A Field Guide

to the Flora of New Mexico State University’s Corona Range and Livestock Research Center

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College of Agriculture and Home Economics
A Field Guide to the Flora of New Mexico State University’s Corona Range and Livestock Research Center

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INTRODUCTION

Site Description

New Mexico State University’s Corona Range and Livestock Research Center (Fig. 1) is located in the southeast central portion of New Mexico approximately eight miles northeast of Corona. The center occupies area in both Lincoln and Torrance counties. It covers approximately 43.47 square miles (27,830 acres or 11,262 hectares). Elevations on the ranch range from 6,700 feet (2,042 meters) on the top of the mesa in the extreme southwestern corner of the Mesa Pasture to 5,720 feet (1,743 meters) in the extreme southeastern corner of East Johnson Pasture. The total elevational relief of the ranch is 980 feet (299 meters). The topography is characterized by rolling hills alternating with undulating to flat areas. The slopes leading to the top of the mesa are steep and rocky with a predominately north/northwest aspect.

Climate

The climate of the center and the surrounding area is classified as semiarid continental, characterized by warm summers and cold winters. The majority of precipitation falls in mid-summer and early fall as the result of high intensity, short duration, convectional thunderstorms. Mean annual precipitation (47-year average) is 11.78 inches (29.92 cm). Mean annual temperature (43-year average) is 50.7°F. The mean number of days with temperatures greater than or equal to 90°F is 39; the mean number of days with temperatures less than or equal to 32°F is 177. The first killing frost occurs between the October 20 and 30. The mean number of frost-free days is 188 (Kunkel, 1984; Tuan et al., 1973).

Geology

The center lies in the Great Plains Geologic Province. The prevailing topography includes gently rolling to flat plains, limestone sinkholes, sand dunes, and steep rocky mesas and outcrops. The geology is dominated by two Permian formations, the San Andres Formation, composed of limestone, and the Yeso Formation, which is slightly older and composed of gypsum and dolomite. Both of these formations are subject to dissolution by water, resulting in the formation of sinkholes and the characteristic Karst topography. Good examples of this may be found in the northern and eastern portions of the ranch. A less dominant contributor to the geology of the center is the Glorieta Sandstone Formation. Soils derived from this formation can be found scattered in the southeastern portions of the center (Chronic, 1987; Hunt, 1977).

Soils

The center’s soils are a heterogeneous mix of mostly alluvial soils derived from limestone and sandstone. Within the ranch boundaries there are 17 different soil types. The principal differences among the varied soil associations and complexes are soil depth, land position, and slope. They are classified into four suborders, the Calciorthids, Calciustolls, Haplargids, and Paleorthids. The Calciorthids and Haplargids are char-

1Former graduate research assistant and professor, respectively. Range Science Herbarium, Department of Animal and Range Sciences, New Mexico State University, Las Cruces, New Mexico.
acteristic of nearly flat to gently or strongly sloping plains and valleys interspersed with steep and rolling upland ridges and hills. These soils usually are shallow on the upland ridges and low hills and moderately deep to deep on the lesser sloping areas. The ridges and low hills support moderate to dense stands of piñon and juniper trees, whereas the remaining areas support mainly grama grasses, three-awn grasses, muhly grasses, needle grasses, winterfat, Bigelow’s sagebrush, and cholla. Calciustolls and Paleorthids are characteristic of gently sloping to moderately steep or rolling areas. These soils typically are shallow to bedrock or indurated caliche. This association supports mainly three-awn grasses and grama grasses with scattered juniper tress, cholla, and broom snakeweed (Marker et al., 1974; USDA, 1970, 1980).

**Taxonomic Methodology**

This guide includes all vascular plants (ferns and fern allies, conifers, monocots, dicots) and mosses present on the ranch. Other nonvascular plants (other than mosses) are not included.


**Summary of the Flora**

Sixty plant families representing 301 species are known from the center. The four largest families are Poaceae (67 species), Asteraceae (53 species), Fabaceae (17 species), and Brassicaceae (nine species). The three largest genera (total number of species) were *Muhlenbergia* (eight species) and *Eragrostis* (seven species) in the Poaceae, and *Dalea* (six species) in the Fabaceae. Table 1 lists the total number of families, genera, species, and exotic and native species present on the ranch. No endemic or rare/threatened/endangered species are found within the boundaries of the center.
Table 1. Statistical summary of the Corona research center’s flora.

<table>
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Totals: 60 199 301 30 271

Exotic Species

Approximately 10 percent of the flora is composed of exotic species. This includes 30 species (table 2) from 14 plant families. The two families with the largest number of exotic species are the Poaceae (nine species) and the Chenopodiaceae (five species). The exotics originated in Europe, South America, Central America, and Eurasia. The largest number of exotic species originated from Europe (11 species) and Eurasia (11 species).

An interesting and little known exotic is *Salsola collina*, closely related to the common Russian thistle and only recently found in New Mexico and infrequently encountered in the United States. This species is known mainly from the Great Basin region and scattered locations in the Midwest and Canada (Mosyakin, 1996).

Table 2. Exotic species of the Corona research center.

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<tr>
<th>Family</th>
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Floristic Influences
The flora of the Corona research center is shaped by influences from four floristic provinces. The Rocky Mountain flora to the north contributes species such as *Pinus ponderosa* and *Penstemon janesii*. From the south, the Chihuahuan Desert flora contributes many species, e.g., *Bouteloua eriopoda*, *Sporobolus airoides*, *Desmanthus cooley*, and *Evolvulus nutallianus*. The Great Plains to the east expresses its influence on the Corona flora with the presence of species such as *Buchloe dactyloides*, *Bouteloua gracilis*, *Liatris punctata*, *Guara coccinea*, and *Psoralea tenuiflora*. The Great Basin Flora to the north and west is represented by such species as *Cercocarpus montanus*, *Rhus trilobata*, *Ceratoides lanata*, *Artemisia bigelovii*, *Pinus edulis*, *Juniperus monosperma*, and *Atriplex canescens*.

Toxic Plants
There are 23 known toxic species present (table 3), distributed among 11 plant families. The most commonly encountered species are *Gutierrezia sarothrae*, *Kochia scoparia*, and *Astragalus mollissimus*; the least encountered are *Suckleya suckleyana*, *Xanthium strumarium*, and *Portulaca oleracea*. Toxic compounds found in these plants are according to Fuller et al. (1986) and Allison (1991).

<table>
<thead>
<tr>
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<td>Asclepias subverticillata</td>
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<td>Nitrates</td>
</tr>
<tr>
<td>Astragalus missouriensis</td>
<td>Swainsonine</td>
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<td>Astragalus mollissimus</td>
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</tr>
<tr>
<td>Chenopodium album</td>
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<td>Cleome serrulata</td>
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Vegetation
Grassland Vegetation
In general, grassland vegetation occupies the northern half of the center. The dominant grass species on the western portion of the grassland is *Bouteloua gracilis*. On the eastern portion, *Stipa neomexicana* is the dominant species. In low areas with heavy soils in the central portions, small to medium size areas are dominated by *Buchloe dactyloides*.

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<td>Dalesa spp.</td>
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<tr>
<td>Lycurus setosus</td>
<td>Gutierrezia sarothrae</td>
<td>Ipomopsis longiflora</td>
</tr>
<tr>
<td>Mahlenbergia arenacea</td>
<td>Lycium pallidum</td>
<td>Lesquerella fendleri</td>
</tr>
<tr>
<td>Mahlenbergia torreyi</td>
<td>Nolina texana</td>
<td>Linum lewisii</td>
</tr>
<tr>
<td>Orzyopsis homenoides</td>
<td>Opuntia imbricata</td>
<td>Mchaeranthera spp.</td>
</tr>
<tr>
<td>Panicum obtusum</td>
<td>Opuntia polyacantha</td>
<td>Nama hispidum</td>
</tr>
<tr>
<td>Plearaphis kansaei</td>
<td>Yucca baccata</td>
<td>Penstemon ambigius</td>
</tr>
<tr>
<td>Sporobolus airoides</td>
<td>Yucca glauca</td>
<td>Raitibida columnifera</td>
</tr>
<tr>
<td>Sporobolus cryptandrus</td>
<td></td>
<td>Senecio flaccidus</td>
</tr>
<tr>
<td>Stipa neomexicana</td>
<td></td>
<td>Zinnia grandiflora</td>
</tr>
</tbody>
</table>

Woodland Vegetation
Woodland vegetation occupies the southern half of the rangeland. This area is characterized by the presence of *Pinus edulis* and *Juniperus monosperma*. The spacing of individual plants varies greatly and influences the amount of understory growth. In general, grasses such as *Sporobolus contractus* and *Bouteloua gracilis*, forbs such as *Sphaeralcea incana* and *Lesquerella fendleri*, and less abundant shrubs such as *Lycium pallidum* dominate the understory vegetation.
Table 5. Species commonly present in woodland areas.

<table>
<thead>
<tr>
<th>Grasses</th>
<th>Trees and Shrubs</th>
<th>Forbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andropogon gerardii</td>
<td>Atriplex canescens</td>
<td>Castilleja integra</td>
</tr>
<tr>
<td>Aristida spp.</td>
<td>Berberis haematocarpha</td>
<td>Chenopodium spp.</td>
</tr>
<tr>
<td>Bothriochloa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>springfieldii</td>
<td>Cercocarpus montanus</td>
<td>Descurainia obtusa</td>
</tr>
<tr>
<td>Bouteloua spp.</td>
<td>Juniperus monosperma</td>
<td>Hedeoma drummondii</td>
</tr>
<tr>
<td>Chechrus ciliaris</td>
<td>Lycium pallidum</td>
<td>Lesquerella spp.</td>
</tr>
<tr>
<td>Elymus smithii</td>
<td>Menodora scabra</td>
<td>Mackaerthera spp.</td>
</tr>
<tr>
<td>Eragosits intermedia</td>
<td>Opuntia imbricata</td>
<td>Marrubium vulgare</td>
</tr>
<tr>
<td>Koeleria macrantha</td>
<td>Opuntia polyacantha</td>
<td>Mirabilis multiflora</td>
</tr>
<tr>
<td>Muhlenbergia spp.</td>
<td>Pins edulis</td>
<td>Physalis ixocarpa</td>
</tr>
<tr>
<td>Oryzopsis hymenoides</td>
<td>Quercus undulata</td>
<td>Salvia subincisa</td>
</tr>
<tr>
<td>Oryzopsis macrantha</td>
<td>Rhas trilobata</td>
<td>Solanum jamesii</td>
</tr>
<tr>
<td>Poa bigelovii</td>
<td>Yucca baccata</td>
<td>Sphaeralcea coccinea</td>
</tr>
<tr>
<td>Poa fendleriana</td>
<td></td>
<td>Sphaeralcea incana</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sporobolus contractus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sporobolus flexuosus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Species commonly present in transition areas.

<table>
<thead>
<tr>
<th>Grasses</th>
<th>Trees and Shrubs</th>
<th>Forbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aristida spp.</td>
<td>Artemisia bigelovii</td>
<td>Chamaeasracha conoides</td>
</tr>
<tr>
<td>Bothriochloa</td>
<td>Berberis haematocarpha</td>
<td>Chenopodium album</td>
</tr>
<tr>
<td>springfieldii</td>
<td></td>
<td>Cryptantha crassipespala</td>
</tr>
<tr>
<td>Bouteloua spp.</td>
<td>Ceratoideis lanata</td>
<td>Descurainia obtusa</td>
</tr>
<tr>
<td>Chechrus ciliaris</td>
<td></td>
<td>Desmanthus cooley</td>
</tr>
<tr>
<td>Elymus smithii</td>
<td></td>
<td>Evolvulus nutallianus</td>
</tr>
<tr>
<td>Elymus longifolius</td>
<td>Juniperus monosperma</td>
<td>Fruitschia gracilis</td>
</tr>
<tr>
<td>Eragosits intermedia</td>
<td>Lycium pallidum</td>
<td>Guillarda pulchella</td>
</tr>
<tr>
<td>Koeleria macrantha</td>
<td></td>
<td>Hedeoma drummondii</td>
</tr>
<tr>
<td>Muhlenbergia spp.</td>
<td></td>
<td>Ipomopsis longiflora</td>
</tr>
<tr>
<td>Oryzopsis hymenoides</td>
<td>Quercus undulata</td>
<td>Lesquerella spp.</td>
</tr>
<tr>
<td>Oryzopsis macrantha</td>
<td>Rhas trilobata</td>
<td>Mackaerthera spp.</td>
</tr>
<tr>
<td>Poa bigelovii</td>
<td>Yucca baccata</td>
<td>Marrubium vulgare</td>
</tr>
<tr>
<td>Poa fendleriana</td>
<td></td>
<td>Mirabilis multiflora</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td></td>
<td>Phyantis ixocarpa Stipa</td>
</tr>
<tr>
<td>Sporobolus contractus</td>
<td></td>
<td>Salvia reflexa</td>
</tr>
<tr>
<td>Sporobolus flexuosus</td>
<td>neomexicana</td>
<td>Salvia subincisa</td>
</tr>
</tbody>
</table>

Transition Vegetation

Transition vegetation extends in a more or less east-west belt through the center of the range. It is characterized by species common to both the woodland and grassland vegetation. The dominant woody plant is Juniperus monosperma. The understory is dominated by grasses and, to a lesser extent, forbs and shrubs.
Identification Manual
To use these keys, first determine which of the following groups your plant fits into by reading the descriptions. Find the identification key for that group on the page indicated. The keys to genus and species are listed alphabetically by family, starting on the next page.

