) Greene ●Not known in New Mexico, but occurring in Colorado and Utah near the Four Corners region; to be looked for in rocky or clay flats in sagebrush, piñon-juniper, and ponderosa communities in the area.

**Phlox**

- 1 Plants compact with many stems and leaves crowded together, somewhat to very dense and cushion-like, mostly less than 10 cm tall; flowers sessile or short-pedicelled in crowded clusters; flowers commonly white, sometimes pale lavender or pinkish
- 2 Higher-elevation, alpine habitats above 10,000 ft
- 3 Cushions tight, very dense, the shoots  $\pm$  erect-parallel and not interlaced; leaves appressed, erect, corolla tube 6-10 mm long, the lobes 3-5 mm long; styles 1.5-3 mm long ..... *P. condensata* (Gray) E.E. Nelson ●High elevations above 10,000 ft in the northern mountains; currently known only from Mt. Taylor and the upper Pecos region in the Sangre de Cristo Mountains.
- 3 Cushions looser, the shoots spreading and interlaced; leaves spreading; corolla tube 7-14 mm long, the lobes 6-11 mm long; styles 3-10 mm long
- 4 Plants with slender rhizomes from below the branched caudex; leaves relatively soft and slightly fleshy, the tips apiculate but not pungent; corolla lobes often with purplish splotches at the base ..... *P. vermejoensis* Legler ●Endemic to alpine scree slopes in northern Taos County.
- 4 Plants lacking rhizomes, but with a branched caudex; leaves firm, not at all fleshy, the tips spinulose-pungent; corolla lobes lacking purplish splotches at the base
- 5 Hairs of leaf margins coarse and conspicuous; inflorescence glandular-pubescent; leaves firm; sepals 5-8 mm long ..... *P. pulvinata* (Wherry) Cronquist ●High elevations above 10,000 ft in the Sangre de Cristo Mountains and on Mount Taylor.
- 5 Hairs of leaf margins fine to absent; inflorescence eglandular, but pubescent; leaves relatively lax; sepals 8-13 mm long ..... *P. multiflora* A. Nelson ●Poorly known from a few collections in the northern mountains, mid-elevations to above timberline.
- 2 Lower-elevation, montane habitats below 9000 ft
- 6 Corolla lobes 6-11 mm long; midribs of the calyx conspicuously elevated and the sinus membranes markedly depressed ..... *P. multiflora* A. Nelson ●Poorly known from a few collections in the northern mountains, mid-elevations to above timberline.
- 6 Corolla lobes 4-8 mm long; midribs of the calyx and sinus membranes less elevated and depressed than above
- 7 Sinus membranes flat, not keeled, often obscured by crinkly hairs ..... *P. canescens* Torrey & Gray ●Woodland slopes and plains in the northwest counties, with juniper, piñon, and sagebrush.
- 7 Sinus membranes with a distinct linear keel, never obscured by hairs ..... *P. austromontana* Coville ●Rocky plains, canyons, mesa breaks and outcrops, with sagebrush, juniper, and piñon; western plains and foothills, mostly in the western tier of counties.
- 1 Plants loosely tufted, with few stems and leaves spaced apart, mostly more than 15 cm tall; flowers pedicelled in loose clusters; flowers commonly pink, sometimes pale, lavender, or white
- 8 Petals evidently notched at the tips, the notch 1-2 mm deep ..... *P. woodhousei* (Torrey ex Gray) E. Nelson ●Plains, foothills, and brushy valleys; Catron County, also Arizona.
- 8 Petals entire to erose or emarginate, not notched or with an inconspicuous notch less than 1 mm deep
- 9 Sinus membranes of the calyx plicate or bulging-keeled, especially toward the base
- 10 Corolla tubes 19-33 mm long; styles 15-28 mm long; calyx lobes densely pubescent ..... *P. stansburyi* (Torrey) Heller ●Foothills and lower dry mountain slopes, desert grassland, piñon-juniper woodland; scattered localities mostly along the western tier of counties.
- 10 Corolla tubes 11-18 mm long; styles 11-16 mm long; calyx lobes sparsely pubescent to glabrous ..... *P. longifolia* Nuttall ●Widespread, nearly throughout the state except in the eastern plains; most common west of the Rio Grande.
- 9 Sinus membranes of the calyx flat or inconspicuously transversely wrinkled
- 11 Anthers not visible at the orifice of the corolla (face view); stamens attached at the middle or lower portion of the corolla tube; styles short, 2-3 mm long; corolla tubes glandular-pilose; widespread and common throughout much of the state ..... *P. nana* Nuttall ●Open woods and meadows, juniper woodlands, pine forests, grassy slopes, talus, roadsides; widespread throughout much of the state.
- 11 Anthers visible at the orifice of the corolla (face view); stamens attached at the upper half of the tube; styles long, 8-18 mm long; corolla tubes glabrous; rare plants of very few localities
- 12 Plants rosulate, the flowering shoots arising from short rosettes of narrow persistent leaves, the rosettes terminating upturned rhizomes; San Juan County ..... *P. cluteana* A. Nelson ●Clearings in ponderosa pine forests; Chuska Mountains, San Juan County; known only from the Four Corners region.
- 12 Plants not rosulate, the flowering shoots not arising from rosettes as above, rhizomes present or

absent; other than San Juan County

- 13 Corollas white to pale lavender, the tubes 7-11 mm long; possibly present in southwestern region ..... *P. tenuifolia*  
E.E. Nelson ●Reported for New Mexico by Wilken & Porter (2005), but we know of no specimens; awaiting verification; perhaps shrublands and woodlands in the southwestern mountains and foothills.
- 13 Corollas pink to reddish, sometimes white, the tubes 13-33 mm long
  - 14 Herbage pubescent but lacking glands; styles 8-15 mm long; sinus membranes flat; Rio Arriba County ..... *P. caryophylla*  
Wherry ●Sagebrush, piñon-juniper, and ponderosa communities; Rio Arriba County; known only from northern New Mexico and southern Colorado.
  - 14 Herbage glandular-pubescent, at least in the inflorescence; styles 15-28 mm long; sinus membranes longitudinally plicate; southern half of the state ..... *P. stansburyi*  
(Torrey) Heller ●Foothills and lower dry mountain slopes, desert grassland, piñon-juniper woodland; scattered localities mostly along the western tier of counties.

**Polemonium**

- 1 Corollas white to yellowish
  - 2 Many to all leaflets deeply cleft and appearing verticillate, 4-10 mm long; corollas funnellform to nearly tubular, the lobes shorter than the tube and throat ..... *P. brandegeei*  
(Gray) Greene ●Mid- to high elevations in the northern mountains, generally 8,000-13,000 ft.
  - 2 All leaflets entire, none cleft, not appearing verticillate, 5-55 mm long; corollas campanulate to nearly rotate, the lobes longer than the tube and throat ..... *P. foliosissimum*  
Gray ●Woods, meadows, shaded slopes, canyons, stream-sides; very widespread in all the mountains of the state.
- 1 Corollas bluish, purplish, reddish, or lavender
  - 3 Corolla tubular-funnelform, longer than wide; plants nearly scapose; leaflets deeply divided and appearing verticillate
    - 4 Leaflet segments 4-10 mm long; corollas pale bluish, broadly funnellform, the throat 10-15 mm wide; inflorescence globose ..... *P. confertum*  
Gray ●Not definitely known from New Mexico, but to be sought in rocky places in alpine vegetation.
    - 4 Leaflet segments 2-6 mm long; corollas deep bluish, narrowly funnellform, the throat 6-10 mm wide; inflorescence somewhat elongate ..... *P. viscosum*  
Nuttall ●High elevations in the northern mountains, often on talus.
  - 3 Corolla rotate-campanulate, wider than long; plants with well-developed stems; leaflets not especially crowded, nor divided or lobed themselves, not appearing verticillate
    - 5 Stems decumbent at the base from a horizontal rhizome; wet meadows and stream-sides..... *P. occidentale*  
Greene ●Wet meadows and moist ground along streams in the high mountains of the northern tier of counties.
    - 5 Stems erect at the base from a vertical caudex; various habitats
      - 6 Stems 10-25 cm tall, in compact clumps; stem leaves 2 or 3; seeds not winged ..... *P. pulcherrimum*  
Hooker ●Moist woods and meadows, stream banks, mostly above 8200 ft in the northern mountains.  
●Our plants belong to var. *delicatum* (Rydberg) Cronquist
      - 6 Stems mostly (20)30-100 cm tall or more, loosely clumped; stem leaves mostly numerous; seeds narrowly winged ..... *P. foliosissimum*  
Gray ●Woods, meadows, shaded slopes, canyons, stream-sides; very widespread in all the mountains of the state.

**POLYGALACEAE MILKWORT FAMILY**

- 1 Plants annual; capsules 1-celled, indehiscent ..... *Monnina*
- 1 Plants annual or perennial; capsule 2-celled, dehiscent
  - 2 Keel petal with a fimbriate crest ..... *Polygala*
  - 2 Keel petal without a fimbriate crest
    - 3 Keel petal with a cylindric or conic hollow beak ..... *Rhinotropis*
    - 3 Keel petal without a beak or crest ..... *Hebecarpa*

**Hebecarpa**

- 1 Leaves and fruits conspicuously gland-dotted ..... *H. macradenia*  
(A. Gray) J.R. Abbott ●Dry rocky slopes and outcrops in the southern foothills, on mostly limestone or gypsum soils.
- 1 Leaves and fruits not gland-dotted
  - 2 Capsules pubescent on the sides ..... *H. obscura*  
(Bentham) J.R. Abbott ●Rocky hills, foothills, and lower mountain slopes, widespread in western and southern regions.
  - 2 Capsules glabrous on the sides but ciliate
    - 3 Stems with widely spreading hairs ..... *H. rectipilis*



(S.F. Blake) J.R. Abbott ●Endemic to New Mexico; known only from the original collection on rocky hills near Hillsboro, Sierra county.

- 3 Stems with incurved hairs..... *H. barbeyana*  
(Chodat) J.R. Abbott ●Dry hills and slopes in the southern and central plains and foothills

### Monnina

*M. wrightii* A. Gray ●Shaded slopes, canyons, pine woods, juniper woodlands, limestone outcrops and hills; mostly southwestern.

### Polygala

- 1 Plants annual; flowers in very dense, cylindrical to capitate racemes..... *P. sanguinea*  
Linnaeus ●Clay outcrops and plains in the juniper zone of the central region.
- 1 Plants perennial; flowers in loose cylindrical racemes or solitary and axillary
- 2 Fruit not winged..... *P. alba*  
Nuttall ●Widespread throughout the state on dry hills and plains.
- 2 Fruit winged on the upper cell
- 3 Stems glabrous (rarely with sparse hairs); capsule wing broad, scarious, erose..... *P. hemipterocarpa*  
A. Gray ●Grasslands, rocky hills and slopes; southwestern region.
- 3 Stems puberulent with incurved hairs; capsule wing narrow and mostly entire..... *P. scoparioides*  
Chodat ●Rocky slopes and hills in the southern deserts and foothills.

### Rhinotropis

- 1 Stems woody, branches tending to be thorny; wings of flowers 7-12 mm long..... *R. subspinosa*  
(S. Watson) J.R. Abbott ●Dry hills in the northwestern region.
- 1 Stems herbaceous or merely woody at the base, branches never thorny; wings of flowers 4-6 mm long
- 2 Stems 15-40 cm long, obviously incurved-pubescent; leaves (4-)9-30 mm long or longer..... *R. lindheimeri*  
(A. Gray) J.R. Abbott ●Rocky limestone hills, canyons, grasslands; southern counties, but also reported from San Juan County. ●Our plants belong to var. *parvifolia* (Wheelock) J.R. Abbott
- 2 Stems 1-5 cm long, appearing glabrous but with scattered incurved hairs; leaves 2-5 mm long.. *R. rimulicola*  
(Steysmark) J.R. Abbott ●In crevices in boulders and cliffs.

## POLYGONACEAE BUCKWHEAT FAMILY

- 1 Sheathing stipules lacking; nodes not swollen; flowers borne in small involucre (subfamily Eriogonoideae)
- 2 Involucres and bracts armed with spines or stiff awns; plants annual..... *Chorizanthe*
- 2 Involucres and bracts unarmed; plants annual or perennial
- 3 Plants perennial..... *Eriogonum*
- 3 Plants annual
- 4 Involucre consisting of two whorls, each whorl 3-lobed..... *Stenogonum*
- 4 Involucre consisting of a single whorl, this usually 4- or 5-lobed..... *Eriogonum*
- 1 Sheathing stipules present; nodes usually swollen; flowers not borne in involucre (subfamily Polygonoideae)
- 5 Leaves all basal, the blades reniform with a rounded apex and a broadly cordate base; fruit conspicuously winged all around..... *Oxyria*
- 5 Leaves cauline, or if basal then the blades not both reniform and cordate; fruit winged or not
- 6 Branches appearing to arise from the internode due to fusing of the lower portion of the internode with the stem; plants shrubby and heath-like, with clusters of small needle-like leaves (*P. americanum*)  
..... *Polygonum*
- 6 Branches strictly from the axils, not as above; plants herbaceous, not heath-like, the leaves not needle-like
- 7 Perianth segments 6, in two whorls of three, the inner noticeably enlarged in fruit..... *Rumex*
- 7 Perianth segments mostly 4-5 in a single whorl
- 8 Plants vine-like, twining or climbing; blades sagittate or cordate at the base..... *Fallopia*
- 8 Plants not vine-like nor twining or climbing; blades usually otherwise
- 9 Perianth segments remaining small in fruit, the achenes exerted when mature; inflorescence a dense, flat-topped panicle; leaf blades triangular..... *Fagopyron*
- 9 Perianth segments enlarging in fruit, the achenes generally enclosed when mature; inflorescence and leaf blades otherwise
- 10 Leaves mostly basal (but some cauline); inflorescence terminal and spike-like; stems unbranched..... *Bistorta*
- 10 Leaves cauline; inflorescence terminal and axillary, or just axillary; stems branched (rarely simple)
- 11 Leaves not jointed at the base; flowers in terminal and/or axillary spikes or racemes  
..... *Persicaria*
- 11 Leaves with a hinge-like joint at the point of attachment of leaf base with sheath;  
flowers solitary or in small axillary clusters..... *Polygonum*

### Bistorta

- 1 Inflorescence elongate-cylindrical, 4-10 mm wide, usually bearing numerous individual bulblets proximally and crowded flowers toward the tip..... *B. vivipara*  
(Linnaeus) Delarbre ●Subalpine to alpine moist to wet woods and meadows.

- 1 Inflorescence short-cylindric to ovoid, 10-25 mm wide, lacking bulblets..... *B. bistortoides*  
 (Pursh) Small ●Subalpine to alpine swamps, meadows, moist woods.

**Chorizanthe**

*C. brevicornu* Torrey ●Known from Hidalgo County, in desert scrub.

**Eriogonum** [Key adapted from M&H and Reveal 1976]

- 1 Plants annual or biennial
- 2 Leaves both basal and cauline
- 3 Involucres glandular-puberulent; outer tepals swollen at the base.....*E. maculatum*  
 Heller ●Flats and gentle slopes in the southwest region.
- 3 Involucres glabrous to variously pubescent, but not glandular-puberulent; outer tepals swollen or not at the base
- 4 Basal leaves linear to linear-lanceolate; involucres on peduncles at least 15 mm long.*E. pharnaceoides*  
 Torrey ●Arid plains and slopes in the southwestern region, with an outlying population in Taos County.
- 4 Basal leaves broadly oblong, ovate, to orbicular; involucres on peduncles less than 15 mm long, or sessile
- 5 Stems and leaves puberulent, pilose, to villous, but not tomentose or floccose
- 6 Stems widely spreading to prostrate, 10-20 cm long; perianth hispidulous to glandular .....*E. divaricatum*  
 Hooker ●Clay flats and foothills in the northwest region.
- 6 Stems ascending to erect, mostly 15-50 cm long (shorter in very dry soil); perianth glabrous
- 7 Basal leaves glabrous on both surfaces..... *E. aliquidum*  
 Reveal ●Brush and woodland communities, clay flats, eroded drainages, in Colfax County; endemic to New Mexico.
- 7 Basal leaves villous to tomentose on both surfaces ..... *E. abertianum*  
 Torrey in Emory ●Widespread nearly throughout the state, mostly in arid or desert environments.
- 5 Stems and leaves densely tomentose or floccose
- 8 Stems simple, terminated by a flat-topped cyme; involucres usually peduncled..... *E. annuum*  
 Nuttall ●Sandy soils, dunes, roadsides; throughout the state.
- 8 Stems diffusely branched, terminated by a panicle with racemose branches; involucres sessile or nearly so..... *E. polycladon*  
 Bentham ●Washes, flats, and plains in scattered locales throughout the western half of the state.
- 2 Leaves mostly basal, any cauline leaves reduced to scale-like bracts
- 9 Involucres pubescent or glandular (use a lens)
- 10 Involucres minutely glandular-puberulent; peduncles present, 5-25 mm long; stamens included.....*E. thurberi*  
 Torrey ●Brushy hills and woodlands in Grant County.
- 10 Involucres scaberulous; peduncles absent; stamens exerted..... *E. scabrellum*  
 Reveal ●Clayey to gravelly washes and slopes of the Four Corners region.
- 9 Involucres glabrous
- 11 Scapes villous or tomentose at the nodes..... *E. subreniforme*  
 S. Watson ●Gypsiferous to sandy or clayey ground in the Four Corners region.
- 11 Scapes glabrous or nearly so at the nodes
- 12 Flowers white to rose-pink
- 13 Peduncles mostly deflexed, especially in age, only a few erect
- 14 Blades cordate to reniform or nearly orbicular; stamens mostly included.....*E. deflexum*  
 Torrey ●Brushy communities in the southwestern region.
- 14 Blades round-ovate to orbiculate; stamens mostly exerted ..... *E. cernuum*  
 Nuttall ●Northcentral and northwestern plains and foothills.
- 13 Peduncles mostly erect, rarely deflexed
- 15 Tepals monomorphic, the inner and outer whorls similar ..... *E. gordonii*  
 Bentham ●Brushy flats and slopes in the Four Corners region.
- 15 Tepals dimorphic, the inner and outer whorls dissimilar
- 16 Peduncles 0.5-1.5 cm long; outer tepals fan-shaped, not swollen at the base.....*E. rotundifolium*  
 Bentham ●Plains and foothills, widespread.
- 16 Peduncles 1-3 cm long; outer tepals pandurate, with swollen bases and tips and narrowed between.....*E. capillare*  
 Small ●Sandy flats and washes; rare in northwestern Hidalgo County.
- 12 Flowers yellowish, sometimes tinged with red in age
- 17 Leaves villous to hirsute, not tomentose beneath; perianth hispidulous ..... *E. trichopes*  
 Torrey ●Mostly desert or semidesert communities in the southern half of the state.

- 17 Leaves tomentose beneath; perianth glabrous
- 18 Stems erect, 10-60 cm long, glaucous to grayish; peduncles absent ..... *E. hookeri*  
S. Watson ●Brush communities of the Four Corners region.
- 18 Stems spreading, 5-25 cm long, reddish green to reddish; peduncles 3-10 mm long .....  
..... *E. wetherillii*  
Eastwood ●Brushy communities of the Four Corners region.
- 1 Plants perennial
- 19 Achenes conspicuously 3-winged
- 20 Perianth pubescent; achenes winged only above the middle ..... *E. hieracifolium*  
Bentham ●Widely scattered localities in the southern half of the state, from desert slopes to lower montane woodlands.
- 20 Perianth glabrous; achenes winged along the entire length ..... *E. alatum*  
Torrey ●Grasslands, brushy communities, woodlands; nearly throughout the state.
- 19 Achenes 3-angled, but never winged
- 21 Perianth pubescent
- 22 Perianth narrowed into a stipe-like base
- 23 Tall, erect perennials; perianths white-tomentose ..... *E. longifolium*  
Nuttall ●Sandy grasslands of the eastern plains. ♦Our plants belong to var. *longifolium*.
- 23 Low, spreading, caespitose to shrubby, perianths glabrous or, if pubescent, not white-tomentose
- 24 Involucral teeth lobe-like, at least half as long as tube, usually reflexed or spreading .....  
..... *E. umbellatum*  
Torrey ●Sandy to clayey flats and slopes in the northwest region; known definitely only from Rio Arriba County.
- 24 Involucral teeth not lobelike, much shorter than tube, erect or nearly so
- 25 Perianths white to cream-colored ..... *E. jamesii*  
Bentham ●Widespread throughout the state on plains, mesas, foothills, woodlands, pine and spruce forests.
- 25 Perianths pale to bright yellow
- 26 Plants erect, not mat-forming, 40-50 cm tall; blades 3-6.5 cm long; Sacramento Mountains ..... *E. wootonii*  
(Reveal) Reveal ●Conifer woodlands and forests of the Sacramento Mountains in Lincoln and Otero counties; endemic to New Mexico.
- 26 Plants mat-forming, 2-25 cm tall; blades 1-3 cm long; northwestern region .....  
..... *E. arcuatum*  
Greene ●Sandy to gravelly flats, slopes, foothills, mountains, brushy communities, woodlands, forests; widespread.
- 22 Perianth not so narrowed
- 27 Ovaries and fruits pubescent
- 28 Inflorescence an open cyme, 10-15 cm long; involucre 2 mm high ..... *E. havardii*  
S. Watson ●Sandy to clayey flats and outcrops in the southcentral and southeastern regions.
- 28 Inflorescence a congested cyme, less than 3 cm long; involucre 3-5 mm high
- 29 Blades mostly less than 10 mm long ..... *E. shockleyi*  
S. Watson ●Washes, slopes, and foothills in brushy or woodland communities in the Four Corners region.
- 29 Blades mostly more than 10 mm long ..... *E. lachnogynum*  
Torrey ex Bentham ●Widespread, mostly in the northern, eastern, and southeastern counties.
- 27 Ovaries and fruits glabrous or nearly so
- 30 Flowers dark red, usually 25-30 per involucre ..... *E. atrorubens*  
Engelmann ●Oak-juniper-grassland; in the United States, known only along the southern border of Hidalgo County.
- 30 Flowers white, pink, or yellow, rarely more than 20 per involucre
- 31 Involucres glabrous; blades hirsute to glabrous on at least one surface ..... *E. inflatum*  
Torrey & Frémont ●Washes, flats, and slopes in mixed grasslands and shrub communities in the northwest region.
- 31 Involucres tomentose; blades white-tomentose on both surfaces ..... *E. havardii*  
S. Watson ●Sandy to clayey flats and outcrops in the southcentral and southeastern regions.
- 21 Perianth glabrous
- 32 Inflorescence capitate, dense ..... *E. ovalifolium*  
Nuttall ●Flats and washes in the Four Corners region. ♦Our plants belong to var. *purpureum* (Nuttall) Durand

- 32 Inflorescence cymose or corymbose, open
  - 33 Leaves glabrous; perianth bright yellow ..... *E. gypsophilum*  
Wooton & Standley •Known only from gypsum hills and slopes in Eddy County; endemic to New Mexico.
  - 33 Leaves tomentose or floccose; perianth white to pink
    - 34 Leaves crowded at the base, usually permanently tomentose or floccose on the upper surface
      - 35 Involucres glabrous ..... *E. tenellum*  
Torrey •Sandy flats and slopes in arid to semiarid habitats, widespread in the eastern half of the state.
      - 35 Involucres tomentose
        - 36 Plants 10-30 cm tall; tepals dimorphic, the outer whorl fan-shaped, the inner whorl oblanceolate; achenes 1.5-2 mm long ..... *E. palmerianum*  
Reveal •Dry, brushy communities in the bootheel region.
        - 36 Plants 30-100 cm tall; tepals monomorphic, oblong; achenes 3-4 mm long .....  
..... *E. racemosum*  
Nuttall •Plains and foothills in the northwestern half of the state.
    - 34 Leaves both basal and cauline, often extending to near the inflorescence; mostly glabrous or glabrate on the upper surface
      - 37 Involucres borne on racemose or spicate branches
        - 38 Involucres appressed to the branches; leaves fasciculate, the blades 0.5-1.5 cm long, oblanceolate to elliptic ..... *E. wrightii*  
Torrey ex Bentham •Gravelly to rocky slopes and plains, widely scattered in the state, mostly in the western half.
        - 38 Involucres divergent from the branches; leaves not fasciculate, the blades usually 1.5-4 cm long, linear-lanceolate to narrowly elliptic ..... *E. leptocladon*  
Torrey & Gray •Sandy ground and dunes in the Four Corners region.
      - 37 Involucres borne in dichotomous or trichotomous cymes
        - 39 Flowering stems leafy only near the base ..... *E. lonchophyllum*  
Torrey & Gray •Clayey soils of flats and plains in the northwest and central regions of the state.
        - 39 Flowering stems leafy to near the inflorescence
          - 40 Leaf blades oblong to oval, obtuse, at least 10 mm wide
            - 41 Involucres 4-5 mm long, glabrous or sparsely floccose .....  
..... *E. lonchophyllum*  
Torrey & Gray •Clayey soils of flats and plains in the northwest and central regions of the state.
            - 41 Involucres 1.5-2.5 mm long, tomentose ..... *E. corymbosum*  
Bentham •Sandy, gravelly, and clayey washes and slopes in the northwestern region.
          - 40 Leaf blades linear to spatulate, acute, usually not more than 5 mm wide
            - 42 Leaves flat; inflorescence densely branched ..... *E. effusum*  
Nuttall •Plains and foothills, mostly in the northern and central counties.
            - 42 Leaves revolute; inflorescence sparsely branched
              - 43 Leaves more than 15 mm long; involucres glabrous .....  
..... *E. leptophyllum*  
(Torrey) Wooton & Standley •Clay flats, slopes, and rocky outcrops in the northwestern and northcentral regions.
              - 43 Leaves not more than 15 mm long; involucres tomentose
                - 44 Tepals dimorphic, those of the outer whorl broadly obovate and 2-2.5 mm wide, those of the inner whorl 1-1.5 mm wide  
..... *E. clavellatum*  
Small •Sandy to clay washes and slopes, known only from San Juan County.
                - 44 Tepals monomorphic, all about the same width .....  
..... *E. microthecum*  
Nuttall •Northwestern plains and foothills, widespread.

**Fagopyron**

\**F. esculentum* Moench •A common garden plant, and occasionally found as an escape, but not persisting long, native to Asia.

**Fallopia**

1 Plants annual; stems scandent or sprawling, usually 0.5-1 m long, scaberulous in lines; perianth 3-5 mm long .....  
..... *F. convolvulus*

(Linnaeus) A. Löve ● Meadows, moist woods, river bottoms and gravelly stream banks, roadsides, ditch banks, disturbed ground; widespread.

