

***Euphorbia* "spurge"**

The spurges are a large, diverse group, and a number of botanists prefer to split the genus into several smaller ones. As a whole, they have milky juice, and lack any petal-like bracts or appendages that are colorful attractants. They range from native species to very problematic weeds. See also *Agaloma*.

***Euphorbia brachyceras* Englemann**

Syn. *Tithymalus brachyceras*; *E. robusta*

Plants perennial, stems to 30 cm, clustered and usually erect. Involucres on umbellate clusters at the top of the stem; involucres with long, crescent shaped glands. Leaves ovate or oblong ovate, sessile, thick and somewhat succulent.

Habitat: Pine forests, open areas on the mesas and lower foothills and in sandy areas on the high plains.

Notes: Native species, not a problematic weed; look for the clustered stems and thickish leaves.

***Euphorbia dentata* Michaux**

Syn. *Poinsettia dentata*

Plants annual, stems to 50 cm, erect. Leaves opposite, at least on the top of the stem, ovate-lanceolate or oblong lanceolate, coarsely serrate, cuneate at the base, petiolate. Involucres clustered at the ends of the branches.

Habitat: Dry soils, roadsides, mesas, grasslands and lower foothills.

Notes: A common species, resembling a small, green, and nonshowy poinsettia.

***Euphorbia esula* L.**

Syn. *Tithymalus esula*, *T. uralensis*

Plants perennial, rhizomatous; stems to 50 cm, unbranched. Leaves alternate, linear, somewhat yellow green in color, to 5 cm long. Involucres subtended by large, yellow, heart-shaped bracts.

Habitat: Meadows, grasslands throughout our region; noxious weed abundant in pastures of northern El Paso County and elsewhere in Colorado.

Notes: Some botanists recognize two species of "leafy spurge": *E. esula* and *E. uralensis*, that differ in leaf shape; others combine the two species under a single name. This is an extremely problematic species that destroys pastures for grazing, rapidly spreading throughout the Black Forest.

***Euphorbia myrsinites* L.**

Syn. *Tithymalus myrsinites*

Plants low, sprawling perennials. Leaves oblanceolate, mucronate at the apex, thick and succulent. Involucres with yellow-green bracts, blooming in late spring.

Habitat: Adventive species often planted in gardens, and now escaping to be pervasive along roadsides, mesas and lower foothills in the Colorado Springs region.

Notes: Increasingly becoming established and problematic in our region. Look for the sprawling habit and succulent leaves. Remove whenever possible!

***Euphorbia spathulatus* Lamarck**

Syn. *Tithymalus spathulatus*; *E. dictyosperma*

Plants annual, stems to 50 cm, branching above. Leaves 1-3 cm long, oblong or oblong spatulate, upper ovate; serrulate on the margins.

Habitat: Sandy soils on the plains.

Notes: Native species, occurring on sandy ridges and streambanks at lower elevations.

***Tragia* "noseburn"**

This member of the family gets its name from the stinging, nettle-like hairs that occur over the entire plant.

***Tragia ramosa* Torrey**

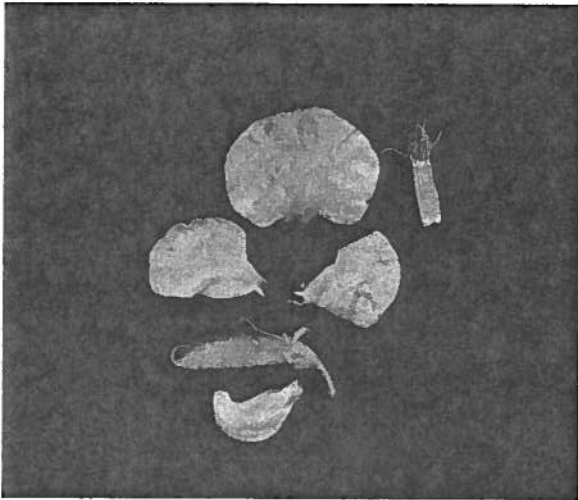
Plants perennial, stems to 30 cm., much branched. Leaves triangular to lanceolate, 1-2 cm long, prominently coarsely and sharply serrate. Flowers monoecious. Entire plant covered with stinging hairs.

Habitat: Dry rocky areas, southern portion of our region, often in the piñon-juniper zone.

Notes: Very common in Fremont and Pueblo Counties.

Fabaceae: Pea Family

The Pea family is readily recognized by its "legume" fruits, the familiar pea pod, although a number of our representatives have modified pods that are curled, hairy or spiky, or appear somewhat different than the typical flat ones of the horticultural pea. The family is very large (and sometimes split into several smaller families) throughout its range, and quite diverse in the tropics. In our region, the flowers are all somewhat similar in having the classic "papilionaceous" ("butterfly-like") shape, with 5 modified petals that form the "banner", the "wings", and the 2-fused ones that form the "keel". Different genera can be distinguished by characteristics of these parts. Also look for compound leaves to identify the family: these can be pinnately compound as in *Astragalus* and *Oxytropis*, palmately compound as in *Lupinus*, or trifoliate as in *Trifolium*.



In this dissected papilionaceae flower: the banner is at the top, the wings are below, and the keel is the curved structure at the bottom (2 fused petals). The wings typically clasp the keel tightly. The legume fruit, from the ovary inside the keel is shown here in a mature stage. In this species, the anthers are fused at the bottom, but separate above (see picture and key). Anthers are also inside the keel.

Key to Genera

1. Plants woody shrubs or trees.....2
1. Plants herbaceous, not shrubs or trees.....6

2. Leaves even pinnate, without a terminal leaflet, flowers yellow.....*Caragana*
2. Leaves odd pinnate, with a terminal leaflet.....3

3. Plant a tree or tall shrub, leaves with thorns at the base of the petiole.....4
3. Plants not thorny, tall or medium-sized shrubs.....5

4. Pods long, over 12 cm and curved, thorns branched, occurring often on the trunk.....*Gleditsia*
4. Pods shorter than 12 cm, thorns less prominent, on young branches.....*Robinia*

5. Flowers bright yellow, pods inflated and balloon-like.....*Colutea*
5. Flowers purple, pods not inflated.....*Amorpha*

6. Leaves even-pinnate compound, with a curling tendril in the terminal position.....7
6. Leaves odd-pinnate or digitally compound, lacking a tendril.....8

7. Style rounded, with a tuft of hairs only at the apex.....*Vicia*
7. Style flat, hairs occurring along one side.....*Lathyrus*

8. Flowers papilionaceous, leaves not bi-pinnately compound (twice compound).....9
8. Flowers not papilionaceous, leaves pinnately or bi-pinnately compound.....23

9. Anther filaments separate to the base (use a needle and lens).....	10
9. Anther filaments fused at the base, separate only above.....	11
10. Flowers yellow, leaves trifoliolate.....	<i>Thermopsis</i>
10. Flowers white, leaves pinnately compound.....	<i>Sophora</i>
11. Leaves digitately compound, leaflets more than 3.....	12
11. Leaves simple, pinnately compound or digitately compound with 3 leaflets.....	13
12. Leaflets usually 5 or more, anthers in two forms (large and small).....	<i>Lupinus</i>
12. Leaflets variable in number, plants low and sprawling, anthers of one size only.....	<i>Pedimelum</i>
13. Leaves gland-dotted (use lens).....	14
13. Leaves not gland-dotted.....	17
14. Pods with hooked prickles.....	<i>Glycyrrhiza</i>
14. Pods not as above.....	15
15. Leaves pinnately compound.....	23
15. Leaves mostly trifoliolate, some 5-foliolate.....	16
16. Leaflets with the petiolule of the middle leaflet longer than those of the lateral leaflets.....	<i>Dalea</i>
16. Leaflets with petiolules all of equal length.....	<i>Psoralidium</i>
17. Leaflet margins usually toothed: denticulate to serrate.....	18
17. Leaflet margins entire.....	20
18. Flowers in elongate, loose and narrow racemes, plants often aromatic.....	<i>Melilotus</i>
18. Flowers in heads or short dense spikes.....	19
19. Leaves trifoliolate, terminal leaflet with a short petiole so it extends above.....	<i>Medicago</i>
19. Leaves palmately trifoliolate, but leaflets without petioles.....	<i>Trifolium</i>
20. Flowers in tight heads, variegated in color, from white, pink to purple, leaves pinnately compound, leaflets mucronate.....	<i>Coronilla</i>
20. Flowers not as above, leaves pinnately compound, lacking mucronate tips.....	21
21. Keel with an abrupt beak at the tip (dissect the flower to see).....	<i>Oxytropis</i>
21. Keel lacking a beak, gently rounded, stems usually leafy.....	22
22. Keel longer than the banner and wings, pods flat, margins regularly indented.....	<i>Hedysarum</i>
22. Keel not longer than banner and wings, tip somewhat canoe-shaped, pods not indented.....	<i>Astragalus</i>
23. Foliage and stems with black dots.....	<i>Dalea</i>
23. Foliage and stems not with black dots.....	24
24. Flowers minute, white, in axillary heads.....	<i>Desmanthus</i>
24. Flowers not as above.....	<i>Hoffmanseggia</i>

***Amorpha* "leadplant, indigo bush, false indigo"**

Leadplants are common on the Great Plains in tallgrass prairies. Our species represent the western edge of the range, and *Amorpha nana* is considered rare here in Colorado. All of our species have blue-purple flowers, hence the common name of indigo bush.

Amorpha canescens Pursh

Plants less than 1 m in height, leaves compound, with leaflets up to 1.5 cm long, conspicuously grey hairy, mucronate with a short sharp spiny tip. Calyx with long hairs.

Habitat: Plains grasslands

Notes: Relatively uncommon in our area, but more common to the east. Look for the grey canescent (with fine short hairs) foliage.

Amorpha fruticosa L.

Plants tall shrubs, up to 4 m in height; leaflets to 5 cm long, elliptical.

Habitat: Moist areas, often along riparian zones, plains, mesas, and lower edge of foothills

Notes: Our tallest species in the genus, often locally abundant, especially on the high plains and around the Black Forest. Look for the height and occurrence in thickets along moist areas.

Amorpha nana Nuttall

Plants less than 1 m in height, leaves compound, with leaflets oblong or oval, to 1.5 cm long, glabrous.

Habitat: Grasslands, Black Forest region.

Notes: Rare species, occurring in the ponderosa-grassland interface of the Black Forest and possibly in isolated areas of the foothills as well. Look for the very short stature and small leaves.

***Astragalus* "milkvetch"**

The genera *Astragalus*, *Oxytropis*, *Hedysarum* and *Sophora* can easily be confused at first glance, especially *Astragalus* and *Oxytropis*. A close look at the flowers tells the difference: *Astragalus* has a canoe-shaped keel without the pointed tip in front; *Oxytropis* has a clear point at the front of the keel. *Astragalus* tends to have leafy stems; *Oxytropis* has leafless stems. Both of these genera are large, and require fruits for identification purposes! *Sophora*, always white and limited to plains grasslands, has anthers that are separate to the base. *Hedysarum*, purple-flowered, looks most like an *Astragalus*, but has a longer keel and very distinctive pods with strong indentations (hence the common name "chainpod"). *Astragalus* is a large and challenging group-but, with fruits and flowers and a good habitat assessment, they can be identified to species.

SPECIES OCCURRING ON THE PLAINS, MESAS AND LOWER FOOTHILLS

Astragalus agrestis Douglas ex G. Don

Syn. *Astragalus dasyglottis*

Plants low, somewhat tufted and patchy; flowers purple, in tight heads; leaves somewhat pubescent. Pods ovoid, with long hairs.

Habitat: Mesas, grasslands, common.

Notes: Look for the tight clusters of flowers.

Astragalus bisulcatus (Hooker) A. Gray

Plants sprawling, robust, up to 0.5 m. Flowers usually blue/purple/rose or whitish-yellow. Pods with two distinctive grooves down one side. Blooms very early in the spring.

Habitat: Mineralized gravelly soils, lower elevations from the plains through the lower foothills.

Notes: Very common early blooming species; look for the striking flower color (purple type) and the grooved pods. Often considered to be an indicator for selenium in soils.

Astragalus ceramicus Sheldon

Plants delicate, sprawling, with narrow, almost linear, leaflets and small whitish-pink flowers. Pods mottled in color, red and orange, glabrous (lacking hairs).

Habitat: Sandy soils, plains and mesas.

Notes: One of our most beautiful and easily recognized species with the distinctive pods.

Astragalus cerussatus Sheldon

Plants growing in clumps, with short leafy stems to 25 cm. Leaflets narrowly oblong; flowers whitish to purple tinged. Pods grey hairy.

Habitat: Rocky slopes.

Notes: Known from the Arkansas River region in Fremont County.

Astragalus crassicaarpus Nuttall

Plants low and tufted; flowers white with a purple keel or pinkish. Pods fat and plum-like. Leaves with broad leaflets.

Habitat: Gravelly soils, mesas and plains.

Notes: A common species at lower elevations; look for the expanded fruits.

Astragalus drummondii Douglas ex Hooker

Plants robust, up to 0.5 m tall; flowers white to creamy, leaflets soft-hairy. Pods white with a red stripe when mature (green when young), and a single deep groove.

Habitat: Mesas, plains, lower foothills.

Notes: A common early blooming species, often growing near *A. bisulcatus* and confused with the white flowered types of that species. Look for the single groove in *A. drummondii* pods and hairy leaves.

Astragalus flexuosus (Hooker) G. Don

Plants with wiry, bendable, but somewhat thick stems that tend to sprawl; flowers purple. Pods linear to narrowly oblong, up to 2 cm in length.

Habitat: Lower elevation grasslands.

Notes: Look for the wiry tough stems; this species is common in the Black Forest region.

Astragalus gracilis Nuttall

Plants with thin delicate stems, somewhat sprawling. Leaflets widely spaced, narrowly oblong, with truncate (with a chopped off tip) segments; flowers white-purple. Pods appressed hairy.

Habitat: Gravelly soils, plains and lower elevations. Particularly common on barrens and outcrops of the Arkansas River Valley region.

Notes: Look for the small flowers and narrow leaflets with short, truncate ends.

Astragalus hallii A. Gray

Plants with decumbent, sprawling, stems, at least below; to 0.5 m. Leaflets glabrous elliptic to oblong. Flowers purple, to 2 cm. Pods oblong.

Habitat: Slopes, gravelly areas, high plains, foothills front through montane zone to subalpine.

Notes: Look for the glabrous leaves and pods.

Astragalus lonchocarpus Torrey

Plants tall, to almost a meter. Leaflets narrowly linear, flowers white to cream colored. Pods narrowly linear, flattened like snowpeas.

Habitat: Fine textured or sandy soils, lower elevations, especially in the Arkansas drainage.

Notes: Look for the narrow leaves, tall erect plants and flattened pods.

Astragalus lotiflorus Hooker

Plants with short stems, usually less than 10 cm. Leaflets elliptic to narrowly oblong; flowers cream colored, with a purple tip: later flowers in leaf axils appearing cleistogamous, self fertilizing with no opening, early flowers on pedicels. Pods short hairy.

Habitat: Sandy soils, plains.

Notes: Uncommon species in our region; to be expected in Pueblo and southern El Paso Co.

Astragalus missouriensis Nuttall

Plants short, densely tufted with numerous flowering stems. Flowers purple; leaves not silky-hairy. Pods not inflated.

Habitat: Plains, often blooming early in the spring.

Notes: Easily confused with an *Oxytropis* or with *A. shortianus*. Look for the glabrous leaves and non-inflated pods.

Astragalus mollissimus Torrey

Plants with tall scapes to 0.5 m that appear leafless (but have leaves on the lower nodes); flowers many, purple. Leaves soft hairy, pods glabrous.

Habitat: Dry areas, plains.

Notes: Looks somewhat like a tall *Oxytropis* due to the leafless upper parts of the stem; look for the soft silky hairs on the leaves.

Astragalus pectinatus (Hooker) Douglas in Hooker

Plants to 0.5 m; leaflet segments very long, up to 6 cm, slender to filiform and lacking a petiolule (tiny stalk). Flowers creamy white, pods short, to 1 cm, fat and firm when mature with a longitudinal ridge.

Habitat: Outcrops and sandy areas on the plains, common.

Notes: Look for the odd leaves with very long thin leaflets.

Astragalus racemosus Pursh

Plants tall, up to 0.5 m; leaflets elliptical to linear, oblong, pubescent below and glabrous above. Flowers white to creamy. Pods triangular in cross section, straight, notably stipitate.

Habitat: Plains.

Notes: A common species on the plains; look for the stipes below the pods.

Astragalus shortianus Nuttall in Torrey & Gray

Plants relatively short, to 15 cm, tufted, with few flowering stems; leaves liver hairy. Flowers magenta pink. Pods inflated at maturity, generally over 3 cm.

Habitat: Outcrops on the plains, mesas, lower foothills.

Notes; Most easily confused with *A. missouriensis*, but generally with fewer stems and occurring on the mesas most commonly. Blooms early in the spring; common.

See also *A. parryii* below.

SPECIES OCCURRING IN THE FOOTHILLS THROUGH SUBALPINE ZONE

Astragalus australis (L.) Lam.

Syn. *Astragalus aboriginum*

Plants up to 30 cm, erect and stiff. Leaflets linear to oblong, hairy. Flowers cream colored with a purple tipped keel, to 1 cm long. Pods relatively narrow, curved.

Habitat: Forests of the foothills and montane zone.

Notes: Some debate exists about whether an alpine form that occurs in the Mosquito Range is the same species as the forest type. The species name *australis* applies to the lower elevation type. Look for cream colored flower with the purple tipped keel.

Astragalus adsurgens Pallas

Syn. *Astragalus laxmannii*

Plants clumped, to 30 cm. Leaflets narrowly elliptic, flowers white to purple with populations often mixed in color or entirely of one color, in elongate racemes. Pods stiffly erect.

Habitat: Foothills to montane.

Notes: A common species in gravelly soils of middle elevations. Look for the stiffly erect pods.

Astragalus alpinus L.