Tentative identifications may be checked against specimens housed at the center’s herbarium. In addition, photos of nearly all the plants may be consulted on the Internet at http://www.nmsu.edu/~dars/ka_plants.htm

Mosses (p. 9)
Plants low and mat forming with tiny scalelike leaves. Plants reproducing by spores. Spores borne in capsules raised above the leaves. Plants often found growing on rocks, crevices, or forming cushionlike mats on the soil.

Ferns (p. 9)
Herbaceous plants that reproduce by spores borne on the underside of the leaves. These plants do not produce flowers or seeds. Ferns usually have highly dissected leaves that unroll like a fiddle-neck.

Cacti (p. 9)
Spine covered plants with succulent fleshy stems. Obvious leaves absent. Spines borne in obvious clusters or patches. The flowers are showy with many waxy petals and inferior ovaries. Only one family: Cactaceae

Woody Plants (p. 9)
Trees, shrubs, or subshrubs with obvious woody stems that persist from year to year. Plants reproduce by seed borne in flowers or cones.

Grasses and Grasslike Plants (p. 10)
Herbaceous plants that lack obvious showy flowers. The leaves are narrow with parallel veins. The flowers lack sepals and petals, and are hidden in clusters of chaffy bracts.

Forbs (p. 10)
Herbaceous plants usually producing showy flowers. The leaves are usually broad and have netted veins, but may be narrow and obscurely veined. The flowers usually develop sepals and petals and are not usually hidden.

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>millimeters</td>
</tr>
<tr>
<td>cm</td>
<td>centimeters</td>
</tr>
</tbody>
</table>
KEYS TO FAMILIES

(The families are treated on p. 15)

**Mosses**

(Hand lens required)

1 Leaves distinctly tipped with a white hair point
2 Leaves twisted spirally around the stem when dry .................................................. *Jaffueliobryum* (GRIMMIACEAE)
2 Leaves not twisted spirally around the stem when dry
   3 Stems ± prostrate-spreading, leaf tips opaque to whitish, stems slender .......... *Fabronia* (FABRONIACEAE)
   3 Stems ± erect, leaf tips definitely white, stems robust
      4 Plants white in appearance when dry ................................................................. *Bryum* (BRYACEAE)
      4 Plants greenish brown to rust-colored when dry, leaves
         appressed to the stem when dry but widely spreading when wet ............... *Tortula* (POTTIACEAE)
1 Leaves not tipped with a white hair point
5 Leaves when dry shriveled up so that they all appear tangled together .................. *Weissia* (POTTIACEAE)
5 Leaves when dry not shriveled up so that the all appear tangled together
   6 Plants growing on dead or living trees, plants when dry
      black to blackish-green .................................................................................... *Pseudoleskeella* (LESKEACEAE)
   6 Plants growing on soil
      7 Plants minute, usually than less than 2 mm tall
         8 Leaves when dry tightly appressed to the stem,
            leaf apex acuminate, plants with a glistening luster .................................. *Pohlia* (BRYACEAE)
         8 Leaves when dry not tightly appressed to the stem, leaf apex
            not acuminate, plants dull and lacking a glistening luster ...................... *Didymodon* (POTTIACEAE)
      7 Plants more than 2 mm tall
         9 Plants light green to yellowish green, with a glossy luster. *Amblystegium* (AMBLYSTEGIACEAE)
         9 Plants dark olive green to blackish when dry ........................................... *Didymodon* (POTTIACEAE)

**Ferns**

1 Sporangia borne in clusters along the leaf margins ...................................................... PTERIDACEAE
1 Sporangia borne in distinct clusters away from the leaf margins .......................... DRYOPTERIDACEAE

**Cacti**

Only one family ........................................................................................................... CACTACEAE

**Woody Plants**

1 Leaves needle or scalelike, plants monoecious or dioecious, plants bearing cones
2 Leaves needlelike, mostly 2-3 to a fascicle, plants large trees ........................................... PINACEAE
2 Leaves ± scale of wedge like, not in fascicles, plants trees or shrubs
   3 Nodes of the stem bearing a whorl of small papery scales, cones
      borne at the nodes, plants green-yellow in color, small rather low shrubs .......... EPHEDRACEAE
   3 Nodes of stem not as above, leaves small green wedge-shaped, leaves
      tightly appressed to stem ................................................................................. CUPRESSACEAE
Grasses and Grasslike Plants

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stems 3-angled; leaves 3-ranked and appearing whorled ........................................... CYPERACEAE</td>
</tr>
<tr>
<td>1</td>
<td>Stems ± rounded, occasionally flattened, but never 3-angled; leaves 2-ranked........................ POACEAE</td>
</tr>
</tbody>
</table>

**Forbs**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plants parasitic, with or without chlorophyll, if green then distinctly growing on and attached to a host plant .............................................................. KEY A</td>
</tr>
<tr>
<td>1</td>
<td>Plants not as above, plants green and rooted in the soil</td>
</tr>
<tr>
<td>2</td>
<td>Leaves simple, basal or alternate, generally sheathing the stem, the veins parallel; flower parts in sets of three or multiples of three; monocotyledons ............................................. KEY B</td>
</tr>
<tr>
<td>2</td>
<td>Leaves simple to compound, alternate, opposite, or basal, usually not sheathing the stem, the veins generally netted; flower parts in sets of four or five or multiples thereof; dicotyledons</td>
</tr>
<tr>
<td>3</td>
<td>Plants with whitish milky sap .............................................................................................. KEY C</td>
</tr>
<tr>
<td>3</td>
<td>Plants without whitish milky sap</td>
</tr>
</tbody>
</table>
Flowers small individually but clustered on a common receptacle into dense heads subtended by modified leaves (phyllaries) that often resemble sepals; remains of the head are present long after the flowers have died; sepals represented by a modified pappus borne at the top of the fruit (achene), this composed of scales, bristles, awns, or absent; individual flowers are of two general types, strap-shaped ray flowers and tube-shaped disc flowers; sunflower family .......................................................... ASTERACEAE

Flowers not as above

5 Sepals and or petals absent .......................................................... KEY D

5 Sepals and petals both present

6 Ovary inferior, sepals, petals, and stamens arising from the top of the ovary ............ KEY E

6 Ovary superior, sepals, petals, and stamens arising from immediately below the ovary

7 Leaves alternate or basal

8 Pets fused together, at least at the base .................................................. KEY F

8 Pets not fused .......................................................... KEY G

7 Leaves ± opposite or whorled .......................................................... KEY H

KEY A (Plants parasitic)

1 Plants green, parasitic on juniper or piñon ................................................. VISCACEAE

1 Plants not green, with or without chlorophyll, parasitic on plants other than juniper and piñon

2 Plants with twining, trailing, vinelike stems; flowers white, radially symmetric (flowers can be cut in more than 1 plane to produce 2 halves that are mirror images of each other) ................................................. CUSCUTACEAE

2 Plants erect, appearing rooted in the soil, parasitic Gutierrezia sarothrae, flowers purplish, bilaterally symmetric (flowers can only be cut in one plane to produce two halves that are mirror images of one another) ......................... OROBANCHACEAE

KEY B (Monocotyledons)

1 Flowers blue, subtended by an inflated leaf surrounding the flower when immature; leaves cauline; plants not developing a subterranean bulb .................................................. COMMELINACEAE

1 Flowers white to cream colored, not subtended by a inflated leaf surrounding the flower when immature; leaves basal; plants developing a subterranean bulb (onion) ......................... LILIACEAE

KEY C (Dicotyledons with milky sap)

1 Flowers without true petals, but petaloid structures often present; flowers contained in a cuplike structure (cyathium), the stamens and the ovary often hanging out of the cyathium; fruit a globose capsule, the seeds hairless .................................................. EUPHORBIACEAE

1 Flowers with true petals, not contained in a cyathium; fruit an elongated pod, the seeds with a tuft of long hair at one end .......................................................... ASCLEPIADACEAE

KEY D (Sepals and/or petals absent)

1 Leaves opposite of whorled

2 Perianth segments (sepals and petals) scalelike, scarious; stamens 2-5; fruit a utricle .......... AMARANTHACEAE

2 Perianth segments petallike

3 Ovary appearing inferior, a constriction usually present at the tip of the ovary before the flaring of the perianth; flower purplish in color; stamens 3; fruit a anthocarp (the ovary surrounded by a persistent floral tube) ......................... NYCTAGINACEAE

3 Ovary clearly superior, the perianth clearly flaring from the base of the ovary; fruit an achene (like a sunflower seed) .......................................................... POLYGONACEAE

1 Leaves alternate

4 Plants with white milky juice; ovary and fruit 3-celled .................................................. EUPHORBIACEAE

4 Plants without white milky juice; ovary and fruit 1-celled
5 Stipules present and united into a sheath around the stem ........................................ POLYGONACEAE  
5 Stipules not united or absent  
6 Flowers contained within a cuplike structure ..................................................... POLYGONACEAE  
6 Flowers not contained within a cup  
7 Perianth segments (sepals and petals) scalelike, scarious, filaments of stamens fused below into a short crown .................. AMARANTHACEAE  
7 Perianth segments membranous, filaments of stamens not as above ........... CHENOPODIACEAE  

KEY E (Dicotyledons, ovary inferior)  
1 Leaves succulent .............................................................................................................. PORTULACACEAE  
1 Leaves distinctly not succulent  
2 Leaves alternate or basal  
3 Plants prostrate, vinelike; leaves arrow-shaped; plants with a fetid odor .............. CUCURBITACEAE  
3 Plants erect to prostrate, if vinelike then the features other than above  
4 Plants covered with clinging hairs; stamens and petals intergrading ................... LOASACEAE  
4 Hairs if present not clinging; stamens and petals distinct, not intergrading ........ ONAGRACEAE  
2 Leaves opposite or whorled  
5 Flowers with 5 petals; flowers purplish, opening at dusk or early in the morning .......... NYCTAGINACEAE  
5 Flowers with 4 petals; flowers reddish to white, opening during the day ....................... RUBIACEAE  

KEY F (Dicotyledons, ovary superior, leaves alternate or basal, petals fused)  
1 Flowers zygomorphic (bilaterally symmetrical)  
2 Leaves compound, distinctly divided into leaflets  
3 Flowers with a long rounded spur; fruit a nut ...................................................... FUMARIACEAE  
3 Flowers lacking a rounded spur; fruit a legume ................................................. FABACEAE  
2 Leaves simple, may be lobed but not divided into leaflets  
4 Plants copiously covered with glandular (sticky) hairs; leaves broad; fruit a pod with long curving horns .................... PEDALIACEAE  
4 Plants ± glabrous, leaves ± narrow, fruit a capsule without horns .................. SCROPHULARIACEAE  
1 Flowers actinomorphic (Radially symmetrical)  
5 Leaves compound, divided into leaflets ............................................................... FABACEAE  
5 Leaves simple to lobed, but not divided into leaflets  
6 Leaves all basal, densely wooly-hairy, lanceolate; petals scarious; inflorescence spikelike; plants annual ......................................................... PLANTAGINACEAE  
6 Plants with features other than above  
7 Styles 3-cleft; ovary 3-celled; fruit a 3-valved capsule; flower with a long tube ................................................................. POLEMONIACEAE  
7 Style not 3-cleft; ovary and fruit various; flower tube short  
8 Plants with dendritic (branched or star-shaped) hairs; fruit resembling a cheese wheel with wedge-shaped segments ......................... MALVACEAE  
8 Plants glabrous to variously hairy but without dendritic hairs; fruit other than above  
9 Stamens 2-3; fruit a didymous capsule (appearing to be composed of two pea-shaped halves) ...................... OLEACEAE  
9 Stamens 5; fruit other than above  
10 Ovary 4-lobed and 4-celled; fruit composed of 4 nutlets ................................. BORAGINACEAE  
10 Ovary may be lobed but not 4-lobed, 1- or 2-celled; fruit various  
11 Ovary and fruit 1-chambered ........................................................................ HYDROPHYLLACEAE  
11 Ovary and fruit 2-chambered  
12 Styles 1-2; stigmas more than 1; corolla twisted in the bud ....... CONVOLVULACEAE  
12 Style and stigma 1; corolla not twisted in the bud ................................... SOLANACEAE
KEY G (Dicotyledons, ovary superior, leaves alternate or basal, petals not fused)

