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, involucres, 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, ± 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 ..... ***Elionurus***

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..... ***Catapodium***
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 exserted 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 spicate 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 rame segments (rachis joints) with a central longitudinal groove or membrane, flattened in cross-section ..... ***Bothriochloa***
8 Pedicels and rame 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..... ***Polypogon***
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 ..... ***Pseudoeriocoma***
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 ..... ***Hopia***
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. dactlyoides*)..... ***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 albescens*), the midnerve usually exserted as an awn or short point (except *Poa*)
20 Ligules membranous; lemma midnerves not exserted as a small point .....***Poa***
20 Ligules a ring of hairs, or if membranous (*Triplasiella eragrostoides*) then the lemma midnerve exserted as a small point
21 Plants strongly rhizomatous; lemma nerves glabrous .....***Redfieldia***
21 Plants lacking rhizomes; lemma nerves pubescent (except *Tridens albescens*)
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. albescens*) .....***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 .....***Graphephorum***
30 Second glume broadened above the middle; lemmas completely awnless; palea colorless, scarious, white (*K. macrantha*)..... ***Koeleria***
27 Ligule a ring of hairs
31 Panicles dense, congested, spike-like, usually light greenish or whitish; lemmas notched at the apex with a minute point; plants perennial (*T. albescens*).....***Tridens***
31 Panicles usually open, loose, often olive or dark colored; lemmas lacking a minute notch and point; plants annual or perennial
32 Plants with extensive creeping rhizomes; blades very stiff and sharp-pointed.....
.....***Kalinia***
32 Plants lacking rhizomes or with short knotty rhizomes only; blades usually rather lax, not sharp-pointed .....***Eragrostis***

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 .....***Dactylis***
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 3/4 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 ..... ***Hierochloe***

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 ..... ***Graphephorum***

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 <u>all</u> as above

37 Inflorescence scarcely branched, the spikelets on short stout pedicels ± 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 <u>and</u> dioecious <u>and</u> 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 ± 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..... ..... ***Torreyochoa***

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 30-95º, 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 30º, 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 3/4 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 understory. ♦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. elliottiana*** 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.

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 ⅔ 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
6 Pappus of capillary bristles, at least in part .....KEY F
6 Pappus of awns or scales, or absent
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 involucres with conspicuous hyaline wings (*A. monogyra*) .....***Ambrosia***
3 Plants herbaceous, the leaves not filiform; fruiting involucres 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 ⅔ or more their length..... ***Thymophylla***
8 Receptacle with fine bristles; phyllaries weakly united about ½ 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; involucres 4-5 mm high ..... ***Prenanthella***
28 Plants perennial; involucres 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 ± 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 ± 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 ± 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 ⅓ to ⅞ of their lengths; pappus of scales or smooth awns..... ***Thelesperma***
15 Phyllaries free or fused only up to ⅒ of their lengths; pappus of barbellate or cilate 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 ..... ***Peritylе***
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 Plants perennial
31 Phyllaries in 6+ series, with fringed appendages ..... ***Centaurea***
31 Phyllaries in 1-3 series, without fringed appendages
32 Involucres cylindric; 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 cylindric, 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 1mm 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 ..... ***Symphyotrichum***
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 ..... ***Symphyotrichum***
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..... ***Symphyotrichum***

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 ⅓ of their length ..... ***Thelesperma***
      - 6 Phyllaries free or united less than ⅒ 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 ..... ***Heliopsis***
            - 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 ..... ***Pseudoclappia***
              - 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 ..... ***Verbesina***
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..... ***Verbesina***
35 Achenes not winged
37 Phyllaries 5 in 1 series; involucres 3-8 mm in diameter ..... ***Calyptocarpus***
37 Phyllaries 12-35 in 2-5 series; involucres 10-50 mm in diameter
38 Leaf margins entire ..... ***Helianthella***
38 Leaf margins coarsely serrate ..... ***Lasianthaea***

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 ..... ***Pseudoclappia***
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 ½ to ¾ their lengths; rays with dark basal blotch or spot on upper surface .....
..... ***Gazania***
59 Phyllaries not united, or if united, less than ½ 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 ..... ***Tetraneuris***
60 Ray corollas withering and falling after flowering
64 Disk florets female-sterile, not producing fruits
65 Annuals; ray florets 5-15 ..... ***Amphiachyris***
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. amar*um); receptacles naked..... ***Helenium***
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.....
..... ***Platyschkuhria***

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 ⅕ of their total length..... ***Thelesperma***
5 Phyllaries free or united less than ⅒ 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 1mm 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.

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 Involucres 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 ¼ to ½ 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

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..... ***Psorothamnus***
3 Leaves and stems lacking glands; stems profusely thorny from the axils of the leaves..... ***Alhagi***
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 ± 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-purplish (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 bladdery; 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, bladdery-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 uncinate 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 ..... ***Pediomelum***
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 ⅓ or less; racemes compact; pods curved to spirally coiled ..... ***Medicago***
7 Leaflets toothed along the distal ½ 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..... ***Ladeania***
11 Floral bracts persistent; calyx usually elongating or enlarging in fruit..... ***Pediomelum***
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 uncinate 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*** (Brandegee) 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-canescent.....***A. canescens*** Pursh ●Plains, prairies, woodlands, forested mesas; mostly in the northeastern quarter of the state, with a few scattered locales elsewhere.

(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.

Sarcomphalus

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 ½ 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 toothing not as above
8 Leaves 3-foliate; 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.....***Drymocallis***
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 ..... ***Vauquelina***
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 ⅓ ..... ***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*** Koehne ●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 ½; flowers and fruits relatively large, the hypanthium tube 9-15 mm long in fruit ..... ***C. montanus***