Plants to 25 cm, leaflets oval to elliptical. Flowers purple, with paler wings to 12 mm. Pods black hairy.

Habitat: Moist areas, meadows and riparian zone, montane to subalpine.

Notes: A common species; look for the black hairy pods.

Astragalus canadensis L.

Plants to 0.5-1 m, stems stiffly erect, leaflets broadly elliptical. Flowers greenish to cream colored, packed in dense racemes. Pods glabrous to hairy.

Habitat: Moist meadows and stream banks, high plains through montane zone.

Notes: A robust species, uncommon to rare in our region. Look for the large size and pale flowers. It can resemble the genus *Glycyrrhiza*, so check the fruits, spiky in *Glycyrrhiza*, and smooth in *Astragalus*.

Astragalus cerussatus Sheldon

Plants with stems to 25 cm, clumped. Leaflets narrowly oblong, flowers whitish or purple-tinged, pods grey hairy.

Habitat: Rocky slopes.

Notes: Known from Fremont County; look for the clumped appearance and hairy pods.

Astragalus cicer L.

Plants loosely spreading and robust, somewhat coarse. Flowers small, crowded into racemes, creamy to white. Pods globose, inflated, hairy.

Habitat: Forests and roadsides, montane zone.

Notes: Adventive species, used for revegetation and naturalized locally. Look for the hairy globose pods.

Astragalus hallii A. Gray

Plants with decumbent, sprawling, stems, at least below; to 0.5 m. Leaflets glabrous elliptic to oblong. Flowers purple, to 2 cm. Pods oblong.

Habitat: Slopes, gravelly areas, montane zone to subalpine.

Notes: Look for the glabrous leaves and pods.

Astragalus miser Douglas in Hooker

Plants decumbent at the base, flowers numerous, white with purple keel, crowded and less than 1 cm long, keel upturned at the tip. Pod narrowly oblong, up to 2 cm.

Habitat: Moist montane and subalpine meadows, often under aspen.

Notes: One of our higher elevation species; look for flower clusters exerted beyond the foliage.

Astragalus parryi A. Gray

Plants with somewhat decumbent stems, to 30 cm; leaflets oval-elliptical, densely white hairy beneath; flowers to about 1.5 cm, whitish to creamy with a purple-tipped keel; pods hairy.

Habitat: Foothills canyons, roadcuts, and gravelly areas, Black Forest and montane through subalpine zones; common.

Notes: Look for the hairy leaf undersides, long hairy fruits and white-purple flowers.

Astragalus scopulorum T. C. Porter in Porter & Coulter

Plants tall and somewhat stout, stems to 0.5 m. Leaflets to 1.5 cm, narrowly oblong. Flowers large, to 2 cm long, creamy to white, with black pubescent calyx. Pods curved upwards, to 3 cm.

Habitat: Rocky open slopes and canyonsides.

Notes: Known only from Fremont County in our area. Look for the black hairy calyx and large flowers.

Astragalus sparsiflorus A. Gray

Plants delicate with decumbent and spreading stems, to 20 cm. Flowers small, to 6 mm long, creamy with purple tip; leaflets oval to circular, ca. 5 mm in diameter; pods plump and rounded.

Habitat: Rocky slopes in the foothills and montane.

Notes: Look for the small rounded leaflets and spreading growth habit.

Astragalus tenellus Pursh

Plants somewhat clumped, stems to 0.5 m; leaflets oblong to linear, to 2 cm, glabrous to somewhat pubescent. Flowers creamy with purple or purplish (ours usually white), clusters usually not above the leaves; pods elliptical oblong.

Habitat: Dry montane and subalpine meadows.

Notes: Leaves turn black when dried; look for the flower clusters equal to the leaves.

Although not yet been recorded from our region, the following species occurs in nearby areas: *A. leptaleus*, a wetland species of small white flowers and weak, thin stems occurs in the Wet Mountains and may also occur in wetlands of Teller County. It is inconspicuous and may simply have been missed.

***Caragana* "peatree"**

Caragana arborescens Lamarck

Plants tall shrubs or short trees; leaves pinnately compound with 6 or more rounded, mucronate leaflets. Spines in pairs, flowers yellow, pods to 2 cm.

Habitat: Cultivated species spreading around Colorado Springs and Pueblo (including the south side of Pueblo Reservoir around old homesteads). Isolated occurrences are also known from Teller County.

Notes: Look for the spines, rounded mucronate leaflets, and yellow flowers.

Caragana aurantiaca Koehne

Plants short, spreading shrubs; leaves pinnately compound with 3-4 narrow, sharp leaflets. Flowers orange-yellow, spines single, pods less than 2 cm.

Habitat: Found around Monument.

Notes: Cultivated species, not spreading but established around Monument Hill.

***Colutea* "bladder senna"**

Colutea arborescens L.

Plants tall shrubs or short trees, not spiny, leaflets odd-pinnate, rounded, flowers yellow, pods expanded and balloon-like, papery in texture.

Habitat: Cultivated species, now spreading and relatively common around Colorado Springs.

Notes: Look for the yellow flowers, lack of spines, and big, bladder-like pods.

***Coronilla* "crown vetch"**

Coronilla varia L.

Syn. *Securigera varia*

Plants somewhat sprawling, matted and stems entwined; leaves pinnately compound, with numerous leaflets mucronate at the tip; flowers pink, in tight heads coming out of the leaf axils on long pedicels.

Habitat: Roadsides, meadows.

Notes: Adventive species used for revegetation, now naturalized throughout our region.

***Dalea* "indigo bush"**

The genus *Dalea* is large and diverse throughout the Southwest. Our species are relatively few, and occur commonly on the plains and lower grasslands. Although the common name suggests that the genus always has purple–blue "indigo" flowers, the flowers can also be white or yellow here. They typically occur in tight heads.

Dalea aurea Nuttall ex Pursh

Plants erect, to about 50 cm high, usually shorter; flowers yellow, in a soft-hairy "rabbit's foot" spike; calyx with long aristate teeth. Leaves pinnately 5-foliate, silk hairy.

Habitat: Plains, mesas, sandy or gravelly soil.

Notes: Look for the thick yellow "rabbit's foot" inflorescence.

Dalea candida Willdenow

Syn. *Dalea compacta*

Plants erect, to 30 cm. Stems glabrous, leaves pinnately compound. Flowers white, in short cylindrical spikes, elongating with age.

Habitat: Lower elevations, plains, mesas, and lower foothills.

Notes: Our most common white-flowered species. Look for the short spikes.

Dalea cylindriceps Barneby

Plants erect, with glabrous stems. Leaves pinnately compound, flowers white, in long cylindrical spikes over 5 cm.

Habitat: Sandy areas, plains.

Notes: Look for the long spikes, with some hairs. *D. candida* has short spikes, and *D. villosa* is pubescent throughout.

Dalea jamesii (Torrey) Torrey & Gray

Plants low, less than 10 cm, tufted. Leaves trifoliate, flowers in short cylinders, yellow fading to brown.

Habitat: Sandy areas on the plains, outcrops, barrens.

Notes: Look for the trifoliate leaves and yellow-brown flowering heads; growth habit is somewhat short and stubby.

Dalea multiflora (Nuttall) Shinnery

Plants erect, with glabrous stems. Leaves pinnately compound, flowers white, in short subglobose spikes.

Habitat: Roadsides.

Notes: Location uncertain, but recorded for El Paso County. Probably an accidental introduction from a revegetation mix.

Dalea purpurea Ventenat

Plants slender, erect or prominently sprawling on the ground; flowers purple, in slender dense cylinders.

Habitat: Plains, mesas, and foothills. A common summer species of the lower elevations.

Notes: Plants are glabrous, which easily distinguishes them from *D. villosa*, another grassland species. Look also for the purple flowers

Dalea villosa (Nuttall) Sprengel

Plants densely hairy, stems usually erect. Flowers white to reddish.

Habitat: Sand dunes, plains.

Notes: Locally common in deep sandy soils, but apparently restricted to them. Look for the dense pubescence.

Desmanthus "bundleflower"

Desmanthus cooleyi is semi-shrubby (suffrutescent) plant with slender tough stems, up to half a meter or more in height. Leaves are bi-pinnately compound, and feathery in appearance. Flowers are very small (to 3 mm) and greenish white. Pods are straight and thin. This species is relatively common on the Great Plains, but occurs here only on the periphery of our range. We should look for this species in Pueblo County in sandy plains soils.

Gleditsia "honey locust"

Gleditsia triacanthos L.

Plants tall trees, leaves pinnately compound, stems with long thorns on the trunk and twigs. Pods long and prominently curved.

Habitat: Cultivated species, naturalized around Colorado Springs.

Notes: Look for the long thorns and curved pods. Leaf segments are longer and more oblong than *Robinia*.

Glycyrrhiza "wild licorice"

Glycyrrhiza lepidota Pursh

Plants to about 0.5 m, leaves pinnately compound, with broadly elliptical leaflets. Flowers greenish white, over 1 cm long. Pods distinctively spiny.

Habitat: Moist areas, along streams, irrigation ditches, and seepage areas.

Notes: Look for the bur-like pods with hooked spines. Native, but somewhat invasive in disturbed areas

Hedysarum "sweet vetch, chainpod"

Hedysarum is most often mistaken for a robust, purple-flowered *Astragalus*, but has very distinctive, indented edges on the pods. Figure -.

Hedysarum boreale Nuttall

Plants to 0.5 m or more tall, robust, with leafy stems. Leaflets broad, oblong to elliptical. Flowers purple, with a long keel and shorter wings. Pods with deep indentations.

Habitat: Roadsides, embankments and gravelly disturbed areas. Plains to foothills.

Notes: Look for the distinctive pods and long, extended keels.

Hoffmanseggia "rushpea"

The genera *Hoffmanseggia* is sometimes split into two: *Hoffmanseggia* proper, which lacks orange glands on the lower leaf surfaces, and *Caesalpina*, with prominent orange glands (drying black). The two are combined here under *Hoffmanseggia*. Another alternative placement is that of putting *Hoffmanseggia jamesii* into the genus *Pomaria*.

Hoffmanseggia drepanocarpa A. Gray

Syn. *Caesalpina drepanocarpa*

Plants low and sprawling, with pinnately compound leaves. Leaflets small and delicate, oval, lacking glands beneath. Flowers yellow, pods strongly curved.

Habitat: Plains, barrens, in sandy or gravelly soils.

Notes: Common species of the plains. Look for the yellow flowers and curved pods. Use a lens to check for glands-this species lacks them.

Hoffmanseggia jamesii Torrey & Gray.

Syn. *Caesalpina jamesii*, *Pomaria jamesii*

Plants low and sprawling, slightly woody at the base. Leaflets ovate, to 5 mm, with prominent orange glands below. Flowers yellow, pods curved, with black dots.

Habitat: Plains.

Notes: Look for the orange glands (black when dry) to distinguish this species from *H. drepanocarpa*.

Lathyrus "peavine"

Lathyrus and *Vicia* are two very similar genera, with tiny tendrils at the end of the leaves that indicate their vining habit. Both have blue-purple, or white flowers and compound leaves. Typically *Lathyrus* has larger, more "sweetpea-like" flowers, but the true distinction can be made by looking closely at the styles: use a lens or better yet, a microscope! *Lathyrus* has a flat style, with hairs extending along one side; *Vicia* has a rounded (terete) style, with a tuft of hairs only at the top. The distinction is tricky, until you get some experience with what to look for.

Lathyrus eucosmus Butters & St. John

Plants with trailing stems, to 0.5 m, stems not winged. Flowers rose or blue purple, fading pale, with little fragrance, typically over 2 cm long. Leaves glabrous to only slightly pubescent.

Habitat: Foothills and forests, lower to middle elevations.

Notes: Large flowered species, with little fragrance. Look for the glabrous (nonhairy) leaves.

Lathyrus latifolius L.

Plants with stout, trailing and strongly winged stems, often quite long and matted. Flowers over 2 cm long, rose to purple, fragrant. Leaves with 2 leaflets.

Habitat: Roadsides, fences, naturalized around old homesteads.

Notes: This is the common garden species of sweet pea, now naturalized throughout our area.

Lathyrus leucanthus Rydberg

Plants with trailing stems to 0.5 m. Flowers white, to 2 cm long. Leaflets usually about 6.

Habitat: Woodlands, aspen groves.

Notes: Look for the white flowers.

Lathyrus polymorphus Nuttall

Plants with relatively short stems, to 20 cm. Leaflets linear, or only narrowly elliptical, silky pubescent. Flowers purple, very fragrant.

Habitat: Mesas, foothills, in gulches, shrublands and grasslands. Common and blooming early.

Notes: Look for the short stems and fragrant flowers. This is the most likely species to be confused with *Vicia*.

Lupinus "lupine"

Lupines are generally unmistakable with their characteristic palmately compound leaves. However, they can be difficult to tell to species, you will need to have flowers and fruits for all species to be distinguished.

Lupinus argenteus Pursh

Plants tall and erect, to about 1 m. Leaflets 5-10; flowers not bi-colored, purple to sometimes pale, in elongate racemes. Tip of keel distinctively long and slender, glabrous or slightly pubescent.

Habitat: High plains, foothills, montane and subalpine meadows.

Notes: One of our most common higher elevation species, extending to the higher elevations around the Black Forest. Look for the size and the long slender keel tip, but the species is highly variable.

Lupinus caudatus Kellogg

Plants tall and erect. Flowers not bicolored, blue-purple. Keel pubescent, lacking long tip.

Habitat: Grasslands.

Notes: Look for the ciliate pubescent keel, not as long as in *L. argenteus*.

Lupinus kingii Watson

Plants annual, with cotyledons remaining on the lower stem. Stems low, pubescent with silky, often tawny hairs. Flowers small, to 1 cm, in short, very dense racemes. Pods not constricted.

Habitat: Sandy areas. Common in the San Luis Valley, but known here from Teller County (uncommon).

Notes: Similar to *L. pusillus*, but not occurring on the plains and with very different pods.

Lupinus parviflorus Nuttall ssp. *myrianthus* (Greene) Harmon

Plants tall and erect, somewhat similar to *L. argenteus*. Flowers small, to 7 mm, not bi-colored, in very elongate racemes. Keel short and bent backwards.

Habitat: Montane grasslands, known here from Teller and El Paso Counties.

Notes: Look for the small flowers and very elongate racemes.

Lupinus plattensis Watson

Plants tall and erect. Flowers conspicuously bicolored, with a purple spot on the banner.

Habitat: Sandy areas, plains.

Notes: A common and distinctive species. Look for the bicolored flowers and dark spot.

Lupinus pusillus Pursh

Plants annual, with cotyledons remaining on lower stem; stems relatively low, to 20 cm, often branched. Flowers purplish to whitish. Pods somewhat constricted.

Habitat: Plains

Notes: Look for the annual growth habit and constricted pods, similar to *L. kingii*, but differing in the pods.

Medicago "alfalfa, medic"

Alfalfa (*M. sativa*) is an extremely common species, introduced in the 1500's and now used extensively as a cover crop or part of hayfields. It has spread throughout our region and is easily found along roadsides and in open fields. *Medicago lupulina* is a garden weed, difficult to eradicate! Both have tight clusters of small flowers and trifoliate leaves.

Medicago lupulina L.

Plants low and sprawling, stems branching, Taproot deep and branched. Flowers small, in yellow dense racemes. Fruits black, kidney shaped.

Habitat: Weed of gardens and old fields.

Notes: Look for the tiny yellow flowers and small, black pods. Adventive species now common here.

Medicago sativa L.

Plants erect to sprawling, sometimes to 1 m in height in moist sites. Flowers small, in large tight heads, purple. Leaves trifoliate, with upper leaflet having an extended petiole.

Habitat: Roadsides, plains, disturbed areas and old fields. Plains to montane.

Notes: Extremely common, and blooming until a hard frost. Look for the purple flowers and tight heads.

***Melilotus* "sweet clover"**

Sweetclovers are tall loose legumes common along roadsides and in fields throughout our region. They are adventive from hayfields, and spread widely at all elevations. The genus is marked by the small flowers in elongate clusters and the sweet, haylike aroma of the foliage.

***Melilotus albus* Medicus**

Plants tall, leaves trifoliate. Flowers white, very small, usually less than 5 mm, numerous, in racemes.

Habitat: Roadsides, fields, plains through upper montane.

Notes: Somewhat less common than *M. officinale*, distinguished by the white flowers.

***Melilotus officinale* (L.) Pallas**

Plants tall, to 1 m or often more. Flowers yellow, very small, usually less than 5 mm, numerous, in racemes.

Habitat: Roadsides, fields, plains through montane.

Notes: Extremely common, and often spreading along trails at upper elevations.

***Oxytropis* "locoweed"**

See comments under *Astragalus* for how to distinguish these look-alike genera. *Oxytropis* has a beaked keel: with a prominent point on the front. See Figure 1.

***Oxytropis deflexa* (Pallas) de Candolle**

Plants tufted, with somewhat leafy stems like an *Astragalus*. Flowers purple, in capitulate heads that elongate at maturity. Pods pendulous.

Habitat: Meadows, upper montane, subalpine and alpine.

Notes: Look for the purple flowers in tight heads and the hanging pods.

***Oxytropis lambertii* Pursh**

Plants with few, tall leafless scapes, to ca. 30 cm and spreading leaves. Flowers purple to red, occasionally white. Pods erect to spreading.

Habitat: Grasslands, plains to montane.

Notes: A very striking species, especially in Teller County where it forms abundant displays in the montane grasslands. Often hybridizes with *O. sericea*, and color arrays are striking.

***Oxytropis multiceps* Nuttall**

Plants low, tufted, with a caespitose growth form. Scapes short, to 2 cm, with few flowers. Flowers purple.

Habitat: Stony gravelly ridges, mesas, foothills, and outcrops in the plains.

Notes: A distinctive species of the early summer.

***Oxytropis sericea* Nuttall**

Plants tall and robust, growing as clumps. Flowers typically white with a purple spot on the keel, sometimes shades of lavender, esp. when growing in hybrid swarms with *O. lambertii*.

Habitat: Grasslands, plains to montane.