1 Flowers zygomorphic (bilaterally symmetrical)
   2 Flowers with a spur
      3 Flowers golden-yellow ................................................................. FUMARIACEAE
      3 Flowers bluish-white ................................................................. RANUNCULACEAE
   2 Flowers without a spur
      4 Flowers with four sepals and four petals, mostly purplish;
         fruit a 1-celled capsule; leaves compound ........................................... CAPPARACEAE
      4 Flowers with 5 sepals and 5 petals, mostly whitish-pink;
         fruit a 2-celled capsule; leaves simple ........................................... POLYGALACEAE
1 Flowers actinomorphic (radially symmetrical)
   5 Leaves obviously succulent ........................................................... PORTULACACEAE
   5 Leaves not succulent
      6 Leaves tongue shaped; stipules fused and sheathing the stem ............... POLYGONACEAE
      6 Leaves and stipules not as above
         7 Sepals fused at least at the base
            8 Leaves compound; fruit a legume ........................................... FABACEAE
            8 Leaves simple; fruit various
               9 Plants with branched or star-shaped hairs; fruit resembling
                  a cheese wheel with wedge-shaped segments ............................ MALVACEAE
               9 Hairs and fruits other than above ............................................ OLEACEAE
         7 Sepals not fused
            10 Flowers with more than 20 stamens, the filaments
                fused into a column around the styles ........................................ MALVACEAE
            10 Flowers with less than 20 stamens, the filaments not fused into a column
                11 Plants covered with stinging hairs ........................................ EUPHORBIACEAE
                11 Plants not covered with stinging hairs
                   12 Filaments of stamens long (1.5-2.5 cm),
                      red; leaves compound with three leaflets ............................ CAPPARACEAE
                   12 Filaments of stamens less than 1.5 cm long, not red; leaves simple
                      13 Petals and sepals 4 in number; herbage with
                           stellate (star-shaped) hairs ........................................... BRASSICACEAE
                      13 Petals and sepals 5 in number; herbage without stellate hairs
                         14 Stems developing a bulbous structure below
                            ground; leaves cloverlike ............................................. OXALIDACEAE
                         14 Stems not developing a bulbous structure below
                            ground; leaves not cloverlike
                            15 Petals reddish-purple; fruit elongating
                               and becoming beaklike, splitting into
                               separate 1-seeded segments ........................................ GERANIACEAE
                            15 Petals blue to orange; fruit a capsule, not as above ........ LINACEAE

KEY H (Dicotyledons, ovary superior, leaves opposite of whorled)

1 Flowers zygomorphic (bilaterally symmetrical)
   2 Ovary and fruit deeply 4-lobed; fruit composed of nutlets
      3 Stems square; styles 2-cleft; plants generally with a mint odor;
         corolla definitely zygomorphic ...................................................... LAMIACEAE
      3 Stems generally not square, if square then the plants without a
         mint odor; stigma only slightly cleft; corolla only slightly zygomorphic ................................ VERBENACEAE
   2 Ovary not 4-lobed; fruit a capsule
      4 Leaf bases sagittate; plants densely covered with glandular (sticky) hairs ........... PEDALIACEAE
      4 Leaf bases not sagittate; plants glabrous or variously hairy but not as above ....... SCROPHULARIACEAE
1 Flowers actinomorphic (radially symmetrical)
  5 Leaves definitely succulent ........................................................................................................ PORTULACACEAE
  5 Leaves not succulent
  6 Stipules fused, sheathing the stem .............................................................................................. POLYGONACEAE
  6 Stipules not fused, not sheathing the stem
  7 Leaves compound, divided into leaflets; fruits with sharp spines (goat-head) ........ ZYGOPHYLLACEAE
  7 Leaves simple, entire to toothed, not compound; fruit lacking spines
  8 Flowers borne in a cuplike structure
  9 Leaves mostly basal; plants from stout woody caudex; stamens 6-9; styles 3; flowers opening during the day .......... POLYGONACEAE
  9 Leaves cauline; plants not from woody caudex; stamens 1-5; style 1; flowers opening at dusk ................................ NYCTAGINACEAE
  8 Flowers not borne in a cuplike structure
 10 Flowers bright yellow; fruit a didymous capsule (appearing to be composed of two pea-shaped halves) .................... OLEACEAE
 10 Flowers whitish; fruit a capsule, not didymous ........................................ CARYOPHYLLACEAE
The families are arranged alphabetically. Each species treatment includes scientific name, common name (UPPERCASE), duration (annual or perennial), origin (native or exotic), a brief statement of the habitat, flowering times, and an estimation of its relative abundance (scarce, numerous, abundant) and distribution (localized, dispersed, widespread) on the range. Important synonyms are listed in brackets.

AGAVACEAE / AGAVE FAMILY

1 Flowers large, 2 cm or greater in length; leaves ± fleshy, the tips spinose ................................................... Yucca
1 Flowers small, 0.5 cm or less long; leaves not fleshy, but somewhat grasslike, lacking a spiny tip ................ Nolina

Nolina
Nolina texana S. Wats. TEXAS BEARGRASS or SACAHUISTA. Perennial, native. Mainly in the eastern portions of the range, piñon/juniper savanna to open grassland. Flowering May-June. Numerous, dispersed.

Yucca
1 Stem absent, or less than 25 cm tall at maturity; leaves thick, greater than 2 cm wide, the margins producing coarse fibers ............................................................................................ Y. baccata
1 Stems 1 meter or more tall at maturity; leaves ± thin, less than 1.5 cm wide, the magins producing more delicate fibers ...................................................................................... Y. glauca

Yucca baccata (Engelm.) Trel. BANANA YUCCA. Perennial, native; open grassland, washes, found in most areas on the range. Flowering April-May. Numerous, dispersed.

Yucca glauca Nutt. GREAT PLAINS YUCCA. Perennial, native. Scattered throughout the range. Flowering May-June. Numerous, dispersed.

AMARANTHACEAE / AMARANTH FAMILY

1 Leaves alternate ................................................................................................................................................ Aamaranthus
1 Leaves opposite
2 Plants prostrate, forming dense mats; leaves ovate-lanceolate, less than 3 cm long ...................... Guilleminea
2 Plants erect, not forming dense mats; leaves linear to linear-lanceolate, greater than 3 cm long .......... Froelichia

Amaranthus
1 Plants erect; male and female flowers on separate plants ................................................................. A. palmeri
1 Plants prostrate; male and female flowers on the same plant ......................................................... A. blitoides

Amaranthus blitoides S. Wats. PROSTRATE PIGWEED. Annual, native. Waste areas and disturbed ground, water tanks, corrals. Flowering July-October. Scarce, dispersed. [Amaranthus graezicans L.]


Froelichia

Guilleminea
ANACARDIACEAE / CASHEW FAMILY

Rhus

*Rhus trilobata* Nutt. var. *pilosissima* Engler SKUNK-BRUSH SUMAC. Perennial, native. Various habitats, mostly on rocky slopes. Flowering April-May. Scarce, dispersed. *[Rhus aromatica* Ait. var. *pilosissima* (Engler) Shinners]*

APIACEAE / CARROT FAMILY

Cymopterus

1 Leaves olive green, not glutinous, the lobes of divided leaves blunt to obtuse at the tips ......................... *C. montanus*
1 Leaves light green, glutinous and sticky, the lobes of divided leaves acute at the tips ................................. *C. newberryi*


*Cymopterus newberryi* (S. Wats.) M. E. Jones STICKY SPRING-PARSLEY. Perennial, native. Found in grassland areas, sandy loamy soils. Flowering April-May. Scarce, localized

ASCLEPIADACEAE / MILKWEED FAMILY

Asclepias

1 Leaves greater than 4 cm wide ................................................................. .......................................................... *A. latifolia*
1 Leaves generally less than 1.5 cm wide
  2 Leaves up to 2 mm wide; flowers white, small, usually less than 2 mm long ............................. *A. subverticillata*
  2 Leaves 5-12 mm wide; flowers not white, may be cream-colored, usually more than 2 mm long
    3 Plants erect; leaves with a hooked tip ................................................................. *A. asperula*
    3 Plants sub-erect; leaves without hooked tips ............................................................. *A. rusbyi*


ASTERACEAE / SUNFLOWER FAMILY

Flower head = the aggregation of all the flowers, these all inserted on a receptacle
Ray flower = the showy straplike flower, usually around the outer perimeter of the head
Disc flower = the tubular flowers, usually in the center of the head
Pappus = modified sepals, borne at the apex of the achene/ovary, of bristles, hairs, or scales
Phyllaries = the sepal-like bracts subtending the flower head, these composing the involucre
Involucre = the whorl of phyllaries subtending the flower head

1 Flower heads with only ray flowers (strap-shaped flowers); plants with milky juice ................................. GROUP A
1 Flower heads with both ray and disc flowers, or with all disc flowers; plants without milky juice
  2 Only disc flowers present in the head; ray flowers absent .................................................. GROUP B
  2 Both ray and disc flowers present in the head
    3 Pappus of capillary bristles .................................................................................. GROUP C
    3 Pappus of scales, awns, or absent ............................................................................. GROUP D
GROUP A (Heads with ray flowers only; plants with milky juice)

1 Leaves all basal .............................................................................................................. Taraxacum

1 Leaves cauline (borne on the stem)

2 Leaves sessile, the bases sagittate; stems, at least the lower, covered with stiff bristles ............... Lactuca

2 Leaves and stems not as above

3 Leaves ovate-orbicular, the margins spiny ................................................................................ Acourtia

3 Leaves linear to weakly linear-lanceolate, the margins not spiny

4 Peduncle (stem supporting flower heads) gradually expanding towards the top; flowers yellow; lower leaves usually well over 5 cm long .................. Tragopogon

4 Peduncle not gradually expanding towards the top; flowers pinkish; lower leaves usually less than 4 cm long ..................................................... Stephanomeria

GROUP B (Corolla all tubular)

1 Leaves, fruits, stems, and/or flower heads with spines or hooks

2 Flower heads clothed in hooks ................................................................................................. Xanthium

2 Flower heads not clothed in hooks

3 Flowers purple to lavender, the lower surface densely tomentose, the margins spinose; pappus plumose ............................................................................................ Cirsium

3 Flowers yellow, the lower surface not densely tomentose, the margins not spinose; pappus not plumose ........................................................................................................ Ambrosia

1 Leaves, fruits, stems, or flower heads without spines or hooks (may be variously hairy)

4 Leaves opposite, at least the lower ones

5 Leaves ± cordate; flower heads arranged in corymbose cymes; corollas white to cream-yellow ....... Eupatorium

5 Leaves not cordate; flower heads not arranged as above; corollas yellow to purplish

6 Phyllaries fused at least below the middle; leaves linear to broadly lanceolate, the margins entire; plants with many short, white appressed hairs; corollas pink to purple .......... Palafoxia

6 Phyllaries not fused; leaves divided into linear segments (pinnatifid), the margins entire; plants glabrous; corollas yellow ........................................... Thelesperma

4 Leaves alternate throughout

7 Leaves deeply divided

8 Heads small, usually less than 4 mm long (from the base of the phyllaries to the tip of the flowers); plants with sage scent .......................................................... Artemisia

8 Heads larger, usually greater than 8 mm long; plants without sage scent .............................. Hymenopappus

7 Leaves not divided, may be lobed or toothed

9 Heads small, usually less than 6 mm long

10 Plants covered with a dense mat of tangled white hairs; phyllaries scarious (dry-looking, not green) .............................................................. Gnaphalium

10 Plants not covered with a dense mat of tangled white hairs; phyllaries not scarious

11 Plants annual; leaf margins toothed to serrate; stems densely leafy throughout ...... Laennecia

11 Plants perennial; leaf apex three-toothed; stems with a few, smaller leaves in upper portions ............................................................................ Artemisia

9 Heads larger, usually greater than 8 mm long

12 Corollas deep purple to magenta; leaf margins entire .......................................................... Liatris

12 Corollas yellow to greenish yellow; leaf margins serrate to shallowly toothed

13 Leaves with petioles; corollas greenish-yellow; leaf margins serrate ...................... Brickellia

13 Leaves sessile; corollas yellow; leaf margins shallowly toothed .................................. Grindelia
GROUP C (Ray and disc flowers present; pappus of capillary bristles)

1 Phyllaries in a single series
2 Leaves highly dissected into linear segments; corollas yellow ................................................................. Senecio
2 Leaves not dissected into linear segments, the margins may be toothed; corollas variously colored
  3 Flower heads small, usually less than 4 mm long; corollas greenish yellow ........................................ Laennecia
  3 Flower head larger, usually greater than 6 mm long; corollas pink to white to lavender ...................... Erigeron
1 Phyllaries in 2 or more series
4 Plants low shrubs; phyllaries graduated and in overlapping ranks (the midrib of one phyllary aligned with the midrib of the next) ............................................................... Ericameria
4 Plants herbaceous (may be perennial); phyllaries not as above
  5 Plants lacking a leafy stem; leaves in a basal rosette ........................................................................ Townsendia
  5 Plants with a leafy stem
    6 Phyllary tips recurved (hooked); leaf margins with stiff white hair-points ............................................ Machaeranthera
    6 Phyllary tips not recurved; leaf margins not as above
      7 Leaves spatula-shaped; plants with a pleasant odor produced by many oil glands on the herbage ................................................................. Heterotheca
      7 Leaves awl-shaped; plants without odor or oil glands ................................................................. Chaetopappa

GROUP D (Ray flowers present; pappus consisting of awns, scales, or absent)