- 1 Plants perennial; stems woody and climbing, usually 1-3 m long, glabrous; perianth 1-2 mm long.....  
 ..... *F. baldschuanica*  
 (Regel) Holub ● Moist disturbed sites; a few scattered locales in the state.

### Oxyria

*O. digyna* (Linnaeus) Hill ● Rocky talus and crevices at high elevations, often above timberline; expected on all the mountain tops.

**Persicaria** Contributed by Timothy Lowrey.

- 1 Perianth glandular-punctate
- 2 Outer tepals with anchor-shaped veins..... *P. lapathifolia*
- 2 Outer tepals without anchor-shaped veins
- 3 Achenes minutely roughened and dull; axillary inflorescences sometimes enclosed in the ocreae; tepals 2-3.5 mm long ..... *P. hydropiper*  
 (Linnaeus) Spach ● Margins of lakes and ponds, stream banks, and moist pastures; currently known only from Colfax County; occurring worldwide.
- 3 Achenes smooth, shiny; inflorescence never enclosed in the ocreae; tepals 3-3.5 mm long..... *P. punctata*  
 (Elliott) Small ● Shallow water or banks of streams and rivers; Animas Creek in the bootheel (Hidalgo Co.) and along the Gila River in Grant and Catron counties.
- 1 Perianth not glandular-punctate
- 4 Plants perennial; rhizomes or stolons usually present, herbarium specimens often without the stem bases; leaves without dark blotch on upper surface of leaf blade ..... *P. amphibia*  
 (Linnaeus) Delarbre ● In or around ponds, lakes, ditches throughout the state although there are few records from the southeast quadrant.
- 4 Plants annual; rhizomes or stolons absent; leaves often with dark blotch on upper surface of leaf blade but may be absent
- 5 Outer tepals with anchor-shaped veins; inflorescences mostly arching or nodding ..... *P. lapathifolia*  
 (Linnaeus) Delarbre ● Moist soils along roadsides, waste places, fields. Occurs throughout the state.
- 5 Outer tepals without anchor-shaped veins; inflorescences erect, rarely nodding
- 6 Achenes with central hump on 1 side..... *P. bicornis*  
 (Rafinesque) Nieuwland ● Moist disturbed areas in vacant lots, wetlands, ditch banks, and around ponds and lakes; uncommon in the state, mostly eastern plains but also Mogollon Mountains and Rio Puerco.
- 6 Achenes without central hump on 1 side
- 7 Ocreae without marginal bristles or if present to 0.5mm; stems ribbed ..... *P. pennsylvanica*  
 (Linnaeus) M. Gomez ● Moist disturbed ground, ditches, roadsides, pond margins and streambanks, occurring throughout the state.
- 7 Ocreae with marginal bristles, 1-5 mm; stems without obvious ribs..... *P. maculosa*  
 Gray ● Moist soils in disturbed areas, streambanks, and pond margins; widespread from the central and northwest portions of the state westward, uncommon on the eastern plains.

**Polygonum** [Key adapted from Costea et al. 2005]

- 1 Branches appearing to arise from the internode due to fusing of the lower portion of the internode with the stem; plants shrubby and heath-like, with clusters of small needle-like leaves (*Polygonella*)..... *P. americanum*  
 (Fischer & Meyer) T.M. Schuster & Reveal ● Sand dunes of the eastern plains; a report from Rio Arriba County is unverified.
- 1 Branches strictly from the axils, not as above; plants herbaceous, not heath-like, the leaves not needle-like
- 2 Stems distinctly and ± regularly 8- to 16-ribbed; venation of leaf blades pinnate, the secondary veins conspicuous; anthers whitish yellow
- 3 Flowers borne in elongate, spike-like racemes; leaves much reduced and bract-like upwards, hardly if at all exceeding the flowers; plants usually erect and with erect-ascending branches
- 4 Margins of tepals pink, rarely red or white; achenes 1.3-2.3 mm long..... *P. argyrocoleon*  
 Steudel ex Kunze ● Fields, gardens, lake shores, other disturbed ground; native to Asia.
- 4 Margins of tepals greenish yellow or yellow, rarely pink or white; achenes 2.5-3.5, rarely shorter.....  
 ..... *P. ramosissimum*  
 Michaux ● Disturbed ground, wet saline places.
- 3 Flowers borne in axils of foliage leaves, these sometimes reduced but not very bract-like, usually exceeding the flowers; plants prostrate to erect
- 5 Plants usually erect, light green or yellowish ..... *P. erectum*  
 Linnaeus ● Disturbed ground, moist fields, roadsides, parks.
- 5 Plants usually prostrate to slightly ascending, green or bluish green..... *P. aviculare*  
 Linnaeus ● Disturbed ground of lawns, roadsides, stream banks, edges of ponds and marshes, riparian areas, canyon bottoms; throughout the state, expected in all counties; native to Eurasia.
- 2 Stems 4-angled, ribs obscure or absent; venation of leaf blades parallel, the secondary veins not conspicuous; anthers pink to purple

- 6 Apices of tepals acute to acuminate; achenes smooth or with longitudinal ridges ..... *P. kelloggii*  
Greene ●Wet meadows, seeps, roadsides of mountain slopes.
  - 6 Apices of tepals rounded; achenes smooth or minutely tuberculate
    - 7 Pedicels reflexed..... *P. douglasii*  
Greene ●Roadsides, stream banks, meadows, forest floor, woodlands; widespread.
    - 7 Pedicels erect..... *P. sawatchense*  
Small ●Sand bars, canyon bottoms, seepy ground, and roadsides in mountains and foothills.
- Rumex** [Key adapted from Mosyakin 2005]
- 1 Inner tepals 11-20 mm long, 10-30 mm wide, entire; tubercles absent
    - 2 Plants rhizomatous; inner tepals 20-30 mm wide; northern tier of counties ..... *R. venosus*  
Pursh ●Sandy or gravelly ground of open prairies, grasslands, and plains; San Juan and Union counties.
    - 2 Plants from tuberous roots; inner tepals 10-14 mm wide; widespread, including northern tier..... *R. hymenosepalus*  
Torrey ●Widespread throughout the state in sandy ground.
  - 1 Inner tepals 1-10 mm long, 1-10 mm wide, entire, to toothed; tubercles absent to well-developed
    - 3 Leaf blades hastate or sagittate; plants dioecious, the flowers mostly unisexual ..... *R. acetosella*  
Linnaeus ●Disturbed moist ground in the mountains; widespread; native to Europe and western Asia.
    - 3 Leaf blades never hastate or sagittate; plants mostly perfect-flowered, the flowers mostly bisexual
    - 4 Tubercles absent on all the tepals
      - 5 Plants not producing a basal rosette of leaves; stems normally with well-developed leafy axillary shoots; inner tepals mostly entire
      - 6 Leaf blades widest in the proximal ½, below the middle; inner tepals 5-6 mm long ..... *R. ellipticus*  
Greene ●Wet ground of lake and pond edges, streamsides; known only from Chavez County.
      - 6 Leaf blades widest near the middle; inner tepals 2.5-3.5 mm long ..... *R. californicus*  
K.H. Rechinger ●Wet ground near streams and ponds, marshy ground; Grant, Rio Arriba, and Taos counties.
      - 5 Plants producing a basal rosette of leaves; stems lacking axillary shoots; inner tepals entire to toothed
        - 7 Plants from creeping rootstocks or rhizomes
          - 8 Blades with long lateral veins alternating with short ones; inner tepals abruptly contracted at the apex, widest near the middle..... *R. densiflorus*  
Osterhout ●Roadsides, brushy ground, moist sites in the northern mountains; reports from the Sacramento Mountains belong to *Rumex orthoneurus*.
          - 8 Blades with all lateral veins ± equal in size; inner tepals gradually narrowed to an acute apex, widest in the lower third ..... *R. orthoneurus*  
K.H. Rechinger ●Stream banks, marshy ground, canyon bottoms, other moist ground in the southern and western mountains.
        - 7 Plants from vertical rootstocks
          - 9 Pedicels 12-20 mm long, 3-4 times longer than the inner tepals ..... *R. nematopodus*  
K.H. Rechinger ●Mountain slopes and foothills.
          - 9 Pedicels 5-15 mm long, 2-2.5 times longer than the inner tepals
            - 10 Plants tomentose, especially the adaxial leaf blades and petioles; pedicels distinctly swollen in distal part; Catron County..... *R. tomentellus*  
K.H. Rechinger ●Wet ground along streams; known only from Catron County, from the original collection; endemic to New Mexico.
            - 10 Plants glabrous or nearly so; widespread, including Catron County; pedicels not swollen, the articulation obscure ..... *R. occidentalis*  
S. Watson ●Wet meadows, river banks, and other wet places in the northern and western mountains.
    - 4 Tubercles present on at least 1 of the tepals
      - 11 Plants not producing a basal rosette of leaves; stems normally with well-developed leafy axillary shoots; inner tepals mostly entire
      - 12 Leaf blades ovate to elliptic-lanceolate, usually widest below the middle, 3-5 cm wide ..... *R. altissimus*  
Wood ●Wetlands, marshes, edges of ponds and lakes, dunes, wet meadows; widespread in mountains and plains.
      - 12 Leaf blades linear-lanceolate to linear-elliptic, usually widest near the middle, 1-4 cm wide
        - 13 Inner tepals 3.5-5 mm long; achenes 2-3 mm long ..... *R. mexicanus*  
Meisner ●Stream banks, wet meadows; widespread, but apparently absent (or not collected) from the eastern regions of the state.
        - 13 Inner tepals 2-3.8 mm long; achenes 1.7-2.2 mm long ..... *R. triangulivalvis*  
(Danser) K.H. Rechinger ●Disturbed flood plains, creek and stream banks, canyon bottoms; widespread.
      - 11 Plants producing a basal rosette of leaves; stems lacking axillary shoots; inner tepals entire to toothed
        - 14 Margins of inner tepals entire or only minutely denticulate

- 15 Plants annual or biennial (rarely short-lived perennial), native; inner tepals about 1.5 times longer than wide; branches of inflorescence usually flexuous..... *R. violascens*  
K.H. Rechinger ●Wet ground of flood plains and irrigation canals; known only from Doña Ana County.
- 15 Plants perennial, exotic in usually disturbed places; inner tepals about as long as wide; branches of inflorescence usually straight or arcuate..... *R. crispus*  
Linnaeus ●Widespread throughout the state, disturbed moist ground, fields, roadsides, meadows, shores of streams and ponds, edges of woods; native to Eurasia; expected in all the counties.
- 16 Inner tepals obviously denticulate, with 4-10 teeth on each side; tubercles about ½ as wide as the adjacent portion of the wing (from edge of tubercle laterally to edge of wing) ..... *R. stenophyllus*  
Ledebour ●Disturbed ground of bosques, flood plains, lake shores, wet meadows, streamsides, scattered locales, little collected; native to Europe and Asia.
- 16 Inner tepals entire to weakly erose; tubercles nearly as wide as the adjacent portion of the wing (from edge of tubercle laterally to edge of wing)..... *R. crispus*  
Linnaeus ●Widespread throughout the state, disturbed moist ground, fields, roadsides, meadows, shores of streams and ponds, edges of woods; native to Eurasia; expected in all the counties.
- 14 Margins of inner tepals obviously dentate-toothed to spiny
- 17 Teeth on the inner tepals subulate and bristle-like, 1.5-2.5 times as long as width of inner tepals; leaf blades lanceolate to lance-linear, more than 4 times as long as wide. *R. fueginus*  
Philippi ●Lake shores, river banks, ditchbanks, canals, and canyon bottoms.
- 17 Teeth on the inner tepals not bristle-like; leaf blades ovate to broadly oblong, less than 4 times as long as wide
- 18 Inner tepals denticulate, the teeth 0.2-0.5 mm; plants annual or biennial (rarely short-lived perennial) ..... *R. violascens*  
K.H. Rechinger ●Wet ground of flood plains and irrigation canals; known only from Doña Ana County.
- 18 Inner tepals dentate-toothed, the teeth 0.5-2.5 mm; plants perennial
- 19 Largest blades 10-15 cm wide, the bases distinctly cordate..... *R. obtusifolius*  
Linnaeus ●Flood plains, river banks, sand bars, marshy ground; scattered locales throughout the state, but not commonly encountered nor collected; native to Europe and western Asia.
- 19 Largest blades 3-7 cm wide, the bases cuneate to truncate, or only weakly cordate
- 20 Tubercles usually 3; panicle branches appressed to ascending at angles of 0-30°; flowering whorls closely spaced ..... *R. stenophyllus*  
Ledebour ●Disturbed ground of bosques, flood plains, lake shores, wet meadows, streamsides, scattered locales, little collected; native to Europe and Asia.
- 20 Tubercles usually 1; panicle branches divaricately spreading at angles of 55-90°; flowering whorls widely spaced ..... *R. pulcher*  
Linnaeus ●Muddy ground at edges of ponds, streams, ditches, and disturbed wet ground, at scattered locales in the state; native to Europe and Asia.

**Stenogonum**

- 1 Leaves all basal, orbicular; peduncles 1-3 cm long, bent in the middle; plants erect, sparsely glandular..... *S. flexum*  
(M.E. Jones) Reveal & J.T. Howell ●Clay shadscale slopes; San Juan County.
- 1 Leaves both basal and cauline, spatulate; peduncles various, 0-4 cm long, not bent; plants widely branched, glabrous..... *S. salsuginosum*  
Nuttall ●Shale badlands, sandstone bluffs, desert scrub and grassland, Four Corners region.

**PORTULACACEAE s.s. PURSLANE FAMILY**

- 1 Capsule circumscissile
- 2 Leaves cauline; capsule circumscissile near the middle, the calyx falling with the top of the capsule; calyx 2-lobed, the tube adherent to the ovary ..... *Portulaca*
- 2 Leaves mostly basal; capsule circumscissile near the base and splitting longitudinally upwards; calyx of distinct sepals and free from the ovary (*Lewisia*)..... go to MONTIACEAE
- 1 Capsule 2- or 3-valved, splitting from the apex
- 3 Plants shrubby, the base and older stems woody and dry; stems with tufts of hair at the swollen nodes (*Talinopsis*) ..... go to ANACAMPSEROTACEAE
- 3 Plants herbaceous; stems generally otherwise
- 4 Leaves opposite
- 5 Leaves mostly basal except for one pair of cauline leaves; stolons absent (*Claytonia*).....

- ..... go to MONTIACEAE
  - 5 Leaves scattered along the stem; stolons present (*Montia*)..... go to MONTIACEAE
  - 4 Leaves alternate or basal
    - 6 Stigmas 2; capsule 2-valved; inflorescence generally scorpioid (*Calyptridium*)... go to MONTIACEAE
    - 6 Stigmas 3; capsule 3-valved; inflorescence not scorpioid
      - 7 Plants annual; sepals persistent in fruit (*Calandrinia*)..... go to MONTIACEAE
      - 7 Plants perennial; sepals mostly deciduous
        - 8 Leaves terete or nearly so, midvein not obvious (*Phemeranthus*)..... go to MONTIACEAE
        - 8 Leaves flat or nearly so, with midvein readily visible (*Talinum*)..... go to TALINACEAE
- Portulaca** [Key adapted from Matthews 2003]
- 1 Key using flowers
    - 2 Petals dark pink to purple
      - 3 Flowers large, 25 mm or more in diameter ..... *P. grandiflora*  
Hooker ●Escaped from gardens to roadsides and waste places; native to South America; reported for New Mexico without locality by Matthews (2003).
      - 3 Flowers smaller, 5-12 mm in diameter ..... *P. pilosa*  
Linnaeus ●Bare ground, weedy sites, waste places, sandy washes, widespread, but more common in the southern counties.
    - 2 Petals yellow, orange, copper, bronze, or white
      - 4 Flowers large, 25 mm or more in diameter
        - 5 Roots tuberous; stems stiffly erect ..... *P. suffrutescens*  
Engelmann ●Dry rocky ground, sandy flats, roadsides, in the southern region.
        - 5 Roots fibrous; stems prostrate to suberect ..... *P. grandiflora*  
Hooker ●Escaped from gardens to roadsides and waste places; native to South America; reported for New Mexico without locality by Matthews (2003).
      - 4 Flowers smaller, 20 mm or less in diameter
        - 6 Blades terete or rounded, linear to lanceolate, usually 3 mm or less wide ..... *P. halimoides*  
Linnaeus ●Dry soil, dunes, washes, widespread.
        - 6 Blades flattened, obovate or spatulate (sometimes lanceolate in *P. umbraticola*), 2-15 mm wide or more
          - 7 Capsules encircled by an expanded, membranaceous wing..... *P. umbraticola*  
Kunth ●Weedy ground, waste places, roadsides. ♦Our plants belong to subsp. *lanceolata* (Engelmann) Matthews
          - 7 Capsules not as above..... *P. oleracea*  
Linnaeus ●Found throughout the state in flower gardens, roadsides, weedy ground, and waste places; expected in every county; native to Europe.
  - 1 Key using fruits and seeds (see above for authors and distributions)
    - 8 Capsules encircled by an expanded, membranaceous wing ..... *P. umbraticola*
    - 8 Capsules not as above
      - 9 Leaf blades flattened ..... *P. oleracea*
      - 9 Leaf blades terete to rounded
        - 10 Seeds 0.6-1 mm in diameter ..... *P. grandiflora*
        - 10 Seeds 0.3-0.6 mm in diameter
          - 11 Capsules 2 mm or less in diameter; seed coat lacking tubercles; seeds averaging 0.5 mm or less in diameter..... *P. halimoides*
          - 11 Capsules 1.5-5 mm in diameter; seed coat with tubercles; seeds averaging 0.5 mm or more in diameter
            - 12 Roots fibrous to slightly fleshy; stems prostrate to erect ..... *P. pilosa*
            - 12 Roots tuberous; stems stiffly erect..... *P. suffrutescens*

**PRIMULACEAE PRIMROSE FAMILY**

- 1 Leaves borne on the stem ..... *Lysimachia*
  - 1 Leaves all basal
    - 2 Inflorescence a raceme or panicle..... *Samolus*
    - 2 Inflorescence an umbel
      - 3 Corolla lobes reflexed; stamens exserted, the anthers appearing united and forming a beak-like projection (*Dodecatheon* s.s.)..... *Primula*
      - 3 Corolla lobes erect or spreading but not reflexed; stamens included, the anthers separate
        - 4 Corolla large, more than 5 mm long, the corolla tube equaling or exceeding the calyx..... *Primula*
        - 4 Corolla tiny, less than 5 mm long, the corolla tube shorter than the calyx..... *Androsace*
- Androsace**
- 1 Plants perennial, mat-forming; flowers in a dense cluster on pedicels to 15 mm long; capsule few-seeded.....  
..... *A. chamaejasme*  
Wulfen ●Alpine tundra in the northern mountains. ♦Our plants belong to subsp. *lehmanniana* (Sprengel)



## Hultén

- 1 Plants annual; flowers on long pedicels to 60 mm long; capsule many-seeded
- 2 Bracts at the base of the umbel broad (lance-ovate to obovate); calyx cup-shaped at base..... *A. occidentalis*  
Pursh ●Juniper-piñon-ponderosa communities, brushy foothills and plains, sagebrush flats, riparian areas; widespread in the western half of the state.
- 2 Bracts at the base of the umbel narrow (lanceolate to subulate); calyx V-shaped at base..... *A. septentrionalis*  
Linnaeus ●Very widespread across mountains, foothills, plains, canyons, from low to high elevations; throughout the state except for the eastern plains.

**Lysimachia**

- 1 Petals absent, the sepals petal-like and white to reddish or lavender ..... *L. maritima*  
(Linnaeus) Galasso, Banfi, & Soldano ●Saline meadows and marshes, as yet known in New Mexico only in San Juan County.
- 1 Petals present, as well as the sepals
- 2 Leaves alternate (except perhaps the lowermost)..... *L. minima*  
(Linnaeus) U. Manns & Anderberg ●Seepy and muddy ground in the southwestern mountains; little collected.
- 2 Leaves opposite
- 3 Corolla salmon-colored (sometimes red or blue), equal to the calyx; stems prostrate..... *L. arvensis*  
(Linnaeus) U. Manns & Anderberg ●Weedy ground associated with settlements; scarcely known from a few collections Sierra and Doña Ana counties, in 1904.
- 3 Corolla yellow, longer than the calyx; stems erect
- 4 Petiole of the middle cauline leaves pubescent along their entire length ..... *L. ciliata*  
Linnaeus ●Moist woods and shaded stream banks in the northern and western mountains.
- 4 Petiole of the middle cauline leaves pubescent only along the basal portion ..... *L. hybrida*  
Michaux ●Wet meadows, sloughs, and pond margins in the western mountains.

**Primula**

- 1 Corolla lobes reflexed; stamens exserted, the anthers appearing united and forming a beak-like projection (section *Dodecatheon*)
- 2 Petals white; anthers nearly sessile ..... *P. standleyana*  
A.R. Mast & Reveal ●Wet meadows at mid-elevations in the central and western mountains.
- 2 Petals rose-colored; anthers on conspicuous filaments ..... *P. pauciflora*  
(Greene) Mast & Reveal ●Wet meadows in the mountains, often at high elevations.
- 1 Corolla lobes erect or spreading but not reflexed; stamens included, the anthers separate
- 3 Scapes with 1 or 2 flowers; plants low, 8 cm high or less ..... *P. angustifolia*  
Torrey ●High meadows in the northern mountains.
- 3 Scapes with 3 to many flowers; plants taller, 10 cm high or more
- 4 Plants 25-40 cm tall, stout; leaves 3-5 cm wide, usually entire ..... *P. parryi*  
Gray ●Stream banks and bogs at high elevations in the northern mountains.
- 4 Plants 10-20 cm tall, slender; leaves 1-2 cm wide, denticulate..... *P. rusbyi*  
Greene ●Rich, moist slopes at mid- to high elevations in the western and central mountains.

**Samolus**

- 1 Racemes long-pedunculate, few, glandular; pedicels lacking bracts; calyx 3.5-5 mm broad ..... *S. ebracteatus*  
Kunth ●Wet ground at lower elevations in the southcentral-eastern region. ♦Our plants align most closely to var. *cuneatus* (Small) Henrickson
- 1 Racemes sessile or nearly so, numerous, glabrous; pedicels with bracts; calyx about 2.5 mm broad.....  
..... *S. floribundus*  
Rafinesque ●Wet ground at lower elevations in a few scattered locales.

**RANUNCULACEAE BUTTERCUP FAMILY**

- 1 Flowers markedly zygomorphic, mostly dark blue or purplish (some greenish), showy
- 2 Flowers not spurred, but with a hood; petals hidden by the calyx ..... *Aconitum*
- 2 Flowers spurred; petals at least partly exserted from the calyx
- 3 Plants perennial; pistils 3(5); petals 4, distinct ..... *Delphinium*
- 3 Plants annual; pistil usually 1; petals 2, connate ..... *Consolida*
- 1 Flowers actinomorphic, seldom dark blue or purplish, showy or not
- 4 Leaves simple, entire or slightly toothed, linear to narrowly spatulate; flowers minute, the receptacle elongating and spike-like; plants diminutive annuals ..... *Myosurus*
- 4 Leaves, flowers, and/or plants otherwise
- 5 Flowers spurred ..... *Aquilegia*
- 5 Flowers not spurred
- 6 Leaves simple, entire, toothed, or with shallow lobing
- 7 Perianth of a single whorl, white, large and showy; plants of wet meadows at higher elevations  
..... *Caltha*
- 7 Perianth of two whorls (sepals may be deciduous, but leaving scars), generally not white; plants of

- various habitats ..... continue key at *Ranunculus*
- 6 Leaves compound, or technically simple but with deep lobing almost to the midrib and appearing compound
- 8 Stem leaves opposite or whorled
  - 9 Leaflets of stem leaves petiolate; flowers nodding or erect; plants often vine-like (but erect in *C. hirsutissima*) ..... *Clematis*
  - 9 Leaflets or segments of stem leaves sessile; flowers erect; plants never vine-like
    - 10 Flowers appearing before the leaves; tepals more than 2 cm long; styles becoming long and feathery at maturity ..... *Pulsatilla*
    - 10 Flowers appearing after the leaves; tepals about 1 cm long; styles not elongating in fruit ..... *Anemone*
- 8 Stem leaves alternate
  - 11 Fruit a red or white berry; flowers and fruits numerous in terminal racemes; leaflets sharply cleft and toothed ..... *Actaea*
  - 11 Fruit an achene; flowers and fruits solitary or several together but not in racemes; leaflets various
    - 12 Petals present, often yellow but sometimes white, generally conspicuous ..... continue key at *Ranunculus* (the staminal filaments sometimes very conspicuous)
      - 13 Leaves simple, but deeply palmately lobed or parted; flowers perfect; anthers less than 1 mm long ..... *Trautvetteria*
      - 13 Leaves clearly compound; flowers perfect or imperfect; anthers 5-10 mm long ..... *Thalictrum*

**Aconitum**

*A. columbianum* Nuttall ●Bogs, seepy areas, along streams, and moist meadows in the mountains.

**Actaea**

*A. rubra* (Aiton) Willdenow ●Moist shady sites in the mountains.

**Anemone**

- 1 Achene beak 20 mm or more long, plumose ..... go to *Pulsatilla*
- 1 Achene beak 6 mm or less long, not plumose
  - 2 Basal leaves simple, deeply cleft but not divided into leaflets ..... *A. canadensis* Linnaeus ●Damp thickets and meadows in the northern mountains.
  - 2 Basal leaves compound, divided into leaflets
    - 3 Basal leaves glabrous or nearly so ..... *A. tuberosa* Rydberg ●Dry open slopes and ledges in the southern deserts and grasslands.
    - 3 Basal leaves silky-pubescent
      - 4 Achene beak usually recurved, less than 1 mm long; ultimate lobes of involucre bracts mostly 6-10 mm wide ..... *A. cylindrica* Gray ●Dry meadows and clearings in the northern mountains and foothills.
      - 4 Achene beak ± straight, 1-6 mm long; ultimate lobes of involucre bracts 1-4 mm wide ..... *A. multifida* Poiret ●Infrequent in grassy clearings and prairies in the northern region.

**Aquilegia**

- 1 Sepals and spurs medium to deep blue; flowers erect ..... *A. caerulea* James ●Rocky slopes and moist ground in the northern mountains.
- 1 Sepals and spurs yellow, pink and yellow, or red; flowers erect or nodding
  - 2 Sepals and spurs yellow; flowers erect to somewhat nodding ..... *A. chrysantha* Gray ●Moist canyons and stream banks in the central and southern mountains; generally 4000-8500 ft.
  - 2 Sepals and spurs red; flowers nodding
    - 3 Stamens 8-14 mm long; sepals erect, parallel to the floral axis, only slightly longer (0-3 mm) than the petal blades ..... *A. elegantula* Greene ●Moist coniferous forests, stream banks; widespread.
    - 3 Stamens 14-19 mm long; sepals divergent from the floral axis, much longer than the petal blades ..... *A. desertorum* (M.E. Jones) Cockerell ex A. Heller ●Open rocky plains and slopes in the central and western mountains

**Caltha**

*C. leptosepala* A.P. de Candolle ●Wet seeps and boggy ground in the high northern mountains.