Notes: See *O. lambertii*. Hybrid swarms are common in Teller County, and often show wide color variation between the two species.

***Oxytropis splendens* Douglas ex Hooker**

Plants robust, pubescent, with leaflets appearing in whorls rather than strictly pinnate. Flowers pink to magenta.

Habitat: Stony meadows, montane to subalpine.

Notes: Look for the whorled leaflets.

***Pediomelum* "Indian potato"**

See also the genus *Psoralidium*. Several species now placed in *Pediomelum* were formerly considered under *Psoralidium*; the two genera are closely related and have been the subject of longstanding botanical debate as to which species belong to which genus!

Pediomelum argophyllum (Pursh) J.W. Grimes

Syn. *Psoralidium argophyllum*

Plants with erect stems to ca. 0.5 m; leaves silvery pubescent, with long silky hairs. Flowers purple, in interrupted short spikes.

Habitat: Plains to lower foothills, sandy and rocky soils.

Notes: Look for the silvery leaves.

Pediomelum digitatum (Nuttall ex Torrey & Gray) Isely

Syn. *Psoralidium digitatum*

Plants with erect stems to 60 cm, often branched above. Leaflets usually 5, long linear, to 3 cm, hairy below. Flowers purple to bluish, in spike racemes, calyx inflated in fruit.

Habitat: Plains grasslands

Notes: Uncommon to rare in Colorado; in our area known from one old record in Pueblo County.

Pediomelum hypogaeum (Nuttall ex Torrey & Gray) Rydberg

Plants low, tufted, with digitately compound leaves. Above ground stems very short, with longer stems below ground reaching to the tuber. Flowers small and very inconspicuous.

Habitat: Sandy soils, plains grasslands.

Notes: Very inconspicuous plants, possibly rare or at least undercollected in our region.

***Psoralidium* "little scurfpea"**

Psoralidium, formerly known under *Psoralea*, is a common genus of the plains. The small purple or white flowers are reminiscent of alfalfa, but the genus can be distinguished by the 3-7 foliate leaves with glandular punctate dots. See also *Pediomelum*.

Psoralidium lanceolatum (Pursh) Rydberg

Syn. *Psoralea lanceolata*

Plants erect, branched, to 40 cm or more tall. Leaves trifoliate, with long petioles and very narrow leaflets. Flowers white, in short spike racemes.

Habitat: Plains, in deep sandy soils.

Notes: A characteristic species of the sandhills. The white flowers and linear leaflets are distinctive.

Psoralidium tenuiflorum (Pursh) Rydberg

Syn. *Psoralea tenuiflora*

Plants erect, to 60 cm or more, bushy-branched. Leaves trifoliate, yellow-green, very punctate glandular on both surfaces. Flowers purple.

Habitat: Plains, grasslands, mesas, and lower foothills.

Notes: An extremely common species of the lower elevations.

***Robinia* "locust"**

Our locusts are both introduced here, and *R. neomexicana* is a noxious pest, often spreading persistently and choking our native species. Although attractive, they cause ecological disruptions and should never be planted. They resemble the honey locust (*Gleditsia*), but with only spine-like stipules, not thick thorns, and less curved pods.

Robinia neomexicana A. Gray

Plants a tree or tall shrub; leaves pinnately compound, leaflets oval to elliptical. Spinelike stipules are present below. Flowers purple, pods to about 10 cm., hairy.

Habitat: Common at all lowland elevations, often invasive along roads and streams.

Notes: The purple flowers distinguish this species; our most common locust.

Robinia pseudoacacia L.

Plants a tall shrub or tree; leaves pinnately compound, leaflets ovate to elliptical. Spines present. Flowers white, pods to about 10 cm, glabrous.

Habitat: Lowland elevations, less common than *R. neomexicana*, but often occurring around homesteads.

Notes: Look for the white flowers or glabrous fruits.

Sophora “white loco”

Sophora is most often mistaken for *Oxytropis* (see comments above under *Astragalus*). Look for the pinnate leaves with narrow segments and the internal flower structure.

Sophora nuttalliana B.L. Turner

Syn. *Vexibia nuttalliana*

Plants low, usually 10-20 cm, leaves with numerous leaflets, somewhat silky. Flowers white, resembling *Oxytropis*, but with the anthers separate to the base. Pods terete.

Habitat: Plains grasslands, usually in fine textured soils.

Notes: Extremely common on the plains, blooming in early summer.

Thermopsis “golden banner”

Thermopsis is a common genus with large, bright yellow papilionaceous flowers and trifoliate leaves; it blooms in late spring and early summer. The species identifications require fruits to be certain, although habitat and elevation can be helpful if fruits are lacking.

Thermopsis divaricarpa A. Nelson

Plants to about 0.5 m, leaves sparsely pubescent to glabrous, flowers to about 1.5 cm. Fruits only slightly curled, ascending to spreading (divaricate), glabrous.

Habitat: Foothills, mesas, in gravelly areas.

Notes: Look for the spreading glabrous fruits.

Thermopsis montana Nuttall

Plants to about 0.5 m, leaves glabrous, leaflets rather narrow and somewhat appressed to the rachis; flowers to about 1.5 cm. Fruits stiffly erect, pubescent.

Habitat: Montane and subalpine meadows.

Notes: Look for the erect fruits and narrow leaf segments; our highest elevation species.

Thermopsis rhombifolia (Nuttall ex Pursh) Richardson

Plants usually less than 30 cm, leaves glabrous to somewhat pubescent, leaflets rather broad. Flowers to 1.5 cm. Fruits pubescent or usually glabrous, distinctly curled into a crescent shape.

Habitat: Grasslands, mesas, lower elevations only.

Notes: This is a very common species of the spring flora, as well as our lowest elevation species. It is typically short and the curved pods are distinctive.

Trifolium “clover”

Clovers are common components of all landscapes in our region: several species are adventive, and spread through cultivated fields and horse droppings in the mountains. Our native species occur at the higher elevations in meadows and on the tundra. The tight heads and the trifoliate leaves of clovers are easy to recognize. Flower color and size of the head are helpful for identification purposes.

Trifolium dasyphyllum Torrey & Gray

Plants lacking leaves on the stem. Leaflets long (to about 3 cm), narrow and somewhat pointed at the apex. Flowers bi-colored, pink-purple and white.

Habitat: Tundra meadows and rocky slopes, known from Pikes Peak.

Note: Native species of the high mountains.

Trifolium hybridum L.

Plants with leafy stems, erect but spreading. Leaflets short and ovate. Flowers pinkish.

Habitat: Meadows, gardens.

Notes: Common adventive species.

Trifolium nanum Torrey

Plants scapose, lacking leafy stems, densely caespitose and mat-forming, leaves and stems very short. Flowers to about 2 cm, at the leaf level or below, pinkish to white.

Habitat: Tundra, often on rocky slopes or fell fields, known from Pikes Peak.

Notes: A common species of the high elevations, distinctively mat-forming.

Trifolium parryi Gray

Plants scapose, lacking leafy stems. Leaflets narrowly to broadly elliptical, sharp pointed. Flower heads ovate, flowers to about 2 cm, pink to rose-colored.

Habitat: Subalpine and alpine meadows.

Notes: Common native species of mountain meadows. It can be distinguished from *T. dasphyllum* by the moister habitat and the uniform flower color, as well as the broader leaves.

Trifolium pratense L.

Plants with leafy stems. Flowering heads pink-purple, subtended by a papery bract.

Habitat: Meadow, fields, trailsides.

Notes: Adventive species, common throughout the region.

Trifolium repens L.

Plants with leafy stems, spreading and creeping along the ground. Flower heads small, white.

Habitat: Gardens, trails, meadows.

Notes: Adventive species, common throughout the region, often occurring along trails in the mountains.

***Vicia* “vetch”**

The genera *Vicia* and *Lathyrus* can be difficult to distinguish. *Vicia* tends to be more delicate, and our species are more diverse. Technically they can be distinguished by the style differences: *Vicia* has a rounded (terete) style with a tuft of hairs only at the apex (see also *Lathyrus*). You will need a good lens or microscope to see this clearly! Both are vining species, so look for the curly tendril at the tip of the leaves or stem.

Vicia americana Mühlenberg ex Willdenow

Syn. *Vicia angustifolia*

Plants with long, weak and sprawling stems. Racemes loosely flowered, with 3-10 blue-purple flowers, 1-2 cm long, not bicolored.

Habitat: Meadows, plains to montane.

Notes: An extremely variable species; look for the uniformly colored flowers. *Vicia americana* var. *minor*, a low, erect, grassland species with bicolored flowers, is sometimes treated as a separate species under the name *V. linearis*. It is quite different from the type variety, but the complex is intergrading and the correct species divisions (if any) are not clear yet.

Vicia angustifolia (L.) Reichard

Plants with flowers sessile in the leaf axils.

Habitat: Around habitations, roadsides.

Notes: Adventive species; look for the flowers right in the leaf axils without peduncles.

Vicia ludoviciana Nuttall var *texana* (Torrey & Gray) Shinnars

Plants with small white flowers ca. 6-8 mm. Racemes with few flowers.

Habitat: Meadows, base of the mountains, sometimes at lower elevations.

Notes: A characteristic species with small, pale flowers, and a delicate appearance.

Vicia villosa Roth

Plants strongly long hairy (villous). Flowers elongated, purple, to 1.5 cm.

Habitat: Roadsides.

Notes: Adventive species, introduced as a revegetation element along roads. Look for the hairy leaves.

Fagaceae: Oak Family

Oaks are readily identifiable by their characteristic acorns and wellknown leaf shape. Our native species are all shrubs, although some approach tree size where water is available. Our most common species, abundant throughout the foothills and on the mesas, is *Q. gambelii*, Gambel oak. Leaf morphology in this species is quite variable with age and ecological conditions: oaks are also well known to hybridize. In a few areas in the Pikes Peak region, we see the genetic influences of more southern oak species, and the hybrid leaf morphologies that result. See the comments below for each of our species and the identified hybrids. Some of the hybrids show complete transitional morphologies and it can be difficult to assign a name.

Quercus gambelii Nuttall

Plants short to tall shrubs, sometimes over 3 m in height. Leaves with broad rounded lobes on the margins, and deep rounded sinuses (clefts) between the lobes. Leaf size quite variable, but can be up to 10 cm long.

Habitat: Foothills, mesas, lower elevations to montane.

Notes: Abundant shrub throughout our region, diagnostic species of the mountain shrub zone. Wide season variation in leaf morphology according to age of leaves.

Quercus turbinella Greene

Plants short to medium sized shrubs, with tightly clustered leaves. Leaves are relatively small, up to 5 cm long, somewhat spiny on the margins.

Habitat: Rocky cliff faces, known from the Royal Gorge, Graneros Gorge, and Phantom Canyon where a complete hybrid array can be seen with *Q. gambelii* morphology.

Notes: Typical *Q. turbinella* has a very tight, twisted growth habit, small, holly-like leaves and a dense appearance to the clonal groups. This species occurs commonly in the Southwest, and reaches its northern extent here. The purest stands can be seen in the Royal Gorge area, but most of our representatives show at least some intergradation of gene flow with the more abundant *Q. gambelii*.

Quercus undulata Torrey

Plants short to medium sized shrubs, with leaves of somewhat intermediate morphology between *Q. gambelii* with deep, rounded marginal lobes, and the almost entire margins of *Quercus grisea*, a species of the Mesa de Maya region and northern New Mexico. Individual clumps may show a complete intergradation of morphologies, and this species is perhaps best recognized as a hybrid swarm of *Q. gambelii* and *Q. grisea*, called *Q. gambelii* X *grisea*

Habitat: Rocky ridges and outcrops, common on ridges such as Palmer Park and Austin Bluffs in the Colorado Springs area, and in the Wet Mountain foothills in western Pueblo County. Probably relatively common, but sporadic throughout our area.

Notes: Look for the strikingly diverse leaf morphologies; generally less lobed than *Q. gambelii* but not growing in tight clusters as in *Q. turbinella*, and lacking the spiny margins.

Frankeniaceae: Frankenia Family

Frankenia is an unusual genus of the Southwest, with a single representative here, and scattered relatives across desert areas of the world. It indicates highly mineralized, often salty soils, including gypsum. Here it is not an obligate gypsophile, but does prefer the alkaline shales and chalks of the Arkansas Valley and Purgatoire River drainage.

Frankenia jamesii Torrey ex A. Gray

Plants low, rounded shrubs, to about 1 m high. Leaves deep green, needle-like, clustered into fascicles (tight clusters), with revolute margins. Flowers with 5 petals, bases clawed, white, to about 1 cm in diameter.

Habitat: Barrens, saline or alkaline soils, common throughout the Arkansas Valley region.

Notes: Look for the low, rounded growth habit, and needlelike leaves. The plants are spineless, and the plant has the look of a heather, although no relation botanically. Extremely common in Fremont and Pueblo Counties at lower elevations; in El Paso County infrequent, and currently known only from the area south of Fountain.

Fumariaceae: Fumitory Family

This family contains the garden species Dutchman's breeches, and its representatives are much more common and diverse in the eastern forests than here in the arid west. Our representatives can be confused with legumes (Fabaceae), having yellow, bilaterally symmetrical flowers, and a pod type fruit. The flowers are spurred, however, unlike pea flowers, and the family is closely related to the poppies (Papaveraceae). There is some botanical disagreement about the best species names for our representatives, and whether we have 2 or only a single species in the *aurea* group. They are separated here, somewhat tentatively, on the basis of elevation and fruits.

Corydalis aurea Willdenow

Plants low and sprawling, leaves bluish-green. Flowers yellow, racemes barely longer than the leaves, spur shorter than rest of corolla, fruits hanging and torulose (slightly constricted between seeds).

Habitat: Montane areas, gravelly banks, roadsides.

Notes: Common roadside and gravelly area species of the higher elevations. Some botanists recognize *Corydalis curvisiliqua* Engelman (Syn. *Corydalis aurea* ssp. *occidentalis*) as a separate species, noted by the longer flowering stalk and spur, as well as the "eyebrow" shape of the fruit. However, these are more often placed into *C. aurea*.

Gentianaceae: Gentian Family

The Gentian family is a diverse group, and many genera do not fit the standard conception of a gentian, that of a purple flowered plant. While some of our species are characteristic of the alpine tundra flora, others represent the plains (*Eustoma*) or montane forests and meadows (*Frasera*). To identify the "gentian" group (*Gentiana*, *Gentianella*, *Gentianopsis*) to genus be sure to look closely at the flowers with a hand-lens or microscope! Although most botanists recognize members of this group as separate genera, there is considerable disagreement between European and N. American botanists as the correct name for the segregate genera (see the synonyms listed).

Key to the Genera

1. Corolla lobed to near the base, rotate, petals appearing separate.....2
1. Corolla tubular.....5

2. Flowers large, petals to 3 cm long, deep blue or purple.....*Eustoma*
2. Flowers smaller, petals less than 2 cm, blue, white or green.....3

3. Plants erect, stems tall and stout; leaves whorled, soft to the touch, flowers green.....*Frasera speciosa*
3. Plants low and slender, flowers blue or white.....4

4. Plants annual, flowers white or very light blue, with stem leaves.....*Lomatogonium*
4. Plants perennial, flowers deep blue, leaves basal.....*Swertia*

5. Plants perennial, corolla lobes usually over 2 cm, not fringed at the edge.....6
5. Plants annual, corolla lobes shorter, or if long, then with fringed lobes.....7

6. Flowers greenish white, with purple ridges.....*Gentiana algida*
6. Flowers purple blue.....*Pneumonanthe*

7. Corolla lobes over 2.5 cm, edges clearly fringed.....*Gentianopsis*
7. Corolla lobes less than 2.5 cm, edges not fringed.....8

8. Cleft between corolla lobes, (sinuses) with a small tooth, leaves less than 1 cm long white edged.....
.....*Gentiana (Chondrophylla group)*
8. Cleft between corolla lobes lacking tooth, leaves longer, not white edged9

9. Corolla lobes with 2 fringed scales on inner surface.....*Gentianella (Comastoma group)*
9. Corolla lobes lacking fringed scales on inner surface.....*Gentianella*

***Eustoma* “prairie gentian, tulip gentian”**

Eustoma is one of our Midwest prairie relict species, and a spectacular plains wildflower that does resemble a tulip more than a classic gentian. It is now unfortunately quite rare, due to loss of prairie wetlands and overcollecting by wildflower pickers. It should not be collected except for scientific purposes.

Eustoma grandiflorum (Rafinesque) Shinnery

Syn. *Eustoma russellianum*

Plants tall, to ca 60 cm. Leaves opposite, clasping, somewhat bluish green, broadly ovate elliptical.

Flowers very showy, purple and pink, with 5 ovate petals.

Habitat: Wet meadows, roadsides in seep areas, plains.

Notes: A rare species of alkaline wet meadows at lower elevations. It occurs on roadsides in Fremont County where moisture gathers. A very showy plant and always a treat to find. Do not pick!

***Frasera* “green gentian, monument plant”**

Except for looking at very technical characteristics of the flowers, it is difficult to see the relationship of this species to the other members of the gentian family. The tall spikes of flowers and softly hairy green leaves are unmistakable, but not very gentian-like!

Frasera speciosa Douglas ex Grisebach

Plants with stems to 2 m in height when flowering. Leaves in basal rosettes, and on stem reducing upward, narrowly to broadly lanceolate, very soft to the touch. Flowers to 2.5 cm in diameter, greenish white, in a spike.

Habitat: Montane and subalpine meadows.

Notes: Very common summer wildflower of the higher elevations. Prior to flowering plants just have basal rosettes. Possible biennial, or at least monocarpic growth (flowering only once and then dying).

A second species of *Frasera*, *F. coloradensis*, occurs on the eastern plains and has been collected in Lincoln Co. It is rare, with a short, bushy and branched stem, and occurs in dry grasslands. It should be sought in Pueblo and El Paso Counties.