1 Phyllaries with translucent oil glands; plants with a lemon odor
2 Base of leaves with spiny white bristles; leaves dissected ........................................................................ Pectis
2 Base of leaves without spiny white bristles; leaves not dissected ............................................................. Dyssodia
1 Phyllaries without translucent oil glands; plants without a lemon odor
3 Receptacle of inflorescence obviously columnar or globular .................................................................... Ratibida
3 Receptacle of inflorescence not columnar or globular
  4 Leaves opposite, at least below
    5 Ray flowers white to cream-colored, not yellow or red ........................................................................ Melampodium
    5 Ray flowers yellow or red, not white or cream colored
      6 Leaf margins entire
        7 Leaves linear; ray flowers large and showy, 6-18 mm wide; apex of phyllaries rounded, with a green band below ................................................................. Zinnia
        7 Leaves lanceolate; ray flowers smaller, 2-3 mm wide; apex of phyllaries acute, without green band below ................................................................. Sanvitalia
      6 Leaf margins serrate to dentate, not entire
        8 Fruit (achene) with corky wings ................................................................................ Verbesina
        8 Fruit without wings .................................................................................................. Helianthus
  4 Leaves alternate or basal
    9 Plants perennial
      10 Leaves all basal, woolly hairy; heads solitary on the stem ........................................................... Tetraneuris
      10 Leaves cauline, not all basal, variously hairy or glabrous but not wooly hairy
        11 Plants subshrubs, woody at the base; leaves linear; heads numerous ......................................... Gutierrezia
        11 Plants herbaceous, not at all woody; leaves of various shapes; heads not as above
          12 Leaf margins entire to weekly crisped or serrate, but not lobed or dissected
            13 Ray flowers 3-5 in number, shallowly lobed at the apex; phyllaries with white wooly hairs ................................................................. Psilostrophe
            13 Ray flowers greater than 5 in number, not lobed; phyllaries with ciliate margins but not wooly hairy ................................................................. Helianthus
          12 Leaf margins lobed, dissected, or lyrate
            14 Leaf margins lyrate (pinnatifid with the terminal lobe enlarged); phyllaries obtuse at apex ........................................................................ Berlandiera
            14 Leaf margins not as above; phyllaries more or less acute, not obtuse

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15 Disk flowers yellow; phyllary margins with ciliate hairs ................................................. *Engelmannia*

15 Disk flowers reddish-brown to purplish; phyllary margins not ciliate ............................................. *Gaillardia*

9 Plants annual

16 Stems with stalked glands, at least the upper portions ................................................................. *Bahia*

16 Stems without stalked glands

17 Ray flowers purple, deeply cleft ................................................................................................. *Palafoxia*

17 Ray flowers yellow, not deeply cleft ............................................................................................. *Dicranocarpus*

**Acourtia**

*Acourtia nana* (Gray) Reveal & King DESERT HOLLY. Perennial, native. Sandy, gravelly, or clayey soils, mostly in the eastern portions of the range. Flowering April-December. Numerous, localized. *[Perezia nana* Gray]*

**Ambrosia**

1 Plants annual; fruits spiny ............................................................................................................. *A. acanthicarpa*

1 Plants perennial from slender rhizomes; fruits not spiny ............................................................. *A. psilostachya*


*Ambrosia psilostachya* DC. Perennial, native. WESTERN RAGWEED, disturbed areas, usually heavy soils. Flowering July-October. Scarce, dispersed.

**Artemisia**

1 Plants low shrubs; leaves entire except for 3 teeth or lobes at the apex ................................................. *A. bigelovii*

1 Plants herbaceous, not shrubby; leaves not as above

2 Leaves of lower stems parted nearly to the midrib into slender lobes about 1 mm wide ............... *A. carruthii*

2 Leaves nearly entire or with broad lobes usually more than 2 mm wide and not extending to near the midrib ................................................................. *A. ludoviciana*


**Bahia**

*Bahia dissecta* (Gray) Britt. BAHIA. Perennial, native. Disturbed fence lines in grassland areas, in Mesa Pasture at the base of the mesa, rocky soils, piñon/juniper woodland. Flowering August-September. Scarce, localized.

**Berlandiera**


**Brickellia**


**Chaetopappa**

*Chaetopappa ericoides* (Torr.) Nesom SAND ASTER. Perennial, native. Dry open places throughout the range. Flowering May-September. Abundant, widespread. *[Leucelene ericoides* (Torr.) Greene]*
Cirsium

Dicranocarpus
Dicranocarpus parviflorus Gray PITCHFORK. Annual, native. Heavy clay soils, commonly in areas of ephemeral water accumulation. Flowering August-October. Scarce, localized.

Dyssodia
Dyssodia papposa (Vent.) Hitchc. FETID MARIGOLD, PRAIRIE DOGWEED. Annual, native. Found in nearly all the areas of the range, especially along roadsides and other disturbed areas. Flowering June-October. Abundant, dispersed.

Engelmannia

Ericameria
1 Shrubs 80-120 cm tall; leaves glabrous to puberulent (with very small hairs), the margins entire; ray flowers 11-13 mm long .......................................................... E. pulchella subsp. pulchella
1 Shrubs 5-50 cm tall, leaves glabrous, margins with a sand paper texture, ray flowers 7-12 mm long .................................................................................................. E. pulchella subsp. baileyi

Ericameria pulchella (Gray) Geeene subsp. baileyi (Woot. & Standl.) Hall & Clem. RABBIT-BRUSH. Perennial, native. Found in the eastern parts of the range on rocky limestone soils. Flowering late July-September. Numerous, dispersed.

Erigeron
Erigeron divergens Torr. & Gray SPREADING FLEABANE. Annual or short-lived perennial, native. Ubiquitous in open grasslands or piñon/juniper woodland areas. Flowering June-August. Numerous, dispersed.

Eupatorium
Eupatorium herbaceum (Gray) Greene THOROUGHWORT, JOE-PYE WEED. Perennial, native. Slopes of piñon/juniper woodland areas, usually growing on or very close to a rock outcrop. Flowering late July-October. Numerous, dispersed.

Gaillardia
Gaillardia pinnatifida Torr. CUT-LEAVED BLANKETFLOWER. Perennial, native. Ubiquitous to all areas of the range. Flowering June-October. Abundant, dispersed.

Gnaphalium

Grindelia
1 Leaves at mid-stem oblong, 15-70 mm long, 4-13 mm wide; stems green ............................................ G. nuda var. aphanactis
1 Leaves at mid-stem ovate to oblong, 13-35 mm long, 6-9 mm wide; stems green or often reddish .......................................................... G. nuda var. nuda

Grindelia nuda A. Wood var. aphanactis (Ryd.) Nesom CURLYCUP GUMWEED. Biennial, native. Mostly in moist areas, especially around water holes. Flowering July-September. Abundant, dispersed. [Grindelia aphanactis Ryd]

Grindelia nuda A. Wood var. nuda CURLYCUP GUMWEED. Biennial, native. Mostly in moist areas, especially around water holes. Flowering August-October. Abundant, dispersed.
Gutierrezia

**Gutierrezia sarothrae** (Pursh) Britt. & Rusby BROOM SNAKEWEED. Perennial, native. Common to grassland areas and disturbed sites. Flowering June-October. Abundant, widespread. Broom snakeweed may be poisonous to sheep and cattle causing abortion, but rarely death. The foliage contains a saponin that is most toxic during leaf formation and quickly decreases with maturity.

Helianthus

1 Plants perennial from rhizomes; leaves all opposite ................................................................. *H. ciliaris*
2 Plants annual; leaves mostly alternate
   1 Phyllaries egg-shaped, abruptly narrowed to an acuminate apex ............................................. *H. annuus*
   2 Phyllaries lance-shaped, gradually narrowed towards an acute or obtuse apex .......................... *H. petiolaris*

Helianthus annuus DC. COMMON SUNFLOWER. Annual, native. Drainages of small arroyos, roadsides. Flowering June-September. Scarce, localized. This plant can accumulate levels of nitrates that are toxic to livestock


Heterotheca


Hymenopappus


Lactuca

**Lactuca serriola** L. var. *serriola* PRICKLY LETTUCE. Annual, exotic (from Europe). Disturbed areas, especially around the north and south headquarters. Flowering July-October. Numerous, dispersed. The flowering heads of this species open at daybreak and close by mid-morning.

Laennecia

**Laennecia coulteri** (Gray) Nesom COULTER CONYZA. Annual, native. Disturbed ground, often on alkaline soils. Flowering June-September. Abundant, dispersed.

Liatris

**Liatris punctata** Hook. DOTTED GAYFEATHER. Perennial, native. Rocky limestone soils on the eastern portions of the range. Flowering August-October. Scarce, localized.

Machaeranthera

1 Ray flowers yellow
2 Plants perennial ................................................................. *M. pinnatifida*
2 Plants annual ................................................................. *M. gracilis*
1 Ray flowers white or purple
3 Plants perennial; ray flowers whitish .................................................. *M. blephariphylloides*
3 Plants annual; ray flowers purplish .................................................. *M. tanacetifolia*


Machaeranthera pinnatifida (Hook.) Shinners var. *pinnatifida* CUTLEAF IRONPLANT. Perennial, native. Disturbed areas throughout the range. Flowering May-October. Abundant, widespread. This plant can accumulate selenium and should be considered poisonous. [Haplopappus spinulosus (Pursh) DC.]

Melampodium
*Melampodium leucanthum* Torr. & Gray PLAINS BLACKFOOT. Perennial, native. Found in all areas of the range, on all soil types. Flowering June-November. Abundant, widespread.

Palafoxia

Pectis
*Pectis angustifolia* Torr. LEMONCILLO, LEMON WEED. Annual, native. All areas of the range, on all soil types. Flowering July-October. Abundant, dispersed.

Psilostrophe

Ratibida
1 Receptacle columnar; heads 10-55 mm long ................................................................. *R. columnifera*
1 Receptacle globular; heads 8-15 mm long ................................................................. *R. tagetes*

*Ratibida columnifera* (Nutt.) Woot. & Standl. MEXICAN HAT. Perennial, native. Found around water holes on heavy clay soils. Flowering July-September. Abundant, dispersed. [*Ratibida columnaris* (Sims) D. Don]


Sanvitalia

Senecio
1 Plants wooly-hairy, giving them a grayish appearance .............................................................................. *S. flaccidus*
1 Plants glabrous, green in color .......................................................................................... *S. ridellii*

*Senecio flaccidus* Less. var. *flaccidus* THREADLEAF GROUNDSEL. Perennial, native. Open grassland areas. Flowering July-mid September. Numerous, dispersed. Toxic to cattle. [*Senecio douglasii* DC. var. *longilobus* (Benth.) Benson]


Stephanomeria

Taraxacum

Tetraneuris

Thelesperma
1 Leaves mostly crowded at the base; plants to 40 cm tall ................................................................................ *T. longipes*
1 Leaves more evenly distributed along the stem; plants 80 cm or more tall .............................................................................. *T. megapotamicum*


Townsendia

Tragopogon

Verbesina

Xanthium
1 Stems bearing three-forked spines in the axils of the leaves;
   petioles much shorter than the blades ................................................................. X. spinosum
1 Stems without three-forked spines at the axils of the leaves;
   petioles as long as or longer than the blades .................................................. X. strumarium

Xanthium spinosum L. SPINY CLOTBUR. Annual, exotic (from South America). Disturbed areas, especially corrals or holding pens. Flowering June-August. Numerous, localized.


Zinnia
Zinnia grandifolia Nutt. ROCKY MOUNTAIN ZINNIA, PLAINS ZINNIA. Perennial, native. Open dry areas. Flowering late March-September. Abundant, widespread.

BERBERIDACEAE / BARBERRY FAMILY

Berberis

BORAGINACEAE / BORAGE FAMILY

1 Nutlets with hooked prickles ........................................................................................................ Lappula
1 Nutlets without hooked prickles
   2 Flowers yellow, conspicuous, trumpet shaped; petal lobes crinkled ........................................ Lithospermum
   2 Flowers white to bluish, usually small and inconspicuous, not
      trumpet shaped; petal lobes not crinkled ................................................................. Cryptantha

Cryptantha
1 Most flowers subtended by small, leafy bracts ................................................................. C. minima
1 Most flowers not subtended by small, leafy bracts ............................................................. C. crassisepala


Cryptantha minima Rydb. THICKSEPAL CRYPTANTHA. Annual, native. Dry sandy disturbed areas. Flowering April-July. Scarce, dispersed.
**Lappula**

**Lithospermum**

**BRASSICACEAE / MUSTARD FAMILY**

1 Leaves dissected, lobed, or pinnately parted
   2 Leaves pinnately or bipinnately parted ................................................................. Descurainia
   2 Leaves lobed, never divided to the midrib ............................................................. Rorippa

1 Leaves entire or merely dentate to serrate
   3 Flowers purplish
      4 Leaves basal and cauline, the stem leaves arrow-shaped ........................................... Arabis
      4 Leaves cauline, the stem leaves linear ................................................................. Schoenocrambe
   3 Flowers white or yellow
      5 Fruits more than 3 times as long as wide
         6 Plants annual; leaves basal ................................................................................ Draba
         6 Plants perennial; leaves cauline ........................................................................... Erysimum
      5 Fruits much less than 3 times as long as wide
         7 Fruits spectacle-shaped, with a shallow constriction between the two halves .......... Dimorphocarpa
         7 Fruits spherical and not as above
            8 Flowers yellow; fruits globular, not much flattened ........................................... Lesquerella
            8 Flowers white to cream colored; fruits definitely flattened ............................... Lepidium

**Arabis**

**Descurainia**
1 Upper leaves bi- or tripinnate; fruits narrowly linear and containing more than 20 seeds ................................................. *D. sophia*
1 Upper leaves once-pinnate; fruits club-shaped or elliptic, or if linear then containing less than 20 seeds
   2 Fruits club-shaped; plants canescent (hairy), giving the plant a grayish color .................. *D. pinnata*
   2 Fruits linear; plants glabrous to somewhat pubescent, the plants ± greenish ................... *D. obtusa*


*Descurainia pinnata* (Walt.) Britt. subsp. *ochroleuca* (Woot.) Detling WESTERN TANSY MUSTARD. Annual, native. Waste ground and disturbed areas, mostly along roads. Flowering May-August. Numerous, dispersed. The plants are toxic to livestock when eaten in large amounts.