**Ceratocephala**

\**C. testiculata* (Crantz) Roth ●Disturbed semi-arid ground mostly in the northwestern region.

**Clematis** [Key adapted from Pringle 1997]

- 1 Sepals ± thick, leathery, fused at least at the base; perianth bell- to urn-shaped
  - 2 Plants vine-like, the stems often more than 1 meter long ..... *C. pitcheri* Torrey & Gray ●Rocky outcrops in the southeastern mountains.

- 2 Plants erect or sprawling, not vine-like, the stems usually much less than 1 meter long
- 3 Leaflets usually less than 1.5 cm wide, mostly more than 2.5 times longer than wide, mostly unlobed; blades sparsely to densely hirsute below..... *C. hirsutissima*  
Pursh ●Moist meadows, woods, and thicket in the northern mountain and plains region.
- 3 Leaflets usually more than 1.5 cm wide and/or less than 2.5 times longer than wide, mostly lobed; blades glabrous or nearly so .....*C. bigelovii*  
Torrey ●Moist mountain slopes and canyons; scattered locales, little collected.
- 1 Sepals thin, spreading, not fused; perianth widely bell-shaped to rotate
- 4 Staminate flowers with petaloid staminodes between the stamens and the sepals; perianth widely bell-shaped ..... *C. columbiana*  
(Nuttall) Torrey & Gray ●Widespread in rocky open woods and thickets.
- 4 Staminate flowers lacking staminodes; perianth rotate, the sepals widely spreading
- 5 Sepals greenish yellow to bright yellow, ascending or widely spreading and recurved ..... *C. orientalis*  
Linnaeus ●Roadsides and other disturbed habitats in the northern mountain region; known in the state from a single, old collection, perhaps no longer present in the wild in the state; native to Eurasia.
- 5 Sepals white to cream, widely spreading but not recurved
- 6 Leaflets pilose, especially below; achene beak 4-9 cm long..... *C. drummondii*  
Torrey & Gray ●Disturbed sites in woodlands and forests, grasslands, and semi-desert areas in the southern half of the state.
- 6 Leaflets glabrous to sparsely pilose below; achene beak 3-4 cm long ..... *C. ligusticifolia*  
Nuttall ●Widespread in somewhat moist sites across the state.

**Consolida**

\**C. ajacis* (Linnaeus) Schur ●A garden escape found sporadically in waste places, old home sites, along ditches, and roadsides.

**Cyrtorhyncha**

*C. ranunculina* Nuttall ●Open grassy or brushy slopes in the northern mountains.

**Delphinium** [Key adapted from Warnock 1997]

- 1 Plants annual; pistil usually 1; petals 2, connate ..... go to *Consolida*
- 1 Plants perennial; pistils usually 3(5); petals 4, distinct (*Delphinium* s.s.)
- 2 Large buds (more than 3 mm long) present at anthesis on rootcrowns; stems usually more than 1 m tall; basal leaves and lower cauline leaves absent at anthesis
- 3 Basal internodes about the same length as those at mid-stem; basal rosettes absent; leaves monomorphic, but the largest found near mid-stem and gradually reduced upwards
- 4 Leaves present on the basal 1/5 of the stem at anthesis
- 5 Stems less than 30 cm tall..... *D. alpestre*  
Rydberg ●Infrequent on rocky ridges and talus slopes in the high northern mountains; 11,000-13,00 ft.
- 5 Stems more than 45 cm tall..... *D. ramosum*  
Rydberg ●Mixed conifer and aspen woodlands in the northern mountains.
- 4 Leaves absent on the basal 1/5 of the stem at anthesis
- 6 Sepals brownish, yellowish, or purplish (either permanently or with age)
- 7 Sepals in bud yellowish or brownish purple ..... *D. sapellonis*  
Cockerell ●Canyon bottoms and aspen groves in montane coniferous forests of the central and northern mountains; endemic to New Mexico.
- 7 Sepals in bud purple to lavender ..... *D. novomexicanum*  
Wooton ●Meadows, endemic to the Sacramento and White Mountains of southern New Mexico.
- 6 Sepals in bud blue or purple, rarely white or pink, not brownish or yellowish with age
- 8 Hairs in the inflorescence gland-based..... *D. barbeyi*  
(Huth) Huth ●Moist areas in mixed conifer forests: mostly northern and western mountains.
- 8 Hairs in the inflorescence not gland-based
- 9 Stems finely and evenly puberulent throughout ..... *D. ramosum*  
Rydberg ●Mixed conifer and aspen woodlands in the northern mountains.
- 9 Stems glabrous or only pubescent in the inflorescence ..... *D. robustum*
- 3 Basal internodes much shorter than those at mid-stem; basal rosettes formed prior to stem elongation (but usually absent at anthesis); leaves ± dimorphic, the rosette leaves with fewer and wider lobes than stem leaves, the largest leaves found near the base of the stem
- 10 Mid- to upper stem and leaf blades pubescent; sepals dark blue to purple..... *D. geraniifolium*  
Rydberg ●Heavy clay soil of drying meadows in the ponderosa forests, western mountains.
- 10 Mid- to upper stem and leaf blades glabrous or nearly so; sepals bright dark blue..... *D. scopulorum*
- 2 Large buds absent at anthesis on root-crowns; stems usually less than 1 m tall; basal leaves and/or lower cauline leaves present at anthesis
- 11 Pedicels appressed-ascending; seeds with transverse wavy ridges visible without magnification ..... *D. wootonii*

Rydberg ●Widespread and flowering in the spring in desert plains, woodlands, and grasslands.

- 11 Pedicels mostly spreading, rarely appressed-ascending; seeds lacking transverse wavy ridges (but possibly with other markings)
  - 12 Basal internodes about the same length as those at mid-stem; basal rosettes not formed; leaves monomorphic, but the largest found near mid-stem and gradually reduced upwards from there
    - 13 Leaves present on the basal 1/5 of the stem at anthesis
      - 14 Stems less than 30 cm tall..... *D. alpestre*  
Rydberg ●Infrequent on rocky ridges and talus slopes in the high northern mountains; 11,000-13,00 ft.
      - 14 Stems more than 45 cm tall ..... *D. ramosum*  
Rydberg ●Mixed conifer and aspen woodlands in the northern mountains.
    - 13 Leaves absent on the basal 1/5 of the stem at anthesis
      - 15 Sepals brownish, yellowish, or purplish (either permanently or with age)
        - 16 Sepals in bud yellowish or brownish purple..... *D. sapellonis*  
Cockerell ●Canyon bottoms and aspen groves in montane coniferous forests of the central and northern mountains; endemic to New Mexico.
        - 16 Sepals in bud purple to lavender ..... *D. novomexicanum*  
Wootton ●Meadows, endemic to the Sacramento and White Mountains of southern New Mexico.
      - 15 Sepals in bud blue or purple, rarely white or pink, not brownish or yellowish with age
        - 17 Hairs in the inflorescence gland-based ..... *D. barbeyi*  
(Huth) Huth ●Moist areas in mixed conifer forests: mostly northern and western mountains.
        - 17 Hairs in the inflorescence not gland-based
          - 18 Stems finely and evenly puberulent throughout..... *D. ramosum*  
Rydberg ●Mixed conifer and aspen woodlands in the northern mountains.
          - 18 Stems glabrous or only pubescent in the inflorescence ..... *D. robustum*  
Rydberg ●Riparian woodlands and high elevation meadows in the northern mountains.
    - 12 Basal internodes much shorter than those at mid-stem; basal rosettes formed prior to stem elongation (but usually absent at anthesis); leaves ± dimorphic, the rosette leaves with fewer and wider lobes than stem leaves, the largest leaves found near the base of the stem
      - 19 Stems conspicuously narrowed below ground level, easily separating from the fusiform tuberous roots; fruits spreading ..... *D. nuttallianum*  
Pritzelt ex Walpers ●Rather dry sites in open woods, sagebrush plains, and well-drained stream banks in the western and northern regions.
      - 19 Stems not narrowed below ground and easily separating from the roots as above; fruits erect
        - 20 Basal portion of stem pubescent; stems 50-120 cm tall; fruits 16-20 mm long ..... *D. scopulorum*  
Gray ●Riparian forests and open woodlands in the western mountains.
        - 20 Basal portion of stem glabrous; stems mostly 25-50 cm tall, sometimes taller; fruits 12-16 mm long ..... *D. scapsum*  
Greene ●Juniper woodlands, plains, and grasslands across the western regions.

**Halerpestes**

*H. cymbalaria* (Pursh) Greene ●Wet ground, meadows, marshes, ditch and stream banks; widespread.

**Myosurus**

- 1 Outer face of achene orbiculate to square or broadly rhombic, 0.8-1.3 times higher than wide
  - 2 Outer face of achene bordered by a prominent ridge..... *M. cupulatus*  
S. Watson ●Dry slopes, canyon bottoms.
  - 2 Outer face of achene not bordered ..... *M. nitidus*  
Eastwood ●Under sagebrush in wet ground in the northwest region.
- 1 Outer face of achene narrowly rhombic to elliptic or oblong to linear, 1.5-5 times higher than wide
  - 3 Beak of achene 0.4 mm long or less, parallel to outer face of achenes, the fruiting head thus appearing smooth..... *M. minimus*  
Linnaeus ●Widespread in New Mexico along ponds and streams and in muddy clearings in wet meadows; expected in more counties than currently known.
  - 3 Beak of achene 0.6-1.4 mm long, divergent, so the fruiting head is roughened by the projecting achene beaks ..... *M. apetalus*  
Gay ●Muddy shores of stream banks and drying ponds, western mountains and foothills. ♦Our plants belong to var. *montanus* (G.R. Campbell) Whittemore

**Pulsatilla**

*P. patens* (Linnaeus) P. Miller ●Dry slopes and open areas in pine-oak woodlands; scattered sites in the northern mountains. ♦Our material belongs to subsp. *multifida* (Pritzelt) Zamelis

**Ranunculus** [Key adapted from Whittemore 1997]

- 1 All leaves simple, unlobed to shallowly toothed or lobed with rounded teeth
  - 2 Cauline leaves absent or scale-like (*H. cymbalaria*) ..... go to *Halerpestes*
  - 2 Cauline leaves present and well-developed
    - 3 Sepals covered with a dense, brown pubescence; distal leaves and bracts 3-toothed or shallowly 3-lobed... ..... *R. macauleyi*
    - 3 Sepals glabrous or with colorless hairs; distal leaves and bracts simple and undivided
      - 4 Achene wall thin and papery, longitudinally ribbed; leaf apex broadly rounded to truncate, the margins crenate (*H. cymbalaria*)..... go to *Halerpestes*
      - 4 Achene wall thick, smooth, not ribbed; leaf apex acuminate to rounded-obtuse, the margins entire or finely toothed
        - 5 Stems erect to ascending, not rooting at the nodes ..... *R. alismifolius*  
Geyer ex Bentham ●Moist ground, meadows, seeps in coniferous forests in the northern mountains. ♦Our material belongs to var. *montanus* S. Watson
        - 5 Stems decumbent to prostrate and rooting at the nodes
          - 6 Leaf blades lanceolate to oblanceolate or filiform, the base acute to filiform; beak of achene 0.1-0.6 mm long ..... *R. flammula*  
Linnaeus ●Muddy ground or shallow water, northern and western mountains. ♦Our material belongs to var. *ovalis* (Bigelow) L. Benson
          - 6 Leaf blades ovate to broadly ovate, the base rounded to weakly cordate; beak of achene 0.4-1 mm long ..... *R. hydrocharoides*  
Gray ●Wet soil or shallow water at the edges of marshes and ponds, in the southwestern region.
  - 1 Some or all leaves prominently lobed, often deeply, or compound
    - 7 Leafy stems creeping and rooting at the nodes or floating in the water (then rootless)
      - 8 Leaves 3-foliolate
        - 9 Petals (6)8-18 mm long
          - 10 Sepals reflexed along a well-defined fold above the base ..... *R. fasciculatus*  
Sessé & Mocíño ●Stream banks, perhaps to be found along the southwestern border with Arizona.
          - 10 Sepals spreading, sometimes reflexed from the base in age ..... *R. repens*  
Linnaeus ●Stream banks and wet meadows in the northern mountains; native to Eurasia, Australia, Pacific Islands.
        - 9 Petals 2-6 mm long
          - 11 Basal leaves lobed or parted, but simple ..... *R. uncinatus*  
D. Don ex G. Don ●Moist meadows or woods in the northern mountains.
          - 11 Basal leaves compound
            - 12 Petals 2-4 mm long, 1-2.5 mm wide; heads of achenes cylindrical, 5-7 mm wide ..... *R. pensylvanicus*  
Linnaeus f. ●Stream banks, boggy ground, moist clearings in woods.
            - 12 Petals 4-6 mm long, 3.5-5 mm wide; heads of achenes globose to ovoid, 7-10 mm wide ..... *R. macounii*  
Britton ●Meadows, ditches, edges of ponds or emergent from shallow water.
      - 8 Leaves simple, lobed to filiform-dissected, or occasionally undivided
        - 13 Petals white; achenes with strong coarse wrinkles ..... *R. aquatilis*  
Linnaeus ●Throughout the state along ponds, streams, and ditches; expected in most counties. ♦Our plants belong to var. *diffusus* Withering
        - 13 Petals yellow; achenes smooth or faintly wrinkled ..... *R. gmelinii*  
A.P. de Candolle ●Shallow water or drying mud of wet meadows marshes, and ponds, along the northern tier of counties.
  - 7 Leafy stems erect, or if decumbent then rooting only at the base, never floating
    - 14 Cauline leaves absent or scale-like, never compound, sometimes deeply dissected (*C. testiculata*) ..... go to *Ceratocephala*
    - 14 Cauline leaves present, simple to compound
      - 15 Style absent, the stigma sessile; achene margins thick and corky; plants emergent aquatics, sometimes also found on very wet soil ..... *R. sceleratus*  
Linnaeus ●Wet ground or shallow water at the edge of bogs and ponds. ♦Our plants belong to var. *multifidus* Nuttall
      - 15 Style present; achene margins not corky; found in various habitats, but rarely aquatic
        - 16 Achene wall thin, longitudinally striate; scale of nectary reduced to a low ridge, not covering the nectary (*C. ranunculina*)..... go to *Cyrtorhyncha*
        - 16 Achene wall thick, smooth, papillose, or spiny; scale of nectary well-developed and completely covering the nectary
          - 17 Achenes strongly flattened, at least 3-15 times as wide as thick; basal leaves always deeply

- lobed or compound
- 18 Petals 8-17 mm long..... *R. acris*  
Linnaeus ●Known only from Catron County, as an adventive weed at the edge of small streams and ponds; native to Europe.
- 18 Petals 2-6 mm long
  - 19 Basal leaves lobed or parted, but simple.....*R. uncinatus*  
D. Don ex G. Don ●Moist meadows or woods in the northern mountains.
  - 19 Basal leaves compound
    - 20 Petals 2-4 mm long, 1-2.5 mm wide; heads of achenes cylindric, 5-7 mm wide.....*R. pensylvanicus*  
Linnaeus f. ●Stream banks, boggy ground, moist clearings in woods.
    - 20 Petals 4-6 mm long, 3.5-5 mm wide; heads of achenes globose to ovoid, 7-10 mm wide.....*R. macounii*  
Britton ●Meadows, ditches, edges of ponds or emergent from shallow water.
- 17 Achenes thick, 1-2 times as wide as thick; basal leaves various, unlobed to deeply divided
  - 21 Sepals covered with a dense, brown pubescence; distal leaves and bracts 3-toothed or shallowly 3-lobed..... *R. macauley*  
Gray ●Sunny open ground of alpine meadows and slopes.
  - 21 Sepals glabrous or with colorless hairs; distal leaves and bracts simple and undivided
    - 22 Basal leaves deciduous before anthesis; nectary scale ciliate; petals 2-3 times longer than wide.....*R. arizonicus*  
Lemmon ex A. Gray ●Moist stream banks in the southwest region near the Arizona state line; known from only a few collections.
    - 22 Basal leaves persistent and present at anthesis; nectary scale glabrous, or if ciliate then the petals 1-1.5 times longer than wide
      - 23 All basal leaf blades lobed or parted.....*R. eschscholtzii*  
Schlectendal ●Open rocky alpine slopes and meadows.
      - 23 Some or all basal leaf blades entire or toothed, but not lobed
        - 24 All basal leaves undivided, the margins entire or with 3 broad shallow rounded teeth; heads of achenes globose..... *R. glaberrimus*  
Hooker ●Moist seepy slopes and depressions in grassy ground in the northwest region. ♦Our plants belong to var. *ellipticus* (Greene) Greene
        - 24 Basal leaves not as above, either the margins crenate with more than 5 rounded teeth, or some basal leaves lobed or divided; heads of achenes usually ovoid to cylindric
          - 25 Petals 1-3.5 mm long.....*R. abortivus*  
Linnaeus ●Woods, meadows, clearings in the forest, in the northern mountains; known from only a few collections.
          - 25 Petals 4-18 mm long
            - 26 Sepals 5-8 mm long, 3-7 mm wide; nectary scale ciliate, sometimes glabrous; leaf bases cordate to broadly obtuse.....*R. cardiophyllus*  
Hooker ●Wet or dry meadows and open sites.
            - 26 Sepals 3-6 mm long, 1.5-3 mm wide; nectary scale glabrous; leaf bases obtuse or acute to rounded..... *R. inamoenus*  
Greene ●Meadows, open woods, rocky slopes; widespread and common in the state.

**Thalictrum** [Key adapted from Park & Festerling 1997]

- 1 Flowers bisexual; stems mostly 5-20 cm tall (occasionally taller)..... *T. alpinum*  
Linnaeus ●A small plant of wet meadows and cold boggy ground in the northern mountains, not common.
- 1 At least some flowers unisexual; stems mostly taller than 20 cm
  - 2 Leaflets 3-lobed, the lobes usually entire; filaments usually white
    - 3 Petioles and rachises stipitate-glandular.....*T. amphibolum*  
Greene ●Open woods, brushy slopes and thickets, in the northeastern region of the state.
    - 3 Petioles and rachises glabrous to pubescent without glands.....*T. dasycarpum*  
Fischer & Avé-Lallemant ●Wet meadows and thickets in the northern mountains and plains.
  - 2 Leaflets 3-lobed and the lobes lobed again; filaments variously colored
    - 4 Achenes laterally compressed; panicles open and leafy; widespread..... *T. fendleri*  
Engelmann ex Gray ●Widespread throughout the state in various forest communities; our most common species.
    - 4 Achenes not compressed; panicles narrow and dense; barely entering New Mexico in the northeast.....*T. venulosum*  
Trelease ●Riparian woodland and grasslands in the northeastern portion of New Mexico; reported by

Park & Festerling (1997) and Great Plains Flora Association (1977) from Colfax County, but specimens are unknown to us.

**Trautvetteria**

*T. carolinensis* (Walter) Vail •Moist wooded slopes and wet meadows at high elevations.

**RESEDACEAE MIGNONETTE FAMILY****Oligomeris**

*O. linifolia* (Vahl) Macbride •Desert scrub and washes, often in saline or alkaline soils.

**RHAMNACEAE BUCKTHORN FAMILY**

## 1 Leaves alternate, all of them

## 2 Plants lacking thorns

3 Leaf blades 3-veined from the base; cultivated ornamental trees ..... *Ziziphus*

## 3 Leaf blades 1-veined from the base

4 Fruit a 3-chambered capsule; petals conspicuously long-clawed..... *Ceanothus*

4 Fruit a drupe with 2-4 stones; petals (when present) only shortly or scarcely clawed at the base

5 Blades densely whitish tomentulose beneath; leaves usually persistent (*F. californica*)..... *Frangula*

5 Blades glabrous to sparsely or minutely hairy beneath, but not whitish tomentulose; leaves usually deciduous

6 Secondary veins of the leaf blades nearly straight and parallel; bud scales absent, the buds hairy; most leaf blades more than 5 cm long (5-12 cm); flowers 5-merous (*F. betulifolia*)..... *Frangula*

6 Secondary veins of the leaf blades arching, not parallel; bud scales present, the buds glabrate; many to most leaf blades less than 5 cm long (1-8 cm); flowers 4-merous..... *Endotropis*

## 2 Plants with thorns

7 Leaf margins strongly revolute, only the midrib evident beneath (*C. ericoides*)..... *Condalia*

7 Leaf margins flat or slightly revolute, both midrib and lateral veins evident beneath

8 Petals white, blue, or purplish pink; fruit dry, 2- to 4-seeded (*C. fendleri*)..... *Ceanothus*

8 Petals typically greenish yellow or absent; fruit fleshy, 1-seeded

9 Young stems glaucous with a bluish bloom, smooth; petals present; fruits 3-6 mm long; leaves 7-18 mm long, ovate, obovate, or elliptic..... *Sarcomphalus*

9 Young stems not glaucous, but brownish and roughened; petals absent (except in *C. ericoides*, keyed above); fruits mostly 7-15 mm long; leaves 4-6 mm long (to 15 mm in *C. mexicana*), narrowly obovate, cuneate, or spatulate..... *Condalia*

## 1 Leaves opposite, at least most of them

10 Plants armed, the stems and branches thorn-tipped..... *Adolphia*

10 Plants unarmed, lacking thorns or spines

11 Fruit fleshy, a drupe, not splitting apart at maturity; leaves 0.8-2.5 cm long..... *Sageretia*

11 Fruit dry and splitting apart at maturity; leaves 0.5-1.5 cm long (*C. pauciflorus*)..... *Ceanothus*

**Adolphia**

*A. infesta* (Kunth) Meisner •Desert scrub in the bootheel region; known from a single collection.

**Ceanothus**

1 Leaves opposite, inconspicuously pinnately veined ..... *C. pauciflorus*

A.P. de Candolle •Southern and western foothills, shrublands, brushy slopes and plains.

1 Leaves alternate, 3-veined from the base

2 Margins obviously toothed..... *C. herbaceus*

Rafinesque •Open dry ground and limestone bluffs in the southeastern region; very scarce.

2 Margins entire or obscurely and remotely glandular-serrulate

3 Branchlets thorn-tipped; leaves silky pubescent beneath..... *C. fendleri*

Gray •Woodlands, forests, canyons, foothills, rocky slopes, widespread except for the eastern plains.

3 Branchlets not thorn-tipped; leaves glabrous beneath..... *C. integerrimus*

Hooker & Arnott •Dry slopes and ridges in the western mountains; known from only a few collections.

**Condalia**

1 Leaves puberulent ..... *C. warnockii*

M.C. Johnston •Scattered in the southern foothills.

1 Leaves glabrous

2 Leaves sessile, linear, with no obvious venation pattern other than a broad midvein; petals present (but soon deciduous)..... *C. ericoides*

(Gray) M.C. Johnston •Eastern plains and foothills, occasionally westward, sandy and gyp soils.

2 Leaves often shortly petiolate, obovate to elliptic, obscurely veined beneath; petals absent..... *C. correllii*

M.C. Johnston •Rocky canyons and gravelly slopes in the bootheel region (but reports from Grant and Luna counties are thus far incorrect).

**Endotropis**

1 Upper leaf surface green, the lower surface yellowish to brownish, rarely paler green; bud scales leathery, dark reddish; at least one leaf surface minutely hairy to the naked eye..... *E. serrata*

- (Humboldt & Bonpland ex Schultes) Hauenschild •South-central mountains and foothills.
- 1 Upper leaf surface gray or olive-green, the lower surface paler, rarely yellowish; bud scales thin, pale; both leaf surfaces apparently glabrous to the naked eye..... *E. smithii* (Greene) Hauenschild •Hillsides and along streams, rocky meadows, scattered locales in the mountains.
- Frangula**
- 1 Blades glabrous to sparsely or minutely hairy beneath, but not whitish tomentulose; leaves usually deciduous ..... *F. betulifolia* (Greene) V. Grubov •Moist canyons and slopes in the southwestern and south-central mountains.
- 1 Blades densely whitish tomentulose beneath; leaves usually persistent ..... *F. californica* (Eschscholtz) A. Gray •Juniper-oak woodlands, riparian areas; southwestern region. ♦Our plants belong to subsp. *ursina* (Greene) Kartesz & Gandhi
- Sageretia**
- S. wrightii* S. Watson •Canyon bottoms, lower mountain slopes; southwestern region; known from only a few collections.
- Sarcocaulis**
- S. obtusifolius* (Hooker ex Torrey & Gray) Hauenschild •Dry hills rocky slopes and flats; southern tier of counties.
- Ziziphus**
- Z. jujuba* Miller •Commonly cultivated, but not known in the wild in New Mexico; native to Eurasia.