***Gentiana* “gentian”**

True gentians, the genus *Gentiana*, may be split into several segregates. The genetic analysis of these groups is ongoing. Our species drop into two fairly clear groups: the *Chondrophylla* group, small delicate alpine species, and the larger, robust *Gentianodes*, with white flowers. They are combine here as *Gentiana*, but probably will ultimately be regarded as separate genera. The *Pneumonanthe* group, with large prominent purple flowers, is separated into a different genus here, but some botanists still place it into *Gentiana*. Associated genera include *Gentianella* (look for corolla lobes without pleats, and 1-2 scales inside) and *Gentianopsis* (look for the fringed corolla lobes).

GENTIANODES GROUP

Gentiana algida Pallas

Syn. *Gentianodes algida*

Plants growing in clumps, with stems to 12 cm. Leaves narrowly oblong to lanceolate, to about 2 cm.

Flowers large, to about 4.5 cm, creamy white with a set of purple pleats.

Habitat: Alpine and subalpine meadows.

Notes: A common late summer species; look for the large, white flowers with a barrel shape.

CHONDROPHYLLA GROUP

Gentiana aquatica L

Syn. *Chondrophylla aquatica*, *Ciminalis fremontii*, *Chondrophylla fremontii*

Plants small and delicate, stems only a few cm tall. Flowers pale blue, 4-merous, capsule broadly cylindrical.

Habitat: Wet subalpine meadows, often among sedges.

Notes: A very inconspicuous species. Look for the pale, not deep blue, flowers,

Gentiana prostrata Haenke ex Jacquin

Syn. *Chondrophylla prostrata*, *Ciminalis prostrata*

Plants small and delicate, stems only a few cm tall. Flowers usually deep blue, sometimes with white mutants, 4-merous, capsule narrowly cylindrical.

Habitat: Alpine tundra meadows.

Notes: Generally a deeper blue color than *G. aquatica*, and flowers closing if you pass your hand over them to shade the sun. Occurs in somewhat drier habitats than *G. aquatica*.

***Gentianella* “little gentian”**

This segregate group has typically 5-merous (5 obvious petals) flowers, and the lobes are entire rather than fringed on the top.

Gentianella acuta (Michaux) Hiitonen

Syn. *Gentianella amarella* var. *acuta*

Plants to 20 cm, commonly branched from the base, leaves narrowly oblong, flowers pale blue, in spreading clusters.

Habitat: Meadows, forest openings and aspen groves, foothills to montane.

Notes: Common species of the middle elevations, similar to *G. strictiflora* but in less wet areas.

Gentianella strictiflora (Rydberg) W. A. Weber

Plants erect, stems to several dm tall, usually not branched from the base, leaves narrowly oblong lanceolate, flowers very pale, usually almost white, found in dense nearly sessile clusters, peduncles erect.

Habitat: Most commonly wet meadows, in the montane zone, but also occurring along Monument Creek and other wet creek sides at lower elevations.

Notes: Look for the very erect (“strict”) appearance, and pale flowers. Some botanists place this into a broad concept of *G. acuta*, but the two are very distinct in our region.

COMASTOMA GROUP

Gentianella tenella Roettboel

Syn. *Comastoma tenellum*

Plants annual, stems to less than 10 cm. Leaves to about 1 cm, spatulate, flowering peduncles long and exceeding the stems. Flowers 4 or 5-merous, bluish, with white fringe on interior.

Habitat: Alpine and subalpine meadows.

Notes: Look for the long naked flower stalks.

***Gentianopsis* “fringed gentian”**

As the common name implies, these species are fringed, in the sense of having small subsidiary teeth in the clefts between corolla lobes, (called the sinuses). They typically occur in wetland areas.

Gentianopsis procera (Holm) Iltis

Plants to several dm tall, somewhat slender in appearance.

Habitat: Wet sand, along prairie creek banks in the floodplain. Known only from Black Squirrel Cr. drainage near Falcon.

Notes: A Midwestern species recently discovered here. Currently should be considered rare, and known only from a single location in eastern El Paso County, but probably existing elsewhere in Colorado.

Gentianopsis thermalis (Kuntze) Iltis

Syn. *Gentianopsis detonsa*

Plants up to 30 cm, stems growing in clumps. Flowers showy, deep blue-purple, with prominently fringed lobes, upper portions reflexed.

Habitat: Wetland bogs, montane and subalpine zones.

Notes: A showy species of late summer. South Park is known for the spectacular displays of this species.

***Lomatogonium* “marsh felwort”**

Pale whitish flowers, divided so deeply that they appear to have radial symmetry, characterize this species here, (in the arctic the flowers are a deeper blue). The petals are fused at the base, but this can be hard to see.

Lomatogonium rotatum (L.) Fries ssp. *tenuifolium* (Grisebach) Porsild

Plants up to 30 cm tall, slender. Flowers white, rotate (fused at the base, but petals appearing separate).

Habitat: Montane and subalpine bogs, often under and around willows.

Notes: Individuals tend to be scattered, but the species is not rare. Look for the pale flowers.

***Pneumonanthe* “bottle gentian”**

Bottle gentians (the name refers to the inflated floral structures in some species) are very common components of the late summer wildflower bloom. They look very “gentian-like”, but lack fringed edges on the corolla lobes.

Pneumonanthe affinis (Grisebach) Greene

Syn. *Pneumonanthe bigelovii*, *Gentiana affinis*

Plants erect, stems to 20 cm. Flowers in clusters on upper portion of stem, nearly closed, deep blue to pale blue when fading.

Habitat: Foothills and montane meadows and ponderosa pine forests throughout the region.

Notes: There is some debate as to whether *P. affinis* and *P. bigelovii* are separate species or not. Many botanists combine the two, but some separation can be seen with respect to the flower color (deep blue in *affinis* and paler in *bigelovii*) and the degree to which the flowers are open. Common in late summer.

Pneumonanthe parryi (Engelmann) Greene

Syn. *Pneumonanthe bigelovii*, *Gentiana bigelovii*

Plants with a large, prominent barrel-shaped corolla subtended by broad scarious margined bracts.

Habitat: Montane and subalpine meadows and forests.

Notes: A common large flowered species of moist sites in the upper elevations. Superficially similar to *P. affinis*, look for the purple “beer keg” flowers!

***Swertia* “star gentian”**

Swertias are well-described by their common name: they look like purple stars-a more noticeable version of the white flowered *Lomatogonium*, with which they often occur.

Swertia perennis L.

Plants in clumps, stems to 30 cm. Flowers star-shaped, 4-5 merous, with rotate deep purple petals fused at the base. Leaves mostly basal, spatulate and somewhat fleshy, with a few pairs of lanceolate stem leaves.

Habitat: Wetland areas, bogs, subalpine and montane zones.

Notes: More noticeable than *Lomatogonium*, but occurring in similar habitats. A very attractive higher elevation species of late summer.

Geraniaceae: Geranium Family

Although everyone knows the garden geranium (actually the genus *Pelargonium*!) our native species are true *Geraniums*. The family has the classic “crane’s bill” fruit and the flowers are all similar to the horticultural types.

Key to the Genera

- 1. Leaves divided, pinnately lobed, plants delicate in appearance, sprawling,*Erodium*
- 1. Leaves lobed in palmate way not pinnately lobed, plants relatively robust and erect*Geranium*

***Erodium* “crane’s bill, filaree”**

Erodium cicutarium (L.) L’Heritier

Plants to about 20 cm, usually sprawling. Leaves pinnately divided. Flowers pink purple, less than 1 cm in diameter; often blooming in late winter through fall (winter annuals or biennial).

Habitat: Disturbed areas, roadsides, garden weed, all elevations.

Notes: Adventive species, abundant throughout the region.

***Geranium* “wild geranium”**

Geranium bicknellii Britton var. *longipes* (Watson) Fernald

Plants annual or biennial, flowers small, less than 1 cm in diameter, corollas pink to purplish.

Habitat: Known from the foothills around Colorado Springs, disturbed areas, trail side.

Notes: Eastern species, probably adventive here, known from an old collection, but not relocated for many decades.

Geranium caespitosum James ex Torrey

Syn. *Geranium atropurpureum*, *Geranium fremontii*, *Geranium parryi*

Plants perennial, stems erect. Flowers pale pink, usually over 1 cm in diameter, stems and petioles very glandular.

Habitat: Foothills and montane zone, gravelly soils.

Notes: Common pink-flowered species of the middle elevations.

Geranium richardsonii Fischer & Trautvetter

Plants perennial, stems erect, slender. Flowers white, with purple veins.

Habitat: Foothills and montane zone, in pine forests and aspen groves.

Notes: Look for the white flowers; this species prefers moist conditions.

Another pink-flowered species, the robust and sticky pilose *G. vicossissimum*, occurs elsewhere in the Front Range of Colorado, but has not yet been authoritatively documented here. This may be an oversight or it may be rare here due to bedrock conditions. If present it would occur in wet meadows, probably in Teller County. It can be distinguished by the sharply toothed leaves and stems with yellow glands.

Grossulariaceae: Current Family

The currents are an easily recognizable group, all shrubs with lobed leaves, 5-parted flowers, and often (but not always) spines. The fruit is a berry, usually red or black in our species. All are edible, but some species taste much sweeter than others.

SPINELESS SPECIES

Ribes americanum P. Miller

Plants tall shrubs with broad leaves to 10 cm wide; lower surfaces covered with abundant yellow or orange glands appearing as dots. Flowers greenish yellow to white, berries black.

Habitat: Very moist areas, along streams and around springs.

Notes: Quite rare; always found in very wet areas. Look for the glands (use a lens) to distinguish this species from other currents and from similar leaves in other shrubby species such as those in the Rosaceae with broad lobes such as *Physocarpus* and *Rubus parviflorus*.

Ribes aureum Pursh

Plants mid-sized shrubs with small, somewhat shiny glabrous leaves. Flowers yellow, very aromatic and smelling like cloves. Berries black.

Habitat: Canyons, mesas, riparian areas on the plains.

Notes: Some botanists split this into two species: *R. aureum* and *R. odoratum* (*Ribes aureum* var. *villosum*), where the latter differs in having a longer floral tube and some different lobing in the leaves. The differences are difficult to distinguish, and the species are combined here under the name *R. aureum*. Look for the scent of cloves: the flowers bloom early in the spring and are very aromatic.

Ribes cereum Douglas

Plants small to medium sized shrubs, leaves small, 1-3 cm across, strongly glandular and aromatic.

Flowers pink, blooming very early in the spring. Berries orange-red.

Habitat: Mesas, lower foothills, rocky outcrops and canyon sides.

Notes: Extremely common shrub in the lower elevations. Look for the sticky feel to the leaves and the aroma.

SPINY SPECIES

Ribes inerme Rydberg

Plants medium sized shrubs, leaves to 6 cm wide, very deeply lobed. Flowers white to pinkish, with reflexed sepals. Plants not densely spiny. Berries black to reddish purple.

Habitat: Canyons, rocky slopes of the middle elevations.

Notes: A very common species. Look for the deeply lobe leaves, and fewer spines on the stems; possibly confused with *R. leptanthum* (look for the flower and leaf size differences).

Ribes lacustre (Persoon) Poiret

Plants short to medium sized shrubs, with somewhat drooping stems. Leaves glabrous, stems with 1 spine at each node. Flowers pink to greenish white, berries black.

Habitat: Wet areas, streamsides and bogs, middle elevations to subalpine.

Notes: Look for the wetland habitat, and the single spine at the node. *R. montigenum* is also wetland species, but considerably more spiny.

Ribes leptanthum Gray

Plants medium sized shrubs, with erect stems, and single spines. Leaves relatively small, to 3 cm wide, deeply divided. Flowers white to pinkish, with distinctive red anthers. Berries black, bristly.

Habitat: Canyonsides and rocky, middle elevations.

Notes: Look for the single spines and the characteristic red anthers if flowers are available.

Ribes montigenum McClatchie

Plants short shrubs, with erect, extremely spiny stems. Leaves relatively small, Flowers pink to whitish, berries red.

Habitat: Wet areas, middle elevations.

Notes: Similar habitat to *R. lacustre*, but much spinier. The common name for this current is “prickly current”: the habitat, prickles, and red berries make it easy to identify.

Ribes niveum Lindley

Plants medium sized to tall shrubs. Spines relatively long, to 2 cm, flowers white, 1-4 together. Berries blue-black, glabrous.

Habitat: Known only from a canyon in Fremont County. Overall distribution and ecology here unknown.

Notes: This species occurs in the Pacific Northwest and has recently been found in the Cañon City area.

Haloragaceae: Water Milfoil Family

This family is represented in North America by only aquatic species, here with a single representative.

Myriophyllum can be recognized by its whorled, pinnatisect leaves, and clusters of greenish flowers. It grows submerged in ponds of the plains and montane zones. It can be confused with *Potamogeton* (Potamogetonaceae) or sometimes with aquatic species of *Ranunculus*, so check the leaves carefully. See also the very similar *Hippuris vulgaris* (Hippuridaceae).

Myriophyllum sibiricum Komarov

Syn. *Myriophyllum exalbescens*

Plants submerged or floating in water, leaves whorled, filiform-pinnatisect, with clusters of small, inconspicuous flowers above.

Habitat: Ponds, plains to montane or subalpine.

Notes: Look closely at the leaves; there are a number of aquatic species that look quite similar. Look for the whorled, extremely fine, leaves on this species.

Hippuridaceae: Mare's Tail Family

This family has but a single, widely distributed species around the world. The leaves are whorled, but much broader than in *Myriophyllum*. Some botanists now place *Hippuris* into a broad concept of the Plantaginaceae.

Hippuris vulgaris L.

Plants submerged or floating in water, leaves whorled, several millimeters broad, lanceolate, few per whorl. Submerged leaves of different morphology than emergent leaves. Flowers single, inconspicuous, axillary in the leaf joints.

Habitat: Ponds, plains to subalpine

Notes: Often growing with other aquatic species. Look for the broader, lanceolate leaves and axillary flowers.

Hydrangeaceae: Hydrangea Family

This family has been segregated out of the Saxifragaceae, and the relationship can be seen in the flower structure. However, these species are all shrubby, recognized by their opposite elliptical or lanceolate leaves. The Saxifragaceae in its narrower context contains just herbaceous species.

Key to the Genera

- 1. Plants ovate leaves, regularly toothed margins.....*Jamesia*
- 1. Plants with narrowly elliptical or lanceolate leaves, margins entire.....*Philadelphus*

Jamesia "waxflower"

Jamesia americana Torrey & Gray

Plants medium sized shrubs, leaves ovate, margins regularly toothed, white tomentose below. Flowers white, petals 5.

Habitat: Canyonsides, rocky areas, foothills to montane.

Notes: Look for the opposite leaves with white hairy undersides.

Philadelphus "mockorange"

The cultivated mockorange is similar to this species, but has broader leaves. Both have a sweet scent; our native species has very narrow leaves.

Philadelphus microphyllus A. Gray

Plants low shrubs, often sprawling on slopesides. Leaves opposite, narrowly elliptical, to 5 mm wide, lower surfaces hairy, with 3 veins. Flowers white, aromatic.

Habitat: Rocky canyonsides, common in Fremont County, especially along the Arkansas drainage.

Notes: Look for the narrow, opposite leaves.

Hydrocharitaceae: Frogbit Family

This family of aquatic species is difficult to identify to species, although its most common representative *Elodea* is very familiar to fishtank owners. We may have more than 1 species here. See also Potamogetonaceae, Hippuridaceae, and Haloragaceae for other floating aquatic families of similar morphology.

Key to the Genera

- 1. Leaves somewhat whorled, margins entire to minutely toothed, crowded at branch tips.....*Elodea*
- 1. Leaves mostly opposite, evenly spaced on branches, margins toothed.....*Najas*

Elodea "waterweed"

Elodea canadensis Michaux

Plants floating or submerged, leaves usually around 2 mm wide. Leaves whorled or opposite, oblong, few per whorl, closely imbricate (overlapping) at the tips of the stem but widely separated below.

Habitat: Ponds, lower to middle elevations.

Notes: A poorly known and rarely collected genus. We have few collections from our region, so its total distribution is unknown here.

Najas “water nymph

Najas guadalupensis

Plants floating, leaves linear, evenly spaced along branches, margins toothed to entire. Flowers in leaf axils.

Habitat: Streams, ponds, and irrigation ditches, lower elevations.

Notes: Similar to some species of *Potamogeton* and other floating aquatics. Check leaf margins and flower positions.

Hydrophyllaceae: Waterleaf Family

This family is easily recognized by its coiled inflorescence that uncoils and becomes straight when mature, and by the very long protruding anthers. Many of our species are sticky glandular to the touch. Along with the genera listed here, there is a historical record of *Nama dichotomum* Choisy (fiddlehead) from El Paso County. This has not been recently verified or recollected. *Nama dichotoma* is an annual with blue, lavender or white flowers that are solitary. It would grow in sandy soils, especially around sandstone.

Key to the Genera

1. Flowers single on axillary or terminal stalks.....*Ellisia*
1. Flowers in clusters in leaf axils or stem tips.....2
2. Flowers in ball-like clusters (not coiled as a helix), plants full of watery juice.....*Hydrophyllum*
2. Flowers coiled in helical spirals when young, plants not particularly juicy.....*Phacelia*

Ellisia “ellisia”

Ellisia nyctelea (L.)L.

Plants annual, lower leaves opposite, upper alternate, all pinnate, with oblong, pubescent divisions. Flowers single, white to slightly bluish, about as long as the calyx, stamens included within.

Habitat: Disturbed areas, gardens, and riparian zones.

Notes: Adventive species, usually preferring somewhat moist sites. Look for the single small flowers.

Hydrophyllum “waterleaf”

The common name for this genus comes from its abundant clear “juice” in the stems. The inflorescences are congested as scorpioid (coiled) cymes with exserted stamens.

Hydrophyllum capitatum Douglas

Plants perennial, leaves alternate, mostly basal, long petioled, pinnate, oval in outline, leaflets entire or toothed only at apex. Stems to 50 cm, just longer than leaves. Flowers tightly congested (capitate) usually blue sometimes whitish.

Habitat: Shady areas, montane zone.