*Descurainia sophia* (L.) Webb FLIXWEED. Annual, exotic (from Europe). Disturbed areas. Flowering May-August. Scarce, localized.

**Dimorphocarpa**
*Dimorphocarpa wislizeni* (Englem.) Rollins SPECTACLE-POD. Annual, native. Open ground in grassland and piñon/juniper woodland areas. Flowering May-October. Numerous, dispersed. *[Dithyrea wislizeni* Engelm.]

**Draba**

**Erysimum**
*Erysimum capitatum* (Dougl. ex Hook.) Greene var. *capitatum* WESTERN WALLFLOWER. Biennial, native. Open ground in grassland and piñon/juniper woodland areas. Flowering April-September. Numerous, widespread.
Lepidium
1 Plants annual; petals minute to absent, not exceeding the sepals ......................................................... L. densiflorum
1 Plants perennial; petals usually twice as long as the sepals ................................................................. L. alyssoides

Lepidium alyssoides Gray var. alyssoides PEPPERGRASS. Perennial, native. Dry grassland areas. Flowering May-September. Scarce, dispersed.
Lepidium densiflorum Schrad. var. densiflorum PEPPERGRASS. Annual, native. Dry grassland areas. Flowering April-August. Scarce, dispersed.

Lesquerella
1 Fruits with stellate hairs (star-shaped) .................................................................................................. L. intermedia
1 Fruits glabrous, without stellate hairs .................................................................................................. L. fendleri


Rorippa
Rorippa sinuata (Nutt.) A. S. Hitchc. YELLOW CRESS. Annual, native. Wet soil around water holes or swales. Flowering May-July. Scarce, localized.

Schoenocrambe
Schoenocrambe linearifolia (Gray) Rollins PURPLE MUSTARD. Perennial, native. Dry open areas, also among piñon/juniper woodland. Flowering July-September. Numerous, widespread.

BRYACEAE / BRYUM MOSS FAMILY

Bryum
Bryum argenteum Hedw. SILVERY BRYUM. A weedy cosmopolitan moss of open to semi-shady sites on soil, rock, roofs, and sidewalks. Numerous, widespread.

Pohlia
Pohlia cruda (Hedw.) Lindb. SPONGY GOURD MOSS. Widespread in the Northern Hemisphere, scattered in the Southern Hemisphere, on soil in rock crevices, roadbanks. Scarce, dispersed.

CACTACEAE / CACTUS FAMILY

1 Stems jointed; glochids (minute barbed bristles in addition to spines) present ......................................... Opuntia
1 Stems not jointed; glochids not present
2 Stems with separate nipplelike projections (tubercles) ...................................................................... Mammillaria
2 Stems with continuous longitudinal ribs .............................................................................................. Echinocereus

Echinocereus
Echinocereus fendleri (Engelm.) Engelm. ex Rumph var. fendleri FENDLER'S HEDGEHOG. Perennial, native. Sandy soils in grassland and woodland areas. Flowering April-June. Scarce, dispersed.

Mammillaria
1 Spines straight or slightly curved, not hooked; juice of stem white milky (like condensed milk in texture) .... M. heyderi
1 Spines recurved, hooked (like a fishhook); juice of stem clear, not milky .............................................. M. wrightii

Opuntia
1 Plants low; stems flattened into pads; flowers yellow ................................................................. O. polyacantha
1 Plants tall (tree like); stems round in cross section, not flattened; flowers purple ................................ O. imbricata

Opuntia imbricata (Haw.) DC. TREE CHOLLA. Perennial, native. On somewhat sandy soils in both grassland and woodland areas. Flowering June-August. Numerous, widespread.


CAPPARACEAE / CAPER FAMILY

Cleome
Cleome serrulata Pursh ROCKY MOUNTAIN BEEPLANT. Annual, native. Disturbed areas, especially around water holes. Flowering July-mid September. Numerous, widespread. This plant has been reported to accumulate toxic levels of nitrates, but its strong odor generally makes it unpalatable to livestock.

CARYOPHYLLACEAE / PINK FAMILY

Drymaria

Paronychia


CHENOPODIACEAE / GOOSEFOOT FAMILY

1 Plants shrubs, woody at least at the base
   2 Plants glabrous or with a scurfy pubescence (appearing mealy or scaly) ................................................................. Atriplex
   2 Plants densely white-wooly hairy, especially the inflorescence ................................................................. Ceratoides
   1 Plants herbaceous
      3 Herbage covered with scurfy or mealy pubescence ................................................................. Chenopodium
      3 Herbage not covered with scurfy or mealy pubescence
         4 Leaf margins entire
            5 Stems with reddish to purplish vertical stripes; plants with few hairs; fruit surrounded by winged sepals ................................................................. Salsola
            5 Stems without stripes; plants, especially the inflorescence, wooly hair (more so at maturity); fruit naked ................................................................. Kochia
         4 Leaf margins lobed or variously toothed
            6 Plants densely glandular-pubescent, strongly but pleasantly aromatic ........................................ Teloxys
            6 Plants not as above
               7 Sepals horizontally winged in fruit; leaves lance- to egg-shaped ........................................ Cycloloma
               7 Sepals not winged; leaves orbicular to rhombic-ovate ........................................ Suckleya
**Atriplex**  
*Atriplex canescens* (Pursh) Nutt. **FOUR-WING SALTBUSH.** Perennial, native. Dry rocky soils of the southwest portion of the range. Flowering July-August. Numerous, localized. This is an important browse plant for wildlife. The fruits are also an important food source for birds.

**Ceratoides**  

**Chenopodium**

1. Stems leaves linear to narrowly ovate, three times longer than wide, or longer .............................................. *C. dessicatum*
2. Stem leaves ovate to broadly triangular, 1-3 times longer than wide
   - Leaves generally 2.5-8 cm long .............................................................................................................................. *C. album*
   - Leaves generally 1-3 cm long ............................................................................................................................ *C. incanum*

**Chenopodium album** L. **LAMBS QUARTER.** Annual, exotic (from Europe). Moist disturbed soil around water holes. Flowering July-late September. Scarce, dispersed. This plant may accumulate nitrates; also, the pollen often causes hay fever.

**Chenopodium dessicatum** A. Nels. var. *dessicatum* **GOOSEFOOT.** Annual, native. Disturbed areas. Flowering July-October. Numerous, dispersed.

**Chenopodium incanum** (Wats.) Heller **GOOSEFOOT.** Annual, native. Disturbed ground and waste areas. Flowering May-September. Numerous, dispersed.

**Cycloloma**  

**Kochia**  
*Kochia scoparia* (L.) Roth **SUMMER CYPRESS, KOCHIA.** Annual, exotic (from Eurasia). Disturbed ground, especially near water holes. Flowering July-October. Abundant, dispersed. This plant accumulates nitrates and is also linked to photosensitivity in livestock.

**Salsola**

1. Bracts appressed and strongly imbricate at maturity; inflorescence narrowly spicate, rather dense, not interrupted at maturity .................................................................................................................. *S. collina*
2. Bracts reflexed, not imbricate at maturity; inflorescence spicate, interrupted at maturity ................................................................................................................................. *S. tragus*

**Salsola collina** P. S. Pallas **RUSSIAN THISTLE.** Annual, exotic (from Asia). Disturbed ground, usually mixed in with *S. tragus*. Flowering May-August. Scarce, dispersed.

**Salsola tragus** L. **RUSSIAN THISTLE.** Annual, exotic-naturalized (from Asia). Disturbed ground. Flowering May-August. Abundant, widespread. This plant can accumulate dangerous levels of nitrates. [*Salsola australis* R. Br., *Salsola iberica* (Sennen & Pau) ex Czerepanov, *Salsola kali* of numerous works]

**Suckleya**  

**Teloxys**  
*Teloxys botrys* (L.) W.A. Weber **JERUSALEM OAK.** Annual, exotic-naturalized (from Eurasia). Disturbed sandy soils. Flowering July-October. Numerous, dispersed. [*Chenopodium botrys* L.]

**COMMELINACEAE / SPIDERWORT FAMILY**

1. Inflorescence subtended by a conspicuous, leafy, boat-shaped bract; fertile stamens 3 .............................................. *Commelina*
2. Inflorescence not subtended as above; fertile stamens 6 ....................................................................................... *Tradescantia*
Commelina
*Commelina erecta* L. var. *angustifolia* (Michx.) Fernald WHITEMOUTH DAYFLOWER. Perennial, native. Moist sandy soils in open grassland or woodland areas. Flowering late June-September. Scarce, dispersed.

Tradescantia
*Tradescantia occidentalis* (Britt.) Smyth WESTERN SPIDERWORT. Perennial, native. Sandy, often moist soils, disturbed areas. Flowering late May-September. Scarce, dispersed.

### CONVOLVULACEAE / MORNING-GLORY FAMILY

| 1 | Stems erect to decumbent, not trailing or viny; leaves linear to lance shaped; flowers blue | *Evolvulus* |
| 1 | Stems trailing or viny; leaves ovate, triangular, or heart-shaped; flowers variously colored |  |
| 2 | Flowers mostly white, or with a tinge of pink | *Convolvulus* |
| 2 | Flowers scarlet, orange-red, or bluish, if pinkish then the entire flower pinkish | *Ipomoea* |

**Convolvulus**

1 Flowers 3-5 mm long, inconspicuously pubescent to glabrate; plants forming dense mats: *C. arvensis*

1 Flowers 6-12 mm long, densely pubescent; plants not forming dense mats: *C. equitans*

**Convolvulus arvensis** L. FIELD BINDWEED. Perennial, exotic-naturalized (from Eurasia). Disturbed sandy soils. Flowering May-July. Numerous, localized. May contain a purgative that causes distress in swine. This plant is a noxious weed.

**Convolvulus equitans** Benth. DAGGER BINDWEED. Perennial, native. Dry grassland areas. Flowering June-September. Scarce, localized.

**Evolvulus**


**Ipomoea**

1 Sepals, stems, and leaves hairy; flowers purple: *I. purpurea*

1 Sepals, stems, and leaves not hairy; flower color other than purple

2 Flowers scarlet-red, 3-5 cm long: *I. cristulata*

2 Flowers pinkish to pale purple, 1-1.5 cm long: *I. costellata*


**Ipomoea cristulata** H. Hall. SCARLET CREEPER. Annual, native. Moist soil of swales and watering areas. Flowering June-September. Scarce, localized.

**Ipomoea purpurea** (L.) Roth COMMON MORNING-GLORY. Annual, native. exotic-naturalized (from tropical America). Disturbed ground. Flowering July-October. Scarce, localized. Contains purgative principles that may cause mild distress in swine. Seeds contain a LSD-like substance capable of causing extreme illness and hallucinations in humans.

### CUCURBITACEAE / CUCUMBER FAMILY

**Cucubita**


### CUPRESSACEAE / CYPRESS FAMILY

**Juniperus**

CUSCUTACEAE / DODDER FAMILY

Cuscuta

*Cuscuta indecora* Choisy DODDER. Annual, native. Parasitic on various herbaceous plants. Flowering July-September. Scarce, localized. This plant is suspected of causing scouring in cattle.

CYPERACEAE / SEDGE FAMILY

Cyperus

1 Aerial stems without a bulbous base ........................................................................................................... *C. esculentus*
1 Aerial stems with a bulbous base (resembling a very small onion)

2 Spikelets borne at the tips of 4-8 elongate peduncles, not sessile ................................................................ *C. schweinitzii*
2 Spikelets sessile or on 3-5 short peduncles

3 Spikelets all sessile; leaves subtending inflorescence extending at right angles to slightly ascending .......................................................... *C. fendlerianus*
3 Spikelets, or some of them, on short peduncles; leaves subtending inflorescence strongly ascending to erect ...................................................... *C. sphaerolepis*

*Cyperus esculentus* L. YELLOW NUT-SEDGE. Perennial, native. Moist heavy clay soil in or near waterholes. Flowering July-September. Numerous, dispersed.


DRYOPTERIDACEAE / WOOD FERN FAMILY

Woodsia


EPHEDRACEAE / Ephedra FAMILY

Ephedra


EUPHORBIACEAE / Spurge FAMILY

1 Plants lacking white milky juice but with stinging hairs ...................................................................................... *Tragia*
1 Plants with white milky juice but without stinging hairs

2 Leaves small, 1-3 cm long; plants mostly prostrate .............................................................................. *Chamaesyce*
2 Leaves larger, 3-7 cm long; plants mostly erect to decumbent ........................................................................ *Euphorbia*

Chamaesyce

1 Leaf margins toothed, at least above the middle ............................................................................................ *C. strictospora*
1 Leaf margins entire

2 Leaf margins revolute (curled under); plants perennial and hairy, giving the plant a gray appearance ........................................................................ *C. lata*
2 Leaf margins not revolute; plants annual ± glabrous, giving the plant a green color ................................................................. *C. micromera*

**Chamaesyce micromera** Boiss. DESERT SPURGE. Annual, native. Dry disturbed soils. Flowering June-October. Numerous, dispersed.

**Chamaesyce strictospora** (Engelm.) Small PUNCTURED-SEED SPURGE. Annual, native. Open sandy plains and slopes. Flowering July-September. Numerous, dispersed.