**ROSACEAE ROSE FAMILY**

- 1 Plants herbaceous; leaves simple to pinnately or palmately compound
- 2 Hypanthium covered with hooked prickles ..... *Agrimonia*
- 2 Hypanthium not covered with hooked prickles
- 3 Leaves simple ..... *Alchemilla*
- 3 Leaves compound
- 4 Sepals without alternating subtending bractlets
- 5 Margins of leaflets pinnatisect and deeply incised nearly to the midrib ..... *Poteridium*
- 5 Margins of leaflets coarsely serrate, but incised less than 1/2 the distance to the midrib ..... *Poterium*
- 4 Sepals alternating with subtending bractlets, the bractlets usually slightly smaller
- 6 Styles filiform, elongate, terminal, and persistent, at the middle either abruptly bent or ± straight and plumose ..... *Geum*
- 6 Styles short and inconspicuous, basal to sub-terminal, deciduous, ± straight but never plumose
- 7 Stamens 5 in number; leaflets mostly wedge-shaped with 3 apical teeth and entire on the sides .... *Sibbaldia*
- 7 Stamens 10 or more in number; leaflet shape and/or tothing not as above
- 8 Leaves 3-foliolate; petals white; plants spreading by stolons ..... *Fragaria*
- 8 Leaves, petals, and plants not all as above
- 9 Styles attached near the base of the ovaries ..... *Dryocallis*
- 9 Styles attached near or at the apex of the ovaries ..... *Potentilla*
- 1 Plants shrubs or trees, at least the stems woody; leaves simple or pinnately compound
- 10 Leaves compound
- 11 Stems and leaves lacking prickles
- 12 Leaflets toothed, 4-8 cm long ..... *Sorbus*
- 12 Leaflets entire, 1-2 cm long ..... *Dasiphora*
- 11 Stems and sometimes the leaves with prickles; ovaries numerous, superior (hidden within the hip in *Rosa*)
- 13 Fruit a hip, consisting of an hypanthium tightly enclosing and hiding the numerous achenes ... *Rosa*
- 13 Fruit an aggregate of several fleshy exposed drupelets ..... *Rubus*
- 10 Leaves simple
- 14 Leaves entire, narrow
- 15 Plants prostrate, forming mats on exposed rock surfaces ..... *Petrophytum*
- 15 Plants erect shrubs and trees
- 16 Petals lacking; fruit a dry achene enclosed by a persistent tubular hypanthium ..... *Cercocarpus*
- 16 Petals present; fruit a fleshy drupe or pome not enclosed by the hypanthium
- 17 Fruit a pubescent drupe with a single seed or stone; ovary superior with a single style ..... *Prunus*
- 17 Fruit a glabrous pome with about 5 seeds; ovary inferior with 2-3 styles ..... *Peraphyllum*
- 14 Leaves toothed to lobed
- 18 Ovary or ovaries superior
- 19 Fruit a fleshy drupe or aggregate of drupelets
- 20 Leaves 3- to 7-lobed and about as long as wide, palmately veined; fruit an aggregate of several drupelets; flowers large, the sepals 5-22 mm long ..... *Rubus*
- 20 Leaves not lobed, longer than wide, pinnately veined; fruit a single drupe; flowers



- smaller, the sepals less than 5 mm long ..... *Prunus*
- 19 Fruit a dry follicle or achene
- 21 Fruit a follicle with several seeds
- 22 Leaves palmately veined and lobed ..... *Physocarpus*
- 22 Leaves pinnately veined, toothed but not lobed ..... *Vauquelinia*
- 21 Fruit an achene with a single seed
- 23 Leaves 3-toothed or 3-lobed at the apex ..... *Purshia*
- 23 Leaves toothed or lobed along the sides, not as above
- 24 Leaves lobed, the sinus reaching more than half-way to the midrib
- 25 Hairs on the lower leaf surface rusty-golden; pistils numerous, usually many more than 15 ..... *Fallugia*
- 25 Hairs on the lower leaf surface whitish; pistils 1-5 or rarely as many as 10 or 12 ..... *Purshia*
- 24 Leaves toothed, the sinus not reaching half-way to the midrib
- 26 Inflorescence a panicle with numerous flowers; petals present; style neither becoming elongate or plumose ..... *Holodiscus*
- 26 Inflorescence a solitary flower or a cluster of only 2-3 flowers; petals absent; style becoming elongate and plumose ..... *Cercocarpus*
- 18 Ovary inferior
- 27 Stems armed with prominent thorns or spines
- 28 Leaves evergreen; petals small, less than 4 mm long ..... *Pyracantha*
- 28 Leaves deciduous; petals larger, more than 5 mm long ..... *Crataegus*
- 27 Stems unarmed or obscurely thorny from the flowering short shoots
- 29 Fruit mostly 3-8 cm thick; leaves mostly 3-10 cm long; cultivated trees often persisting around old settlements or sometimes escaping
- 30 Styles united below into a column; fruit subglobose, the persistent sepals sunken in a depression ..... *Malus*
- 30 Styles free to the base; fruit pear-shaped, broader at the end opposite the stalk, the persistent sepals not sunken in a depression ..... *Pyrus*
- 29 Fruit mostly 0.5-2 cm thick; leaves 1-6 cm long
- 31 Blades narrowly elliptic to narrowly oblanceolate, mostly less than 1 cm wide, entire or obscurely toothed most of their length ..... *Peraphyllum*
- 31 Blades broadly elliptic to nearly orbicular, mostly more than 1.5 cm wide, generally toothed only on the upper 1/2 ..... *Amelanchier*

**Agrimonia**

- 1 Mid-stem leaves with 9-13 narrow (lanceolate to narrowly elliptic) major leaflets; rare and perhaps no longer in the state ..... *A. parviflora*  
Aiton ●Known only from a single collection in Santa Fe in 1847; probably no longer occurring in the state; native to the eastern half of the United State.
- 1 Mid-stem leaves with 5-7 broad (elliptic to ovate) major leaflets; commonly encountered
- 2 Racemes with appressed hairs; fruiting hypanthia with erect bristles ..... *A. striata*  
Michaux ●Mountain forests and riparian areas; widespread.
- 2 Racemes with spreading hairs; fruiting hypanthia with spreading-reflexed bristles ..... *A. gryposepala*  
Wallroth ●Moist mountain slopes, riparian areas; occasional in scattered mountainous areas, but probably more common than the collections suggest.

**Alchemilla**

\**A. monticola* Opiz ●Known from a few collections in the Wheeler Peak area in the Sangre de Cristo Mountains; native to Europe.

**Amelanchier**

- 1 Larger leaf blades 2-5 cm long, usually glabrous by anthesis; flower clusters with 5-15 flowers; pomes 10-15 mm diam ..... *A. alnifolia*  
(Nuttall) Nuttall ex M. Roemer ●Moist woods, brush, and shady canyons in the northern counties.
- 1 Larger leaf blades 1-3 cm long, usually hairy at anthesis and beyond; flower clusters with 3-6 flowers; pomes 6-10 mm diam ..... *A. utahensis*  
Koehe ●Often dry foothills, canyons, and mountain slopes; widespread.

**Cercocarpus**

- 1 Leaves more than 4 times longer than wide, with strongly revolute margins that roll over nearly to the midrib; plants intricately branched, spinescent ..... *C. ledifolius*  
Nuttall ●Rocky bluffs, ledges, and sandstone outcrops; known only from San Juan County.
- 1 Leaves less than 4 times longer than wide, the margins plane or only slightly revolute; plants generally less branched (except under browsing), not or hardly spinescent
- 2 Leaves thin and winter-deciduous, typically ± ovate to obovate-orbicular, coarsely crenate or serrate-dentate at least in the distal 1/2; flowers and fruits relatively large, the hypanthium tube 9-15 mm long in fruit ..... *C. montanus*

Rafinesque ●Mountain slopes and foothills, rocky ridges, widespread nearly throughout the state from low elevations in the desert foothills to high elevations in the mountains; occurring up to nearly 10,000 ft elevation on south-facing mountain slopes.

- 2 Leaves moderately thick, subcoriaceous and evergreen (sometimes drought-deciduous), usually elliptic to oblanceolate or obovate, entire or shallowly crenate-dentate near the leaf apex; flowers and fruits relatively small, the hypanthium tube 4-9 mm long in fruit ..... *C. breviflora*  
 Gray ●Dry mountain slopes and foothills, conifer-oak woodlands, openings in forests, dry ridges, widespread.

**Crataegus**

- 1 Leaves essentially unlobed (*Prunus*-like), usually more than 2 times longer than broad, elliptic; fruit black at maturity, deep reddish when younger ..... *C. rivularis*  
 Nuttall ●Along streams in the northern and western mountains.
- 1 Leaves with coarse toothing or shallow lobing in addition to the serrations on the margin (*Alnus*-like), usually about 1½ times longer than broad, rhombic; fruit red to very deep red or burgundy at maturity, sometimes orangish when younger
- 2 Pedicels villous at anthesis
- 3 First-year twigs golden-green to tan; autumnal leaves yellow..... *C. chryscarpa*  
 Ashe ●Small canyons along streams in the northern mountains; known as yet only from Colfax County.
- 3 First-year twigs dark purple-brown; autumnal leaves bronze..... *C. macracantha*  
 Loddiges ex Loud ●Moist slopes in the northern mountains.
- 2 Pedicels glabrous at anthesis
- 4 Thorns on 2-year-old twigs greyish to brownish, dull; ripe fruit ± ellipsoid ..... *C. wootoniana*  
 Eggleston ●Endemic to New Mexico, grassy areas with ponderosa pine, near streams, in the southern mountains.
- 4 Thorns on 2-year-old twigs blackish to deep reddish purple, glossy; ripe fruit ± orbicular.. *C. erythropoda*  
 Ashe ●Along streams and in canyons of foothills or mountain slopes in the northern or western mountains.

**Dasiphora**

*D. fruticosa* (Linnaeus) Rydberg ●Moist mountain meadows and open slopes at mid- to high elevations, in all the mountain ranges.

**Dryocallis**

- 1 Basal leaves with (4)5-6(10) pairs of leaflets; cauline leaves with 4-(10) pairs of leaflets; anthers mostly 1-1.5 mm long..... *D. fissa*  
 (Nuttall) Rydberg ●Rocky slopes and ridges in the northern mountains, scarcely known.
- 1 Basal leaves (1)2-5 pairs of leaflets; cauline leaves with 1-4 pairs of leaflets; anthers 0.5-1 mm long
- 2 Inflorescence open, the branches and pedicels often diverging..... *D. glandulosa*  
 (Lindley) Rydberg ●Moist ground along streams, lake shores, road banks.
- 2 Inflorescence narrow, the branches and pedicels suberect
- 3 Terminal leaflets obtuse to acute, usually densely hairy; teeth 15-30 per side; inflorescences usually less than 1/5 of the stems; mostly east of the Continental Divide..... *D. arguta*  
 (Pursh) Rydberg ●Moist woods and canyon bottoms.
- 3 Terminal leaflets rounded to obtuse, usually moderately hairy to glabrate; teeth 4-18(20) per side; inflorescences often more than 1/5 of the stems; mostly west of the Continental Divide..... *D. convallaria*  
 (Rydberg) Rydberg ●Not definitely known in New Mexico, but to be looked for in open mountain meadows, roadsides, and moist slopes in the southwestern mountains, generally west of the Continental Divide.

**Fallugia**

*F. paradoxa* (D. Don) Endlicher ex Torrey ●Widespread throughout the state in arroyos, washes, and canyon bottoms.

**Fragaria**

- 1 Leaflets mostly pubescent, green, not glaucous, mostly up to 1½ times longer than wide, the veins impressed and noticeable, with numerous prominent teeth on the margin; petiole with spreading to reflexed hairs *F. vesca*  
 Linnaeus ●Moist, shady aspen and coniferous forests; widespread. ♦Our plants belong to subsp. *bracteata* (Heller) Staudt
- 1 Leaflets tending to be glabrous and glaucous, at least on one surface, mostly 2 times longer than wide, the veins obscure, with fewer teeth on the margin; petiole with appressed hairs..... *F. virginiana*  
 Miller ●Meadows, forests, and riparian areas; widespread in mountain areas. ♦Our plants belong to subsp. *glauca* (S. Watson) Staudt

**Geum**

- 1 Sepals and bractlets purplish, 7-13 mm long; flowers nodding
- 2 Flowering stems with a single pair of opposite leaves near mid-stem (not counting those subtending the flowers); basal leaves divided into numerous smaller segments, feather- or fern-like, the terminal leaflets not much different than those below; fruiting styles plumose..... *G. triflorum*  
 Pursh ●Moist stream banks and wet meadows in the northern and western mountains, montane to alpine.

- 2 Flowering stems with 2-several alternate leaves scattered along the stem below those subtending the flowers; basal leaves with fewer larger segments, not feather- or fern-like, the terminal leaflets of basal leaves much larger than those below; fruiting styles not plumose ..... *G. rivale*  
 Linnaeus •Swamps and wet meadows at high elevations in the northern mountains.
- 1 Sepals and bractlets green, mostly 2-7 mm long; flowers generally erect
- 3 Plants 5-15 (25) cm tall; leaves much divided into numerous smaller segments, feather- or fern-like; sepals erect in anthesis; style not jointed or hooked ..... *G. rossii*  
 (R. Brown) Seringe •Open slopes and ridges at high elevations in the mountains. ♦Our plants belong to var. *turbinatum* (Rydberg) C.L. Hitchcock
- 3 Plants 30-120 cm tall; leaves with fewer larger segments, not feather- or fern-like; sepals reflexed in anthesis; style jointed, the lower (persistent) segment with a hooked tip
- 4 Terminal segment of the basal leaves many times larger than the two adjacent lateral segments, cordate or rounded at the base; epicalyx bractlets often absent or to 2 mm long; persistent portion of style with tiny stalked glands..... *G. macrophyllum*  
 Willdenow •Wet to damp meadows and stream banks, often in the shade, in the mountains.
- 4 Terminal segment of the basal leaves and the adjacent lateral segments similar in size and shape or the terminal segment only somewhat larger, usually cuneate at the base; epicalyx bractlets always present, 2-3.5 mm long; persistent portion of style glabrous ..... *G. aleppicum*  
 Jacquin •Moist meadows, shaded stream banks, and canyon sides in the mountains.

**Holodiscus**

*H. discolor* (Pursh) Maximowicz •In the forests throughout the state.

**Malus**

- 1 Leaf blades of vigorous shoots unlobed, finely and regularly toothed ..... *M. domestica*  
 (Suckow) Borkhausen •Roadsides, forest edges, old fields and homesteads, lake shores, and other moist sites in scattered disturbed locales in the states; native to Eurasia.
- 1 Leaf blades of vigorous shoots commonly lobed, at least somewhat, coarsely and often doubly toothed ..... *M. ioensis*  
 (A. Wood) Britton •Roadsides and similar disturbed sites; known from only a few collections in the northern tier of counties; native to central United States.

**Peraphyllum**

*P. ramossissimum* Nuttall •Dry slopes and brushy foothills in the northern mountains; poorly known from few collections.

**Petrophytum**

*P. caespitosum* (Nuttall) Rydberg •Low, mat-forming shrub on rock surfaces, rooting in the cracks and crevices, usually on limestone; southern mountains.

**Physocarpus**

*P. monogynus* (Torrey) Coulter •Rocky, often brushy slopes and foothills.

**Potentilla**

- 1 Petals red or reddish-purple; leaflets palmately arranged ..... *P. thurberi*  
 Gray •Coniferous forests and meadows; very common in the southern mountains, but also extending northward.
- 1 Petals yellow, cream-colored, or whitish; leaflets palmately to pinnately arranged
- 2 Basal leaves manifestly pinnate with 5 or more leaflets
- 3 Plants annual or biennial (sometimes short-lived perennial)
- 4 Most stem leaves manifestly pinnate with 5-9 leaflets, only the uppermost with 3 leaflets; stamens 20 or more; mature achenes with a prominent, wedge-shaped protuberance, also rugose ..... *P. supina*  
 Linnaeus •Lake shores, riverbanks and streamsides, sandbars; occasional in scattered locations.  
 ♦Our plants belong to subsp. *paradoxa* (Nuttall) Sojak
- 4 Most stem leaves digitate with 3 leaflets, only the lowermost pinnate with 5 leaflets; stamens 10-15; mature achenes lacking a protuberance, smooth ..... *P. rivalis*  
 Nuttall •Lakeshores, stream banks, moist meadows, mostly northern and western mountains and foothills.
- 3 Plants perennial
- 5 Leaflets deeply divided to at least halfway to the midrib, usually more
- 6 Flowering stems reclining to prostrate; leaflets ± green on both surfaces ..... *P. plattensis*  
 Nuttall •Moist meadows and valleys, stream banks, springs; infrequent in the northern counties.
- 6 Flowering stems erect; leaflets whitish hairy or at least noticeably paler beneath
- 7 Leaflets cleft about halfway to the midrib, the lobes 2-5 mm long; stem pubescence ± spreading; anthers 0.5-0.8 mm long ..... *P. pensylvanica*  
 Linnaeus •Rocky ridges, coniferous forests, meadows, grassy woodlands in nearly all the mountain ranges.
- 7 Leaflets cleft well over halfway to the midrib, the lobes 6-14 mm long; stem pubescence appressed; anthers 0.4-0.5 mm long ..... *P. bipinnatifida*  
 Douglas ex Hooker •Mountain meadows, coniferous forests; known from the Sacramento

- Mountains, but to be looked for in the northern mountains as well, as it is common in Colorado.
- 5 Leaflets entire, toothed, to shallowly toothed or lobed no more than halfway to the midrib, usually less
- 8 Plants stoloniferous, the stems becoming prostrate and rooting at the nodes; flowers solitary on long pedicels at the nodes of the stolons..... *P. anserina*  
Linnaeus ●Meadows, moist ground, stream banks, shores of lakes; widespread.
- 8 Plants lacking stolons; flowers in few- to many-flowered cymes on erect flowering stems
- 9 Abaxial surfaces of the leaflets white to gray, with abundant crisped or cottony hairs
- 10 Lateral leaflets with 4-9 teeth per side, the surfaces similar, with abundant cottony hairs on both surfaces..... *P. effusa*  
Douglas ex Lehmann ●Not definitely known from the state, but reported without documentation for the northern mountains by Johnston (1980); to be looked for in higher elevation meadows, conifer woodlands, and rocky slopes.
- 10 Lateral leaflets with 6-12 or more teeth per side, the surfaces dissimilar, with abundant cottony hairs abaxially, but less so adaxially
- 11 Leaflets of the lower leaves 3-7 per side, the distal leaflet pairs ± decurrent and often confluent with the terminal leaflet..... *P. hippiana*  
Lehmann ●Aspen and spruce-fir forests, meadows, ridges; widespread.
- 11 Leaflets of the lower leaves mostly 2-3 per side, the distal leaflet pair not decurrent nor confluent with the terminal leaflet..... *P. subjuga*  
Rydberg ●Open areas, rocky ridges, and talus slopes at high altitudes in the northern mountains.
- 9 Abaxial surfaces of the leaflets ± green to grayish or silvery, usually lacking crisped or cottony hairs
- 12 Mature leaves mostly 5- to 9-foliolate, glabrous to pubescent, but generally lightly so and the hairs rather inconspicuous; style attached near the base of the ovary ..... go to *Drymocallis*
- 12 Mature leaves mostly 11- to 17-foliolate, rather prominently silky or strigose pubescent, though still greenish in color; style attached near the top of the ovary
- 13 Leaflets 3-6 cm long, toothed well below the tip; plants 40-60 cm tall..... *P. ambigens*  
Greene ●Canyon bottoms, meadows, openings in conifer woodlands; occasional in scattered mountain areas.
- 13 Leaflets 1-2 cm long, mostly toothed only at the tip; plants 15-30 cm tall..... *P. crinita*  
Gray ●Pine-oak-juniper forests, piñon-juniper woodlands; northern and western mountains, and expected in counties adjacent to those reported.
- 2 Basal leaves palmate, 3-foliolate, or subpinnate with 5 or more leaflets on very short rachis internodes and appearing digitate-palmate
- 14 Plants annual or biennial (sometimes short-lived perennial in *P. norvegica*)
- 15 Leaflets 5-7 in number, at least on the main leaves ..... *P. recta*  
Linnaeus ●As yet known only from moist weedy ground along streams in San Miguel and Santa Fe counties; native to Eurasia and northern Africa.
- 15 Leaflets 3 in number, few with 5
- 16 Stems stiffly hirsute proximally with bulbous-based spreading hairs; mature achenes strongly rugose; petals at least  $\frac{3}{4}$  the sepal length..... *P. norvegica*  
Linnaeus ●Streamsides, lake shores, moist meadows; widespread in the mountains and foothills of the state.
- 16 Stems soft-pubescent proximally; mature achenes smooth; petals usually less than  $\frac{3}{4}$  the sepal length
- 17 Lower stems and petioles with 1-celled, non-glandular hairs; leaflets elliptic to obovate.....  
..... *P. rivalis*  
Nuttall ●Lakeshores, stream banks, moist meadows, mostly northern and western mountains and foothills.
- 17 Lower stems and petioles with multicellular, often glandular, hairs; leaflets obovate to orbicular..... *P. biennis*  
Greene ●Moist meadows, stream-banks, and ditches; poorly known from only two collections.
- 14 Plants perennial (see also *P. norvegica*)
- 18 Leaflets entire or only 2- to 3-toothed at the apex
- 19 Leaflets white-tomentose beneath..... *P. bicrenata*  
Rydberg ●Open pine woods, meadows, conifer woodlands, sagebrush, in the northern and western mountains.
- 19 Leaflets green (but may be sparsely villous) beneath..... *P. sierrae-blancae*  
Wootton & Rydberg ●Endemic to high elevation ridges and cliffs of the environs of Sierra Blanca Peak, Otero and Lincoln counties, mostly above 10,000 ft but with a few collections down to about 8200 ft.
- 18 Leaflets toothed to lobed for most or much of their length

- 20 Flowering stems spreading-decumbent to prostrate
- 21 Herbage glandular, as well as pubescent ..... *P. subviscosa*  
Greene ●Pine forests, meadows, open pine-juniper woodlands.
- 21 Herbage not glandular, or only very slightly so ..... *P. concinna*  
L.C.M. Richard ●Open pine and Douglas-fir forests, meadows, rock outcrops, northern and western mountains.
- 20 Flowering stems erect or ascending
- 22 Leaflet surfaces mostly strongly dissimilar, the abaxial grayish to white, but not glaucous, with abundant cottony hairs
- 23 Leaflets 3, rarely more ..... *P. nivea*  
Linnaeus ●Alpine slopes and ridges above 11,500 ft in the northern mountains, not common and known from only a few specimens.
- 23 Leaflets 5, rarely less
- 24 Foliage usually lacking glands, or glands inconspicuous and colorless when present; leaflets incised  $\frac{1}{4}$  to  $\frac{3}{4}$  or more the distance to the midrib ..... *P. gracilis*  
Douglas ex Hooker ●Meadows, openings in conifer woodlands, rocky slopes, in the northern mountains.
- 24 Foliage usually with conspicuous red-tipped glands; leaflets incised  $\frac{1}{4}$  to  $\frac{1}{2}$  the distance to the midrib ..... *P. pulcherrima*  
Lehmann ●Meadows, forest and woodland openings, rocky slopes and summits, streambanks, canyon bottoms, medium to high elevations, widespread.
- 22 Leaflet surfaces similar to somewhat dissimilar, the abaxial greenish to grayish, rarely white, sometimes glaucous, usually lacking cottony hairs
- 25 Leaflets usually glaucous, bluish-green, incised on the distal  $\frac{1}{3}$  to  $\frac{1}{2}$ , with 1-3 teeth per side; stems 5-35 cm long; inflorescences with 2-10 flowers ..... *P. glaucophylla*  
Lehmann ●Meadows, rocky slopes and woodland openings, mid- to high elevations in the northern mountains.
- 25 Leaflets not glaucous, dark green to grayish (rarely whitish), incised on the distal  $\frac{1}{2}$  to nearly the whole length, with 5-10 teeth per side; stems 20-10 cm or more long; inflorescences with 10-50 or more flowers
- 26 Leaflets narrowly elliptic, incised  $\frac{1}{4}$  to  $\frac{1}{3}$  the distance to the midrib, the teeth 1-2 mm long ..... *P. townsendii*  
Rydberg ●Meadows, gravelly slopes and ridges, forest and woodland openings, medium to high elevations in the northern mountains.
- 26 Leaflets elliptic to obovate, incised  $\frac{1}{3}$  to  $\frac{3}{4}$  or more the distance to the midrib, the teeth more than 2 mm long ..... *P. gracilis*  
Douglas ex Hooker ●Meadows, openings in conifer woodlands, rocky slopes, in the northern mountains.

**Poteridium**

*P. occidentale* (Nuttall) Rydberg ●Reported by Weakley (2014), but specimens are unknown; to be looked for in sandy open ground and roadsides.

**Poterium**

\**P. sanguisorba* Linnaeus ●Disturbed ground in mountain meadows, moist slopes and plains; native to Eurasia; probably occurring in more counties than indicated by the collections. ♦Our plants belong to var.

*polygamum* (Waldstein & Kitaibel) Visiani

**Prunus**

1 Leaves broadly ovate to nearly orbicular

- 2 Petioles 4-20 mm long; blades 2-5 cm long; flowers in corymbs of 4-10 flowers, blooming with leaf emergence ..... *P. mahaleb*  
Linnaeus ●Known only from the Sacramento Mountains, Otero County, presumably as an escape from nearby orchards; native to Eurasia.

- 2 Petioles (12)20-45 mm long; blades (3)5-9 cm long; flowers solitary, blooming before leaf emergence ..... *P. armeniaca*  
Linnaeus ●Roadsides, disturbed moist ground, scattered locales in the state, presumably an escape from orchards or from discarded pits; native to Asia.

1 Leaves lanceolate to narrowly ovate, never suborbicular

- 3 Flowers in elongate racemes, appearing with the leaves on short branches of the current year's growth
- 4 Sepals persistent, entire or inconspicuously glandular-erose; leaf teeth appressed or incurved; lower surface of the leaf blades with short hairs surrounding the lower mid-vein ..... *P. serotina*  
Ehrhart ●Along streams, moist canyons, riparian areas; widespread. ♦Our plants belong to var. *rufula* (Wootton & Standley) McVaugh
- 4 Sepals deciduous, conspicuously fimbriate with reddish, clavate, glandular hairs; leaf teeth ascending; lower surface of the leaf blades glabrous or nearly so around the lower mid-vein ..... *P. virginiana*  
Linnaeus ●Canyon bottoms, stream banks, moist riparian areas; widespread.

- 3 Flowers in corymbs or umbels or single, appearing before the leaves on short branches of the previous year
- 5 Calyx tube and pedicels densely short-pubescent..... *P. gracilis*  
Engelmann & Gray ●Open hillsides, stream valleys on the eastern plains, known from only a few collections.
- 5 Calyx tube and pedicels glabrous or nearly so
- 6 Inflorescence of 3-15 flowers in a corymbose raceme ..... *P. emarginata*  
(Douglas ex Hooker) D. Dietrich ●Valley bottoms, riparian areas, moist canyons, scattered locales in the state, and probably more abundant than reported.
- 6 Inflorescence of a solitary flower or a few in an umbellate cluster
- 7 Flowers solitary or sometimes 2-3 per bud; drupe pubescent or glabrous
- 8 Leaves pubescent beneath ..... *P. angustifolia*  
Marshall ●Sand dunes, ravines in prairies and plains, eastern New Mexico.
- 8 Leaves glabrous beneath
- 9 Drupe pubescent; leaves green, never purple ..... *P. persica*  
(Linnaeus) Batsch ●Known from a few scattered localities, associated with disturbance or human activity; presumably escaped from orchards or from discarded pits, perhaps bird-transported.
- 9 Drupe glabrous; leaves often purple ..... *P. cerasifera*  
Ehrhart ●Very common as a residential ornamental, with many cultivars, not yet documented from the wild, but sometimes reported as so; native to southern Europe.
- 7 Flowers 3 or more per bud; drupe glabrous
- 10 Drupe glaucous, yellow to red, a plum; petals 7-12 mm long; plants thorny ..... *P. americana*  
Marshall ●Roadsides, canyons, stream-sides, irrigation canals, similar disturbed ground.
- 10 Drupe not glaucous, deep red, a cherry; petals 10-15 mm long; plants lacking thorns
- 11 Leaf abaxial surfaces moderately hairy, especially along the midribs and veins; petioles (14)20-40 mm long, glandular; fruit sweet ..... *P. avium*  
(Linnaeus) Linnaeus ●Cultivated for the edible cherries; presumably escaped in the Four Corners region, and perhaps elsewhere; native to Eurasia.
- 11 Leaf abaxial surfaces glabrous or glabrate; petioles 10-24 mm long, lacking glands; fruit sour ..... *P. cerasus*  
Linnaeus ●Occurring sporadically as an escape in the Four Corners region, and perhaps elsewhere; native to Eurasia.