Notes: Look for the tight heads and short stems. Flowers are usually blue rather than white as in *H. fendleri*.

Hydrophyllum fendleri (A. Gray) Heller

Plants perennial, leaves alternate, long petioled, pinnate, oval in outline, leaflets deeply incised with serrate margins. Stems to 90 cm, longer than the leaves. Flowers creamy, in open clusters.

Habitat: Moist sites, usually along streams in the montane.

Notes: A common component of streambanks in the middle elevation. Look for the toothed leaves and creamy flowers.

Phacelia “ phacelia, scorpionweed”

This attractive genus can be recognized by “scorpion tail” character of the young inflorescence, with the coiled or helical arrangement of the flowers. This straightens in fruit, but flowers remain tightly clustered. The plants are typically long hairy, sometimes sticky glandular, with 5-parted flowers.

Phacelia alba Rydberg

Plants short, to less than 20 cm, leaves lobed to pinnatifid. Flowers small, white, with erose (fringed) lobes.

Habitat: Gravelly soils, foothills and montane zones.

Notes: Look for the small white flowers with almost fringed lobes.

Phacelia bakeri (Brand) Macbride

Plants to 30 cm, somewhat coarse and sticky glandular. Leaves pinnate divided, divisions broad. Flowers purple blue, campanulate, to 1.5 cm broad.

Habitat: Gravelly areas, foothills to montane zones.

Notes: A robust plant: look for the broad leaf lobes with coarse dentation.

Phacelia denticulata Osterhout

Plants annual, sticky glandular, to 40 cm. Leaves pinnately divided. Flowers pale blue, tubular, small, to 10 cm in diameter, lobes irregularly fringed, anthers included within.

Habitat: Foothills and montane.

Notes: Look for the small, pale blue flowers with the relatively short anthers, less prominent than in other species.

Phacelia hastata Douglas ex Lehmann

Plants tall and coarse, to several dm. Leaves entire to only slightly lobed at the base, very silvery pubescent with long hairs. Flowers purplish, to 1.5 cm in diameter.

Habitat: Upper montane to subalpine, gravelly soils.

Notes: Look for the almost entire leaves with silvery pubescence and the purple flowers. *Phacelia heterophylla* is similar, but has white flowers and grows at lower elevations.

Phacelia heterophylla Pursh

Plants tall and coarse, to several dm tall. Leaves entire to only slightly lobed at the base, silvery pubescent with long hairs. Flowers white, to 1.5 cm in diameter.

Habitat: Foothills, montane, and plains, gravelly or sandy soils.

Notes: Similar to *P. hastata*, but with white flowers.

Phacelia sericea (R. Graham) A. Gray

Plants low, to 2 dm, leaves pinnatifid, not viscid glandular, but rather silvery pubescent. Flowers in a spike, not prominently coiled, violet blue, to 1.5 cm in diameter, stamens exerted.

Habitat: Subalpine and alpine meadows.

Notes: A common and beautiful member of our high elevation flora. The common name of "purple fringe" refers to the fringed look that the long anthers give to the spike.

Hypericaceae: St. John'swort Family (also now included as the Clusiaceae)

This family has a long reputation for medicinal uses, although it can also be highly toxic and initiate extreme photosensitivity that kills cattle. It can be recognized by yellow, 5-parted flowers (similar to those in the Rose Family), opposite leaves with translucent glandular dots below, seen visible when held to the light. With the exception of the noxious weed *H. perforatum*, our species are native.

Hypericum formosum Humboldt, Bonpland & Kunth

Syn. *Hypericum scouleri*

Plants with broadly elliptical leaves, stems little branched, flowers to 3 cm in diameter, black dotted on the edges.

Habitat: Wet meadows, montane and subalpine.

Notes: Look for the broad leaves, large flowers, and black dotted petals.

Hypericum majus (Gray) Britton

Plants annual, with slender, tall stems to about 0.5 m. Flowers small, to only 0.5 cm in diameter, petals not black dotted.

Habitat: Pond edges and streamsides, wetlands of the lower elevations.

Notes: Look for the annual growth habit, and small flowers that lack black dots and narrow leaves.

Hypericum perforatum L.

Plants perennial, to 8 dm tall, stems much branched. Leaves linear to oblong. Flowers to 3 cm in diameter, black dotted.

Habitat: Lower elevations to montane, often in disturbed areas and overgrazed meadows.

Notes: A noxious adventive species but luckily still uncommon in our area; look for the narrow leaves and large flowers.

Iridaceae: Iris Family

The well known Iris is the flagship genus for this family. Our other representative, *Sisyrinchium*, does not resemble it all but has a small, radially symmetrical flower where the complex parts all appear as petals.

Key to the Genera

1. Flowers like the cultivated Iris, over 5 cm, with complex modified petals and fruits a capsule.....*Iris*
1. Flowers not iridoid, floral parts all appearing as petals, less than 1 cm in diameter.....*Sisyrinchium*

Iris "wild iris"

Iris missouriensis Nuttall

Plants robust, stems to 0.5 cm or more, leaves lanceolate, to 2 cm wide. Flowers pale blue to purple, sepals and petals appearing different, erect. Fruits a capsule.

Habitat: Moist meadows, plains to middle elevations, most common in the montane zone.

Notes: An easily identifiable plant at all stages. Common throughout our region. Garden Iris can escape easily and become naturalized along roadsides in urban areas. Their colors are variable.

Sisyrinchium "blue-eyed grass"

This genus is not a grass, and only the narrow leaves suggest the common name. Although not resembling its cousin, the true iris, it belongs in this family thanks to the floral structure. It is difficult to spot when not in bloom, but it a relatively common member of our moist meadows.

Sisyrinchium montanum Greene

Plants low and delicate, to 20 cm. Leaves linear, to 2 mm wide. Flowers sessile, usually solitary, from a leaflike bract, dark blue. The outer bract is quite long in comparison to the inner bract.

Habitat: Moist meadows, all elevations.

Notes: This is our most common species.

Sisyrinchium idahoense Bicknell

Plants low and delicate, to 20 cm. Leaves linear, to 2 mm wide. Flowers pedunculate, 1-several, from a leaflike bract, dark or light blue; the outer bract is subequal to the inner bract.

Habitat: Plains, in sandy soil and moist depressions.

Notes: It is difficult to distinguish this species from *S. montanum*; not all botanists agree to their separation. Specimens from our region assigned to this species are known only from the plains.

Sisyrinchium pallidum A. Cholewa & D. Henderson

Plants to ca 20 cm, delicate. Leaves linear, to 2 mm wide. Flowers sessile, usually in a single spathe from a leaflike bract, pale blue or white, with a yellow center. The outer bract is longer than the inner bract.

Habitat: Moist meadows, often in depressions.

Notes: This species is known from the South Park area, but was recently found outside Monument in a moist meadow. The flowers are very pale to pure white in comparison to the other species which are distinctly blue in color.

Juncaceae: Rush Family

The Juncaceae, Rush Family, includes true rushes (*Juncus*) and woodrushes (*Luzula*). This widespread family of moist habitats encompasses very common species as well as locally rare (or at least under-collected) species. Although rushes and woodrushes at first glance may be mistaken for sedges (Cyperaceae) or even grasses (Poaceae), especially when in vegetative condition, “graminoids” (grasslike plants) can be readily separated by leaves and reproductive structures.

How to Tell the “Graminoids” Apart

The phrase “sedges have edges” refers to the tendency for *Carex* and other members of the Cyperaceae (except for bulrushes, the genus *Scirpus*, which has round stems) to have triangular stems. If you roll them in your fingers, you can feel the edges; sedges also have distinctive reproductive structures that lack anything resembling petals or sepals. These structures typically have a spike-like appearance, with scales covering tiny teardrop shaped structures called *perigynia*.

In comparison, grasses and members of the Juncaceae have round stems. True grasses in the Poaceae have “knees”, lumpy growth nodes in the middle of the stem from which the stem leaves emerge; their reproductive structures are modified flowers specialized for wind pollination, consisting of paired structures called glumes that hold additional paired bracts called the *lemma* and *palea*, each of which holds a tiny “floret” consisting of an ovary and a few anthers. So, neither grasses nor sedges have flowers as we tend to think of them! To a botanist, however, they are flowers in a technical sense.

Rushes and woodrushes, however, have familiar-looking (albeit small and brownish in color) flowers with three petals and three sepals; these all look alike so we call them “*tepals*”. The term “*perianth*” refers to sepals and petals (the *tepals*, collectively). Flowers in this family resemble minute lilies, a classic Monocot flower with parts in 3’s. Inside the *tepals* are three or six anthers, and an ovary with three stigmas; the ovary becomes the capsule containing the seeds. These flowers come in loose or tight clusters at the top of the stem. Figure 1 shows the structure of a typical rush flower.

Although a few species in the Juncaceae are easily recognizable, most require careful, close examination. A few require microscopic analysis, especially when seed characters are critical. *Juncus* seeds are very small, and even a hand lens won’t help show the minute characters that may be needed to distinguish species. In particular, look for color, shape, and whether or not the seeds have “tails”-extended tips. You will need a microscope with good magnification. Also look to see if plants are rhizomatous or caespitose (clumped), how long the *involucral bracts* are (leaflike structures below the inflorescence), and how many flowers are clustered in the inflorescence. What about leaves? Look to see if they are involute (involute) or flat or folded. One key character to look for, especially in folded leaves, is whether or not they are *septate*. Septate leaves have partitions, separated by thin whitish cross walls. Split the leaf carefully with a sharp pin or dissecting needle to see if these are present or not.

Ecology: The Juncaceae always occur in moist sites, or at least where there is subsurface water. Both the Cyperaceae (sedges) and the Poaceae (grasses) can occur in dry or moist sites; although sedges are most common with some moisture, there are also dryland sedges. The Juncaginaceae (arrowgrass family; included in this flora) always occur in wet sites.

Key to the Genera

- 1. Plants glabrous, lacking long hairs along the leaf blades or sheaths.....*Juncus*
- 1. Plants with long hairs along the leaf blades or sheaths.....*Luzula*

Juncus “rush”

Rushes are most easily identified later in the season, when the capsules begin to mature. Look closely at how the inflorescence appears: terminal or “lateral”, as the upper involucral bract looks like part of the stem. A note of warning: rush species, especially *J. nodosus* and *J. torreyi*, can have their inflorescence bizarrely modified into an enlarged reddish mass of leaf sheaths by the presence of insect galls. Species “groups” in the following key are not necessarily closely related, but linked together here by morphological similarities for ease in identification only. Species descriptions, in some detail, given their complexity, follow the key. Lookalikes are grouped together. The artificial “groups” are described alphabetically.

1. Plants low annuals with shallow root systems; leaves narrow, rarely over 1 mm wide, often involute (in-rolled); inflorescence making up half the plant or more *J. bufonius*
1. Plants perennial, with substantial roots or rhizomes usually at least 1 dm tall; leaves often much greater than 1mm wide 2
 2. Inflorescence apparently lateral, the lowest involucrel (below the inflorescence) bract terete (round in cross-section), erect, appearing like a continuation of the stem; leaves all basal or nearly so, never separate 3
 3. Flowers more than 5; rhizomes present; seeds with a short white tail at each end *J. arcticus*
 3. Flowers 1-3(5); rhizomes absent or plants in dense tussocks; seeds tailed or not DRUMMONDII GROUP (*J. drummondii*, *J. hallii* and *J. parryi*)
 2. Inflorescence terminal, the lowest involucrel bract divergent, or if not appearing so, channeled along the upper side or flat, not strictly erect; leaves sometimes septate 4
 4. Leaves not septate, but flattened, involute or hollow 5
 5. Flowers borne singly on the branchlets of the inflorescence, each with a pair of small bracts at the base in addition to the bractlet at the base of the pedicel 6
 6. Capsule with 3 separate chambers, the partitions meeting in the center*J. confusus*
 6. Capsule of a single chamber, in some cases the partitions making it appear to have 3 chambers, but not meeting in the center 7
 7. Auricles (small lobes, ear-like projections) at top of leaf sheath 2-5 mm, membranous, transparent*J. tenuis*
 7. Auricles merely short, scarious or leathery projections less than 1 mm ... DUDLEYI GROUP (*J. dichotomus*, *J. dudleyi* and *J. interior*)
 5. Flowers in heads, lacking bracts at base and having only a bractlet at the base of the pedicel 8
 8. Leaves flat; seeds not tailed ... MARGINATUS GROUP (*J. longistylis* and *J. marginatus*)
 8. Leaves rounded in cross-section and hollow, deeply channeled or involute; seeds tailed 9
 9. Plants not clumped (caespitose), strongly rhizomatous ... *J. castaneus*
 9. Plants loosely clumped (caespitose), rhizomes (if present) short, sparingly branched .. BIGLUMIS GROUP (*J. biglumis* and *J. triglumis*)
 4. Leaves septate (with internal partions) 10
 10. Leaf blades laterally flattened, equitant (one edge toward the stem as in *Iris*), the partitions incomplete (not extending all the way across the blade), mostly 3-6mm wide *J. ensifolius*
 10. Leaf blades round in cross section (terete), the partition complete, mostly less than 3mm wide 11
 11. Seed tailed BRACHYCEPHALUS GROUP (*J. acuminatus*, *J. brachycephalus* and *J. brevicaudatus*)

- 11. Seeds usually apiculate (with slightly pointed ends), but not tailed12
- 12. Heads hemispheric, flowers 3-15 ... ALPINO-ARTICULATUS GROUP (*J. alpino-articulatus* and *J. articulatus*)
- 12. Heads spherical, flowers 15-60 13
 - 13. Capsule subulate (very narrow); flowers broadly-spreading ... TORREYI GROUP (*J. nodosus* and *J. torreyi*)
 - 13. Capsule broader, oblong to ovoid; flowers erect-ascending *J. mertensianus*

“ALPINO-ARTICULATUS” Group (*Juncus alpino-articulatus* and *Juncus articulatus*)

Juncus alpino-articulatus Chaix

Plants perennial, 0.5-5 dm, stems erect, smooth; rhizomes not swollen. Leaves including some basal, tip rounded, scarious (thin, transparent), green to straw-colored, blades rounded in cross section. Involucral bract erect. Inflorescence terminal clusters of 5-25 heads, branches erect to ascending, heads 2-10-flowered. Flowers segments lanceolate to oblong, greenish to straw-colored, apex obtuse, tipped with a short, sharp point; stamens 6, anthers half the length of the filaments. Capsules oblong to oblong-ovoid, 2-4 mm long, apex obtuse, brown to straw-colored, equaling to exceeding the perianth. Seeds oblong to ovoid, 0.5-0.7 mm long, not tailed.

Habitat: Widely scattered but infrequent in wetlands of the plains.

Notes: This species is locally common in wetlands of eastern El Paso County; look for the small flowers and stiffly erect inflorescence, as well as the rounded top on the capsule.

Juncus articulatus L.

Plants perennial, rhizomatous to almost densely clumped, 1-6(10) dm; stems erect or slightly curved, often rooting at the nodes; rhizomes stout. Leaves 1-3 per stem, basal leaves much reduced; loose sheaths with rounded auricles 1-1.5 mm long; blades rounded in cross-section with complete cross walls, abruptly divergent from the stem, 5-10 cm long. Involucral bract much shorter than the inflorescence, 1-3.7 cm long. Inflorescence open, spreading, with 4-35 heads of 2-12 flowers; branches widely divergent, 2-15 cm long. Flowers sessile (attached directly to the stem), bracts at the base lacking; flower segments brown or greenish, 2-3 mm long, much longer than wide, with the widest part at the base, slightly pointed at the tip, about equal or the inner segments slightly longer; stamens 6 shorter than the perianth, anthers shorter than the filaments. Capsules three-angled, tapering to a conspicuous point, containing a single chamber; 2.8-3.8 mm long, dark brown. Seeds oblong to obovoid, 0.5 mm long, very light longitudinal parallel lines, with a minute, slender tip at each end.

Habitat: Adventive species possible along streams, in wetlands, meadows, ponds, ditches, roadsides, sandbars, and streambanks at low to middle elevations.

Notes: Look for the spreading inflorescence branches and the pointed capsule to distinguish this species from *J. alpino-articulatus*.

Juncus arcticus Willdenow

Plants perennial, 2-10 dm; stems erect, 1-3 mm in diameter; rhizomes long-creeping.

Leaves with blade usually absent. Involucral bract barely exceeding to many times the inflorescence. Inflorescence 3-many flowered, loose to congested. Flowers with segments chestnut brown or paler, much longer than wide, but widest at the base, margins scarious to clear, apex slightly acute to rounded; stamens 6, anthers sometimes longer than the filaments. Capsules spherical but flattened at the ends to narrowly ovoid, containing three chambers, equal to or exceeding the perianth. Seeds spherical but flattened at the ends to ellipsoid, dark amber, 0.6-0.8 mm long.

Habitat: Streams, lakeshores and alkaline flats, plains to upper elevations.

Notes: An extremely common species, often dominating a plant community that forms a dark green strip along stream channels, even ephemeral or subsurface ones.

“BIGLUMIS” GROUP (*Juncus biglumis*, *J. triglumis* vars. *albescens* and *triglumis*)

This group is entirely alpine; all are relatively small, few flowered plants that grow in cold, wet habitats. *Juncus triglumis* is sometimes regarded as one species with two varieties (*J. triglumis* var. *triglumis* and *J. triglumis* var. *albescens*) and by other botanists, as two separate species: *J. triglumis* and *J. albescens*. This treatment follows the Flora of North America in regarding the two as varieties rather than separate species. A collection of “*Juncus triglumis*” was recorded from Pikes Peak in the early 1900’s, but it is not clear where this specimen now is, or which variety the collection represented. *Juncus biglumis* has an involucre bract (just below the inflorescence) much longer than the inflorescence; *J. triglumis* has a bract that is shorter than or nearly equal to the inflorescence.