**Euphorbia**
1 Leaves all with entire margins ................................................................. E. hexagona
1 Leaves, at least some, with serrate margins ........................................................ E. extipulata


**Euphorbia hexagona** Nutt. SPURGE. Annual, native. Found in grassland and woodland areas. Flowering June-September. Scarce, dispersed.

**Tragia**

**FABACEAE / PEA FAMILY**
1 Plants shrubs, woody throughout ........................................................................ Dalea
1 Plants herbaceous, if woody then only at the base
2 Leaves palmately compound
3 Leaves pubescent
4 Leaves with 5 leaflets; sepals bluish .............................................................. Lupinus
4 Leaves with 3 leaflets; sepals not bluish .............................................................. Dalea
3 Leaves glabrous
5 Herbage and fruits with copious glandular dots ................................................ Psoralidium
5 Herbage and fruits without glandular dots
6 Flowers blue; fruits spirally coiled ................................................................. Medicago
6 Flowers yellow; fruits not spirally coiled ........................................................ Melilotus
2 Leaves pinnately compound
7 Leaves twice-pinnately compound
8 Herbage covered with glandular dots; flowers not in headlike clusters; fruits the shape of a halfmoon .......................................................... Pomaria
8 Herbage not glandular; flowers in dense headlike clusters; fruits not as above .......... Desmanthus
7 Leaves once-pinnately compound
9 Leaves ending in a tendril .................................................................................. Lathyrus
9 Leaves not ending in a tendril
10 Flowers subtended by a bract, herbage usually with glandular dots ...................... Dalea
10 Flowers not subtended by a bract; herbage lacking glandular dots
11 Stamens all free, not fused ............................................................................... Sophora
11 Nine stamens fused by their filaments, 1 free .................................................. Astragalus

**Astragalus**
1 Plants annual ..................................................................................................... A. nuttallianus
1 Plants perennial
2 Plants arising from rhizomelike caudex branches; flowers in headlike clusters at maturity .......... A. agrestis
2 Plants not arising from rhizomelike caudex-branches; flowers not in headlike clusters except when very young
3 Plants with dolabriform hairs (the hair attached to the leaf in the center); fruits hairy .......... A. missouriensis
3 Plants with basifixed hairs (the hair attached to the leaf at the base); fruits glabrous .......... A. mollissimus

Astragalus mollissimus Torr. var. mollissimus WOOLY LOCOWEED. Perennial, native. Open grassland areas. Flowering in two periods: April-early July and late August-late September. Numerous, widespread. These plants contain swainsonine, which affects the neurological, cardiovascular, and reproductive systems. We have two forms:

1 Flowers blue to purple ........................................................................................................ forma mollissimus
1 Flowers cream to yellowish in color ........................................................................................ forma flavus

Astragalus missouriensis Nutt. var. missouriensis MISSOURI MILKVETCH. Perennial, native. Dry open grassland areas. Flowering April-June. This species is known to contain swainsonine, a toxic alkaloid.

Astragalus nuttallianus DC. var. macilentus (Small) Barneby NUTTALL’S MILKVETCH. Annual, native. Dry open grassland areas, usually sandy or rocky soils. Flowering April-June- and occasionally August-September. Apparently, these plants do not contain swainsonine.

Dalea

1 Plants shrubs, woody throughout ........................................................................ D. formosa
1 Plants herbaceous, or only woody at the base
   2 Flowers yellow to white-cream in color ..................................................................... D. jamesii
   3 Leaves palmately compound with three leaflets ........................................................... D. compacta
   4 Inflorescence densely hairy, 5-8 cm long ................................................................. D. candida
   4 Inflorescence glabrous, 2.5-3.2 cm long .................................................................

2 Flowers pink to deep purple in color
   5 Leaflets 0.5-1 mm wide; plants erect ....................................................................... D. purpurea
   5 Leaflets 2-3 mm wide; plants prostrate ..................................................................... D. lanata

Dalea candida Willd. var. oligophylla (Torr.) Shinners INDIGOBUSH. Perennial, native. Open, dry, sandy soil in grassland areas. Flowering late May-September. Numerous, dispersed. [Petalostemon candididus (Willd.) Michx. var. oligophyllus (Torr.) F. J. Herm.]

Dalea compacta Spreng. var. compacta PRAIRIE CLOVER. Perennial, native. Open, dry, often calcareous soil in grassland areas. Flowering June-August. Numerous, dispersed. [Petalostemon compactus (Spreng.) Swezey]


Dalea lanata Spreng. var. terminalis (M. E. Jones) Barneby SPREADING DALEA. Perennial, native. Dry, disturbed sandy soils. Flowering late July-late September. Numerous, dispersed. [Dalea terminalis M. E. Jones]


Desmanthus

Desmanthus cooleyi (Eaton) Trel. COOLEY’S BUNDLEFLOWER. Perennial, native. Disturbed ground around the trash pits. Flowering July-September. Scarce, localized.

Lathyrus


Lupinus

Medicago
*Medicago sativa* L. **ALFALFA.** Perennial, exotic (from Europe). Disturbed ground around the barns at both north and south headquarters. Flowering July-September. Scarce, localized. This plant is an escapee from the alfalfa hay that is trucked in for winter-feed.

Mellilotus

Pomaria

Psoralidium

Sophora
*Sophora nuttalliana* B.L. Turner **SILKY SOPHORA.** Perennial, native. Sandy soils in grassland areas. Flowering April-May. Scarce, localized.

FABRONIAEAE / FABRONIA MOSS FAMILY

Fabronia
*Fabronia ciliaris* (Brid.) Brid. var. *wrightii* (Sull. ex Sull. & Lesq.) Buck **FABRONIA.** Diminutive native moss found in soil pockets on the walls of limestone sinkholes. Producing spores under moist conditions. Scarce, localized.

FAGACEAE / OAK FAMILY

Quercus
*Quercus undulata* Torr. **WAVYLEAF OAK.** Perennial, native. Dry sandy soils. Flowering April-May. Abundant, dispersed. This plant is of hybrid origin and highly variable in form.

FUMERIACEAE / BLEEDING HEART FAMILY

Corydalis

GRIMMIACEAE / GRIMMIA MOSS FAMILY

Jaffueliobryum
*Jaffueliobryum wrightii* (Sull. in Gray) Ther. **BEARD MOSS.** A small cushion-moss to be found on limestone walls of sinkholes. Producing spores under moist conditions. Scarce, localized.

HYDROPHYLLACEAE / WATERLEAF FAMILY

1 Leaves toothed to lobed; inflorescence resembling a scorpion tail ................................................................. *Phacelia*
1 Leaves entire; inflorescence not as above .............................................................................................................. *Nama*

Nama
**Phacelia**  

**KRAMERIACEAE / RATANY FAMILY**

**Krameria**  

**LAMIACEAE / MINT FAMILY**

1. Stems densely tomentose (woolly hairy) ......................................................................................... *Marrubium*
2. Stems glabrous to lightly pubescent
   3. Flowers white to cream-colored  ........................................................................................................ *Monarda*
   4. Flowers blue to purple  ..................................................................................................................... *Salvia*
3. Plants annual; leaves entire to merely serrate ................................................................. *Teucrium*
4. Plants perennial; leaves deeply lobed ......................................................................................... *Teucrium*

**Hedeoma**

1. Plants 15-35 cm tall; leaf margins serrate; veins of leaves conspicuously elevated ............................ *H. plicatum*
2. Plants 15-60 cm tall; leaf margins entire; veins of leaves not as above .......................... *H. drummondii*


**Marrubium**

*Marrubium vulgare* L. COMMON HOREHOUND. Perennial, exotic (from Eurasia). Moist ground in both grassland and woodland areas. Flowering April-September. Abundant, widespread. This plant is heavily grazed in the spring, and apparently is important early spring forage for both livestock and wildlife.

**Monarda**


**Salvia**

1. Corolla approximately 1.5 times as long as the calyx; calyx glandular-pubescent, the upper half blue, the lower half green ............................................................... *S. subincisa*
2. Corolla only slightly longer than the calyx; calyx not glandular pubescent, green throughout, .......... *S. reflexa*

**Salvia reflexa** Hornem. ROCKY MOUNTAIN SAGE. Annual, native. Open areas in piñon/juniper woodland. Flowering July-late August. Numerous, dispersed. This plant may contain high levels of nitrates.

**Salvia subincisa** Benth. SAGE. Annual, native. Open sandy ground. Flowering August-September. Scarce, dispersed.

**Teucrium**

LESKEACEAE / LESKEA MOSS FAMILY

Pseudoleskeella
*Pseudoleskeella tectorum* (Funck ex Brid.) Kindb. ex Broth LESKEA. Native moss of moist soil, rock, occasionally logs. Producing spores under moist conditions. Numerous, dispersed.

LILIACEAE / LILY FAMILY

Allium

LINACEAE / FLAX FAMILY

Linum
1 Petals blue; plants glabrous, perennial ................................................................. *L. lewisii*
1 Petals yellow-orange; plants minutely pubescent, annual ........................................... *L. puberulum*

Linum lewisii Pursh WESTERN BLUE FLAX. Perennial, native. Open grassland areas, especially along fences. Flowering June-August. Numerous, dispersed.


LOASACEAE / STICKLEAF or LOASA FAMILY

Mentzelia
*Mentzelia laciniata* (Rydb.) J. Darl. STICKLEAF. Perennial, native. Open grassland areas in the eastern portions of the range. Flowering June-August. Scarce, dispersed.

MALVACEAE / MALLOW FAMILY

1 Plants annual; flowers white to light-blue; leaves kidney-shaped ................................................................. *Malva*
1 Plants perennial; flowers rose to red; leaves not kidney-shaped ................................................................. *Sphaeralcea*

Malva

Sphaeralcea
1 Leaves linear; plants few-flowered ......................................................................................... *S. leptophylla*
1 Leaves broader; plants many-flowered
  2 Leaves deeply cleft with several narrow lobes ................................................................. *S. coccinea*
  2 Leaves toothed or shallowly lobed
    3 Leaves ovate in outline, the mature leaf blades up to 4 cm long ........................................ *S. incana*
    3 Leaves lance-shaped in outline, the mature leaf blades usually greater than 7 cm long ............ *S. angustifolia*


NYCTAGINACEAE / FOUR O’CLOCK FAMILY

1 Involucral bracts subtending the inflorescence united; flowers pink to purple, 3-8 per involucre ................................................................. Mirabilis
1 Involucral bracts subtending the inflorescence separate, not united; flowers white-pink, 15-35(45) per involucre ................................................................. Abronia

Abronia

Mirabilis
1 Leaves linear to lanceolate
  2 Leaves linear; stems densely hairy (pilose to hirsute) ................................................................. M. hirsuta
  2 Leaves lanceolate, stems glabrous or only puberulent, to glabrate ................................................................. M. linearis
1 Leaves ovate to heart-shape
  3 Involucre 3-flowered, 7-9 mm long; stamens 3; leaves generally widest at the base, not succulent and thick ................................................................. M. oxybaphoides
  3 Involucre with 6-8 flowers, 20-60 mm long; stamens 3; leaves generally widest near the middle, succulent and thick ................................................................. M. multiflora


Mirabilis multiflora (Torr.) Gray MANY FLOWERED FOUR O’CLOCK. Perennial, native. Sandy or rocky soils in both grassland and woodland areas. Flowering June-late September. Numerous, widespread.


OLEACEAE / OLIVE FAMILY

Menodora

ONAGRACEAE / EVENING PRIMROSE FAMILY

1 Flowers bright yellow ................................................................................................................................................. Calylophus
1 Flowers pink-red or white, not bright yellow
  2 Flowers 3-5 cm across; flowers white when fresh ..................................................................................................... Oenothera
  2 Flowers less than 3 cm across; flowers pink-red when fresh
    3 Plants 6-12 cm tall; stigma deeply 4-lobed; plants known from the edge of water holes in heavy clay soils ....................................................................... Oenothera
    3 Plants 15-40 cm tall; stigma capitate, not lobed; plants mostly of sandy, drier soils ........................................... Gaura

Calylophus

Gaura
Oenothera
1 Flowers red with white spots, 1-1.8 cm wide ................................................................. O. canescens
1 Flowers white to pinkish, 3-5 cm wide ................................................................. O. albicaulis

*Oenothera albicaulis* Pursh PRAIRIE EVENING PRIMROSE. Annual, native. Open grassland areas. Flowering April-July. Scarce, dispersed.


**OROBANCHACEAE / BROOMRAPE FAMILY**

Orobanche
*Orobanche ludoviciana* Nutt. var. *arenosa* (Suksd.) Cronq. BROOMRAPE. Perennial, native. Sandy soils. Flowering July-August. Scarce, dispersed. This plant is parasitic on *Gutierrezia sarothrae*.

**OXALIDACEAE / WOODSORREL FAMILY**

Oxalis

**PEDALIACEAE / DEVIL’S CLAW FAMILY**

Proboscidea

**PINACEAE / PINE FAMILY**

Pinus
1 Leaves (needles) 10-25 cm long; plants large trees, the bark smelling like vanilla ......................... *P. ponderosa*
1 Leaves (needles) 2-3.5 cm long; plants shrubs or small trees, the bark not as above .................. *P. edulis*

*Pinus edulis* Engelm. COLORADO PIÑON PINE. Perennial, native. Sandy rocky slopes. Numerous, dispersed. This is our state tree.


**PLANTAGINACEAE / PLANTAIN FAMILY**

Plantago
*Plantago patagonica* Jacq. WOOLY INDIAN-WHEAT. Annual, native. disturbed ground, especially around the bunkhouse. Flowering April-August. Numerous, widespread. [*Plantago purshii* R. & S.]