**Purshia**

- 1 Leaves usually 5- to 7-lobed and glandular-dotted; pistils 4-10 per flower, the style elongated and plumose in fruit..... *P. stansburyana*  
(Torrey) Henrickson ●Dry slopes in the western mountains and foothills.
- 1 Leaves usually 3-lobed at the tip and lacking glandular dots; pistils 1-2 per flower, the style beak-like, neither elongated nor plumose in fruit..... *P. tridentata*  
(Pursh) A.P. de Candolle ●Dry slopes and foothills in the northern region.

**Pyracantha**

\**P. coccinea* Roemer ●Very common in cultivation, rare as an escape; native to Eurasia.

**Pyrus**

- 1 Fruits hard, inedible, marble-sized; blades 3-6 cm wide; leaf margins wavy or sinuate..... *P. calleryana*  
J. Decaisne ●A very popular ornamental tree throughout the state, but not yet known in the wild; native to China and Taiwan.
- 1 Fruits fleshy, very edible, often baseball-sized or larger; blades 1-3 cm wide; leaf margins ± plane *P. communis*  
Linnaeus ●Common orchard plants grown for their edible fruits, rarely found as an escape in the wild; native to Eurasia.

**Rosa**

- 1 Flowers yellow..... *R. ×harisonii*  
Rivers ●Escaped from cultivation on the northeastern plains, Colfax County.
- 1 Flowers red to pink, to white
- 2 Hip noticeably broad-mouthed, densely bristly; sepals, at least most of them, lobed; leaflets wedge-shaped....  
..... *R. stellata*  
Wooton ●Dry, rocky slopes and foothills across the southern regions.
- 2 Hip constricted to a narrow mouth, not bristly; sepals lobed or not; leaflets other than wedge-shaped
- 3 Flowers white to rarely pink; sepals lobed or fringed
- 4 Stipules deeply fringed or pectinate, cut almost to the petiole and appearing as lateral projections of the petiole base ..... *R. multiflora*  
Thunberg ex Murray ●Escaped from cultivation; as yet known from only a few northern localities; native to Asia.
- 4 Stipules entire, not as above
- 5 Leaflets mostly hairy (at least on veins) and glandular on the abaxial surfaces ..... *R. obtusifolia*  
Desvaux ●Escaped and persisting in San Miguel County; native to Eurasia.

- 5 Leaflets mostly glabrous and eglandular on the abaxial surfaces ..... *R. canina*  
 Linnaeus ●A single plant recently found as an escape in Colfax County; native to Eurasia and northern Africa.
- 3 Flowers pink to red; sepals fringed or not
- 6 Flowering stems densely bristly between the nodes, but usually without stout, broad-based nodal prickles, very rarely unarmed
- 7 Flowers 1-3 in a cluster; leaflets mostly 5-7 in number ..... *R. acicularis*  
 Lindley ●Wooded hillsides, forested uplands, and rocky bluffs in the northern mountains and foothills. ♦Our plants belong to var. *saryana* Erlanson
- 7 Flowers (1)5-several in a cluster; leaflets mostly 9-11 in number ..... *R. arkansana*  
 Porter ●Prairies, open woodlands and forests, and thickets in the northern and northeast counties; reports from the southern and southwestern mountains are unsubstantiated.
- 6 Flowering stems with stout, broad-based prickles at the nodes, occasionally also with internodal bristles that are obviously different from the nodal prickles, rarely unarmed
- 8 At least some of the sepals with conspicuous lateral lobes or fringe; prickles coarse, flattened and expanded toward the base and strongly curved or hooked
- 9 Leaflets mostly hairy (at least on veins) and glandular on the abaxial surfaces ..... *R. obtusifolia*  
 Desvaux ●Escaped and persisting in San Miguel County; native to Eurasia.
- 9 Leaflets mostly glabrous and eglandular on the abaxial surfaces ..... *R. canina*  
 Linnaeus ●A single plant recently found as an escape in Colfax County; native to Eurasia and northern Africa.
- 8 None of the sepals with lateral lobes or fringe; prickles mostly not as above, but sometimes curved, rarely expanded at the base
- 10 Flowers mostly solitary and large, seldom 2-3 together on some branches; petals 25-40 mm long; hip 12-20 mm in diameter ..... *R. nutkana*  
 Presl ●Wooded and open slopes at moderate to high elevations in the northern mountains.  
 ♦Our plants belong to subsp. *melina* (Greene) W.H. Lewis & Erter
- 10 Flowers mostly 2-3 or more in a cluster and smaller, seldom solitary; petals about 15-25 mm long; hip 6-12 mm in diameter ..... *R. woodsii*  
 Lindley ●Essentially throughout the state, but apparently absent on the far eastern plains.

**Rubus**

- 1 Leaves simple; stems unarmed
- 2 Leaves mostly more than 9 cm wide; flowers in loose clusters of 3 or more; styles glabrous; fruit fleshy ..... *R. parviflorus*  
 Nuttall ●Widespread in moist places, wooded slopes, stream banks and ravines.
- 2 Leaves mostly less than 9 cm wide; flowers solitary or in 2s; styles pubescent; fruit ± dry
- 3 Leaf blades orbiculate to reniform in outline, the bases shallowly cordate ..... *R. deliciosus*  
 Torrey ●Moist rocky slopes, stream banks, and ravines.
- 3 Leaf blades cordate to broadly ovate in outline, the bases deeply cordate ..... *R. neomexicanus*  
 Gray ●Shaded stream banks and moist canyons, scattered locales in the states.
- 1 Leaves compound; stems armed or unarmed
- 4 Leaves not or weakly pruinose (covered with a powdery bluish bloom as in some *Prunus*); abaxial surfaces of blades whitish or not
- 5 Abaxial leaf surface whitish, short-velutinous to tomentose; inflorescences with 10-60 flowers. *R. bifrons*  
 Vest ●Escaping from gardens, shady riparian areas; native of Europe.
- 5 Abaxial leaf surface not whitish, sparsely to moderately hairy, but not velutinous or tomentose; inflorescences with 1-8 flowers ..... *R. flagellaris*  
 Willdenow ●Shaded streambanks and moist canyons in the northern and western mountains.
- 4 Stems strongly pruinose; abaxial surfaces of blades strongly white-tomentose
- 6 Leaves pinnately compound, the lateral leaflets sessile or nearly so ..... *R. idaeus*  
 Linnaeus ●Sometimes sprawling or clambering over boulders; moist slopes and canyons, throughout much of the state. ♦Our plants belong to var. *strigosus* (Michaux) Maximowicz
- 6 Leaves palmately compound or ternate, the lateral leaflets stalked ..... *R. leucodermis*  
 Douglas ex Torrey & Gray ●Moist canyons and ravines, stream banks in the western mountains.

**Sibbaldia**

- S. procumbens* Linnaeus ●Rocky alpine to subalpine ridges and slopes in the northern mountains.

**Sorbus**

- S. scopulina* Greene ●Mountain slopes, edges and openings in forests.

**Vauquelinia**

- V. californica* (Torrey) Sargent ●Infrequent in the dry mountains and foothills in the bootheel region, usually on limestone substrates. ♦Our plants belong to subsp. *pauciflora* (Standley) Hess & Hendrickson

**RUBIACEAE COFFEE or MADDER FAMILY**

- 1 Plants with ± woody stems throughout, small to well-developed shrubs

- 2 Leaves to about 1 cm long and 1-2 mm wide; flowers white.....*Arcytophyllum*
- 2 Leaves 2-12 cm long; flowers white or red-scarlet
  - 3 Flowers sessile, white, in dense balls at the ends of long peduncles; anthers conspicuously exerted; leaf blades 7-12 cm long.....*Cephalanthus*
  - 3 Flowers pedicelled, red-scarlet, in loose terminal cymes; anthers included; leaf blades 2-9 cm long.....*Bouvardia*
- 1 Plants herbaceous or only slightly woody at the base
  - 4 Leaves in apparent whorls, at least many or most of them .....*Galium*
  - 4 Leaves all opposite, not appearing whorled
    - 5 Leaves mostly in fasciculate axillary clusters
      - 6 Leaves subulate; stems woody throughout .....*Arcytophyllum*
      - 6 Leaves acicular; stems woody at the base (*H. acerosa*) .....*Houstonia*
    - 5 Leaves in opposite pairs
      - 7 Flowers on long pedicels generally 6-30 mm long; stipules separate from the leaf bases, not sheathing .....*Kellogia*
      - 7 Flowers sessile or on pedicels 1-5 mm long (sometimes longer in *Stenotis*); stipules sheathing
        - 8 Stipules deeply fringed to setose; fruit of 2 nutlets, each with a single seed, the ovary with 2 ovules
          - 9 Leaves with a sharp apical point; stipules stiff-bristly; corolla about 3 mm long, white or pink; sepals persistent on the mature fruit .....*Hexasepalum*
          - 9 Leaves acute but lacking a sharp point; stipules herbaceous-fringed; corolla about 5-7 mm long, white; sepals deciduous, absent from the mature fruit .....*Crusea*
        - 8 Stipules ± entire or shallowly and irregularly lacerate; fruit capsular and several-seeded, the ovary with several ovules
          - 10 Plants perennial from thickened and sometimes woody taproots or branching caudices; stems sometimes also woody at the base .....*Houstonia*
          - 10 Plants annual from a slender taproot; stems never woody at the base
            - 11 Plants branching at the base to produce a ball-like or umbel-like growth, the branches spreading to horizontal; internodes mostly shorter than the strongly overlapping leaves; leaf blades bristle-tipped; corolla about 6 mm long; pedicels reflexed in fruit (*H. humifusa*).....*Houstonia*
            - 11 Plants usually unbranched, erect; internodes mostly longer than the widely spaced leaves; leaf blades rounded to obtuse, not bristle-tipped; corolla 3-4 mm long; pedicels erect in fruit (*S. greenei*).....*Stenotis*

**Arcytophyllum**

*A. fasciculatum* (Gray) Terrell & H. Robinson ●Rocky or gravelly slopes, arroyo banks, limestone ledges and crevices of cliffs; semi-desert habitats, pine-oak, piñon-juniper.

**Bouvardia**

*B. ternifolia* (Cavanilles) Schlechtendal ●Canyon slopes and bottoms, in pine-oak, juniper-oak, and piñon-juniper woodlands in the southwest corner, with a single outlier in southern San Juan County (verified).

**Cephalanthus**

*C. occidentalis* Linnaeus ●Moist canyons, stream-banks; Quay County, questionably present.

**Crusea**

*C. diversifolia* (Kunth) W.A. Anderson ●Pine woods, open slopes, piñon-juniper woodlands; southwestern and west-central mountains.

**Galium**

1 Stems retrorsely hispid-scabrous

- 2 Corollas generally 3-lobed; nutlets glabrous, hard, smooth.....*G. trifidum*
- 2 Corollas generally 4-lobed; nutlets with short hairs, these hooked or not
  - 3 Plants annual; nutlet hairs hooked.....*G. aparine*  
Linnaeus ●Pine forests, oak-juniper woodlands, foothills, riparian areas; widespread, expected in more counties than currently reported.
  - 3 Plants perennial; nutlet hairs straight, not hooked.....*G. mexicanum*  
Kunth ●Conifer forests, piñon-juniper woodlands, meadows, riparian areas; mostly in mountain areas.  
♦Our plants belong to var. *asperrimum* (Gray) Higgins & Welsh

1 Stems glabrous or variously pubescent, but lacking retrorse hairs

- 4 Ovary and fruit glabrous or essentially so, but may be granular/tuberculate (use a lens) (see also *G. boreale*, below)
  - 5 Flowers sessile in a 4-leaved involucre; corollas generally 4-lobed; leaf apices acute, sharp-pointed, the margins white-thickened.....*G. microphyllum*  
Gray ●Coniferous forests, pine-oak or juniper woodlands, and upper desert slopes associated with the southern mountains; also a single collection from San Miguel County.
  - 5 Flowers pedicellate, not involucre; corollas generally 3-lobed; leaf apices obtuse, sometime mucronate, the margins not white-thickened.....*G. trifidum*  
Linnaeus ●Spruce or pine forests, oak-juniper woodlands, riparian areas; widespread. ♦Our plants



belong to var. *subbiflorum* Wiegand

- 4 Ovary and fruit hairy or hooked-bristly (easily seen without a lens)
- 6 Ovary and fruit with hooked hairs; annuals and perennials
- 7 Leaves 5-6 per whorl, the apices cuspidate; plants perennial ..... *G. triflorum*  
Michaux ●Coniferous forests, rocky slopes, riparian areas, usually in damp shaded areas; widespread in nearly all the mountain ranges and associated foothills.
- 7 Leaves 4 per whorl, the apices acute to obtuse; plants annual
- 8 Fruiting pedicels 3-30 mm long; plants glabrous; leaves unequal in the whorl ..... *G. bifolium*  
S. Watson ●Mountain canyons, foothills, riparian areas; known only from a single collection in the Chuska Mountains in 1950.
- 8 Fruiting pedicels to 1 mm long; plants hispidulous; leaves subequal in the whorl ..... *G. proliferum*  
Gray ●Dry mountain slopes, cliffs, ridges, and bajadas of the southern counties.
- 6 Ovary and fruit with straight or upcurved hairs, not hooked; perennials
- 9 Corollas mainly purplish, reddish, brownish, or pinkish; plants commonly bushy, the branches ± twiggy ..... *G. wrightii*  
Gray ●Pine woods, mountain slopes, foothills; mostly southern and western mountains; also a few collections in the northwest.
- 9 Corollas white or yellow, sometime greenish; plants and branches generally not as above
- 10 Fruits puberulent, the hairs short, much shorter than the width of the nutlet (half of the ovary), often curled or upcurved; flowers in a terminal, nearly leafless panicle of cymules; stem leaves 3-veined ..... *G. boreale*  
Linnaeus ●Mountain slopes and canyons, riparian areas, from lower montane to nearly alpine communities; mostly northern and south-central mountain ranges; apparently nearly absent from the western mountains.
- 10 Fruits pilose, the hairs long and straight, often as long as the width of the nutlet; flowers in axillary clusters scattered along the distal portion of the stem; stem leaves mostly 1-veined
- 11 Stem leaves 1.5-5 times longer than wide; rare in San Juan County ..... *G. multiflorum*  
Kellogg ●Piñon-juniper woodlands, dry, rocky slopes; known from a single collection in San Juan County.
- 11 Stem leaves 5-10 times longer than wide; various distributions, including San Juan County
- 12 Plants very nearly glabrous; leaf apices usually sharp-pointed and often reflexed; San Juan County ..... *G. coloradoense*  
W. F. Wight ●Shaded crevices and cliffs in desert scrub, sagebrush, piñon-juniper communities; Four Corners region.
- 12 Plants finely short-hairy; leaf apices usually not sharp-pointed or reflexed; widespread ..... *G. fendleri*  
Gray ●Pine-oak woodlands, oak grassland, dry mountain slopes, rocky outcrops; widespread.

### Hexasepalum

*H. teres* (Walter) J.H. Kirkbride ●Disturbed, often sandy ground in the southwestern and southcentral regions.

### Houstonia

- 1 Plants annual from a slender taproot; stems never woody at the base
- 2 Plants branching at the base to produce ball-like or umbel-like growth, the branches diverging to widely spreading; internodes mostly shorter than the strongly overlapping leaves; leaf blades bristle-tipped; corolla about 4-10 mm long; pedicels reflexed in fruit ..... *H. humifusa*  
(Gray) Gray ●Grassland, desert scrub, sandy dry slopes, sand dunes; common on the eastern plains, with a few scattered collections westward.
- 2 Plants usually simple, erect; internodes mostly longer than the widely spaced leaves; leaf blades rounded to obtuse, not bristle-tipped; corolla 3-4 mm long; pedicels erect in fruit (*S. greenei*) ..... go to *Stenotis*
- 1 Plants perennial from thickened and sometimes woody taproots; stems sometimes also woody at the base
- 3 Pedicels reflexed in fruit
- 4 Corollas 10-40 mm long, mostly deep pink to pale pink (but also nearly white); leaves generally erect and ± parallel to each other; stems 1-10 cm tall/long ..... *H. rubra*  
Cavanilles ●Piñon-juniper woodland, rocky or sandy grassland, desert flats and bajadas; widespread.
- 4 Corollas 4-10 mm long, mostly white to pale pinkish (but also pinkish); leaves generally spreading; stems 2-30 cm tall/long ..... *H. wrightii*  
Gray ●Pine-oak forests, piñon-juniper woodlands, canyon bottoms; western mountains.
- 3 Pedicels erect in fruit
- 5 Stems and leaves minutely puberulent; leaves needle-like and stiff-prickly to linear and less stiff, about 1 mm wide, the apices sharp-pointed to the touch or less so; capsules spikey-papillose, shallowly bilobed, about as wide as long ..... *H. acerosa*  
(Gray) Bentham & Hooker ●Widespread on hills, lower mountain slopes, canyons, sandy/gypsy plains; desert scrub, grasslands, and woodlands.

- 5 Stems and ± glabrous or finely papillose, not puberulent; leaves not needle-like nor stiff-prickly, 1-8 mm wide, the apices acute or sometimes with a little cusp, but not sharp-pointed to the touch; capsules somewhat compressed apically, not spikey-papillose, usually truncate to rounded, longer than wide (*S. nigricans*)..... *H. nigricans* (Lamarck) Fernald •Widespread throughout the state except for the northwest region; grasslands, desert scrub, conifer woodlands and forests.

**Kelloggia**

*K. galioides* Torrey •Brushy woodlands and conifer forests in the Four Corners area; in New Mexico known only from the Chuska Mountains; throughout western U.S.

**Stenotis**

*S. greenei* (Gray) Terrell & H. Robinson •Pine-oak-juniper woodlands and forests, gravelly soil and outcrops; southwestern mountains.

**RUTACEAE CITRUS FAMILY**

- 1 Leaves simple; fruit a deeply 2-lobed capsule..... *Thamnosma*  
 1 Leaves compound; fruit capsular or samara-like, but not deeply 2-lobed  
     2 Leaflets 3-7, linear..... *Choisya*  
     2 Leaflets 3 only, lanceolate to ovate..... *Ptelea*

**Choisya**

*C. dumosa* (Torrey) Gray •Dry, rocky slopes in the southern region.

**Ptelea**

*P. trifoliata* Linnaeus •Canyons and shaded slopes in the mountains and foothills, very common and widespread.

**Thamnosma**

*T. texana* (Gray) Torrey •Pifon-juniper woodlands, desert scrub, rocky or sandy arroyos, hills, and plains, mostly southern.

**SALICACEAE WILLOW FAMILY**

- 1 Plants trees; leaf buds covered by several, usually resinous, scales; catkins drooping..... *Populus*  
 1 Plants trees, shrubs, or dwarf half-shrubs; leaf buds covered by a single nonresinous scale; catkins mostly ascending to erect..... *Salix*

**Populus**

- 1 Leaves 3-5-lobed and maple-like (at least some), often densely tomentose beneath; plants cultivated and escaping..... *P. alba*  
 Linnaeus •Commonly planted in the cooler regions, and escaping along roadsides and moist waste places; native to Europe.  
 1 Leaves toothed but not deeply lobed nor maple-like, glabrous or nearly so; plants native or cultivated  
     2 Bark white and smooth, covered with a whitish powdery bloom, furrowed and gray or darkened only in age ..  
     ..... *P. tremuloides*  
     Michaux •Spruce-fir forests, meadow edges, talus slopes, burned areas; widespread, all mountain areas.  
     2 Bark soon turning gray, brown, or darker and roughly furrowed on older plants  
     3 Leaves deltoid to rhombic, scarcely longer than wide, the base truncate to broadly cordate  
         4 Trees narrow, columnar, the branches ascending-upright; plants with staminate catkins only.... *P. nigra*  
         Linnaeus •Widely planted in cooler regions for windbreaks, and persisting around old dwellings, fencerows, streams, ponds; native to northern and western Europe, the typical variety not known in New Mexico. ♦Our plants belong to var. *italica* Münchhausen  
         4 Trees open, the branches widely spreading; plants with catkins of both sexes..... *P. deltoides*  
         W. Bartram ex Marshall •Found throughout the state along nearly all river drainages.  
     3 Leaves ovate-lanceolate to lanceolate, evidently longer than wide, the base obtuse to acute or acuminate  
         5 Blades 0.7-3 cm wide, lanceolate or sometimes broader, 3-11 times longer than wide.... *P. angustifolia*  
         James •Stream sides and moist bottomland, widespread throughout the state except for the eastern plains.  
         5 Blades 2-8 cm wide, broadly ovate, 1.5-2 times longer than wide..... *P. ×acuminata*  
         Rydberg ♦These are hybrids of *Populus angustifolia* × *P. deltoides* (including *fremontii* form) in scattered localities throughout the state.

**Salix** [Key adapted from Holmgren et al. 2005]

- 1 Dwarf shrubs mostly 1-20 cm tall, the stems prostrate and creeping, with short erect branches, of alpine to near-alpine habitats  
     2 Leaves strongly reticulate-veined beneath, 1-2.5 times longer than wide, the tips mostly rounded or obtuse ....  
     ..... *S. nivalis*  
     Hooker •Alpine slopes, cirques, basins, rocky fields.  
     2 Leaves not strongly reticulate-veined beneath, 2-3 times longer than wide, the tips mostly acute..... *S. arctica*  
     Pallas •Alpine fields, rocky slopes, talus, snow beds, and meadows. ♦Our plants belong to var. *petraea* (Andersson) Bebb

- 1 Larger shrubs or trees more than 30 cm tall, often of lower habitats, but extending to alpine
- 3 Small to large trees mostly from a single or a few trunks at least 25 cm in diameter
- 4 Branches pendulous, weeping, often reaching the ground; leaves 3-15 mm wide ..... *S. babylonica*  
Linnaeus ●Frequently cultivated and persisting around old dwellings, occasionally also escaped to the wild; native to Asia (but not Babylon).
- 4 Branches not pendulous nor weeping; leaves of various widths
- 5 Leaves small, 0.5-4 cm long and 1-5 mm wide, finely hairy above and more hairy below.....*S. taxifolia*  
Kunth ●Rivers, stream banks, and floodplains at lower elevations of pine-oak woodland and upper desert grasslands, southwestern corner, in relatively dry habitats for a willow.
- 5 Leaves larger and other than above
- 6 Leaf blades not glaucous beneath, both surfaces of about equal coloration (sometimes ± paler below but not glaucous)
- 7 Branchlets reddish or grayish purple; leaves mostly narrowly lanceolate; capsule glabrous; plants of the eastern plains..... *S. nigra*  
Marshall ●Stream banks, ditches, and margins of lakes and ponds; known only from Quay and Union counties.
- 7 Branchlets yellow-gray; leaves lanceolate to elliptic-lanceolate; capsule ± pubescent; plants widespread ..... *S. gooddingii*  
Ball ●Stream- and river-banks in the central, southern, and southwestern regions, from the low plains and deserts to about 7,000 ft in the mountains; widespread.
- 6 Leaf blades glaucous beneath, the lower surface much paler than the upper
- 8 Bud scales cap-like, not split down the side, the margins fused; twigs very brittle at the base; exotic ornamentals escaped along canals and ditches in a few northern counties..... *S. ×fragilis*  
Linnaeus ●Cultivated for shade and windbreaks, escaping along canals and streams; known in the wild in the northern counties; native to Europe.
- 8 Bud scales split down the side toward the branch, with the free margins overlapping; twigs usually not brittle; native plants of various distributions
- 9 Leaf blades oblanceolate to obovate, wider toward the apex; freshly stripped bark of year-old branchlets with a “skunky” odor; of drier upland sites, not confined to stream banks and wet places..... *S. scouleriana*  
Barratt ex Hooker ●Nearly throughout the forests of the state, along roads and in open woods, often away from streams.
- 9 Plants not as above
- 10 Petioles usually with several glands near the base of the blades; stipules commonly foliaceous..... *S. lucida*  
Muhlenberg ●Along streams and in wet places in the upper valleys and mountains, widespread.
- 10 Petioles usually lacking glands near the base of the blades; stipules commonly rudimentary
- 11 Year-old branchlets mostly yellowish to grayish; current-year branchlets mostly glabrous.....*S. amygdaloides*  
Andersson ●Stream- and river-banks, flood plains, and wet meadows, mostly in the northern valleys and foothills, with a few collections southward.
- 11 Year-old branchlets mostly reddish, purplish, or brownish; current-year branchlets glabrous to hairy .....*S. bonplandiana*  
Kunth ●Streambanks, canyon bottoms, riparian washes. ●Our plants belong to var. *laevigata* (Bebb) Don
- 3 Shrubs with multiple trunks or basal branches, these mostly less than 20 cm in diameter
- 12 Leaves glaucous on the lower surface or the lower surface much lighter from dense hairs that obscure the leaf surface
- 13 Year-old branchlets (and sometimes branchlets of the current year) glaucous, this sometimes only apparent behind the buds
- 14 Lower leaf surface glabrous or nearly so..... *S. irrorata*  
Andersson ●Widespread throughout the state in the foothills and mountains, along streams and creeks.
- 14 Lower leaf surface markedly hairy
- 15 Lower leaf surface densely beset with silver hairs that often obscure the surface; upper leaf surface glabrous or glabrate and dark green; leaf margins revolute; blades 1-4 cm wide ....  
.....*S. drummondiana*  
Barratt ex Hooker ●Along rocky stream banks in the mid- to upper elevations in the northern mountains.
- 15 Lower and upper leaf surfaces silky-pubescent (sometimes sparsely so above); leaf margins not revolute; blades 0.5-1.5 cm wide..... *S. geyeriana*  
Andersson ●Wet places in the southwestern mountains; uncommon.