J. biglumis L.

Plants perennial, clumped, 0.25-1.6 dm; stems nearly terete (rounded in cross section). Leaves basal, 1-4 per stem, blade imperfectly septate, nearly terete (rounded in cross section), sheaths loose, auricles absent or rounded, 0.5 mm. Involucral bract much longer than the inflorescence, erect. Inflorescence with heads of 1-2(4) flowers. Flowers with perianth segments oblong, 2.5-4 mm long, brown to blackish, tip rounded, outer and inner series nearly equal; stamens 6, filaments longer than the anthers. Capsules narrowly ovoid to oblate (spheroidal and flattened at the ends), retuse (rounded with a shallow notch at the tip), pale with dark purple, appearing three-chambered, 4-5.5 mm long. Seeds fusiform (widest at the middle and tapering towards the ends) to ovoid, yellowish tan, 0.7-0.9 mm long, short tailed.

Habitat: wet gravels and frost scars, alpine and subalpine zones.

Notes: Occurring on upper slopes of Pikes Peak, especially in wet gravelly areas around the reservoirs. Look for the few flowers.

J. triglumis L. [Varieties *triglumis* and *albescens* –see descriptions below under **Notes**]

Plants perennial, densely clumped, 0.3-3.5 dm. Leaves basal, 2-4, blade deeply channeled, 2-10 cm long; auricles rounded, scarios to leathery. Involucral bract brownish, divergent, nearly equaling to slightly shorter than the inflorescence, membranous. Inflorescence with solitary heads with 2-3(5) flowers. Flowers with perianth segments oblong-lanceolate, pale to dark brown, 3-5 mm long, outer usually equaling the inner; stamens 6, filament longer than the anthers.

Capsules tan, rounded tip with a short, sharp point, appearing three-chambered. Seeds fusiform (wider in the middle and narrowing at both ends), tan or darker, 0.5-1 mm long, tails 0.6-1 mm long.

Habitat: Subalpine peat bogs and wet gravels

Notes: Variety *triglumis* typically has darker, red brown flowers and the bracts below the inflorescence are shorter than the inflorescence. They are obtuse to mucronate (with a short pointed tip). In var. *albescens*, the bract is nearly equal to the inflorescence and has a long pointed tip.

“BRACHYCEPHALUS” GROUP (*Juncus acuminatus*, *J. brachycephalus* and *J. brevicaudatus*)

This lower elevation group of look-alike species includes two species that are infrequent to rare (*J. acuminatus* and *J. brachycephalus*), and one species that has thus far only been found historically in one location. *Juncus acuminatus* does not have tailed seeds (they are sharp pointed instead), while the other two do. *J. brachycephalus* has seeds with tails no more than one-third as long as the body; blunt or rounded perianth segments that are soft and broadly scarios-margined and the inflorescence is open and diffuse. *J. brevicaudatus* has seeds with tails half as long as the body, acute perianth segments that are narrowly scarios-margined, and the inflorescence is elongate, strictly upright and narrow. See habitat notes under each species for further information. A microscope will be needed to distinguish seed characters in this group!

J. acuminatus Michaux

Plants perennial, densely clumped, 1.4-10 dm; stems erect, smooth; short, inconspicuous rootstocks. Leaves 1-3 on a stem, the sheaths with rounded auricles 1.5-5 mm long, the blades nearly rounded in cross-section, straw-colored or pink, conspicuously septate. Involucral bract: erect, shorter than the inflorescence. Inflorescence with terminal panicles 5-15 cm long, hemispheric to spherical, generally with 5-50 heads on

spreading branches, the heads 3-10 mm wide, usually with 5-20(50) flowers. Flowers with perianth segments light brown to greenish, 2.6-3.5 mm long, narrowly tapering to a point or awl-shaped; stamens 3 (occasionally 6), the anthers shorter than the filaments. Capsules ellipsoid to narrowly ovoid, tapering to a short, sharp point, containing one chamber, straw-colored, equaling or slightly exceeding the perianth. Seeds oblong to ellipsoid, 0.3-0.4 mm long, not tailed, body clear yellow-brown, finely net-veined, with a minute, slender point at each end.

Habitat: Stream banks, drying pond margins.

Notes: Uncommon and arguably present here, likely to occur around stock pond margins and seasonal playas on the plains. Look for the sharp pointed (but not tailed) seeds and habitat type to distinguish this from the other two species in the group.

J. brachycephalus (Engelmann) Buchenau

Plants perennial, very densely clumped, 2-7 dm; stems slender, erect or sometimes reclining and rooting at the nodes. Leaves 2- 5, all with well-developed blades, those rounded in cross-section and septate, usually 1-2 mm in diameter, auricles 0.6-1.5 mm long. Involucral bract leafy, erect. Inflorescence a large (0.5-2.5 dm) open, diffuse group of 5-80 heads with 2-6 flowers, 2-5 mm in diameter. Flowers with perianth segments greenish to light brown with thin, broadly scarious-margined, 1.75-2.5 mm long, the outer series shorter than the inner, much longer than wide, and widest at the base with blunt or rounded tips; stamens 3 or 6, the number often varying in the same plants, the anthers usually half the length of the filaments. Capsules chestnut to dark brown, with sharp, definite angles and flat sides, 2.4-3.8 mm long, abruptly narrowed into a short beak, longer than the perianth. Seeds ellipsoid, 0.8-1.2 mm long, 20- 30-ribbed, net-veined; with a tail-like tip, no more than one-third the length of the body; the body covered with a whitish translucent veil.

Habitat: Open wet gravels along flowing stream channels on the plains; often growing with *J. alpino-articulatus*. *Juncus brachycephalus* is a more robust species with larger flower sizes, and a strongly clumped growth habit.

Notes: This species is locally common along the Black Squirrel Creek drainage near Falcon and Peyton in eastern El Paso County, as well as in a few other drainages with open gravel and near-constant flow of water. The seeds are characteristic, but the species are difficult to tell apart early in the season. This species and the next are relatively common in the Midwest and represent here prairie relicts on our moister grasslands of the plains.

Juncus brevicaudatus (Engelmann) Fernald

Plants perennial, densely clumped, 1-6(7) dm; stems erect, smooth. Leaves 2-5, blade terete (rounded in cross section) to compressed, 0.2-12 cm long, tip rounded, scarious. Involucral bract erect. Inflorescence 5-25 cm long, elongate, strict (upright) and narrow, with 5-80 heads of 2-6 flowers, 2-5 mm in diameter, branches ascending. Flowers with perianth segments lanceolate, narrowly scarious margined, green to light brown, inner segments longer than the outer, tip acute; stamens 3 or 6, anthers approximately half the length of the filaments. Capsules chestnut to dark brown, imperfectly three-chambered, obconic (cone-shaped), longer than the perianth, 2.4-3.8 mm long, tip acute. Seeds: ellipsoid to fusiform (widest in the middle and tapered towards the tips), 0.8-1.2 mm long, tails more than half the length of the body; the body covered in a white translucent veil.

Habitat: An historical record known, growing with *J. brachycephalus* in a wetland near Peyton. A probable additional collection of this species has been recently made in the same area.

Notes: It is very difficult to distinguish from *J. brachycephalus* without close examination of seeds. It is likely to co-occur with *J. brachycephalus*, and specimens should be checked carefully in fruit to look for the very long tailed seeds characteristic of *J. brevicaudatus*.

Juncus bufonius L.

Plants annual, densely clumped, 0.5-4 dm; stems 1-many, slender, often with flowers nearly to the base; roots fibrous. Leaves few, mostly basal, up to 1.5 mm wide; sheath margins membranous; blades flat occasionally with margins rolled inwards. Involucral bract shorter than the inflorescence. Inflorescence open, with 1-20 flowers, often $\frac{1}{3}$ - $\frac{3}{4}$ of the entire plant; 0.6-12 cm long. Flowers single at the nodes, or in twos and threes; perianth segments long, greenish, pointed to rounded at the tip and widest in the middle, 2-7 mm long, the outer three usually longer than the inner; stamens usually 6, anthers shorter than or

sometimes equaling the filaments. Capsules oblong to almost spherical, 2-4.5 mm long, shorter than the perianth, apex rounded to tipped with a short, sharp point. Seeds ovoid to ellipsoid, 0.3-0.5 mm long, minutely net-veined.

Habitat: Wet meadows, pond and lake margins, streams and rivers at low to middle elevations.

Notes: A common species, growing in open gravels or on muddy shores. Look for annual growth habit.

Juncus castaneus Smith

Plants perennial, 1-4 dm; stems solitary, stiff, erect, leafy; strongly rhizomatous.

Leaves erect, (imperfectly septate, the septa, or walls, not externally evident), the outer sheaths short, loose, the inner clasping, no auricles, their blades tapering from an inrolled-tubular base to a slender, channeled, slightly pointed apex. Involucral bract lower bract leaf-like, usually longer than the inflorescence.

Inflorescence straight and upright, the heads 1-3 (rarely more), usually densely clustered, 2-10 flowered.

Flowers with perianth segments brown, in full flower about 5-7 mm long, becoming 6-10 mm long with the fruit, the outer longer than wide, linear-lanceolate, acute, usually slightly exceeding the narrow, obtuse inner series; stamens 6, equaling the perianth, the anthers shorter than the filaments. Capsules dark reddish-brown to purple-black, narrowly oblong, tapering to an acute apex, imperfectly three-chambered, conspicuously projecting beyond the perianth. Seeds very slightly wider in the middle and tapering towards the ends, 0.6-0.7 mm long, narrowed at each end into a tail two to three times the length of the body (0.8-1.1 mm).

Habitat: Subalpine and alpine bogs and meadows, on streamsides and alpine slopes along frost scars.

Notes: Look for the reddish color in the inflorescence. Known from a few locations on Pikes Peak around the reservoirs, but probably more common than it appears.

Juncus confusus Coville

Plants perennial, densely clumped, 3-5 dm; stems slender; roots fibrous. Leaves basal or the lower ¼ of the stem, 0.5-1.3 mm wide, ½ to ⅔ the length of the stem; blades flat; auricles membranous. Involucral bract 1-13 cm long, greatly exceeds the inflorescence, less than 1 mm wide. Inflorescence congested, with 3-25 flowers. Flowers borne singly, not in heads; perianth segments widest at the base from much longer than wide to egg-shaped, 3-4 mm long, inner segments slightly shorter than outer, tip short or blunt, rigid point, little if at all exceeding the capsule; stamens 6, the anthers much shorter than the filaments. Capsules broadly oblong, tan or darker, the tip blunt, containing three chambers. Seeds unequally rounded from the widest part at the middle to the tip, yellowish, ca. 0.5 mm long, with a short, small, slender point at both ends.

Habitat: Moist grassy meadows, moist woods, springs, and stream banks from low to middle elevations.

Notes: Somewhat similar to *Juncus dudleyi*, but lacking the hard auricles.

DRUMMONDII GROUP (*Juncus drummondii*, *J. hallii* and *J. parryi*)

Juncus drummondii has bristle-tipped upper leaf sheaths, the blade is lacking, and the capsule is blunt and depressed at the apex. The other two species do have blades on the upper leaf sheaths. *Juncus parryi* is very common and has capsules that are oblong and pointed at the apex and longer perianth segments, while *J. hallii* has capsules that are ovoid, broad and depressed at the apex and shorter perianth segments. It is either relatively uncommon or undercollected here.

Juncus drummondii E. Meyer

Plants perennial, densely clumped, up to 4 dm; stems many, terete (rounded in cross section); roots fibrous, matted. Leaves basal, up to 1 cm long, bladeless or tipped with a bristle-like blade 2-10 mm long; basal sheaths short. Involucral bract terete (rounded in cross-section), erect; 1-4 cm long, appearing as a continuation of the stem, usually somewhat longer than the inflorescence. Inflorescence terminal, loosely compact with 2-5 flowers. Flowers subtended by two membranaceous bractlets; perianth segments lanceolate or widely so, (4)5-8 mm long with scarious, clear margins; stamens 6; less than half as long as the perianth; anthers longer than the filaments. Capsules oblong, brown, blunt, three-chambered, 5-7 mm long. Seeds narrowly obovoid (widest at the tip), amber, approx. 0.5-0.6 mm long, finely striate (with fine, parallel lines), long caudate (having tail-like appendages) at each end.

Habitat: Wet and dry meadows, streambanks, talus slopes, and ridges at higher elevations.

Notes: This is a common tuft-forming alpine tundra plant in the Mosquito Range and other alpine areas of Colorado; it is known from the north side of Pikes Peak in wet drainages where stream gravel bars occur on flood plains and probably also occurs around the reservoirs on the peak.

Juncus hallii Engelm

Plants perennial, densely clumped, up to 4 dm; stems slender, terete; rhizomes densely short-branched. Leaves basal and on the lower portion of the stem; the lowest sheaths brownish, bladeless or with a bristle-like blade; the upper with terete (rounded in cross-section) blades, channeled toward the base, 4-15 cm long and less than 1 mm wide; auricles 0.2 mm long. Involucral bract scarious and caudate (with a tail-like tip) to awned or elongate and leaflike with the scarious margins projecting into auricles, usually exceeding the inflorescence. Inflorescence loose to congested, 1-7 cm long; flowers 2-7. Flowers subtended by a pair of bracts ovate to circular in outline; perianth segments lanceolate, acute, 4-5 mm long, usually with greenish centers and purple, hyaline (thin, membranous) margins, the outer segments slightly longer than the inner; stamens 6, anthers about equaling the filaments. Capsules oblong-ovoid, three-edged, clearly rounded with shallow notch at the tip, three-chambered, dark brown, equaling or slightly exceeding the perianth. Seeds oblong-linear, about 0.5 mm long, with 0.3 mm tails; medium brown with fine lines; long-caudate (with a tail-like appendage) at each end.

Habitat: Dry to wet meadows and around ponds and streams in upper elevations from upper montane to subalpine zones.

Notes: This is a somewhat uncommon species.

Juncus parryi Engelm

Plants perennial, densely clumped, 0.5-3 dm; stems many, terete (rounded in cross-section); rhizomes densely short-branched. Leaves basal and on the lower portion of the stem; lower sheaths 1-4 cm long, bristle-tipped, or much reduced; uppermost terete (rounded in cross-section), 3-6 cm long, channeled below and bearing a slender blade; auricles 0.2-0.3 mm long. Involucral bract leaf-like, terete (rounded in cross-section); 2-4 cm long, exceeding the inflorescence and appearing as a continuation of the stem. Inflorescence terminal cluster of 1-4 flowers, 0.7-2.2 cm long. Flowers borne singly, subtended by two membranaceous bractlets; perianth segments 5-9 mm long; light brown with green midstripe; outer lanceolate, acuminate, the inner slightly shorter and acute to rounded; scarious margins; stamens 6, the anthers much longer than the filaments. Capsules narrowly-oblong, acute, tan, three-chambered, usually exceeding the perianth. Seeds narrowly oblong to ovoid, 0.6-0.7 mm long; amber, finely striate with parallel lines; long, white appendage at each end, equal to or longer than the seed.

Habitat: Streambanks, alpine and subalpine meadows.

Notes: This is a common species in the Mosquito Range and elsewhere in Colorado.

“DUDLEYI GROUP” (*J. dichotomus*, *J. dudleyi*, and *J. interior*)

Juncus dichotomus Elliott

Syn. *J. platyphyllus*; *J. tenuis* var. *platyphyllus*

Plants perennial, up to 1m; rhizomes densely branched to short creeping. Leaves basal, 1-3, blade nearly terete (rounded in cross section), channeled or flat; auricles 0.2-0.5 mm long, scarious to leathery, whitish or sometimes purple tinged. Involucral bract usually exceeding the inflorescence. Inflorescence terminal, with (5)10-85(100) flowers, congested to somewhat loose, (1)2.5-10(13) cm long. with perianth segments lanceolate, green, 3-4.5(5.5) mm long, the outer and inner series nearly equal, not spreading in fruit; stamens 6, filaments usually longer than the anthers. Capsules ellipsoid, light tan to darker, one chambered, sometimes appearing three-chambered, 2.5-3.5(4.5) mm long. Seeds ellipsoid, brownish to amber, 0.3-0.4 mm long, not tailed.

Habitat: Probably adventive, not yet recorded in our region but likely on drying pond shores on the plains.

Notes: *J. dudleyi*, the most common species, has auricles that are leathery, yellowish and glossy; perianth segments are spread in fruit and are nearly equal to or exceed the capsule; the sheaths of basal leaves are straw-colored or brown. *Juncus dichotomus*, an adventive species, and *Juncus interior*, a native species, have auricles that are scarious rather than leathery, and whitish or sometimes purple tinged rather than yellow; the perianth does not spread in fruit and in *J. interior* the sheaths of the basal leaves are purplish.

Juncus interior has mature capsules that are light brown or darker, while *J. dichotomus* has mature capsules that are light tan or darker. *J. dichotomus* is not yet recorded in our region but is likely to occur here, particularly in Pueblo County and the region around the Arkansas River.

Juncus dudleyi Wiegand

Plants perennial, 2-10 dm; 1-20 stems; rhizomes densely branching. Leaves basal, 2-3, blades flat, 5-30 cm long; auricles leathery, yellowish, 0.2-0.4 mm long; sheaths of basal leaves straw-colored or brown. Involucral bract usually exceeding the inflorescence. Inflorescence of few flowers, mostly congested, 1-5(9) cm long. Flowers with perianth segments 4-5 mm long, widely spreading in fruit, inner nearly equal to the outer; stamens 6, anthers usually shorter than the filaments. Capsules tan, ellipsoid, containing one chamber, sometimes appearing as three; equal to or shorter than the perianth. Seeds tan to amber, ellipsoid to crescent-shaped, 0.4-0.7 mm, not tailed.

Habitat: moist places, mostly on plains and mesas, sometimes in the lower foothills.

Notes: Look for the distinctive hard, yellowish somewhat shiny, auricles and few flowers.

Juncus interior Wiegand

Plants perennial, 2-6 d; 1-10 stems; rhizomes densely branching. Leaves flat to inrolled,; auricles short, scarious, whitish or purplish tinged, gradually rounded; sheaths of basal leaves purplish. Involucral bract lanceolate and acuminate to broadly ovate and acute or bearing an abrupt awn or bristle at the tip.