**POACEAE (GRAMINEAE) / GRASS FAMILY**

1 Spikelets enclosed in sharp, spiny burs ................................................................. *Cenchrus*
1 Spikelets not enclosed in spiny burs
2 Glumes covered with rows of hooked prickles ................................................................. *Tragus*
2 Glumes not covered with hooked prickles
3 Spikelets subtended by one or more bristles ................................................................. *Setaria*
3 Spikelets not subtended by bristles
4 Inflorescence a spike, without pedicels or branches .................................................. GROUP A
4 Inflorescence not a spike, pedicels and/or branches present
5 Spikelets disarticulating below the glumes .................................................. GROUP B
5 Spikelets disarticulating above the glumes
6 Spikelets with only a single floret .......................................................... GROUP C
6 Spikelets with more than a single floret .................................................. GROUP D

GROUP A (inflorescence a spike)
1 Plants tufted
2 Spikelets 3 at each node ........................................................................... Hordeum
2 Spikelets not arranged as above
3 First glume with 2 awns; leaf blades terminating in a small hairlike bristle Lycurus
3 First glume with a single awn; leaf blades not terminating in a small hairlike bristle Elymus
1 Plants rhizomatous or stoloniferous
4 Plants annual, stoloniferous ................................................................. Munroa
4 Plants perennial, rhizomatous
5 Spikelets in clusters of 3, with short awns, villous at the base Pleuraphis
5 Spikelets not in clusters of 3 but single at each node, awnless, glabrous or glabrate at the base Elymus

GROUP B (disarticulation below the glumes)
1 Ligule absent .................................................................................. Echinochloa
1 Ligule present
2 Spikelets without awns
3 First glume absent or very small, less than 0.5 mm long; pedicels very short, 0.2-1 mm long Paspalum
3 First glume well developed, 1 mm or longer; pedicels more than 1 mm long Panicum
2 Spikelets with awns
4 Spikelets in pairs, one sessile and one pedicellate
5 Plants over 1 meter tall when mature ..................................................... Andropogon
5 Plants less than 1 meter tall when mature
6 Inflorescence a panicle with branches, very hairy, plumose; pedicels and rame joints with a longitudinal groove in the center Bothriochloa
6 Inflorescence a single unbranched spicate raceme, but several of these scattered along the flowering shoot, not extremely hairy, not plumose; pedicels not as above Schizachyrium
4 Spikelets not in pairs
7 Panicles with 1 to many flaglike branches; leaf blades not terminating in a small hairlike bristle Bouteloua
7 Panicles spikelike, without flaglike branches; leaf blades terminating in a small hairlike bristle Lycurus

GROUP C (spikelets with one floret only)
1 Spikelets awnless or with a minute awn, less than 2 mm long
2 Spikelets awnless; panicle with whorled branches at the tip of the stalk Cynodon
2 Spikelets with a minute awn less than 2 mm long; panicle rebranching, the branches not digitate
3 Spikelets nearly sessile on the branch; inflorescence a panicle of wiry, spikelike branches breaking at the base and tumbling entire Schedonnardus
3 Spikelets pedicellate; panicle not as above
4 Lemmas with 3 nerves; sheaths without long hairs at the collar
   (short hairs in M. pungens); ligule a membrane Muhlenbergia
4 Lemmas with 1 nerve; sheaths with long hairs at the collar; ligule a ring of hairs Sporobolus
1 Spikelets with well-developed awns
4 Awns deciduous, easily broken off or dropping, leaving a small nub at the apex of the lemma Oryzopsis
4 Awns persistent, not easily broken off nor dropping
5 Lemma with 3 awns Aristida
5 Lemma with 1 awn only
GROUP D (spikelets with two or more florets)

1 Panicle branches digitate at tip of stem (like a windmill), or whorled .................................................. Chloris

1 Panicles not as above

2 Lemmas with 3 nerves, these usually prominent
   3 Spikelets in dense clusters, these harbored in the leaves ................................................................. Munroa

2 Lemmas with 5-7 nerves, these usually obscure
   8 Lemma with 9 awns .......................................................................................................................... Enneapogon

8 Lemma with a single awn or awnless
   9 Margins of sheaths fused to near the summit; caryopsis adhering to the palea; lemmas awned or awnless ................................................................. Bromus

9 Margins of sheaths not fused to near the summit but overlapping; caryopsis free of the palea; lemmas awnless ................................................................. Poa

Andropogon

Andropogon gerardii Vitmann BIG BLUESTEM. Perennial, native. Sandy areas in South Johnson Pasture. Flowering August-September. Numerous, localized. We have two subspecies:

1 Awn of sessile spikelet 0-5 mm long; rhizomes well developed .......................................................... subsp. hallii (Hack.) Wipff

1 Awn of sessile spikelet 8-20 mm long; rhizomes absent or short .......................................................... subsp. gerardii

Aristida

1 Plants annual ........................................................................................................................................ A. adscensionis

1 Plants perennial
   2 Inflorescence branches erect, without axillary swellings at the base .......................................................... A. purpurea

2 Inflorescence branches stiffly spreading, with axillary swellings at the base
   3 Plants densely tufted, forming small mounds; apex of lemma not twisted or twisted only 1-2 turns ................................................................. A. havardii

3 Plants loosely tufted, not forming mounds; apex of lemma strongly twisted 4 or more turns ................................................................. A. divaricata


Aristida purpurea Nutt. PURPLE THREEAWN. Perennial, native. Dry grassland areas and slopes. Flowering June-September. Abundant, widespread. We have 5 varieties:
Bothriochloa

Bothriochloa springfieldii (Gould) Parodi SPRINGFIELD’S BLUESTEM. Perennial, native. Rocky to sandy slopes in both grassland and woodland areas. Flowering July-September. Numerous, dispersed.

Bouteloua


Bromus

Bromus catharticus Vahl RESCUEGRASS. Annual or short-lived perennial, exotic (from South America). Disturbed ground. Flowering May-July. Numerous, dispersed.


Bromus tectorum L. DOWNY CHESS. Annual, exotic (from Mediterranean). Disturbed areas. Flowering June-late August. Numerous, localized. This plant is known to cause mechanical injury to the mouths of livestock because of the stiff awns.

Buchloe

Cenchrus

Chloris
1 Plants annual; panicle with digitate branches, all the branches whorled at the tip of the main axis ...................... *C. virgata*
1 Plants perennial; panicle with several whorls of branches along the main axis of the inflorescence ................... *C. verticillata*


Cynodon

Echinochloa

Elymus
1 Spikelets solitary at each node; plants with creeping rhizomes; awns 0-4 mm long .............................................. *A. smithii*
1 Spikelets 2 or more at each node; plants without creeping rhizomes; awns more than 1 cm long ....................... *E. longifolius*

*Elymus longifolius* (Smith) Gould LONGLEAF SQUIRRELTAIL. Perennial, native. Found in both grassland and woodland areas. Flowering July-September. Numerous, widespread. [*Sitanion hystrix* (Nutt.) J.G. Smith in part]


Enneapogon

Eragrostis
1 Plants annual
2 Lemmas with minute craterlike glands on the keel, near the apex ................................................................. *E. ciliaris*
2 Lemmas lacking craterlike glands
3 Lateral pedicels appressed to the panicle, rarely diverging as much as 20 degrees .............................. *E. pectinacea*
3 Lateral pedicels not appressed to the panicle, but spreading or diverging 45 degrees or more
4 Caryopsis (grain) with a groove on the side opposite the embryo; stem node not subtended by a yellow glandular ring .......................................................... *E. mexicana*
4 Caryopsis without a groove on the side opposite the embryo; stem node subtended by a yellow glandular ring .......................................................... *E. barrelieri*
1 Plants perennial
5 Spikelets sessile on the unbranched primary panicle branches ................................................................. *E. sessilis*
5 Spikelets pedicelled, at least shortly so, the primary panicle branches rebranched
6 Mature spikelets 3-5 mm wide, these arranged in overlapping clusters ................................................. *E. secundiflora*
6 Mature spikelets less than 2.5 mm wide, these not arranged in overlapping clusters ............................ *E. intermedia*


*Eragrostis ciliaris* (All.) Lut. ex Janchen STINKGRASS. Annual, exotic (from Europe). Disturbed ground. Flowering July-September. Numerous, widespread. This grass can be toxic if consumed in large quantities, especially to horses.

Eragrostis mexicana (Hornem.) Link MEXICAN LOVEGRASS. Annual, native. Moist disturbed sites, especially around water holes or tanks. Flowering July-September. Numerous, dispersed.


Erioneuron

Erioneuron pilosum (Buckl.) Nash HAIRY TRIDENS. Perennial, native. Limestone hills and rock outcrops. Flowering July-September. Scarce, dispersed. [Tridens pilosum (Buckl.) Hitchc.]

Hordeum

1 Plants perennial; awns 4-8 cm long ................................................................. H. jubatum
1 Plants annual; awns 0.7-1.2 cm long ................................................................. H. pusillum


Koeleria

Koeleria macrantha (Ledeb.) Schult., JUNEGRASS. Perennial, native. rocky slopes of the mesa in the Mesa Pasture. Flowering early June-mid July. Scarce, dispersed. [Koeleria cristata of many authors]

Leptochloa


Lycurus

Lycurus setosus (Nutt.) C. Reeder, WOLFTAIL. Perennial, native. found in both grassland and woodland areas on the ranch. Flowering July-October. Abundant, widespread. [Lycurus phleoides Kunth var. glaucifolius]

Muhlenbergia

1 Plants with wiry, much-branched stems, bushlike ................................................................. M. porteri
1 Plants not as above, not bushy in appearance
2 Plants with creeping rhizomes
3 Panicles reddish, the branches spreading to divergent at maturity;
   blades stiff and sharply pointed; collar hairy ................................................................. M. pungens
3 Panicles not reddish, the branches mostly erect to appressed;
   blades not stiff nor sharply pointed; collar glabrous ......................................................... M. repens
2 Plants tufted, lacking rhizomes
4 Panicles contracted
5 Awns 6-17 mm long; ligule with erect projections out the side ........................................... M. pauciflora
5 Awns less than 6 mm long; ligule without lateral projections
   6 Leaf sheaths compressed-keeled; blades flat or folded ................................................. M. wrightii
   6 Leaf sheaths rounded on the back; blades flat to rolled .............................................. M. dubia
4 Panicles open
7 Leaf blades strongly recurving, less than 1 mm wide, 1-4 cm long;
   pedicels longer than the spikelets ....................................................................................... M. torreyi
7 Leaf blades generally straight, 1-2 mm wide, 3-17 cm long;
   pedicels shorter than the spikelets ....................................................................................... M. arenicola


Munroa

Oryzopsis
1 Lemmas with copious long hairs; glumes 2.5-3.5 mm long .................................................. O. hymenoides
1 Lemmas glabrous; glumes 4-10 mm long .............................................................. O. micrantha

Oryzopsis hymenoides (Roem. & Schult.) Ricker ex Piper INDIAN RICEGRASS. Perennial, native. Sandy plains. Flowering July-August. Numerous, widespread. [Stipa hymenoides Roem & Schult.]


Panicum
1 Plants annual .............................................................................................................................................................. P. hirticaule
1 Plants perennial
2 Panicles contracted; lemmas and glumes with obtuse tips .......................................................... P. obtusum
2 Panicles open; lemmas and glumes with acute tips ...................................................................... P. hallii


Paspalum

Pleuraphis

Poa
1 Plants annual; base of floret with long cobwebby hairs .......................................................................................... P. bigelovii
1 Plants perennial; base of floret with short stiff hairs ................................................................................. P. fendleriana
**Poa bigelovii** Vasey & Scribn. BIGELOW’S BLUEGRASS. Annual, native. Moist wooded areas. Flowering late May-early July. Scarce, dispersed.


**Schedonardus**


**Schizachyrium**


**Setaria**

1 Plants perennial .......................................................... .......................................................... S. leucopila
1 Plants annual
2 Panicles loose, the lower branches developed and spreading, the main axis visible .................... S. grisebachii
2 Panicles dense, the lower branches usually weakly developed and congested, the main axis not visible ...... S. viridis

**Setaria grisebachii** Fourn. GRISEBACH’S BRISTLEGRASS. Annual, native. Moist shady areas under piñon or juniper. Flowering July-September. Numerous, localized.


**Setaria viridis** (L.) Beauv. GREEN BRISTLEGRASS. Annual, exotic (from Europe). Disturbed ground. Flowering July-September. Numerous, localized.