- 13 Year-old and current-year branchlets not glaucous (rarely so in *S. planifolia*)
- 16 Current-year branchlets usually red-purple and appressed hairy; bark of the 2<sup>nd</sup>-year branchlets cracked, giving a white-streaked appearance..... *S. hebbiana*  
Sargent ●Rather common in the central to western and southern mountains, in ponderosa to spruce-fir forests.
- 16 Branchlets and bark not both as above
- 17 Leaf blades oblanceolate to obovate, wider toward the apex; freshly stripped bark of year-old branchlets with a “skunky” odor; large shrubs of drier upland sites, not confined to stream banks and wet places..... *S. scouleriana*  
Barratt ex Hooker ●Nearly throughout the forests of the state, along roads and in open woods, often away from streams.
- 17 Plants not as above
- 18 Most leaves entire or nearly so
- 19 Leaves ± glabrous at maturity
- 20 Young leaves usually with some reddish hairs (check several leaves); stipules small, early-deciduous; plants commonly 0.5-2 m tall; young twigs purplish black to black ..... *S. planifolia*  
Pursh ●High-elevation slopes and summits in the northern mountains.
- 20 Young leaves usually with all whitish hairs; stipules often prominent (but eventually deciduous); plants commonly 2-5 m tall; young twigs reddish to reddish brown..... *S. eriocephala*  
Michaux ●Stream sides and ditches in the valleys and foothills, extending up into the lower elevations of the mountains. ♦Our plants belong to var. *ligulifolia* (Ball) Dorn
- 19 Leaves obviously hairy at maturity
- 21 Large shrubs commonly 3-6 m tall; plants of lowlands up to about 7,500 ft.....  
..... *S. lasiolepis*  
Bentham ●Forming thickets along streams and creeks, mostly in the lowlands of the central and western regions, up to about 7,500 ft.
- 21 Smaller shrubs commonly 0.2-2 m tall; plants of higher elevations, 8,500 to 12,000 ft.
- 22 Petioles 1-4 mm long, seldom exceeding the bud on vegetative twigs; plants almost always on or near calcareous substrates.... *S. brachycarpa*  
Nuttall ●Forming thickets along mountain streams or in meadows in the northern mountains, generally from 8,500 to nearly 12,000 ft.
- 22 Petioles 2-8 mm long, often exceeding the bud on vegetative twigs; plants of various habitats, including calcareous substrates ..... *S. glauca*  
Linnaeus ●Stream banks and other wet sites in the northern mountains, subalpine to alpine habitats, generally above 9,500 ft. ♦Our plants belong to var. *villosa* (D. Don ex Hooker) Andersson
- 18 Most leaves toothed
- 23 Petiole usually with several glands near the base of the blade; leaf tips mostly acuminate; leaves 5-16 cm long ..... *S. lucida*  
Muhlenberg ●Along streams and in wet places in the upper valleys and mountains, widespread.
- 23 Petiole usually lacking such glands; leaf tips mostly acute to rounded; leaves 1-6 cm long
- 24 Leaf blades mostly elliptic, dark green and shiny on the upper surface; year-old branchlets reddish and shiny ..... *S. planifolia*  
Pursh ●High-elevation slopes and summits in the northern mountains.
- 24 Leaf blades mostly lanceolate to ovate or obovate, if elliptic, then not as above
- 25 Blades oblong or narrowly elliptic to oblanceolate or obovate, usually hairy at least on the lower surface; plants of lowlands and foothills.....  
..... *S. lasiolepis*  
Bentham ●Forming thickets along streams and creeks, mostly in the lowlands of the central and western regions, up to about 7,500 ft.
- 25 Blades prominently lanceolate or ovate to elliptic, glabrous; plants mostly of foothills and mountains
- 26 Bark of older twigs and stems ashy-gray; leaf blades tending to be broadest at the middle or below; plants mostly montane and below ..... *S. eriocephala*  
Michaux ●Stream sides and ditches in the valleys and foothills, extending up into the lower elevations of the mountains. ♦Our

- plants belong to var. *ligulifolia* (Ball) Dorn
- 26 Bark of older twigs and stems blackish; leaf blades tending to be broadest above the middle; plants mostly montane and above ..... *S. monticola*  
Bebb ●Forming thickets along streams and rivers, wet meadows, in the northern mountains, at about 7,000 to nearly 10,000 ft.
- 12 Leaves not glaucous on the lower surface, the coloration about the same above and below
- 27 Leaf blades mostly linear or narrowly elliptic, remotely serrulate to entire; petioles short and thick, to 6 mm long, or lacking ..... *S. exigua*  
Nuttall ●Streamsides, lake shores, sandbars; widespread throughout the state.
- 27 Leaf blades mostly broader, closely toothed to entire; petioles of various lengths
- 28 Petiole usually with several glands near the base of the blade; leaf tips mostly acuminate; leaves 5-16 cm long ..... *S. lucida*  
Muhlenberg ●Along streams and in wet places in the upper valleys and mountains, widespread.
- 28 Petiole usually lacking such glands; leaf tips rounded to acuminate; leaves 1-8 cm long
- 29 Leaves permanently pubescent on both surfaces, the hairs easily seen without a lens ..... *S. wolfii*  
Bebb ●Wet meadows and along streams at high elevations (subalpine) in the northern mountains.
- 29 Leaves glabrate, pubescent when young but becoming glabrous in age, the hairs rather inconspicuous without a lens
- 30 At least some or many leaves cordate-based, 1-3.5 times longer than wide, the abaxial surface glabrous to pilose; apices of floral bracts acute to rounded ..... *S. arizonica*  
Dorn ●Wet meadows and along streams at high elevations (subalpine) in the northern mountains.
- 30 Leaves generally not cordate-based, 2-5 times longer than wide, the abaxial surface generally pilose; apices of floral bracts rounded to retuse ..... *S. boothii*  
Dorn ●Wet meadows and along streams at high elevations (subalpine) in the mountains.

**SAPINDACEAE SOAPBERRY FAMILY**

- 1 Leaves opposite; fruit a winged samara ..... *Acer*
- 1 Leaves alternate; fruit a berry or capsule
- 2 Leaflets entire; fruit a yellowish marble-sized berry ..... *Sapindus*
- 2 Leaflets toothed; fruit a woody capsule with 3 chambers ..... *Ungnadia*

**Acer**

- 1 Leaves pinnately compound with 3-5 leaflets; terminal leaflet conspicuously petiolate ..... *A. negundo*  
Linnaeus ●Nearly throughout the state along streams and in moist canyons and valleys.
- 1 Leaves simple and palmately lobed or compound and palmately trifoliate; terminal leaflet, when present, sessile or only short petiolate
- 2 Leaf margins nearly entire or with a few blunt teeth; leaves lobed but rarely compound ... *A. grandidentatum*  
Nuttall ●Moist soils of canyons and mountain slopes in the southern half of the state.
- 2 Leaf margins with numerous sharp teeth, in addition to the major lobes; leaves deeply lobed to frequently compound with 3 leaflets
- 3 Leaf blades bicolored, silvery on the lower surfaces; large trees at maturity, escaped from cultivation ..... *A. saccharinum*  
Linnaeus ●Escaped along watercourses in San Juan County and perhaps elsewhere; native to eastern United States.
- 3 Leaf blades ± concolorous, the lower surfaces merely paler but not silvery; shrubs or small trees in natural habitats in the mountains ..... *A. glabrum*  
Torrey ●Moist ground in canyons, especially in coniferous forests, in nearly all the mountainous areas of the state.

**Sapindus**

- S. drummondii* Hooker & Arnott ●Along watercourses, drainages, arroyos, canyons, and uplands, mostly in the Chihuahuan Desert and plains regions.

**Ungnadia**

- U. spectiosa* Endlicher ●Dry, rocky canyons and ledges in the southcentral and southeastern regions.

**SAPOTACEAE SAPODILLA FAMILY**

**Sideroxylon**

- S. lanuginosum* Michaux ●Sandy ground, particularly along washes, in the bootheel region. ♦Our plants belong to subsp. *rigidum* (Gray) Pennington

## SARCOBATACEAE GREASEWOOD FAMILY

**Sarcobatus**

*S. vermiculatus* (Hooker) Torrey • Alkaline or saline soils in arid plains, slopes, desert scrub communities; widespread in the western half of the state.

## SAURURACEAE LIZARD-TAIL FAMILY

**Anemopsis**

*A. californica* (Nuttall) Hooker & Arnott • Alkaline to saline marshlands or floodplains.

## SAXIFRAGACEAE SAXIFRAGE FAMILY

1 Flowers solitary, showy, with 5 fertile stamens and 5 sterile toothed staminodes ..... go to PARNASSIACEAE

1 Flowers borne 2 or more together or not showy; all stamens fertile, staminodes absent

2 Stamens 5

3 Petals entire; flowers not in spike-like racemes as above, or if so, then with noticeable bracts ..... *Heuchera*

3 Petals divided into filiform segments; flowers in narrow, elongate, spike-like racemes without bracts

4 Petals entire or 3-parted, alternate with the tiny stamens; leaves scarcely lobed, the teeth very shallow and blunt ..... *Ozornis*

4 Petals pinnatifid and 5-11-parted, opposite to the tiny stamens; leaves rather distinctly lobed, the lobes coarsely toothed ..... *Pectantia*

2 Stamens 10

5 Leaves parted or divided to the midrib, nearly compound; petals deeply lobed; ovary with a single chamber ..... *Lithophragma*

5 Leaves entire to only moderately lobed; petals entire; ovary with 2-3 chambers

6 Leaves all basal, the flowering stems leafless ..... *Micranthes*

6 Leaves both basal and cauline, the flowering stems usually with reduced leaves

7 Stipules noticeable, expanded from the base of the petiole ..... *Telesonix*

7 Stipules absent ..... *Saxifraga*

**Heuchera** Contributed by Patrick J. Alexander

1 Stamens exerted; the adnate portion of the greenish-pink, pink, or reddish, the free portion pinkish-white to pink

2 Inflorescence panicle-like, open; sepals erect, green to pink; various mountain ranges, but not the Sandia Mountains ..... *H. rubescens*

Torrey • Mountain ranges across New Mexico, on steep rocky slopes in juniper woodland, piñon-juniper forest, ponderosa forest, and montane coniferous forest; flowering June-October.

2 Inflorescence raceme-like, narrow; sepals somewhat spreading, pink; limestone in the Sandia Mountains ..... *H. pulchella*

Wootton & Standley • Endemic to New Mexico in the Sandia Mountains, on limestone outcrops and cliffs near the crest, in montane coniferous forest; flowering July-September.

1 Stamens shorter than the sepals; except in *Heuchera sanguinea*, the adnate portion of the hypanthium green to greenish-white, rarely pinkish-green, the free portion cream to greenish, occasionally rosy-white

3 Flowers bright red to magenta; Hidalgo County ..... *H. sanguinea*

Engelmann • Barely entering southwestern New Mexico in the Animas and southern Peloncillo Mountains, on steep rocky slopes in Madrean evergreen woodland; flowering April-October.

3 Flowers greenish-white, rosy-white, cream, or chartreuse; throughout the state, including Hidalgo County

4 Petioles glandular-villous with trichomes  $\geq 3$  mm long, as well as glandular-puberulent with trichomes to about 0.5 mm long

5 Petals absent ..... *H. woodsiaphila*

P.J. Alexander • Endemic to New Mexico, in the Capitan Mountains on granitic talus, usually with

*Woodsia* under Douglas fir; flowering June-September.

5 Petals present

6 Sepals 2.5-4 mm long; anthers purplish, distinctly darker than the pollen; Colfax County ..... *H. hallii*

A. Gray • Known in New Mexico from a single population in Colfax County, on steep rocky slopes in montane coniferous forest; flowering June-September.

6 Sepals less than 2 mm long; anthers yellowish, concolorous with the pollen; central and southwestern New Mexico

7 Hypanthia campanulate, nectary disk absent; petals incurved and longitudinally folded ..... *H. nova-mexicana*

Wheelock • Southwestern New Mexico, from the Datil Mountains south through the Black Range and southwest to the Big Burro Mountains, also in the San Andres Mountains; on steep rocky slopes in juniper woodland, piñon-juniper forest, ponderosa forest, and montane coniferous forest; flowering May-October.

7 Hypanthia shallow, saucer-shaped, nectary disk yellow and conspicuous; petals widely spreading, flat ..... *H. wootonii*

Rydberg • Endemic to south-central New Mexico in the Capitan Mountains, Sierra Blanca, and

Sacramento Mountains; on steep rocky slopes in montane coniferous forest, extending occasionally into subalpine and alpine habitats; flowering June-September.

- 4 Petioles glandular-puberulent only, without longer trichomes
- 8 Hypanthia shallow, saucer-shaped; basal leaves not variegated.....*H. parvifolia*  
Nuttall ex Torrey & A. Gray ●Most abundant in the Sangre de Cristo, Jemez, and Brazos Mountains of northern New Mexico, but with scattered populations across northern New Mexico and south to the Sacramento Mountains; on steep rocky slopes from piñon-juniper woodland to alpine habitats; flowering May-August.
- 8 Hypanthia campanulate; basal leaves variegated
- 9 Sepals 1.1-2 mm long, much longer than the petals; nectary disk absent; hypanthium bright white or pinkish-white, petals the same color; anthers purplish when fresh, drying blackish, distinctly darker than the pollen ..... *H. glomerulata*  
Rosendahl, Butters, & Lakela ●Southwestern New Mexico, in the Mogollon Mountains and south to the Mexican border, on steep rocky slopes in juniper woodland, piñon-juniper forest, and ponderosa forest; flowering April-August.
- 9 Sepals 0.8-1.1 mm long, equaling or slightly shorter than the petals; nectary disk present, yellow; hypanthium yellowish- to greenish-white, petals white; anthers yellowish when fresh, drying the same, concolorous with the pollen.....*H. seltisii*  
R.A. Folk & P.J. Alexander ●Endemic to New Mexico In the Magdalena Mountains, San Mateo Mountains, Organ Mountains, and Cooke's Range; on steep rocky slopes in montane shrubland, juniper woodland, piñon-juniper forest, ponderosa forest, and montane coniferous forest.

### Lithophragma

- 1 Cauline leaves and/or branches of inflorescence usually with axillary bulblets; stigma papillae covering the apex..... *L. glabrum*  
Nuttall ●Ponderosa pine forests in the northern mountains; known from a single collection.
- 1 Cauline leaves and inflorescence lacking axillary bulblets; stigma papillae in a narrow subapical band
- 2 Petals 5-7-lobed, 3-7 mm long; hypanthium base rounded to acute to the pedicel ..... *L. tenellum*  
Nuttall ●Rich loamy soils in woodlands and among sagebrush, northwest region.
- 2 Petals 3-lobed, 7-16 mm long, hypanthium base attenuate to the pedicel.....*L. parviflorum*  
(Hooker) Nuttall ●Openings in piñon-juniper-ponderosa woodlands; questionably reported from the state.  
♦Reports of its occurrence in the state have thus far turned out to belong to *Lithophragma tenellum*.

### Micranthes

- 1 Leaf blades reniform to orbicular, coarsely toothed, the petioles often longer than the blades; inflorescence openly branched ..... *M. odontoloma*  
(Piper) A.A. Heller ●Wet places along springs and streams.
- 1 Leaf blades lanceolate to oblong or ovate, entire to finely toothed, the petioles shorter than the blades; inflorescence congested or spreading in age
- 2 Blades lanate beneath with long reddish hairs ..... *M. eriophora*  
(S. Watson) Small ●Rocky slopes and ledges in the southwestern mountains, mid-elevations; in New Mexico known only from the Organ Mountains; also southeastern Arizona; flowering April-May.
- 2 Blades glabrous to sparsely pubescent beneath with whitish or brownish hairs..... *M. rhomboidea*  
(Greene) Small ●Wet places, meadows, melting snowbanks and stream sides, at mid- to high elevations in the mountains.

### Ozomelis

*O. stauropetala* (Piper) Rydberg ●Deep shade in spruce-fir forests in the northern mountains; known from only a few collections.

### Pectiantia

*P. pentandra* (Hooker) Rydberg ●Moist shady sites in spruce-fir forests in the northern mountains; known from only a few collections.

### Saxifraga

- 1 Leaves all basal; inflorescence of 10-many flowers ..... go to *Micranthes*
- 1 Leaves basal and cauline; inflorescence of 1-5(10) flowers
- 2 All leaves entire, though ciliate
- 3 Plants strongly stoloniferous; herbage stipitate-glandular; leaves ciliate; petals yellow ..... *S. flagellaris*  
Willdenow ex Sternberg ●Alpine meadows and rocky slopes in the northern mountains. ♦Our plants belong to subsp. *crandallii* (Gandoger) Hulten
- 3 Plants not stoloniferous; herbage, leaves, or petals otherwise
- 4 Petals white, with red dots toward to tips and yellow dots toward to base; racemes often with more than 3 flowers; leaves ciliate; sepals erect to spreading..... *S. bronchialis*  
Linnaeus ●Moist, rocky, shaded places at high elevations in the nearly all the mountain ranges.
- 4 Petals yellow when fresh, not dotted as above; racemes mostly with a single flower; leaves not ciliate; sepals reflexed, at least in age
- 5 Petals 4-5 mm long, short-clawed; sepals 2-3 mm long, glabrous; leaves 4-8 mm long; stems with minute stipitate glands, not pilose; plants 2-6 cm tall ..... *S. chrysantha*

- Gray ●Forming tight mats in alpine tundra in the northern mountains.  
 5 Petals 7-15 mm long, not clawed; sepals 4-5 mm long, often ciliate; leaves often more than 8 mm long; stems often rusty pilose; plants 6-20 cm tall.....*S. hirculus*  
 Linnaeus ●Wet meadows at very high elevations (over 10,500 ft) in the northern mountains; currently known only from Colfax County.

- 2 Some leaves lobed and toothed  
 6 Basal leaves oblanceolate in outline, tapering at the base and scarcely petiolate, mostly 3-toothed or lobed at the apex.....*S. cespitosa*  
 Linnaeus ●Moist, alpine rocky slopes and talus in the northern mountains; scarcely known in New Mexico from only a few collections in Taos County.  
 6 Basal leaves reniform or orbicular in outline, distinctly petiolate, coarsely 5- to 9-lobed  
 7 All but the relatively large terminal flowers replaced by reddish bulblets; petals 5-12 mm long, longer than the sepals.....*S. cernua*  
 Linnaeus ●Rocky alpine slopes, crevices, and ledges in the northern mountains.  
 7 Bulblets absent, all flowers normal; petals 3-5 mm long, about as long as the sepals.....*S. debilis*  
 Engelmann ●Cliff edges, rocky seepage areas, shady talus, alpine and subalpine; known from few collections.

**Telesonix**

*T. jamesii* (Torrey) Rafinesque ●Rocky outcrops, ledges, and talus in the northern mountains, known from only two collections, and one of them possibly questionable.

**SCROPHULARIACEAE FIGWORT FAMILY**

- 1 Plants well-developed shrubs  
 2 Flowers actinomorphic, 4-merous; leaves opposite or alternate.....*Buddleja*  
 2 Flowers zygomorphic, 5-merous; leaves alternate.....*Leucophyllum*  
 1 Plants herbaceous or woody only at the base; leaves variously pubescent or glabrous, but not silvery  
 3 Semi-aquatic plants less than 20 cm high, of muddy ground.....*Limosella*  
 3 Terrestrial, taller plants, generally of moist to dry habitats  
 4 Leaves opposite or whorled.....*Scrophularia*  
 4 Leaves alternate or mostly all basal.....*Verbascum*

**Buddleja**

- 1 Leaves alternate; flowers lilac to purplish.....*B. alternifolia*  
 Maximowicz ●Known from a single population of about 50 plants, presumably escaped from cultivation along roadsides in San Miguel County, piñon-juniper woodlands (Embrey 2018); native to China.  
 1 Leaves opposite; flowers yellowish.....*B. scordioides*  
 Kunth ●Limestone soil of rocky plains and hills; in New Mexico known only from southern Eddy County.

**Leucophyllum**

- 1 Leaves gray-greenish, bicolored, the upper surfaces greener than the lower, elliptic-obovate, to 2.5 cm long, the midrib prominent; corolla throat 1-1.5 cm long; common in cultivation, not known in the wild.....*L. frutescens*  
 (Berlandier) I.M. Johnston ●Very common in cultivation, with numerous cultivars; not known in the wild in New Mexico, but perhaps to be found in the southwest corner.  
 1 Leaves silver-gray, concolorous, the upper and lower surfaces about equal in color and vestiture, oval to spatulate, less than 2 cm long, the midrib obscure; corolla throat less than 1 cm long; a wild plant.....*L. minus*  
 Gray ●Rocky or gravelly hills or flats, limestone ridges; uncommon, Eddy and Otero counties.

**Limosella**

- 1 Corolla lobes rounded; leaves linear to ± spatulate, the petiole indistinct; styles 0.6-1.1 mm long; seeds dark brown and markedly longer than wide.....*L. acaulis*  
 Sessé & Mocino ●Muddy and semi-aquatic ground, edges of ponds, in cienegas, marshes, mud flats, wet meadows; southwestern region.  
 1 Corolla lobes acute; leaves spatulate to ovate, the petiole distinct; styles 0.1-0.6 mm long; seeds grayish brown and only a little longer than wide.....*L. aquatica*  
 Linnaeus ●Muddy and semi-aquatic ground, sometimes in the water, edges of ponds, marshes, mud flats, stock tanks; widespread.

**Scrophularia**

- 1 Corolla bright crimson red, 13-21 mm long.....*S. macrantha*  
 Greene ex Stiefelhagen ●Endemic to New Mexico, on steep, rocky cliffs and talus slopes, canyon bottoms, foothills and lower slopes of the southwestern mountains.  
 1 Corolla dull greenish, greenish yellow, greenish brown, or red, 5-12 mm long  
 2 Leaf blades glandular-puberulent.....*S. parviflora*  
 Wooton & Standley ●Coniferous forests of the Organ and southwestern mountains.  
 2 Leaf blades glabrous except for the main veins and sometimes petioles  
 3 Sterile filament fan-shaped, wider than long.....*S. lanceolata*  
 Pursh ●Moist conifer forests in the northern mountains.  
 3 Sterile filament clavate to obovate, longer than wide



- 4 Leaves singly and often finely serrate from base to apex; corollas yellow-green, rarely purplish; widespread ..... *S. montana*  
Wooton • Endemic to New Mexico; moist conifer forests in the mountains, scattered locales, widespread.
- 4 Leaves coarsely or doubly serrate, at least on the proximal margins toward the petiole; corollas usually with some shade of maroon or red; Organ Mts ..... *S. laevis*  
Wooton & Standley • Endemic to New Mexico; known only from the Organ Mountains, Doña Ana County, in steep canyons, piñon-juniper woodland and montane coniferous forest.

**Verbascum**

- 1 Leaves glabrous ..... *V. blattaria*  
Linnaeus • Roadsides, fence lines, old fields, and similar disturbed ground; known from Hidalgo County; native to Europe.
- 1 Leaves pubescent
- 2 Leaves densely wooly; filaments yellow-hairy ..... *V. thapsus*  
Linnaeus • Widespread throughout the state along roadsides, old fields, disturbed ground; expected in all counties; native to Eurasia.
- 2 Leaves puberulent and hispid; filaments purple-hairy ..... *V. virgatum*  
Stokes • Disturbed areas, waste places, canyons; known in Grant, Hidalgo, and Roosevelt counties; native to Europe.

**SIMAROUBACEAE QUASSIA FAMILY****Ailanthus**

\**A. altissima* (Miller) Swingle • A rapidly growing, weedy tree, with the potential to occur throughout the state in backyards, vacant lots, alleyways, and any disturbed urban area, including cracks in sidewalks and pavements, occasionally found persisting around old settlements; native to Asia.

**SIMMONDSIACEAE JOJOBA FAMILY****Simmondsia**

*S. chinensis* (Link) C. Schneider • Dry rocky hills and desert mountains in the bootheel region.

**SOLANACEAE POTATO FAMILY**

- 1 Plants shrubby or tree-like
- 2 Leaves 3-6 cm wide with petioles 2-6 cm long; fruit a capsule (*N. glauca*) ..... *Nicotiana*
- 2 Leaves 0.5-1.5 cm wide, sessile or with petioles less than 1 cm long; fruit a berry ..... *Lycium*
- 1 Plants herbaceous or vine-like
- 3 Flowers 5-20 cm long; fruit a globose spiny capsule ..... *Datura*
- 3 Flowers shorter than 5 cm; fruit otherwise, not spiny
- 4 Corolla salverform to funnellform or urn-shaped
- 5 Leaves 10-18 cm long, mostly sessile, sinuously toothed or pinnatifid; plants rank, malodorous, viscid annuals or biennials to 1 m tall; capsule circumscissile near the apex ..... *Hyoscyamus*
- 5 Leaves and plants otherwise; capsules opening by longitudinal slits or the fruit a berry
- 6 Calyx bladdery-inflated and conspicuously veiny in fruit; fruit a berry (*P. solanaceus*) ..... *Physalis*
- 6 Calyx not bladdery-inflated, obscurely veined; fruit a capsule
- 7 Leaves 0.5-1.2 cm long; flowers less than 1 cm long ..... *Calibrachoa*
- 7 Leaves 2-15 cm long; flowers 2-3 cm long ..... *Nicotiana*
- 4 Corolla rotate to broadly campanulate
- 8 Calyx not enlarging nor inflated and not at all enclosing the fruit (except in *S. rostratum*); stamens often connivent around the style, the anthers opening by terminal pores or slits ..... *Solanum*
- 8 Calyx inflated and concealing the fruit, or enlarging and enclosing the fruit except at the top (the plants never spiny); stamens not connivent around the style, the anthers longitudinally dehiscent throughout their length
- 9 Calyx closely fitted to the fruit, thin and obscurely veined, the lobes not closing at the apex (hence the top of the fruit exposed); corolla with tomentose pads alternating with the filaments ..... *Chamaesaracha*
- 9 Calyx bladdery-inflated and conspicuously veiny, the lobes closing or connivent over the top of the berry; corolla usually lacking tomentose pads on the lower part of the lobes
- 10 Corolla urceolate, urn-shaped (*P. solanacea*) ..... *Physalis*
- 10 Corolla campanulate to rotate
- 11 Corolla yellow; flowers nodding at anthesis; styles straight ..... *Physalis*
- 11 Corolla purple; flowers erect at anthesis; styles curved ..... *Quincula*

**Calibrachoa**

\**C. parviflora* (Jussieu) D'Arcy • River banks, stream sides, sand-bars, lake shores, agricultural areas; occasional in scattered sites across the state; native to South America.

**Chamaesaracha**

- 1 Leaves glabrous, the blades commonly elongate-diamond-shaped (also oblong, elliptic, to obovate), 1-3 times longer than wide, entire to rounded-toothed or shallowly lobed distally (glabrous phase) ..... *C. pallida*  
Averett ●Mostly limestone soils in the southeastern region, known from few specimens.
- 1 Leaves variously pubescent, or if glabrous, the blades other than above
  - 2 Herbage eglandular, predominately pubescent with branched, stellate, or scurfy-like hairs
    - 3 Leaves linear to linear-lanceolate, 4-6 times longer than wide, sparsely pubescent with branched hairs .....  
..... *C. arida*  
Henrickson ●Throughout the state, plains and foothills of grasslands, woodlands, desert shrub communities, roadsides, disturbed ground; common in a variety of habitats.
  - 3 Leaves narrowly rhombic, broadly lanceolate, to oblanceolate, 1-3 times longer than wide, densely to moderately pubescent with branched hairs ..... *C. pallida*  
Averett ●Mostly limestone soils in the southeastern region, known from few specimens.
- 2 Herbage glandular-pubescent, mixed with simple, longer, eglandular hairs
  - 4 Young leaves irregularly toothed-lacerate to pinnately lobed ..... *C. coniodes*  
(Morican ex Dunal) Britton ●Hillsides and plains, primarily in the eastern regions of the state.
  - 4 Young leaves entire to bluntly or shallowly few-toothed ..... *C. sordida*  
(Dunal) Gray ●Dry mesas and plains; mostly in the southern half of the state.