Inflorescence usually somewhat compact, 5-7 cm long.

Flowers: perianth segments erect, 3-4(5) mm long, straw-colored, equaling or exceeding the capsule; not spreading in fruit. Capsules light tan or darker, containing one chamber, sometimes appearing three-chambered, ellipsoid to nearly spherical. Seeds tan, ellipsoid to crescent-shaped, 0.4-0.7 mm long, not tailed.

Habitat: Lake and pond margins, plains to montane.

Notes: This is a common pond margin species.

Juncus ensifolius Wikstrom

Syn. *Juncus saximontanus*

Plants perennial, 2-6 dm; stems arising singly or few together, compressed, two-edged; rhizomes creeping. Leaves 1-3, the blades flat but clearly folded, margins rarely prolonged into auricles, distinctly overlapping in two ranks and long and pointed, 7-15 cm long, 3-6 mm wide. Involucral bract sword-shaped, usually half the length of the inflorescence or more. Inflorescence branched, with the flowers maturing from the bottom upwards, generally heads of 4-25 heads 5-15 mm in diameter, spherical, purplish-brown heads (light green to nearly black). Flowers flower attached directly to the stem and subtended by thin, dry, membranous bracts; perianth segments long, pointed to rounded at the tip and widest in the middle, pale greenish-brown to deep purplish-brown, 3-4 mm long, shorter than the capsule; stamens 3 or 6, anthers much shorter than the filaments. Capsules oblong, rounded above, abruptly contracted into a sharp point, containing three chambers, dark brown at maturity, from slightly shorter to somewhat longer than the perianth. Seeds widest in the middle and tapering at the ends, small, slender point or tail at each end, golden brown to dark brown at maturity, 0.4-0.6 mm long.

Habitat: Foothills to middle elevations, wet meadows, lakes, seeps, springs, ditches, and sandbars.

Notes: Look for the distinctive folded and flattened leaf blade.

“LONGISTYLIS” GROUP (*Juncus longistylis* and *J. marginatus*)

These two species can be distinguished by number of stamens (6 in *J. longistylis* and 3 in *J. marginatus*). *Juncus longistylis* is more common than *J. marginatus*, a species for which few records are known in our region. While the range of both overlap in the lower elevations, *J. longistylis* occurs up into the montane elevations.

Juncus longistylis Torrey

Plants perennial, loosely clumped, 2-6 dm; stems slender, somewhat flattened, arising singly or few together; rhizomes long creeping. **Leaves** 10-30 cm long; flattened with three prominent veins, the sheaths

with rounded, scarious auricles. Involucral bract mostly scarious, rarely leaf-like, 1-4 cm long, usually shorter than the inflorescence. Inflorescence 1-4(8) dense clusters of 3-12 flowers, open or clumped, 2-6(10) cm. Flowers with perianth segments broadly lanceolate, acute to acuminate, 5-6 mm long, brown with a broad greenish midstripe, broad whitish margins, membranous, smooth or minutely roughened, the inner slightly longer than the outer; stamens 6, anthers much longer than the filaments. Capsules oblong, rounded, tan, often rounded with a shallow notch at the tip, containing three chambers, beak on the style >1 mm long, brownish or purplish-black, equal to or shorter than the perianth. Seeds oblong, with a slight, small, slender point at each end, conspicuously striate (with fine parallel lines) lengthwise, 0.4-0.6 mm long, not tailed.

Habitat: Wet meadows, seeps, springs, streams from lower elevations to the montane.

Notes: Look for the 6 stamens and longer perianth to distinguish this species from the more uncommon *J. marginatus* (which has 3 stamens and shorter perianth segments).

Juncus marginatus Rostkovius

Plants perennial, densely clumped, 3-13 dm; stems slender, erect, more or less compressed, 1-2.5 mm thick at the base; rhizomes short, thick, often knotty. Leaves flat, soft, the basal ones 0.4-2 dm long, 1-5 mm wide, the blades with three prominent veins, the sheaths with rounded, scarious auricles. Involucral bract shorter than the inflorescence, often inconspicuous. Inflorescence 3-10(15) cm long, open or somewhat compact, with (2)5-200 dense clusters, 4-6 mm in diameter, of 1-10(20) flowers each, the cluster subtended by bracts that taper to a point.

Flowers with perianth segments 2-3.5 mm long, dark brownish usually with a green midstripe, outer segments sharply acute, slightly shorter than the ovate to oblong, inner segments with a blunt, short, sharp point, with green center separated from the thin, membranous margin by a brown band; stamens 3, anthers slightly shorter than the filaments. Capsules obovoid to spherical, thin-walled, tan, rounded to truncate (squared as if cut-off) or rounded with a shallow notch at the apex, beakless, dull, shorter to longer than the perianth. Seeds oblong-ovoid, yellow to light brown, 0.4-0.7 mm long, many-ribbed, apiculate (with a small point) at both ends.

Habitat: Wet places on the plains and lower valleys.

Notes: This species is rare in our area; it can be distinguished from *J. mertensianus* by fewer stamens (3) and shorter perianth segments.

Juncus mertensianus Bongard

Plants perennial, densely clumped, 0.5-4 dm; stems slender and weak, somewhat flattened; rhizomes creeping, matted. Leaves 1-4, some basal, shorter than the stems, sheaths projecting into rounded, opaque, membranous auricles 0.5-2.0 mm long; blades rounded in cross-section, hollow, channeled above, septate; 5-12 cm long, 0.5-1.5 mm wide. Involucral bract equaling to much exceeding the inflorescence. Inflorescence heads usually solitary, sometimes 2 or 3, spherical to somewhat hemispherical, many flowered, up to 2 cm wide. Flowers with perianth segments long, pointed to rounded at the tip and widest in the middle, 3-5 mm long, shorter than the capsule, awl-shaped at the tip, brown to purplish-black; stamens 6, anthers shorter than the filaments. Capsules oblong-ovoid, abruptly rounded to squared, and more or less rounded with a shallow notch at the apex, containing a single chamber, dark brown to purplish-brown, almost equaling the perianth. Seeds lanceolate-ovoid, scarcely 0.5 long, finely net-veined, with minute slender point at each end, dark brown at maturity.

Habitat: Moist meadows and margins of lakes and streams, montane zone to tundra.

Notes: Probably overlooked in subalpine regions of Pikes Peak as it is common elsewhere in upper elevations of Colorado. Our records are few.

Juncus tenuis Willdenow

Plants perennial, densely clumped, 1.5-5 dm tall; stems slender; roots fibrous. Leaves mostly basal, 0.5-1.5 mm wide, from ½ the height of to exceeding the stem; blades flat to having margins rolled inwards. Auricles conspicuous, white, and long-extended. Involucral bract leaf-like, 2-18 cm long, exceeds the inflorescence. Inflorescence branched, with approx. 2-6 flowers, 1-8.5 mm long, congested to open, with unequal, ascending branches. Flowers with perianth segments acute to acuminate, 3-5 mm long, from shorter than to much exceeding the capsule; stamens 6, anthers shorter than the filaments. Capsules oblong-

ovoid to ovoid, usually rounded with a shallow notch, 1-celled. Seeds unequal sides, ovoid-ellipsoid, 0.3-0.4 mm long, with a minute, slender point at each end, obscurely net-veined.

Habitat: Seeps, springs, wet to dry meadows, shaded roads, trailsides, and margins of ditches, streams, washes, ponds and reservoirs.

Notes: Adventive species, infrequent in the lower elevations. Look for the conspicuous white margined auricles of the upper leaf sheaths. This species is easily confused with *J. dudleyi*, and its presence in Colorado has been questionable. Check the auricles!

“TORREYI” GROUP (*Juncus nodosus* and *J. torreyi*)

Both of these species are prone to insect gall infestations and can develop bizarre structures that look like strange orange red flowers in the inflorescence.

Juncus nodosus L.

Plants perennial, 0.4-6(7) dm tall; stems slender, terete (rounded in cross-section), arising singly or in clusters; rhizomes threadlike, creeping, with swollen nodes. Leaves usually 3-5, slender, green to pink, blades erect, terete (rounded in cross-section), septate, 0.5-1.5 mm wide, 6-30 cm long; sheaths projecting into small, rounded auricles 0.5-1.7 mm long. Involucral bract leaflike, erect, exceeding the inflorescence, 6-10(12) cm long. Inflorescence congested to open, 1.5-7 cm long, 3-15 heads of 6-30 flowers, 6-12 mm in diameter. Flowers widely spreading to divergent, lacking bracts at the base; perianth segments narrowly lanceolate and awl-shaped to acuminate, tips not rigid, 2-4 mm long, green to light brown, the inner segments equaling or slightly exceeding the outer; stamens 6, anthers slightly shorter than the filaments. Capsules angular-conic, sharply triangular in cross section, tapering from near the base into a long beak exceeding the perianth, medium brown, containing one chamber, 3-5 mm long. Seeds oblong to obovoid, 0.4-0.5 mm long, finely reticulate, with an abrupt, short, sharp point, medium brown.

Habitat: Wetlands and pond margins, plains to montane.

Notes: *Juncus nodosus* is shorter than *J. torreyi*, 0.4-7 dm tall; the perianth segments are 3-4 mm long, the inner segments equaling or exceeding the outer; heads are usually less than 10 mm in diameter and the leaf blades are erect. *Juncus torreyi* is a taller plant, 4-10 dm tall; the perianth is 4-6 mm long, the inner segments shorter than the outer; the heads are 10-15 mm diameter and leaf blades are abruptly divergent.

J. torreyi Coville

Plants perennial, (3)4-10 dm tall; stems stout, terete (rounded in cross-section), solitary; rhizomes slender, creeping with swollen nodes. Leaves 3-8, the sheaths projecting into rounded auricles 1-4 mm long, green to pink, blades stout, terete (rounded in cross-section) with rounded tips, abruptly divergent, septate, 2-5 mm wide. Involucral bract leaf-like, erect, equals or exceeds the inflorescence. Inflorescence congested with 1-23 spherical heads of 25-100 flowers, 10-15 mm in diameter. Flowers with perianth segments widely spreading and reflexed, green to straw colored, occasionally reddish, 4-6 mm long, the outer segments generally somewhat longer than the inner, narrowly lanceolate and acuminate with rigid tips; stamens 6, the anthers half the length of the filaments. Capsules narrowly 3-angled, tapering from near the base into a long beak, incompletely three-chambered, straw-colored or brown, usually equaling or exceeding the perianth. Seeds oblong to ellipsoid, 0.4-0.5 mm long, finely reticulate, golden brown at maturity, minutely apiculate at each end.

Habitat: Seeps, springs, streamsides, ditches and sloughs in the lower elevations.

Notes: See comments under *J. nodosus*.

Luzula "woodrush"

The woodrushes can grow in similar habitats as the true rush, but tend to be less common in our dry region where wetlands, especially in the higher elevations, are not very abundant. Our woodrushes occur in the foothills to the higher elevations on Pikes Peak. Our most common species is *L. parviflora*; the others are quite uncommon here. Woodrushes can be distinguished from true rushes by the hairs on the leaf edges; they also typically have a softer, less spiky look to them than true rushes. Once the genus is determined, the species on *Luzula* is an easier decision than in *Juncus*: there are far fewer species, and the shape of the inflorescence is characteristic for the few species found here.

Key to the Species

1. Flowers loose, in open, very droopy panicles; plants typically over 30 dm tall.... *L. parviflora*
1. Flowers crowded in spikes or heads, plants typically 20 dm or less.....2
2. Leaves narrow, 1-4 mm wide, with narrow, inrolled tips, bracts at base of inflorescence with narrowly fringed edges.....*L. spicata*
2. Leaves usually broader, flat, bracts at base of inflorescence with entire or only slightly lacerate edges.....3
3. Spike short cylindrical, on short stalks, perianth pale brown or straw colored..... *L. comosa*
3. Spike in tight round heads, either sessile (lacking a stalk) or on long stalks, perianth dark
.....*L. subcapitata*

Luzula comosa E. Meyer

[Including *L. campestris* and *L. multiflora*]

Plants perennial, clumped, 10-40 cm tall. Leaves with sheath carrying long wavy hairs; basal leaves 5-15 cm x 3-7 mm wide; stem leaves shorter. Involucral bract conspicuous, shorter or longer than inflorescence. Inflorescence occurring as stalkless clusters in a spike. Flowers pale to dark brown, with clear margins. Capsules spherical, greenish to dark brown. Seeds brown to reddish brown, cylindrical.

Habitat: Along streams and rivulets, upper montane to subalpine.

Notes: Somewhat uncommon or undercollected in our region but not rare

Luzula parviflora (Ehrhart) Desvoux

Plants perennial, loosely clumped, to 1 m tall, stems somewhat reddish at base. Leaves with sheath carrying long, soft hairs, blade lacking hairs, basal ones to 17 cm long x 5-10 mm wide; stem leaves 7-9 cm x 3-5 mm wide. Involucral bract variable, inconspicuous to leaflike.

Inflorescence few to many flowered, highly branched, with long drooping branches. Flowers 2-4 per cluster, brown, tepals lanceolate. Capsules variable in color from straw colored to brown or black, spherical. Seeds elliptical, brown to red or purplish.

Habitat: Wet areas, bogs and seeps, lower foothills to subalpine zones.

Notes: This is our most common species, occurring in wet, cool, shady areas of the foothills. Look for the droopy, branching inflorescence.

Luzula spicata (L.) DeCandolle

Plants perennial, densely clumped, to 30 cm tall. Leaves with sheaths densely hairy, basal leaves erect, narrowly linear, to 15 cm long. Involucral bract conspicuous, longer than the inflorescence. Inflorescence in tight spike-like clusters, sometimes with gaps between clusters. Flowers pale brown to darker brown with clear margins. Capsules brown to blackish. Seeds brown, cylindrical.

Habitat: Alpine tundra and subalpine meadows.

Notes: Look for the spiky inflorescence. Known from Pikes Peak.

Luzula subcapitata (Rydberg) H.D. Harrington

Plants perennial, clumped from short rhizomes. Leaves with basal leaves to 15 cm long, stem leaves only 1-3 cm. Involucral bract conspicuous, leaflike. Inflorescence a compact, irregular cluster of flowers. Flowers shiny brown, with thin clear margins. Capsules deep purplish brown, globose. Seeds brown, cylindrical.

Habitat: Subalpine and alpine willow bogs.

Notes: Not yet collected here, but likely to occur on Pikes Peak and simply overlooked. The habitat and characteristic round look to the inflorescence, along with the broad stem leaves, should distinguish this species from others.

Juncaginaceae: Arrowgrass Family

This family is one of wet, usually saline meadows, very common along the seashore and here occurring in the alkaline soils of the plains. The graminoid leaves are somewhat distinctive: they are all basal, semi-rounded, with membranous basal sheaths. Look for the spike-like inflorescence of tiny clusters of greenish flowers and fruits at the top. Species are distinguished by the number of stigmas and by characteristics of the leaf ligules.

Triglochin maritima L.

Plants with 6 stigmas, fruits oblong to ovoid. Leaves usually wider than 2 mm. plants robust.

Habitat: Moist alkaline areas, plains to montane.

Notes: Not an uncommon species, but sometimes a widely scattered component of moist salty meadows, so appearing rare. Look for the wider leaves and greater number of stigmas as well as the broader fruit shape.

Triglochin palustris L.

Plants with 3 stigmas, fruits linear to club-shaped. Leaves usually less than 2 mm wide. Plants somewhat slender in comparison to other species of *Triglochin*.

Habitat: Moist alkaline meadows, middle elevations (including Black Forest area).

Notes: Look for the narrower leaves and more slender aspect, as well as the fewer stigmas and narrow fruits.

Lamiaceae: Mint Family

The mint family can be readily identifiable: bilabiate flowers (two-lipped, like a snapdragon), square stems, opposite leaves and a familiar “minty” or strong spicy smell are familiar characteristics. Many of our cooking herbs are part of this family; oregano, sage, rosemary, and thyme are all members of this large family. However, not all mints are aromatic, and other families may be mistaken for mints. Check the flowers carefully when in doubt: easy confusion can occur with the Lythraceae, Verbenaceae and the Scrophulariaceae (in the broad sense, especially the Plantaginaceae group), all families that share some characteristics with the Lamiaceae. Mints have 4 stamens, 2 long and 2 short, with an ovary divided into 4 lobes (called “nutlets”). Nettles (the genus *Urtica* in the Urticaceae) can also at first appear mint-like, but the stinging hairs and delicate drooping flowers are quick id checks on that species.

Key to the Genera

1. Calyx having a noticeable lateral ridge across the upper side, plants not aromatic.....*Scutellaria*
1. Calyx lacking lateral ridge, plants aromatic or not.....2
2. Calyx radially symmetrical with 10 teeth, 5 short and 5 long.....*Marrubium*
2. Calyx bilaterally symmetrical OR with only 5 teeth of similar size.....3
3. Upper lobes of corolla hard to detect or corolla appearing with only 1 (lower) lip.....*Teucrium*
3. Corolla with upper lobe easy to detect.....4
4. Corollas with 2 fertile stamens only5
4. Corollas with 4 fertile stamens.....8
5. Calyx radially symmetrical.....6
5. Calyx bilaterally symmetrical (2-lipped).....7
6. Corollas very small, less than 6 mm long, corolla lobes appearing 4, plants not aromatic.....*Lycopus*
6. Corollas longer than 10 mm, corollas appearing 2 lipped, plants aromatic.....*Monarda*

- ..
7. Flowers to about 3 mm, plants very minty-smelling, calyx with a ring of hairs inside.....*Hedeoma*
 7. Flowers larger than 5 mm, plants not aromatic or only slightly so, calyx lacking hairs.....*Salvia*
8. Inflorescences occurring in the leaf axils.....9
 8. Inflorescence terminal.....11
9. Flowers sessile, lacking pedicels and occurring directly in the axils.....10
 9. Flowers on pedicels, these sometimes short, plants very "minty" smelling.....*Mentha*
10. Plants stout, with palmately cleft leaves.....*Leonurus*
 10. Plants low and creeping, leaves simple, with crenate margins.....*Lamium*
11. Calyx radially symmetrical.....12
 11. Calyx bilaterally symmetrical (2 lipped).....13
12. Stamens exserted from the corolla, flowers blue, leaves with felt like hair on underside.....*Agastache*
 12. Plants not as above.....*Stachys*
13. Corolla white, lower lipped purple spotted, plants smelling like catnip.....*Nepeta*
 13. Corolla purplish, rose or blue, upper lip with at least 1 tooth different in shape than those on lower lip.....14
14. Plants perennial, leaves lanceolate-ovate, margins only slightly toothed.....*Prunella*
 14. Plants annual, leaves sharply toothed to entire, calyx with 1 lobe larger than others.....*Dracocephalum*

A weedy lawn species called *Glechoma hederacea* ("gill over the ground") also occurs in our area somewhat infrequently. This species has a creeping growth habit and kidney shaped leaves with crenate margins. This species is abundant in the eastern part of the country, but not very common here due to the drier conditions.