**Sporobolus**

1 Panicles dense and spikelike, the branches appressed to the main axis .......................................................... S. contractus
1 Panicles open, not spikelike
2 Leaf sheaths very hairy at the summit; roots thin
  3 Mature panicles nodding; pedicels divaricate or flexuous, and usually tangled
  together; hairs at collar 1-1.5 mm long .......................................................... S. flexuosus
  3 Mature panicles erect, often including in the sheath; pedicels erect to
  spreading but not flexuous; hairs at collar 2-4 mm long .......................................................... S. cryptandrus
2 Leaf sheaths hairy but not copiously hairy; roots thick
  4 Panicles 10-45 cm long; branchlets not flowering to the base;
  pedicels 0.5-2 mm long, usually spreading .......................................................... S. aroides
  4 Panicles 20-60 cm long; branchlets densely flowed to the base;
  pedicels 0.5-2 mm long, appressed to the branchlets .......................................................... S. wrightii


**Sporobolus wrightii** Munro ex Scribn. GIANT SACATON. Perennial, native. Compacted soils of swales and plains, often alkaline soils. Flowering July-September. Scarce, localized.
### Stipa

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Taxon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Awns of lemmas 1.4-2 cm long</td>
<td>S. scribneri</td>
</tr>
<tr>
<td>1</td>
<td>Awns of lemmas 11-27 cm long</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Upper half of awn plumose, with feathery hairs 2-3 mm long</td>
<td>S. neomexicana</td>
</tr>
<tr>
<td>2</td>
<td>Upper half of awn not plumose, any hairs present less than 1 mm long</td>
<td>S. comata</td>
</tr>
</tbody>
</table>


**Stipa neomexicana** (Thurb. ex Coul.) Scribn. NEW MEXICO FEATHER GRASS. Perennial, native. Rocky limestone slopes and plains. Flowering June-mid July. Abundant, dispersed.

**Stipa scribneri** Vasey SCRIBNER’S NEEDLEGRASS. Perennial, native. Mesas and rocky wooded slopes. Flowering July-September. Scarce, localized.

### Tragus

**Tragus berteronianus** Schult. SPIKE BURGRASS. Annual, exotic (from Europe). Open disturbed ground, along roads. Flowering mid Aug-mid September. Numerous, localized.

### POLEMONIACEAE / PHLOX FAMILY

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<tr>
<th>Step</th>
<th>Description</th>
<th>Taxon</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Leaves entire, not divided into segments, 2-3 mm wide</td>
<td>Phlox</td>
</tr>
<tr>
<td>1</td>
<td>Leaves divided into segments, if entire (upper leaves) then 0.5-1 mm wide</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Corolla funnel shaped; flowers purple</td>
<td>Gilia</td>
</tr>
<tr>
<td>2</td>
<td>Corolla trumpet shaped; flowers light-blue to whitish</td>
<td>Ipomopsis</td>
</tr>
</tbody>
</table>

**Gilia**


**Ipomopsis**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Taxon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corolla tube 25-40 mm long; petal lobes 8-12 mm long</td>
<td>I. longiflora</td>
</tr>
<tr>
<td>1</td>
<td>Corolla tube 15-25 mm long; petal lobes 5-7 mm long</td>
<td>I. laxiflora</td>
</tr>
</tbody>
</table>

**Ipomopsis laxiflora** (Coul.) V. Grant TRUMPET GILIA. Annual, native. Grassland areas. Flowering June-August. Scarce, dispersed.


**Phlox**

**Phlox nana** Nutt. SANTA FE PHLOX. Perennial, native. Hills, plains, mountain slopes, and grassy areas. Flowering June-late August. Scarce, localized.

### POLYGALACEAE / MILKWORT FAMILY

**Polygala**

**Polygala alba** Nutt. WHITE MILKWORT. Perennial, native. Somewhat rocky grassland areas. Flowering May-August. Numerous, dispersed.

### POLYGONACEAE / BUCKWHEAT FAMILY

<table>
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<th>Step</th>
<th>Description</th>
<th>Taxon</th>
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<tbody>
<tr>
<td>1</td>
<td>Leaves hairy at least on the lower surface</td>
<td>Eriogonum</td>
</tr>
<tr>
<td>1</td>
<td>Leaves glabrous</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Flowers all axillary; plants prostrate (growing and spreading on the soil surface)</td>
<td>Polygonum</td>
</tr>
<tr>
<td>2</td>
<td>Flowers mostly terminal on the stem (some axillary); plants erect</td>
<td>Rumex</td>
</tr>
</tbody>
</table>
Eriogonum
1 Stems wooly hairy
   2 Flower clusters subtended by obvious leafy-bracts ......................................................... \textit{E. jamesii}
   2 Flower clusters not subtended by obvious leaf-bracts ....................................................... \textit{E. lachnogynum}
1 Stems hairless
   3 Leaves narrowly elliptic to oblanceolate; flowers yellow ........................................................ \textit{E. havardii}
   3 Leaves ovate to orbicular; flowers white to pink, not yellow ......................................... \textit{E. tenellum}


\textbf{Polygonum}
\textit{Polygonum aviculare} L. KNOTWEED. Annual, exotic (from Eurasia), disturbed ground. Flowering July-September. Scarce, localized.

\textbf{Rumex}
\textit{Rumex crispus} L. CURLYLEAF DOCK. Perennial, exotic-naturalized (from Eurasia). Disturbed ground. Flowering April-July. Scarce, localized. This plant has caused oxalate poisoning in sheep in England and Australia.

\textbf{PORTULACACEAE / PURSLANE FAMILY}
1 Plants prostrate; leaves flattened; ovary partly inferior; flowers yellow ......................................................... \textit{Portulaca}
1 Plants erect; leaves terete; ovary completely superior; flowers pink to purplish ......................................................... \textit{Talinum}

\textbf{Portulaca}
\textit{Portulaca oleracea} L. COMMON PURSLANE. Annual, exotic-naturalized (from Eurasia). Disturbed ground. Flowering July-September. Scarce, dispersed. No reports of poisoning in the United States, but this plant has been reported to contain toxic levels of oxalates in Australia.

\textbf{Talinum}

\textbf{POTTIIACEAE / POTTIA MOSS FAMILY}
1 Leaves short-ovate, the margins revolute their entire length .............................................................. \textit{Didymodon revolutus}
1 Leaves ovate to long-lanceolate, the margins not revolute or only at the base ........................................ \textit{Didymodon rigidulus}

\textbf{Didymodon (Card.) Williams DIDYMODON. Growing on calcareous rock, soil, and walls. Producing spores when moist. Scarce, dispersed.}

\textbf{Didymodon rigidulus} Hedw. DIDYMODON, growing on calcareous rock, soil, and walls. Producing spores when moist. Scarce, dispersed. We have two varieties:
1 Leaves long-elliptic to long-triangular ..................................................................................... \textit{var. rigidulus}
1 Leaves long-lanceolate ........................................................................................................ \textit{var. icmadophilus} (Schimp. ex C. Mull.) Zand.

\textbf{Tortula}
\textit{Tortula ruralis} (Hedw.) Gaertn. HAIRY STAR MOSS, TWISTED MOSS. Dry to moist soil and rock, not known to produce spores in New Mexico. Numerous, widespread.
**Weissia**
1 Leaves long-lanceolate ........................................................................................................ W. controversa
1 Leaves ovate-lanceolate ....................................................................................................... W. condensa

**Weissia condensa** (Voit ex Sturm) Lindb. WEISSIA. Growing on ledges and cliffs. Producing spores under moist conditions. Scarce, dispersed.

**Weissia controversa** Hedw. WEISSIA. Growing on ledges and cliffs, or around the base of trees. Producing spores under moist conditions. Scarce, dispersed.

**PTERIDACEAE / MAIDENHAIR FERN FAMILY**
1 Blades conspicuously hairy and/or scaly, often so dense that the underside of the blade is not easily seen ....... Cheilanthes
1 Blade hairless or sparsely hairy, the underside of the blade easily seen ...................................................... Pallaea

**Cheilanthes**

**Pallaea**

**RANUNCULACEAE / BUTTERCUP FAMILY**

**Delphinium**

**ROSACEAE / ROSE FAMILY**
1 Leaves pinnately divided; young branches whitish; bark exfoliating; petals present, white ......................... Fallugia
1 Leaves serrate (near apex only) to entire; young branches not whitish; bark not exfoliating; petals absent, the sepals yellow ................................................................. Cercocarpus

**Cercocarpus**

**Fallugia**

**RUBIACEAE / MADDER FAMILY**

**Hedyotis**
1 Flowers white; stems leafy their entire length; capsule free from the calyx only about 1/3 of its length .......... H. nigricans
1 Flowers bright pink to reddish; leaves mostly basal; capsule free from calyx 2/3 or more its length ............... H. rubra

**Hedyotis nigricans** (Lam.) Fosberg NARROWLEAF BLUET. Perennial, native. Dry rocky hillsides and grasslands. Flowering Mat-September. Numerous, dispersed. [*Houstonia nigricans* (Lam.) Fern.]

**Hedyotis rubra** Cav. SCARLEHY BLUET. Perennial, native. Open dry sandy or stony places. Flowering May-July. Scarce, dispersed. [*Houstonia rubra* Cav.]

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SCROPHULARIACEAE / FIGWORT FAMILY

1. Herbage densely wooly-hairy, the hairs stellate (star-shaped); fertile stamens 5; leaves alternate ......................... *Verbascum*
2. Herbage mostly glabrous, if wooly then the hairs not stellate; fertile stamens 4; leaves opposite
   2.1. Flowers blue to lavender to violet; fertile stamens 4 with a 5th sterile stamen present ................................. *Penstemon*
   2.2. Flowers greenish to bright red; fertile stamens 4, lacking a 5th sterile stamen ............................................. *Castilleja*

**Castilleja**

*Castilleja integra* A. Gray **WHOLE LEAF PAINTBRUSH.** Perennial, native. Piñon/juniper woodland and grassland areas. Flowering June-September. Numerous, widespread.

**Penstemon**

1. Leaves mostly less than 2 cm long; flowers whitish pink .......................................................................................... *P. ambiguus*
2. Leaves mostly greater than 2 cm long; flowers blue
   2.1. Flowers and upper stem covered with stalked glands; flowers generally borne on the side of the stem; leaves less than 6 mm wide ................................................................. *P. jamesii*
   2.2. Flowers and upper stem not covered with stalked glands; flowers borne on both sides of the stem; leaves greater than 10 mm wide ............................................................................. *P. fendleri*


**Verbascum**

*Verbascum thapsus* L. **COMMON MULLEIN.** Biennial, exotic (from Europe). Disturbed roadsides and fence lines. Flowering Jul-late August. Numerous, localized.

SOLANACEAE / POTATO OR NIGHTSHADE FAMILY

1. Plants shrubs with thorns; fruit a fleshy red berry .................................................................................................. *Lycium*
2. Plants herbaceous; fruit various
   2.1. Flowers 4-6 cm long; plants foul-smelling; fruit a spiny capsule ................................................................. *Datura*
   2.2. Flowers less than 4 cm; plants not foul-smelling; fruit a berry or a spiny capsule in one species
      3. Anthers appearing fused into a column around the style ............................................................................. *Solanum*
      4. Anthers not appearing fused into a column around the style
         4.1. Plants annual, with short curled hairs; calyx inflated in fruit ................................................................. *Physalis*
         4.2. Plants perennial, with long flat hairs; calyx not inflated ............................................................................. *Chamaesaracha*

**Chamaesaracha**

*Chamaesaracha conoides* (Moric ex Dun.) Britt. **SMOOTH CHAMAESARACHA.** Perennial, native. Sandy rocky plains and disturbed areas. Flowering April-August. Numerous, dispersed.

**Datura**


**Lycium**

Physalis
*Physalis ixocarpa* Brox. ex Hornem TOMATILLO, STRAWBERRY TOMATO. Annual, exotic (from tropical America). Disturbed sandy areas. Flowering June-August. Numerous, dispersed.

Solanum
1 Fruit a spiny capsule; flower yellow ........................................................................................................... *S. rostratum*
1 Fruit a berry; flowers yellow or blue
2 Plants spiny-prickly; tubers (little potatoes) not present; flowers blue ...................................................... *S. elaeagnifolium*
2 Plants not spiny-prickly; tubers present; flowers yellow .............................................................................. *S. jamesii*

*Solanum elaeagnifolium* Cav. SILVERLEAF NIGHTSHADE. Perennial, native. disturbed areas. Flowering June-August. Abundant, widespread. Toxic.


**ULMACEAE / ELM FAMILY**

*Celtis*

**VERBENACEAE / VERVAIN FAMILY**

1 Fruit composed of 2 small nutlets; flowers slightly zygomorphic; plants low, trailing herbs of disturbed moist lowlands ................................................................. *Phyla*
1 Fruit composed of 4 nutlets; flowers ± actinomorphic; plants not trailing and usually not of moist lowlands
2 Calyx only slightly longer than the fruit; style 1-3 mm long; flowers in elongate spikes ................................................................. *Verbena*
2 Calyx 1-3 mm longer than the fruit; style 6-24 mm long; flower in dense compact headlike clusters at the apex if the stems............................................................................. *Glandularia*


*Phyla*

*Verbena*
1 Leaves mostly entire and linear, the lower leaves sometimes with a few teeth ................................................. *V. perennis*
1 Leaves mostly toothed
2 Leaves plicate (like a folding fan), the veins usually whitish toward the margin ........................................... *V. plicata*
2 Leaves not plicate, the veins not whitish ........................................................................................................... *V. bracteata*


VISCACEAE / MISTLETOE FAMILY

Arceuthobium

ZYGOPHYLLACEAE / CALTROP FAMILY

1. Fruits strongly spiny ................................................................. *Tribulus*
2. Fruits not spiny ............................................................................ *Kallstroemia*

Kallstroemia

Tribulus
*Tri**bulus terrestris* L. GOATHEAD. PUNCTURE VINE. Annual, exotic-naturalized (from Europe). Disturbed areas. Flowering late June-August. Numerous, dispersed. Toxic and pernicious.
REFERENCES


Parker, G. 1998. Personal communication. Superintendent of New Mexico State University’s Corona Range and Livestock Research Center.


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