**Datura**

- 1 Plants semi-aquatic; calyx split on one side to form a spathe-like structure; fruit smooth, lacking spines .....  
..... *D. ceratocaula*  
Ortega ●Bootheel region, in shallow temporary ponds, known from only a few collections; native to the highlands of central Mexico.
- 1 Plants terrestrial; calyx not split; fruit spiny
  - 2 Corolla 10-26 cm long; capsule pendent, globose
    - 3 Corolla throat with a conspicuous purplish band; spines of capsules 10-32 mm long ..... *D. discolor*  
Bernhardi ●Roadsides, disturbed ground; not known from the state, but found in adjacent westward counties of Arizona; native to Arizona, California, and Mexico.
    - 3 Corolla throat lacking a purplish band (though the corolla body may be pale purplish tinged throughout); spines of capsules mostly less than 10 mm long
      - 4 Stems and petioles (especially new growth) densely villous or glandular-villous with elongate spreading hairs; lower surface of leaves becoming glabrous except for the primary veins; corolla 12-16 cm long ..... *D. innoxia*  
P. Miller ●Roadsides, around corrals and water tanks, weedy ground; native to central and southern Mexico.
      - 4 Stems and petioles densely covered with short appressed or curved eglandular hairs, spreading glandular hairs mostly lacking; lower surface of leaves remaining puberulent; corolla 14-26 cm long ..  
..... *D. wrightii*  
Regel ●Roadsides, disturbed ground in a variety of habitats, widespread.
  - 2 Corolla 5-10 cm long; capsule erect, ovoid to ellipsoid
    - 5 Leaves mostly deeply pinnately lobed; spines of capsule of strongly unequal lengths, the longer ones more than 10 mm long when mature ..... *D. quercifolia*  
Kunth ●Roadsides and disturbed habitats in central to southern regions.
    - 5 Leaves shallowly sinuate-lobed; spines of capsule of nearly equal lengths, all less than 5 mm long .....  
..... *D. stramonium*  
Linnaeus ●Moist, disturbed ground; native to tropical America and naturalized throughout most of the United States, though not very common in New Mexico.

**Hycosyamus**

\**H. niger* Linnaeus ●Along forest roads in the northern mountains, occasional in canyons, not common; native to Europe.

**Lycium**

- 1 Plants clambering, viny, with arching and recurving stems; leaves elliptic, many 1-2 cm wide; fruits conspicuously elongate and hanging on long pedicels ..... *L. barbarum*  
Linnaeus ●Disturbed ground, old homesites, cemeteries; not common in the wild, known from only a few specimens.
- 1 Plants, leaves, and/or fruits otherwise
  - 2 Most leaves 1-3 mm wide
    - 3 Leaves flattened; corolla campanulate-funnelform, 4-7 mm long; calyx 1-2 mm long ..... *L. berlandieri*  
Dunal ●Plains, hills, washes of the southern and eastern desert and grassland regions.
    - 3 Leaves terete and fleshy when fresh; corolla tubular-funnelform, 7-16 mm long; calyx 1.5-3 mm long .....  
..... *L. andersonii*  
Gray ●Washes and flats in the southern desert regions.
  - 2 Most or many leaves 5-15 mm wide
    - 4 Leaves glaucous; corolla 15-20 mm long; calyx 5-8 mm long ..... *L. pallidum*

Miers ●Widespread throughout the state in a variety of habitats, often associated with past disturbance; our most common species, probably present in every county.

- 4 Leaves not glaucous; corolla 10-15 mm long; calyx 2-4 mm long..... *L. torreyi*  
 Gray ●Alluvial flats and river bottoms, floodplains, along the Rio Grande and its tributaries, as well as other watercourses.

**Nicotiana**

- 1 Plants shrubs or small trees; herbage glabrous, glaucous; corollas yellow.....*N. glauca*  
 Graham ●Infrequent in the southern deserts, adventive along drainages and roadsides, volunteering among landscaping; native to South America.
- 1 Plants herbaceous; herbage generally glandular-hairy; corollas white or greenish white
- 2 Stem leaves sessile and clasping at the base; corolla very pubescent externally.....*N. obtusifolia*  
 M. Martens & Galiotti ●Washes and rocky hills in the southern regions.
- 2 Stem leaves petiolate, not clasping at the base; corollas glabrous or sparsely pubescent externally.....  
 ..... *N. attenuata*  
 Torrey ex S. Watson ●Disturbed ground of western plains and foothills, in deserts, woodlands, grasslands.

**Physalis**

- 1 Corolla urceolate, constricted at the orifice..... *P. solanacea*  
 (Schlechtendal) Axelius ●Plains and foothills of the southern regions.
- 1 Corolla rotate or campanulate-funnelform, not constricted at the orifice
- 2 Corolla purple; flowers erect at anthesis ..... go to *Quincula*
- 2 Corolla yellow; flowers nodding at anthesis
- 3 Plants annual from taproots, the underground parts commonly easily pulled from the soil
- 4 Herbage densely glandular-villous, generally with some eglandular hairs as well, some hairs to 1 mm long
- 5 Plants grayish brown when dry; fruiting calyxes always noticeably longer than wide; fruiting pedicels thin, less than 0.5 mm diam..... *P. pubescens*  
 Linnaeus ●Disturbed ground, in open or wooded areas, in the southern region. ♦Known definitely only from Grant County, from very few specimens.
- 5 Plants greenish when dry; fruiting calyxes nearly spherical, scarcely longer than wide; fruiting pedicels thick, about 1 mm diam..... *P. neomexicana*  
 Rydberg ●Piñon-juniper communities in the mountains and foothills, occasionally in disturbed fields.
- 4 Herbage glabrous or with short appressed hairs, eglandular, the hairs to 0.5 mm long
- 6 Corollas with 5 dark-purple spots at the base; anthers twisting after dehiscing
- 7 Corollas usually 1 cm or less wide; anthers 1-2 mm long; berries 1-1.7 cm diam/long at maturity, much smaller than the calyx volume..... *P. ixocarpa*  
 Brotero ex Hornemann ●Poorly known in the state from a few old collections, perhaps no longer persisting; to be looked for in moist weedy habitats and garden areas; native to Mexico.
- 7 Corollas usually 1-3 cm wide; anthers 3-5 mm long; berries 2-6 cm diam/long at maturity, filling the calyx and sometimes rupturing it..... *P. philadelphica*  
 Lamarck ●Poorly known in the state from few collections; to be looked for in moist weedy habitats and garden areas; native to Mexico.
- 6 Corollas lacking purple spots; anthers not twisting
- 8 Corollas pale yellow with darker center, 15-23 mm wide; anthers 3-4 mm long..... *P. acutifolia*  
 (Miers) Sandwith ●Disturbed ground and roadsides in the southern region.
- 8 Corollas ± uniformly yellow, 7-10 mm wide; anthers 1-2 mm long..... *P. angulata*  
 Linnaeus ●Damp disturbed ground, riparian areas, at low elevations.
- 3 Plants perennial from rhizomes or spreading rootstocks, the underground parts commonly difficult to pull from the soil and often not present on dried specimens
- 9 Pubescence on the stems and leaves of at least some stellate/forked/branched hairs, eglandular
- 10 Pubescence of all stellate/branched hairs, simple hairs absent..... *P. cinerascens*  
 (Dunal) A.S. Hitchcock ●Disturbed ground on the eastern plains and prairies.
- 10 Pubescence a mixture of simple and stellate/forked/branched hairs
- 11 Leaf blades mostly entire (sometimes slightly sinuate-dentate), generally 2.5-5 times longer than wide; pedicels 15-30 mm long in flower; hairs 0.5-2 mm long (var. *pumila*).... *P. pumila*
- 11 Leaf blades mostly coarsely dentate or serrate; generally 1-2.5 times longer than wide; pedicels 7-10 mm long in flower; hairs all about 0.5 long..... *P. fendleri*  
 A. Gray ●Widespread in the state, on plains, foothills, in woodlands and lower-elevation forests.
- 9 Pubescence on the stems and leaves of simple hairs only, lacking stellate/forked/branched hairs, eglandular or glandular, or glabrous
- 12 Plants with glandular hairs (sometimes also with eglandular hairs)
- 13 Flowering pedicels 10-15 mm long; corolla limb usually not recurved when fully open; filaments clavate..... *P. heterophylla*

Nees ●Despite claims to the contrary, we have found no specimens belonging to this species in New Mexico; it apparently occurs in Colorado, and could be looked for in the north-central and northeastern counties.

- 13 Flowering pedicels 3-8(10) mm long; corolla limb often recurved when fully open; filaments not clavate..... *P. hederifolia*
- 12 Plants lacking glandular hairs
  - 14 Stems and pedicels beset with hairs mostly 1-4 mm long (shorter hairs may be mixed in)
    - 15 Lobes of the fruiting calyces 10-17 mm long; corolla dark-blotched in the throat; anthers bluish..... *P. caudella*  
Standley ●Known from a single old specimen, mountains of Catron County, extending west into Arizona and south through much of northwest Mexico.
    - 15 Lobes of the fruiting calyces 6-8 mm long; corolla not or only slightly dark-blotched in the throat; anthers yellow (var. *hispida*)..... *P. pumila*  
Nuttall ●Sandy ground in the northeastern plains; known from few specimens. ♦Our material belongs to var. *hispida* (Waterfall) J.R. Sullivan
  - 14 Stems and pedicels nearly glabrous or beset with hairs mostly less than 1 mm long
    - 16 Flowering pedicels 3-8(10) mm long..... *P. hederifolia*  
Gray ●Widespread throughout the state, in deserts, plains, foothills, mountains, roadsides, natural to disturbed habitats.
    - 16 Flowering pedicels 10-15 mm long
      - 17 Leaves nearly glabrous, short-pubescent generally only along the veins; flowering calyces short-pubescent in lines along the 10 veins, or glabrate; leaf blades commonly 3-4 times longer than wide ..... *P. longifolia*  
Nuttall ●Widespread in moist, disturbed ground.
      - 17 Leaves generally short-pubescent over both surfaces; flowering calyces pubescent over entire surface; leaf blades 1-2 times longer than wide ..... *P. virginiana*  
Miller ●Pine forests in the northern mountains; known from very few collections.

**Quincula**

*Q. lobata* (Torrey) Rafinesque ●Weedy plains and roadsides, widespread.

**Solanum**

- 1 Stems and leaves with prickles
  - 2 Leaves highly pinnately or bipinnately dissected; anthers dissimilar, one purple, beaked, and much longer than the others
  - 3 Herbage densely covered with stellate hairs, glandular and simple hairs absent; corollas yellow ..... *S. rostratum*  
Dunal ●Widespread on plains and disturbed ground; essentially throughout the state.
  - 3 Herbage densely covered with glandular hairs, these mixed to some degree with both simple and stellate hairs; corollas purplish
    - 4 Stems densely pubescent with simple glandular hairs, also sparsely prickly, seldom with more than 20 prickles per cm of stem, the prickles often up to 1 mm wide at the base ..... *S. novomexicanum* (Bartlett) S. Stern ●Gravelly or sandy slopes and hillsides, roadsides, foothills, and plains, low- to mid-elevations; endemic to New Mexico.
    - 4 Stems sparsely pubescent with simple glandular hairs, also densely bristly, with 30 or more prickles per cm of stem, the prickles mostly less than 0.5 mm in diameter at the base..... *S. setigeroides* (Whalen) S. Stern ●Sandy to gravelly disturbed ground of playas, stream beds, arroyos, and similar disturbed habitats, widespread in central to southwestern regions of the state; also northern Chihuahua and southeastern Arizona.
- 2 Leaves simple, entire to sinuate lobed; anthers all alike
  - 5 Leaves silvery gray-canescant, the stellate hairs scale-like, the rays fused at the center .. *S. elaeagnifolium* Cavanilles ●Widespread throughout the state, common, usually in disturbed ground and roadsides, along or in sidewalks, waste areas; expected in all counties.
  - 5 Leaves greenish, the stellate hairs not scale-like, the rays free above the stalk
    - 6 Corolla pale violet (sometimes white); stellate hairs fine, generally sessile; inflorescence generally raceme-like; fruit 8-20 mm in diameter..... *S. carolinense* Linnaeus ●Disturbed ground, flower beds, roadsides, scattered locales in the state; adventive in New Mexico, native to southeastern United States.
    - 6 Corolla usually purplish (sometimes white); stellate hairs coarse, some stalked; inflorescence generally branched; fruit more than 20 mm in diameter ..... *S. dimidiatum* Rafinesque ●Weedy ground, known from a few scattered locales, presumably adventive; native to the central plains, but considered adventive here.
- 1 Stems and leaves lacking prickles
  - 7 Leaf blades pinnatifid, pinnately compound, or evidently hastate-lobed
    - 8 Flowers yellow; anthers connivent; leaflets prominently toothed, lobed, or compound themselves; berries generally greater than 2 cm diam at maturity; the cultivated tomato..... *S. lycopersicum*

- Linnaeus ● This is the common edible garden tomato with its legion of cultivars; perhaps to be found escaping around gardens and fields, but not known to persist; no specimens are known from the wild as yet; native to South America.
- 8 Flowers violet, bluish, purplish, to white; anthers spreading or at least not connivent; leaflets never compound themselves; berries generally less than 1.5 cm diam; wild and/or weedy plants
- 9 Plants sprawling, vine-like, climbing over other plants and fences; leaves 3-lobed or hastate; corolla bright violet or blue purple; fruit red when ripe ..... *S. dulcamara*  
Linnaeus ● A fencerow and canal-bank weed, known from just a few collections; native to Eurasia.
- 9 Plants neither sprawling nor vine-like; leaves pinnately compound or pinnatifid; corolla white to purplish
- 10 Leaves deeply pinnatifid, but not at all compound; corolla white ..... *S. triflorum*  
Nuttall ● Highly adventive weed of cultivated ground and roadsides.
- 10 Leaves compound or essentially so; corolla white or purplish
- 11 Tubers large, to 15 cm long or more; plants seldom producing berries; cultivated for the edible tubers (potato) ..... *S. tuberosum*  
Linnaeus ● Not known from the wild in the state, but perhaps escaping occasionally; native to South America.
- 11 Tubers commonly small and inconspicuous, but to 3 cm long; plants usually producing berries; wild plants
- 12 Corolla purplish, shallowly lobed; terminal leaflets ovate to nearly orbicular, mostly 2-6 cm wide ..... *S. stoloniferum*  
Schlectendal ● Damp shaded slopes in the mountains.
- 12 Corolla white, deeply lobed; terminal leaflets mostly lanceolate, mostly 1-2 cm wide ..... *S. jamesii*  
Torrey ● Widespread in moist disturbed ground, fields, canyon bottoms, streambanks, upper deserts to the mountains, apparently absent from the eastern plains.
- 7 Leaf blades entire or merely toothed, not lobed
- 13 Stems villous-pubescent with spreading hairs, the hairs glandular or not; calyces enlarging in fruit or scarcely so
- 14 Calyces enlarging in fruit to about ½ the length of the berry; hairs both glandular and non-glandular; anthers 1-2 mm long ..... *S. physalifolium*  
Rusby ● Moist disturbed areas, roadsides, garden and lawn edges, stream banks; scattered through the state; native to South America, widely naturalized in the western United States.
- 14 Calyces not enlarging in fruit, about ¼ or so the length of the berry; glandular hairs absent; anthers 3-6 mm long ..... *S. bulbocastanum*  
Dunal ● There exists a single specimen (GH) of this reportedly from San Miguel County; its occurrence in the wild would be remarkable. This most likely represents a specimen from a garden, or perhaps a mix-up in collection information; native to Mexico.
- 13 Stems glabrous to puberulent with mostly incurved-appressed, the hairs not glandular; calyces scarcely enlarging in fruit
- 15 Anthers 1-1.5 mm long; corolla 1.5-2.5 mm long, 2-6 mm across; berries 4-8 mm wide ..... *S. ptychanthum*  
Dunal ● Weed of roadsides, gardens, cultivated ground, and similar sites.
- 15 Anthers 2-5 mm long; corolla 8-25 mm across; berries 6-12 mm wide ..... *S. douglasii*  
Dunal ● Canyons and rocky slopes in the mountains.

#### TALINACEAE TALINUM FAMILY

**Talinum** [Adapted from Ferguson 2001]

- 1 Peduncle triangular in cross section; fruit explosive at maturity ..... *T. fruticosum*  
(Linnaeus) Willdenow ● Native to the Caribbean area, including Florida, and perhaps exotic in New Mexico as a garden and greenhouse weed; reported without locality by Ferguson (2001); we await documentation of its occurrence.
- 1 Peduncle roughly terete in cross section (sometimes with low longitudinal ridges or wings); fruit not explosive
- 2 Inflorescence terminal, a panicle of cymes; flowers usually less than 7 mm in diameter; seeds smooth to tubercled, without concentric ridges
- 3 Flowers yellow (rarely peach-pink to white); seeds finely tuberculate ..... *T. spathulatum*  
Engelmann ex A. Gray ● Low elevation canyons and moist arroyos in the southeast region; reported without specific locality by Ferguson (2001).
- 3 Flowers purplish-pink to magenta; seeds nearly smooth ..... *Talinum* sp. 1  
of Ferguson 2001: "The small pink to magenta flowers and nearly smooth seeds are diagnostic in New Mexico. This species occurs in the Sonoran floristic region, and enters only the southwest corner of New Mexico, where it favors canyon bottoms among trees and shrubs."
- 2 Inflorescences axillary, a single cyme with 1-3 flowers; flowers usually more than 7 mm in diameter; seeds with concentric ridges

- 4 Stems slender, usually little over 1 mm thick in new growth, perennial with dormant buds but usually killed to ground in freezing winters, rapidly becoming suffrutescent and eventually woody; leaves linear, thick, usually revolute; flowers mostly less than 1.5 cm across, yellow..... *T. polygaloides* Gillies ex Arnott ●Silty or calcareous soils of the southern deserts and southeastern plains.
- 4 Stems usually well over 1 mm thick on new growth, strictly annual, herbaceous, succulent, becoming suffrutescent basally only in *T. aurantiacum*, leaves relatively thin, revolute only in drought; flowers mostly well over 1.5 cm across, usually orange, but the color may vary
  - 5 Leaves narrowly linear; sepals scarious and normally early deciduous; flowers varied in color, yellow, orange, red, magenta, pink, or combinations of these..... *Talinum* sp. 2 of Ferguson 2001: "The linear leaves, elongate multi-flowered inflorescence, scarious sepals, and variable flower color are all diagnostic. This species is found in southern New Mexico from Otero County to Arizona, and north to near Socorro.
  - 5 Leaves broadly linear to broadly elliptic or obovate; sepals foliaceous, persistent till fruit matures; flowers orange to orange-red (very rarely yellow)
  - 6 Stems usually less than 20 cm long, simple or few-branched; leaves mostly broadly linear; inflorescence 1-flowered, the peduncle much shorter than the pedicel ..... *T. aurantiacum* Engelmänn ●Common in the southern half of the state on hot, shallow, rocky slopes and hill tops.
  - 6 Stems usually more than 20 cm long, normally with several lateral branches; leaves mostly elliptic to obovate; inflorescence usually 3-flowered (1-5), the peduncles equaling or longer than the pedicels..... *T. whitei* I.M. Johnston ●Southern deserts and plains.

**TAMARICACEAE TAMARISK FAMILY**

**Tamarix**

- 1 Leaves conspicuously sheathing the stems, not scale-like; branchlets drooping, the foliage generally persistent; not known outside of cultivation in New Mexico ..... *T. aphylla* (Linnaeus) Karsten ●Known only in cultivation in the southern desert region, though it has escaped in many places in the Sonoran and Mojave Deserts to the west.
- 1 Leaves not at all sheathing the stem, scale-like; branchlets spreading in all directions, the foliage generally deciduous; cultivated or occurring in the wild
  - 2 Flowers with 4 sepals and 4 petals; panicle branches short and not rebranched, the longer ones 1-2 cm long; flowering mostly in the spring; rarely encountered ..... *T. parviflora* A. P. de Candolle ●Little-known, mostly in the Albuquerque and Las Cruces areas, perhaps elsewhere; apparently not invasive; native to southern Europe and Africa.
  - 2 Flowers with 5 sepals and 5 petals; panicle branches long, usually rebranched, the longer ones 3-8 cm long (sometimes shorter and not rebranched); flowering spring to fall
  - 3 Lobes of the star-shaped nectary disc attenuate, gradually passing into the filaments; plants not common in the wild nor in cultivation ..... *T. gallica* Linnaeus ●Of limited occurrence in New Mexico, along roadsides and moist waste ground; native to southern Europe.
  - 3 Lobes of the nectary disc truncate-emarginate, the filaments abruptly extending from between the lobes; very common in the wild and in cultivation ..... *T. chinensis* Loureiro ●Waterways, ditch banks, arroyos, lakeshores, and similar wetlands and riparian drainages throughout the state; native to Eurasia.

**ULMACEAE ELM FAMILY**

**Ulmus**

- 1 Leaves twice-serrate, mostly 7-16 cm long
  - 2 Lateral leaf veins commonly forking; leaf blades antrorsely scabrous adaxially; flower pedicels 1-2 mm long; inner bark of branchlets sticky-slimy..... *U. rubra* Muhlenberg ●Reported from around old government buildings in McKinley County; not known in the wild; native to the eastern United States.
  - 2 Later leaf veins rarely forking; leaf blades generally glabrous adaxially; flower pedicels 10-20 mm long; inner bark of branchlets not sticky ..... *U. americana* Linnaeus ●Cultivated shade trees; not known definitely in the wild; native to eastern half of the United States.
- 1 Leaves mostly once-serrate, mostly 2-5 cm long
  - 3 Flowers and often the fruit appearing in the spring before or with the leaves; bark furrowed; 1-3 lateral veins forking per side..... *U. pumila* Linnaeus ●Widespread throughout the state along roads, fencerows, and other disturbed sites, very common; native to Asia.
  - 3 Flowers and fruit appearing in the fall, after the leaves are quite mature; bark platy, lacy; 5 or more lateral veins forking per side..... *U. parvifolia* Jacquin ●Sometimes cultivated as an ornamental; not known in the wild; native to Asia.

## URTICACEAE NETTLE FAMILY

- 1 Leaf blades entire; leaves alternate ..... *Parietaria*  
 1 Leaf blades toothed; leaves opposite or nearly opposite, rarely alternate  
 2 Plants with stinging hairs; perianth segments of pistillate flowers distinct, with 2 small and 2 large ..... *Urtica*  
 2 Plants without stinging hairs; perianth segments of pistillate flowers united and equal in size ..... *Boehmeria*

**Boehmeria**

*B. cylindrica* (Linnaeus) Swartz •Moist woods and wet meadows; scattered localities; known from only a few collections.

**Parietaria**

- 1 Leaf bases rounded; proximal pair of lateral veins arising at junction of blade and petiole; involucre bracts usually more than 2 times length of achene ..... *P. hesperia*  
 B.D. Hinton •Desert canyons in the foothill region.  
 1 Leaf bases narrowly cuneate; proximal pair of lateral veins arising distal to junction of blade and petiole; involucre bracts usually less than 2 times length of achene ..... *P. pensylvanica*  
 Muhlenberg ex Willdenow •Widespread on ledges, talus, rocky outcrops.

**Urtica**

- 1 Plants perennial, rhizomatous ..... *U. gracilis*  
 Aiton •Meadows, moist woods.  
 1 Plants annual, tap-rooted  
 2 Leaf blades elliptic, widest near the middle, 2-9 cm long, the bases cuneate ..... *U. urens*  
 Linnaeus •Waste places, infrequent in the southern mountains; native to Eurasia. ♦This is known from only a few collections.  
 2 Leaf blades ovate, widest near the base, 7-15 cm long, the bases truncate to cordate ..... *U. gracilentia*  
 Greene •Moist woods, shaded places in the mountains, southern half of the state.

## VERBENACEAE VERBENA or VERVAIN FAMILY

- 1 Plants shrubby, woody  
 2 Leaves palmately compound (*Vitex*) ..... go to LAMIACEAE  
 2 Leaves simple  
 3 Corollas red, yellow, orange, purple; fruit berry or drupe-like; a landscape ornamental scarcely known in the wild from adventive plants ..... *Lantana*  
 3 Corollas white or cream-colored; fruit of 2 nutlets; wild plants in the southern ½ of the state ..... *Aloysia*  
 1 Plants herbaceous  
 4 Inflorescence determinate, cymose; corolla cream-colored, tinged with red (*Tetradlea*)... go to LAMIACEAE  
 4 Inflorescence indeterminate, racemose; corolla color various  
 5 Calyx with 2 or 4 teeth or lobes, nearly campanulate; nutlets 2 ..... *Phyla*  
 5 Calyx 5-toothed and 5-ribbed, elongate and cylindrical; nutlets 2 or 4  
 6 Nutlets 2, beaked, surpassing the calyx at maturity; plants annual ..... *Bouchea*  
 6 Nutlets 4, not beaked, shorter than the calyx at maturity; plants mostly biennial to perennial  
 7 Spikes generally broad and dense; calyx usually more than twice as long as the nutlets and constricted or contorted above them; corolla conspicuous and showy, bright pink or mauve when fresh ..... *Glandularia*  
 7 Spikes generally slender and elongated after anthesis; calyx seldom as much as twice as long as the nutlets and not contorted above them; corolla relatively small and inconspicuous, whitish, blue, or violet when fresh ..... *Verbena*

**Aloysia**

*A. wrightii* (Gray) Heller ex Abrams •Dry rocky slopes, desert scrub, canyon bottoms, arroyos; southern half of the state.

**Bouchea**

*B. prismatica* O. Kuntze •Juniper grassland; known in New Mexico only from Hidalgo County.

**Glandularia**

- 1 Calyces eglandular or sparsely glandular  
 2 Ultimate segments of the leaf lobes 0.3-1 mm wide; herbage finely appressed-hairy; adventive in weedy sites ..... *G. aristigera*  
 (S. Moore) Troncoso •Moist disturbed areas, roadsides, sidewalks, parking lots; native to South America, a world-wide weed.  
 2 Ultimate segments of the leaf lobes wider than 1 mm; herbage predominantly spreading-hairy; generally natural, native sites  
 3 Limb of the corolla mostly 9-15 mm across; stems conspicuously hirsute; to be looked for in the northeastern plains ..... *G. bipinnatifida*  
 (Nuttall) Nuttall •In the narrow sense employed here, *Glandular bipinnatifida* has not been found in the state, but is a species of the central Great Plains; it could be sought in the northeastern corner.  
 3 Limb of the corolla 6-10(12) mm in across; stems hirsute to villous with flattened hairs; southwestern region

- 4 Stems ascending to erect, 30-80 cm tall/long; calyces 8-10 mm long; corolla tubes 10-13 mm long, the limbs 8-11 mm in across; floral bracts slightly shorter to longer than the calyces..... *G. chiricahensis* Umber ●Montane habitats in the southwestern mountains, pine-oak forests and woodlands; above 6500 ft.
- 4 Stems decumbent to ascending or ascending-erect, 12-40 cm tall/long; calyces 5-7 mm long; corolla tubes 7-11 mm long, the limbs 6-9 mm across; floral bracts shorter than the calyces ..... *G. latilobata* (L.M. Perry) Nesom ●Pine-oak-juniper woodlands, dropping down a bit into the associated grasslands, mostly in the southwestern ½ of the state..
- 1 Calyces densely sessile- or stipitate-glandular, these mixed with longer, more prominent, stiff hairs
  - 5 Plants annual
    - 6 Corollas purplish, rose, to pink, rarely white, the tubes 6-10 mm long, the limb 3-5 mm across; petioles 5-15 mm long; stems stipitate-glandular..... *G. pumila* (Rydberg) Umber ●Canyon bottoms, rocky hillsides, limestone outcrops, gypsum swales, roadsides, desert scrub, piñon-juniper woodlands; mainly southeastern region.
    - 6 Corollas white, sometimes bluish-tinged, the tubes 6-8 mm long, the limb 6-9 mm across; petioles 2-6 mm long; stems eglandular or minutely stipitate-glandular on peduncles; to be looked for in the southeastern region..... *G. racemosa* (Eggert) Umber ●Desert grasslands and shrublands; not known from the state, but Texas populations approach the New Mexico border at Eddy County.
  - 5 Plants perennial
    - 7 Stems usually strongly stipitate-glandular, this with an over-story of longer, stiff hairs; leaves commonly incised to shallowly lobed; southwest corner .....*G. gooddingii* (Briquet) Solbrig ●In New Mexico, known only by a few specimens from the Peloncillo Mts, in canyon bottoms and brushy slopes.
    - 7 Stems eglandular or nearly so; leaves commonly obviously pinnatifid; widespread
      - 8 Flowers 18-28 mm long, the limb 10-15 mm across ..... *G. canadensis* (Linnaeus) Nuttall ●Along roadways; known from very few collections; native to eastern Great Plains, the Midwest, and the South.
      - 8 Flowers 7-15 mm long, the limb 7-12 mm across
        - 9 Corolla tubes 12-15 mm long; corollas consistently bright pink to purplish pink; stems densely hirsute to pilose-hirsute or hirsutulous, with an understorey of smaller, finer hairs deflexed at about 45°.....*G. pubera* (Greene) Nesom ●Rocky hillsides, rolling grassland, pine-oak-juniper woodlands, roadsides; widespread in ± the western ¾ of the state.
        - 9 Corolla tubes 7-12 mm; corollas purplish to bluish or pinkish; stems stiffly hirsute with all hairs spreading at right angles ..... *G. wrightii* (Gray) Umber ●Deseret shrublands, piñon-juniper-oak woodlands, grasslands, plains, foothills, outcrops, canyon slopes; widespread in the eastern ¾ of the state.

**Lantana**

\**L. camara* Linnaeus ●Washes, roadsides, waste ground; currently known from a single escaped plant in

Dofia Ana County.

**Phyla**

- 1 Leaf blades mostly widest at or below the middle, toothed from below the middle to the apex
  - 2 Blade 2-4 times longer than wide, the margins serrate with teeth pointed toward to apex (antrorse), the veins not impressed adaxially; floral bracts 2.7-3.2 mm long; calyces with scattered appressed hairs *P. lanceolata* (Michaux) Greene ●Moist soil, lake shores, stream-sides, roadsides; occasional from scattered locations.
  - 2 Blades 1.5-2 times longer than wide, the margins dentate with teeth pointed outward at 90° to slightly antrorse, the veins shallowly impressed adaxially; floral bracts 1.8-2.5 mm; calyces with hooked hairs..... *P. fruticosa* (Miller) K. Kennedy ex Wunderlin & Hansen ●Ponds, stream beds, playas, floodplains, roadsides and ditches; a few scattered localities; native to Texas.
- 1 Leaf blades mostly widest and toothed only above the middle
  - 3 Leaf blades linear-oblancoelate to narrowly oblanceolate, light yellow-gray green, the apices acute; floral bracts 3-4 mm long ..... *P. cuneifolia* (Torrey) Greene ●Plains, wetlands, stream beds, playas, canyons; widespread.
  - 3 Leaf blades usually spatulate to obovate, green, the apices obtuse to rounded; floral bracts 1.8-3 mm long .... *P. nodiflora* (Linnaeus) Greene ●Lawns, moist ground, river and stream beds, ditchbanks; occasional in widely scattered areas.

**Verbena** [Key adapted from Nesom 2010]

- 1 Leaves mostly linear and entire, the lower ones sometimes few-toothed or linear-lobed..... *V. perennis* Wooton ●Rocky slopes, grassland, foothills, oak-juniper woodlands, often on limestone; scattered locales in the southern half of the state.

1 Leaves mostly broader than linear, definitely toothed to incised, lobed, or pinnatifid



- 2 Leaves serrate, sometimes coarsely so, not incised to pinnatifid or lobed
- 3 Rachis and calyces glandular
- 4 Stems sparsely hirsute and bristly, eglandular to very sparsely stipitate-glandular; leaves evenly distributed along the stems; corolla limbs 4-6 mm across..... *V. livermorensis*  
Turner & Nesom ●Pine-oak forests in the Sacramento, White, and Capitan mountains.
- 4 Stems densely hirsutulous to hirtellous and minutely stipitate-glandular; leaves often clustered at the base of the stems; corolla limbs mostly 6-9 mm across ..... *V. hirtella*  
(Perry) Nesom ●Upland plains and foothill of Socorro and Sierra counties.
- 3 Rachis and calyces eglandular
- 5 Fruiting spikes with remote fruits, only partially overlapping, the rachis easily observed..... *V. scabra*  
Vahl ●Moist ground, stream and river banks, lake shores; known only from a few collections from Eddy County.
- 5 Fruiting spikes with densely packed fruits, strongly overlapping, the rachis obscured
- 6 Blades glabrous to finely appressed hairy on both surfaces; corolla limbs 2-5 mm across.. *V. hastata*  
Linnaeus ●Moist ground, stream-sides, river valleys, roadsides; occasional in scattered areas.
- 6 Blades densely spreading hairy; corolla limbs 5-11 mm across
- 7 Leaves short-petiolate, the blades narrowly ovate or narrowly elliptic; floral bracts equaling or slightly longer than the calyces; corolla limb 4-6 mm across..... *V. macdougalii*  
Heller ●Mountain slopes and meadows, canyons, roadsides; widespread.
- 7 Leaves sessile, the blades broadly ovate, broadly elliptic, to ovate-orbicular; floral bracts slightly shorter than the calyces; corolla limb 5-10 mm across ..... *V. stricta*  
Ventenat ●Reported in various earlier works, but no authentic specimens are known; to be looked for in the northern counties near the Colorado state line, in dry meadows and grasslands.
- 2 Leaves deeply toothed or incised, pinnatifid, or lobed
- 8 Mid-stem blades 5-15(25) mm long, pinnatifid; Hidalgo County..... *V. gracilis*  
Desfontaines ●Rocky slopes and canyon bottoms in Hidalgo County.
- 8 Mid-stem blades 15-80 mm long, deeply toothed, incised, to pinnatifid; distribution various
- 9 Fruiting spikes dense with strongly overlapping fruits, the floral bracts enlarging in fruit, ± leaf-like and much longer than the fruits, 6-15 mm long; stems prostrate to decumbent..... *V. bracteata*  
Lagasca & Rodríguez ●Plains, grasslands, prairies, desert scrub, woodlands, roadsides, disturbed fields; throughout the state.
- 9 Fruiting spikes, floral bracts, and stems not all as above
- 10 Basal and proximal cauline leaves persistent and present at flowering, the mid-stem and distal cauline leaves reduced in number and size
- 11 Leaves plicate, the veins whitish beneath; stems decumbent-ascending..... *V. plicata*  
Greene ●Piñon-juniper woodlands, shrubby grassland and desert scrublands, prairies and plains, gypsum flats, roadsides; widespread.
- 11 Leaves not plicate, the veins mostly greenish-grayish beneath (sometimes white in *V. xylopoda*); stems erect
- 12 Stems, leaves, inflorescence rachis, and calyces eglandular ..... *V. halei*  
Small ●Tentatively reported from the eastern plains; awaiting verification.
- 12 Stems, leaves, inflorescence rachis, and calyces minutely stipitate-glandular (sometimes the stems eglandular)
- 13 Lower and mid-stem leaves sessile or nearly so; southeast region ..... *V. canescens*  
Kunth ●Rocky hills, desert scrub, limestone substrates; known in New Mexico only in Eddy County.
- 13 Lower and mid-stem leaves petiolate; southwest region..... *V. xylopoda*
- 10 Basal and proximal cauline leaves deciduous by flowering, the mid-stem and distal cauline leaves evenly distributed and relatively even-sized
- 14 Stems glabrous, scabrous, sparsely hispid-strigose, or hirsute-strigose along angles, eglandular
- 15 Rachis and calyces persistently stipitate-glandular ..... *V. officinalis*  
Linnaeus ●Roadsides, moist disturbed sites; reported from Taos County, but specimens not known; native to Eurasia.
- 15 Rachis and calyces eglandular or sparsely stipitate-glandular..... *V. menthifolia*  
Bentham ●Wet places in arid habitats, canyon bottoms, around tanks and springs; poorly known in the state.
- 14 Stems usually hispidulous, hispid, hirsute, to villous, glandular
- 16 Stems loosely hirsute, stipitate-glandular; spikes from the medial and distal branches; corolla tubes 2.5-4 mm long, the limbs 1.5-2.5 mm in diameter..... *V. neomexicana*  
Small ●Juniper, pine-oak, and ponderosa pine woodlands in the southwestern and southcentral portions of the state.
- 16 Stems hispidulous to hirsutulous, sessile- to short stipitate-glandular; spikes present from proximal to medial branches; corolla tubes 4-5 mm long, the limbs 4-8 mm in diameter

..... *V. xylopoda*  
 (Perry) Nesom ●Desert scrub and sycamore canyons in the bootheel region, not  
 common.

**VIBURNACEAE VIBURNUM FAMILY**

- 1 Low perennial forbs from rhizomes ..... *Adoxa*
- 1 Well-developed shrubs or small trees
- 2 Leaves simple, though sometimes lobed ..... *Viburnum*
- 2 Leaves pinnately compound ..... *Sambucus*

**Adoxa**  
*A. moschatellina* Linnaeus ●Moist, mossy places in forested regions of the northern mountains.

**Sambucus**  
 1 Inflorescence broadly pyramidal, as long or longer than broad, not flat-topped; berries red or blackish, lacking a bloom; pith of older branches orange-brown ..... *S. racemosa*  
 Linnaeus ●Forested areas in the mountains.

1 Inflorescence flat-topped, broader than long, berries bluish-blackish, with a whitish-bluish bloom; pith of branches white, rarely light brown in older branches ..... *S. mexicana*  
 C. Presl ex A.P. de Candolle ●Widespread in the mountain regions and associated drainages through the foothills.

**Viburnum**  
 1 Leaves palmately 3-lobed, with 3 main veins arising at base of blade ..... *V. opulus*  
 Linnaeus ●Reported from Sierra County by Kartesz (2015), based on McAtee (1956); a few specimens of this from cultivation are found in herbaria, but New Mexico specimens from the wild are unknown to us; native to Europe, Asia.

- 1 Leaves unlobed, pinnately veined
- 2 Marginal flowers of the cyme enlarged, to 25 mm across ..... *V. macrocephalum*  
 Fortune ●Cultivated in the cooler regions of North America; this is occasionally reported for New Mexico, but no authentic specimens are known; native to China.
- 2 Marginal flowers of the cyme similar in size to the others, to 5 mm across ..... *V. lantana*  
 Linnaeus ●Canyon bottoms, Los Alamos County; known from a few sites; native to Asia.

**VIOLACEAE VIOLET FAMILY**

- 1 Leaves linear to elongate lanceolate or spatulate, 5-10 times longer than broad, 1-6 mm wide; flowers inconspicuous, nodding on axillary pedicels among the leaves ..... *Pombalia*
- 1 Leaves mostly narrowly ovate to cordate, 2-5 times longer than broad, rarely narrower than 4 mm; flowers conspicuous and showy on long peduncles often raised above the leaves ..... *Viola*

**Pombalia**  
*P. verticillata* (Ortega) Paula-Souza ●Piñon-juniper woodlands, grassland, desert scrub, rocky slopes.

**Viola**  
 1 Leaves deeply lobed
- 2 Leaf blades cleft nearly to the midrib, at least the major lobes, which are usually cleft or lobed themselves; northern mountains ..... *V. pedatifida*  
 G. Don ●Moist woods and forest openings in the northern mountains.
- 2 Leaf blades cleft ½ or less to the midrib, the major lobes not lobed themselves; Eddy County ..... *V. calcicola*

1 Leaves unlobed
- 3 Plants annual; cauline stipules often nearly as large as the leaf blades or larger, deeply lobed
- 4 Sepal auricles 2-4 mm long; style head beardless; cleistogamous flowers absent ..... *V. tricolor*  
 Linnaeus ●Cultivated ornamental occasionally escaping; known from Rio Arriba County.
- 4 Sepal auricles 0.5-2 mm long; style head bearded; cleistogamous flowers axillary ..... *V. bicolor*  
 Pursh ●Not yet known in the state, but expected; easily confused with the exotic *V. tricolor* (as was an erroneous report of *V. bicolor* for NM), and included here for comparison.

- 3 Plants perennial; cauline stipules various, but not nearly as large as the leaf blades
- 5 Petals yellow ..... *V. nuttallii*  
 Pursh ●Piñon woodlands, ponderosa pine-juniper woodlands, ponderosa pine- oak woodlands; medium elevations in the northern tier of counties.
- 5 Petals bluish or white

- 6 Plants caulescent, with leafy branching stems
- 7 Petals white ..... *V. canadensis*  
 Linnaeus ●Woodlands, forests and riparian areas in mountains; widespread.
- 7 Petals lavender-violet ..... *V. adunca*  
 J.E. Smith ●Forests, meadows, riparian areas, rocky ridges; widespread in northern and western mountains.

- 6 Plants caulescent, the leaves basal and the stems unbranched
- 8 Plants stoloniferous; petals white ..... *V. macloskeyi*

- F.E. Lloyd ●Wet meadows, pond and lake edges, stream banks; uncommon at high elevations in the northern mountains.
- 8 Plants lacking stolons; petals bluish to purplish or violet, rarely white
- 9 Leaf blades mostly pubescent with prominent downy or wooly hairs ..... *V. sororia*  
Willenow ●Often reported for New Mexico, but authentic specimens are not yet known; included here for comparison.
- 9 Leaf blades mostly glabrous, rarely pubescent, but never with downy or wooly hairs
- 10 Leaf blades longer than wide, green abaxially, usually narrowly to broadly triangular .....  
..... *V. missouriensis*  
Greene ●Known definitely only from single collections from San Miguel and Union counties, an apparent pilgrim from its common occurrence on the central plains.
- 10 Leaf blades about as long as wide, or wider than long, green to gray-green or purplish green abaxially
- 11 Sepal auricles 0.3-0.5 mm long; spur 1-1.5 mm long; known only from Eddy County, limestone cracks along streams and seeps ..... *V. calcicola*  
McCauley & Ballard ●Limestone cracks along sheltered canyons and springs, known only from the Guadalupe Mountains of Eddy County (a report of Otero County is in error).
- 11 Sepal auricles 1-2 mm long; spur 2-3 mm long; widespread, of wet habitats in saturated soils, including Eddy County ..... *V. nephrophylla*  
Greene ●Widespread in the mountains.

### VISCACEAE MISTLETOE FAMILY

[Keys adapted from Peterson 2005]

- 1 Plants herbaceous, growing in the soil and parasitic on roots of other plants ..... go to COMANDRACEAE
- 1 Plants stoutly herbaceous to semi-shrubs, parasitic on the branches of trees and shrubs, never growing in the soil
- 2 Leaves with well-developed blades seldom less than 1 cm long; parasitic on various dicotyledonous plants and *Juniperus* ..... *Phoradendron*
- 2 Leaves scale-like, not more than 3 mm long; parasitic on various dicotyledonous plants and conifers
- 3 Stems generally less than 20 cm long, ± angled, at least when young; fruits on short recurved pedicels, longer than wide; in New Mexico parasitic only on *Abies*, *Picea*, *Pinus*, and *Pseudotsuga* *Arceuthobium*
- 3 Stems generally more than 20 cm long, rounded; fruits sessile or on short straight pedicels, globose; in New Mexico parasitic on various dicotyledonous plants and *Juniperus* ..... *Phoradendron*
- Arceuthobium**
- 1 Longest shoots mostly 15-25 cm long
- 2 Shoots orange or reddish brown; parasitic on *Pinus ponderosa* and *P. engelmannii* ..... *A. vaginatum*  
(Willdenow) Presl ●On *Pinus ponderosa* and *P. arizonica*, occasionally on *P. aristata* and *P. reflexa* (*strobiformis*); widespread in nearly all the forests. ♦Our plants belong to subsp. *cryptopodum* (Engelmann) Hawksworth & Wiens
- 2 Shoots greenish brown; parasitic on *Pinus leiophylla* ..... *A. gillii*  
Hawksworth & Wiens ●On *Pinus leiophylla* var. *chihuahuana*, Animas Mountains in Hidalgo County.
- 1 Longest shoots mostly less than 15 cm long
- 3 Parasitic on *Pinus reflexa* (*strobiformis*); flowering mostly Jul-Sep (subsp. *apachecum*) ..... *A. campylopodum*
- 3 Parasitic on *Pinus* (piñons), *Picea*, and *Pseudotsuga*; flowering mostly Feb-Jun
- 4 Shoots averaging about 2 cm long, the longest shoot not exceeding 7 cm; parasitic on *Pseudotsuga* .....  
..... *A. douglasii*  
Engelmann ●On *Pseudotsuga menziesii*, also *Abies* (when with *Pseudotsuga*) and rarely *Picea*; widespread in most of the mountains.
- 4 Shoots averaging about 6.5 cm long, the longest shoot at least 10 cm long; parasitic on *Picea* and *Pinus*
- 5 Shoots olive-green to brown; parasitic on *Pinus* (piñons) ..... *A. divaricatum*  
Engelmann ●On *Pinus edulis* and *Pinus discolor*; widespread in the forests.
- 5 Shoots purple to green; parasitic on *Picea* (subsp. *microcarpum*) ..... *A. campylopodum*  
Engelmann ●The principal hosts are *Picea pungens* and *Picea engelmannii*, but also rarely on *Pinus arizonica* or *Pinus reflexa*.

### Phoradendron

- 1 Leaves reduced to scale-like bracts 1-2 mm long
- 2 Leaves strongly connate; stems glabrous; berries white or sometimes pink ..... *P. juniperinum*  
Engelmann ex Gray ●On *Juniperus*; widespread, essentially wherever junipers occur.
- 2 Leaves connate only at the very base; stems white-hairy; berries mostly red ..... *P. californicum*  
Nuttall ●On *Acacia*, *Prosopis*, and *Condalia*; known only from Hidalgo County, and perhaps close to extirpation from New Mexico.
- 1 Leaves leaf-like, mostly longer than 6 mm
- 3 Leaves elliptical to ovate, obovate, or suborbicular, at least 8 mm wide; on woody dicots

- 4 Leaves whitish-pubescent, 2-4 cm long, primarily on *Quercus*..... *P. villosum* (Nuttall) Nuttall ex Engelm. ●Oak woodlands in the southern and southwestern regions of the state, *Quercus* the primary host. ●Our plants belong to subsp. *coryae* (Trelease) Wiens
- 4 Leaves green, glabrous or pubescent, 3-6 cm long, primarily on *Populus*, *Platanus*, *Salix*, *Alnus*, *Juglans*, and *Fraxinus*..... *P. leucarpum* (Rafinesque) Reveal & M.C. Johnston ●Deserts, plains, and foothills; on a variety of dicotyledonous trees.
- 3 Leaves linear to narrowly spatulate or oblong, about 2-5 mm wide; on juniper
- 5 Leaves stellate-tomentose..... *P. capitellatum* Torrey ex Trel. ●On *Juniperus arizonica*, southwestern counties.
- 5 Leaves glabrous to hirtellous, but not stellate-tomentose..... *P. bolleanum* (Seemann) Eichler ●On *Juniperus arizonica*, *J. monosperma* and *J. pinchottii*; southern counties.

**VITACEAE GRAPE FAMILY**

- 1 Leaves 1-3 times pinnately compound ..... *Nekemias*
- 1 Leaves simple or palmately compound, not pinnately compound
- 2 Leaves simple, at most shallowly lobed; pith brownish; bark exfoliating in shreds and without lenticels. *Vitis*
- 2 Leaves compound with leaflets, or deeply cleft; pith whitish; bark tight, not exfoliating and covered with lenticels
- 3 Leaves compound with 5-6 leaflets ..... *Parthenocissus*
- 3 Leaves simple and deeply 3-lobed or compound with 3 leaflets ..... *Cissus*

**Cissus**

*C. trifoliata* (Linnaeus) Linnaeus ●Disturbed areas, canyon drainages, southern counties, known from only a few collections.

**Nekemias**

\**N. arborea* (Linnaeus) J. Wen & Boggan ●Reported by Moore & Wen (2016) for New Mexico, but no specimens are known; the nearest known localities are central Texas and Oklahoma, and eastward.

**Parthenocissus**

- 1 Expansion of tips of adhering tendrils occurring after their insertion into a crevice, their shape conforming to the shape of the crevice (usually very narrow when inserted into bark crevices) and not disc-shaped; berry 6-12 mm diam; leaflets lustrous adaxially; inflorescences dichotomously branched ..... *P. vitacea* (Knerr) Hitchcock ●Mountain slopes, canyon bottoms, riparian areas, roadsides; common and widespread.
- 1 Expansion of tips of adhering tendrils occurring on the surface of the substrate and not within a crevice, usually disc-shaped; berry 4-8 mm diam; leaflets dull adaxially; inflorescences divergently branched, with a distinct and often zig-zag axis ..... *P. quinquefolia* (Linnaeus) Planchon ●Commonly used as a landscape ornamental throughout the state, and sometimes persisting around old building and settlements in scattered locales, but rarely collected; native to Mexico, West Indies, Central America.

**Vitis** [Key adapted from Moore & Wen 2016]

- 1 Nodal transverse diaphragm (make long-section through node to view) 1.5-3 mm thick; branchlet growing tips not enveloped by unfolding leaves; tendrils soon deciduous when not attached..... *V. arizonica* Engelm. ●Moist woods, canyons, riparian areas; the most common and widespread grape in the state.
- 1 Nodal transverse diaphragm 0.5-1 mm thick; branchlet growing tips enveloped by unfolding leaves; tendrils deciduous or persistent when not attached
- 2 Plants much-branched, low- to high-climbing; tendrils soon deciduous when not attached; branchlets arachnoid to glabrate; inflorescences 3-7(9) cm long..... *V. acerifolia* Rafinesque ●Moist woodlands and stream banks in northeast region.
- 2 Plants sparsely branched, moderate- to high-climbing; tendrils persistent when not attached; branchlets glabrous to sparsely hirtellous; inflorescences (4)9-12 cm long..... *V. riparia* Michaux ●Moist slopes and stream banks in the northeastern plains.

**ZYGOPHYLLACEAE CALTROP FAMILY**

- 1 Plants well-developed woody shrubs; leaves opposite, compound, with two fused asymmetric leaflets..... *Larrea*
- 1 Plants herbaceous or only scarcely woody or bushy; leaves various
- 2 Leaves alternate, dissected into numerous linear segments, but without distinct leaflets (*Pegatum*)..... go to NITRARIACEAE
- 2 Leaves opposite, compound with distinct leaflets
- 3 Leaflets 2, each 1-4 cm long, somewhat succulent ..... *Zygophyllum*
- 3 Leaflets 6-12, each usually less than 2 cm long, not succulent
- 4 Fruit with pernicious spines, breaking into 5 segments ..... *Tribulus*
- 4 Fruit roughened with tubercles, but not at all spiny, breaking to 10 segments..... *Kallstroemia*

**Kallstroemia**

1 Petals 10-34 mm long; flowers about 20-60 mm across ..... *K. grandiflora* Torrey ex Gray ●Piñon-juniper woodlands, grasslands, desert plains, rocky slopes, arroyos; southern desert or

arid regions.

1 Petals 2-11 mm long; flowers about 15 mm or less across

2 Petals orange, 5-11 mm long; beak of the fruit longer than the fruit body; pedicels usually longer than the subtending leaves..... *K. parviflora*

Norton •Juniper woodlands, desert scrub, grassland, arroyos, rocky slopes; widespread.

2 Petals yellow, 2-6 mm long; beak of the fruit shorter than the fruit body; pedicels shorter than the subtending leaves

3 Sepals persistent; petals 2-4 mm long and about 1.5 mm wide; base of broadly conical fruit-beak surrounded by conspicuous ring of hirsute hairs..... *K. hirsutissima*

Vail ex Small •Piñon-juniper woodlands, grassland, desert scrub, roadsides.

3 Sepals deciduous; petals 3-6 mm long and 2.5-3 mm wide; base of cylindrical fruit-beak glabrous to pubescent but not surrounded by a ring of hirsute hairs as above ..... *K. californica*

(S. Watson) Vail •Desert scrub, grasslands, piñon-oak-juniper woodlands, arroyos, roadsides; widespread.

### **Larrea**

*L. tridentata* (Sessé & Mociño ex A.P. de Candolle) Coville •Chihuahuan Desert plains, ridges, outcrops.

### **Tribulus**

\**T. terrestris* Linnaeus •Widespread throughout the state along roads, weedy fields, sidewalks, lawns, many disturbed areas; native to Mediterranean region, now widespread throughout the world.

### **Zygophyllum**

\**Z. fabago* Linnaeus •Southern Rio Grande valley, disturbed ground, flood plain, consistently present since 1937.



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