Agastache "giant hyssop"

Agastache foeniculum (Pursh)Kunze

Plants to 1 m, leaves somewhat deltoid in shape, lower surfaces with whitish felt-like hairs, aromatic like licorice; flowers in blue spikes.

Habitat: Moist riparian areas.

Notes: A rare species in Colorado, known only from a few locations, in our region from the Beulah area. Look for the strong anise smell and distinctive blue flowering spikes.

Dracocephalum "false dragonhead"

Dracocephalum parviflorum Nuttall

Syn. *Moldavica parviflora*

Plants to about 0.5 m, leaves lanceolate to oblong, sharply toothed to entire, upper with spiny teeth.

Flowers bluish to pink to rose purple, in showy spike-like clusters, with prominent comblike (pectinate) bracts.

Habitat: Moist montane and foothills meadows, mesas and grasslands.

Notes: The common name comes from the prominent broad, sharp-pointed bracts in the inflorescence. Somewhat uncommon in our region.

Hedeoma "pennyroyal"

Hedeoma drummondii Bentham

Plants perennial, usually under 30 cm tall, branched from the base and somewhat woody there, leaves yellowish green, elliptical-ovate to 3 mm wide, strongly smelling of mint. Flowers pink-purple, to 8 mm long, calyx 5-7 mm, with lower teeth longer than upper teeth and strongly bilabiate (two lipped).

Habitat: Dry areas, plains, rocky ridges, and lower foothills; common in Pueblo and Fremont Counties, and in hot areas of the foothills in southern El Paso Co..

Notes: Look for the tiny purple flowers, strong minty smell, and bilabiate calyx.

Hedeoma hispidum Pursh

Plants annual, to 30 cm, stems single or branched from the base but lacking woody stems there, stems with long hairs, leaves linear, hispid-ciliate on the margins. Flowers to about 6 mm, blue-purple, calyx with teeth more or less the same length, not strongly bilabiate.

Habitat: Plains and mesas, less common than *H. drummondii*.

Notes: Look for the annual habit, more narrow leaves, and different calyx morphology.

***Lamium* “dead-nettle”**

Lamium amplexicaule L.

Plants low and sprawling, lower leaves orbicular, upper leaves clasping the stem. Flowers purple, in leaf axils, to about 15 mm long.

Habitat: Lawn, gardens, and moist disturbed areas around yards and roadsides.

Notes: A common adventive species around towns, but not spreading abundantly in our region.

***Leonurus* “motherwort”**

Leonurus cardiaca L.

Plants with stems to 1 m, leaves with petioles, blades rounded, deeply 3-5 palmately cleft with prominent veins. Flower pink to red or sometimes white, densely hairy, in tight axillary clusters near top of the stem.

Habitat: Moist areas, along drainage channels and streamsides, lower elevations to montane.

Notes: An uncommon adventive species; look for the deeply cleft leaves and hairy pink flower clusters.

***Lycopus* “bugleweed, water horehound”**

Lycopus americanus Mühlenberg ex W. Barton

Plants to about 0.5 m, leaves lanceolate to ovate, pinnatifid or more commonly incised, to several cm long, not aromatic. Calyx to about 3 mm long, with awn pointed tips on the calyx teeth, flowers white, about the same length as the calyx. Inflorescences in tight axillary clusters.

Habitat: Wetlands, streamsides and riparian zones, plains to montane.

Notes: A common wetland species often growing with *Mentha*, but not aromatic. The incised leaves and small white flowers in small ball-like clusters are distinctive.

***Marrubium* “horehound”**

Marrubium vulgare L.

Plants to about 1 m tall, leaves somewhat ovate in shape, with deeply impressed veins and white hairs. Flowers in dense ball like clusters on the upper portion of the stem, white, to 3 mm long.

Habitat: Disturbed areas, dry grasslands, plains, foothills through montane.

Notes: Adventive species especially common on overgrazed prairie and in dry disturbed areas. The leaves are typically small round ovals with a very white appearance from the dense tomentum, but when growing with more moisture, they can become larger and more elliptical in shape, with less dense hairs. The rounded flower clusters on the upper stem are distinctive.

***Mentha* “mint”**

True mints are usually quite unmistakable with their characteristic odor (check also *Hedeoma* and *Monarda* if plants are growing in a dry habitat). While some cultivated mints like spearmint (*Mentha spicata*) can sometimes become naturalized, our region is typically too dry for this to be common here. This is our only native species in the genus.

Mentha arvensis L.

Plants to about 40 cm tall, leaves to 5 cm, oblong to ovate or lanceolate, crenate-serrate on the margin, strongly aromatic of mint. Flowers in dense axillary clusters, pink to about 5 mm long.

Habitat: Wet or moist meadows, plains to montane.

Notes: A very aromatic and unmistakable species: look for the leaf shape and flower color as well as the smell. It is often possible to smell this species before you see it when walking in wetlands.

Monarda “beebalm”

Many gardeners are familiar with beebalm as a garden plant. The dense flower clusters are characteristic and do indeed attract bees with their aroma. *Monarda* smells like a rank mint, not like the more delicate after dinner candy smell of true mints.

Monarda fistulosa L. var *menthifolia* (R. Graham) Fernald

Plants perennial, stems to 1 m or more tall, usually little branched. Leaves ovate-lanceolate, margins serrate, Flowers in large clustered heads, head to several cm broad, flowers to 1.5 cm long, deep pink. Flower clusters subtended by bracts.

Habitat: Moist meadows, foothills to montane, sometimes in moist areas of the plains.

Notes: A common species in meadows with at least subsurface irrigation. Look for the big pink heads.

Monarda pectinata Nuttall

Plants annual, stems to 40 cm, branched from the base. Leaves ovate-lanceolate, margins serrate. Flowers in heads occurring on interrupted spikes, pink to whitish, bracts with long tips.

Habitat: Plains and foothills, usually in drier areas than *M. fistulosa* and much less common here.

Notes: Look for the smaller lighter colored heads and annual growth habit. Known here from Fremont Co.

Nepeta “catnip”

Nepeta cataria L.

Plants to about 0.5 m, stems leafy, leaves broad, to several cm, based cordate or truncate, coarsely dentate on the margins, usually pale below and green above. Flowers white, lower lip purple spotted, in dense terminal spikes.

Habitat: Disturbed areas.

Notes: A common adventive species throughout the region. Look for the white flowers and truncate to cordate leaf bases; plants are strongly aromatic with a catnip odor.

Prunella “heal-all”

Prunella vulgaris L.

Plants with leafy stems to 30 cm, leaves to 5 cm long, ovate to lanceolate, cuneate at the base, margins entire to only slightly toothed. Flowers purple, in terminal spikes, calyx 2 lipped, upper lip truncate with 3 small teeth, lower lip 3-lobed.

Habitat: Moist areas, lower and middle elevations.

Notes: Look for the characteristic calyx with the 3 small teeth.

Salvia “sage”

The common name “sage” is confusing: culinary sage is *Salvia*, in the mint family, while our sagebrush, known as sage in western United States, is *Artemisia* in the Asteraceae. While culinary sage is an aromatic garden plant with bright pinkish flowers and pale leaves, our only native species here is a nondescript, non-aromatic weedy species of roadsides and trails, not characteristic of the large genus *Salvia* at all.

Salvia reflexa Hornemann

Plants annual, to about 30 cm, stems branched from the base. Leaves narrow, lanceolate to linear. Flowers bluish, to about 5 mm, equal to or shorter than the calyx and very indistinct, inflorescence a terminal spike or in leaf axils.

Habitat: Dry gravels, common along along roadsides and trails, blooming in early summer.

Notes: A common but nondescript species, when not in flower with a superficial resemblance to *Lappula* in the Boraginaceae.

Scutellaria “skullcap”

Scutellaria is an easy genus to place first in the Scrophulariaceae (Plantaginaceae group): it looks like a small *Penstemon* at first glance. Look for the “skullcap” calyx to quickly place it correctly here; the calyx has a sideways crest or ridge across it.

Scutellaria brittonii T. C. Porter

Plants usually less than 20 cm, often branched from the base. Leaves oval to oblong, upper ones sessile, margins entire, with flowers in the axils. Flowers deep blue, often paired, to 3 cm long.

Habitat: Montane forests and dry meadows, often as an understory species in ponderosa pine forests.

Notes: Easy to recognize when blooming, and usually locally abundant. A very characteristic species of the Black Forest, foothills, and montane meadows throughout our region.

Scutellaria galericulata L.

Plants to about 0.5 m, stems single or branched, pubescent with curly hairs, often stoloniferous. Leaves shortly petiolate, ovate-lanceolate, margins serrate. Flowers pinkish, occurring in the upper leaf axils.

Habitat: Wet meadows, known here from the Black Forest and Teller County wetlands.

Notes: Somewhat uncommon here, but a distinctive species. Look for the paired flowers in the leaf axils and serrate leaf margins.

Scutellaria laterifolia L.

Plants with stems to 1 m, leaves ovate, margins toothed. Flowers in clusters in leaf axils, bluish.

Habitat: Plains wetlands, rare to uncommon in our area.

Notes: Look for the axillary flower clusters, without paired flowers.

***Stachys* “hedge-nettle, betony”**

Stachys palustris L. ssp. *pilosa* (Nuttall) Epling

Plants with stems to 0.5 m, usually single or little branched, with spreading hairs. Leaves oblong, sessile, to about 8 cm, long pubescent. Flowers bilabiate, pink, in interrupted spikes; calyx radially symmetrical.

Habitat: Wetlands, streamsides, lower elevations to montane.

Notes: A very common wetland species. Look for the sessile leaves to distinguish this from other wetland species with large pink flowers.

***Teucrium* “germander”**

Teucrium has an unusual flower: it has a short, often divided upper lip, and a much more distinctive larger lower lip with 5 lobes. It is so conspicuous that it looks like there is only a single lip to the flower.

Teucrium canadense L. ssp. *occidentale* (A. Gray) McClintock & Epling

Plants to about 0.5 m, usually single, branching only in the inflorescence. Leaves serrate, not divided, ovate to oblong, to 9 cm long, shortly petiolate. Flowers to about 15 mm long, light rose to purple.

Habitat: Wet meadows, streamsides, lower elevations to montane.

Notes: Somewhat similar to *Stachys* but with a distinctive flower structure.

Teucrium laciniatum Torrey

Plants to less than 25 cm, stems in short bunches. Leaves pinnately divided, lobes sometimes twice divided. Flowers white, to about 1 cm long.

Habitat: Dry gravelly or sandy soils, plains and lower foothills.

Notes: Common in Pueblo and Fremont Counties, less abundant to the north and in the foothills. Look for the deeply divided “lacinate” leaves.

Lemnaceae: Duckweed Family

The duckweeds have small, flat plant bodies that resemble algae. The tiny green disks float on pond surfaces, with short dangling roots. They have minute male and female flowers on the same disk, both of which lack sepals and petals; flowers are rarely seen. Relatively few collections exist from our region: other species have been collected elsewhere in Colorado but are not yet known from our region. Some botanists place *Lemna* into an inclusive concept of the Araceae, Arum Family.

Lemna minor L.

Plants with small green oblong disks and dangling rootlets, forming green colonial mats on pond surfaces.

Habitat: Shallow pond and still water surfaces, lower elevations.

Notes: Duckweeds are common bright green mats on shallow ponds. We may have more than a single species here, but few specimens have been collected to assess our duckweed diversity.

Lentibulariaceae: Bladderwort Family

The bladderworts are a group of aquatic, carnivorous plants that live in shallow ponds. The flowers resemble *Linaria* in the Scrophulariaceae/Plantaginaceae (butter and eggs), and the divided leaves have small inflated bladders that trap aquatic insects. The genus is poorly known in Colorado, and often inconspicuous since plants rarely flower.

Utricularia minor L.

Plants aquatic, leaves branched into dichotomous, palmately divided, forks with small bladders on the tips; flowers yellow, bilaterally symmetrical.

Habitat: Shallow ponds, lower elevations through montane zone.

Notes: Uncommon to rare in our region, probably often overlooked.

Utricularia vulgaris L.

Plants aquatic, leaves pinnately divided with small bladders at the tips. Flowers yellow.

Habitat: Wetlands, shallow water, lower elevations through montane.

Notes: Look for the entire (non-toothed) leaf margins, and pinnate (divided to midrib) leaves.

Liliaceae: Lily Family

Broadly defined, the Lily Family represents a large group of classic monocots, with open radial symmetry, 3 sepals and 3 petals, and parallel venation in the leaves. Some botanists prefer to divide the family into many smaller segregates, other place these as subfamilies and regard the Liliaceae more broadly. The treatment here is a conservative and traditional one that places numerous genera into a single family for the purposes of ease in identification; the exception is the Alliaceae, the Onion Family, which easily recognized and separately out here. Alternative family placements are given where appropriate.

1. Flowers with inferior ovaries and radially symmetrical, yellow flowers.....*Hypoxis*
1. Flowers with superior ovaries, flowers not as above.....2
2. Sepals and petals appearing different, petals white, showy, leaves alternate.....*Calochortus*
2. Sepals and petals appearing alike (known as tepals), flowers and leaves not as above.....3
3. Inner tepals with a prominent gland at the base, flowers to about 1 cm diameter, in a raceme..*Zigadenus*
3. Inner tepals lacking a gland, flowers not as above.....4
4. Leaves mostly basal5
4. Leaves alternate.....7
5. Leaves linear, to 4 mm wide, flowers white, occurring at the base of the leaves, blooming in early spring on the plains and mesas.....*Leucocrinum*
5. Plants not as above, flowers occurring at the top of the stem, alpine tundra species.....*Lloydia*
6. Plants with large, showy, orange red flowers.....*Lilium*
6. Plants not as above.....7
7. Plants with leafy stems, flower small, white, terminal, tepals narrow, fruit a berry.....*Maianthemum*
7. Plants not as above, flowers yellow, inflorescence axillary or terminal.....8
8. Flowers axillary, berries smooth, red.....*Streptopus*
8. Flowers terminal, berries angular, orange-red.....*Disporum*

***Calochortus* “sego lily, mariposa lily”**

Calochortus gunnisonii S. Watson

Plants to about 30 cm, stems slender, from a bulb; leaves linear, alternate, to about 20 cm long, flowers showy, white, to about 6 cm broad, with 3 broad petals and 3 narrow sepals.

Habitat: Grasslands, from the plains to the montane.

Notes: One of our most showy grassland species of early summer. Look for the broad white petals with fringe inside. Some botanists place this into its own family, the Calochortaceae.

***Disporum* “bellwort, fairybells”**

Our representatives of this group, which also includes the genus *Streptopus*, occur in the few deep shady places that we have on our generally arid landscape. Both are characterized having a berry as the fruit and elliptical to lanceolate leaves. *Streptopus* and *Disporum* are sometimes put into the Uvulariaceae, a segregate family of the Liliaceae.

Disporum trachycarpum (S. Watson) Benth & Hooker

Syn. *Prosartes trachycarpa*

Plants to about 60 cm tall, stems branched, leaves ovate to ovate-lanceolate, flowers white to creamy, to 15 mm long, 1-3, terminal, berries orange-red, angular.

Habitat: Moist shady forests, montane zone, foothills canyons along streams.

Notes: Look for the broadly ovate leaves and more orange-red berries. *Disporum* is much less common here than *Streptopus* and does not have the zig-zag look to its stem.

***Hypoxis* “yellow stargrass”**

This species, known here from near Falcon in El Paso Co., is more common in the Midwest prairies. It has been placed in a variety of plant families: the Amaryllidaceae, the Liliaceae, the Iridaceae, and its own, the Hypoxidaceae.

Hypoxis hirsuta (L.) Coville

Plants low, stems to 20 cm, leaves linear, grasslike, longer than the flowering stems. Flowers radially symmetrical with 6 yellow tepals, each to about 1 cm in diam. Plants very inconspicuous.

Habitat: Moist swales and wetlands, plains grasslands where seeps occur.

Notes: A rare species in Colorado. The flowers are bright yellow, but bloom only a short time.

***Leucocrinum* “sand lily”**

***Leucocrinum* is sometimes placed into the Agavaceae, yucca family.**

Leucocrinum montanum Nuttall ex A. Gray

Plants low, stems very short to lacking, with base of flowers buried in the leaves, leaves to about 12 cm, linear, often folded. Flowers radially symmetrical, with 6 white tepals (petals and sepals looking alike).

Habitat: Sandy soils, plains through lower foothills.

Notes: A very common early spring wildflower of the lower elevations.

***Lilium* “lily”**

The true lilies are well known as horticultural plants: 3 large showy petals and 3 sepals that are not distinguished by color or size and thus called collectively “tepals”. Our dry woods have few species, although the lily genus as a whole is large. The single representative here, the Philadelphia or wood lily, is an endangered species here. Admire it, but don't pick it.

Lilium philadelphicum L.

Plants to about 0.5 m, stems erect, with linear lanceolate leaves to about 5 cm long. Flowers large and showy, to about 10 cm in diam, with 6 orange tepals.

Habitat: Moist meadows, high plains, foothills to montane, often along streams or in aspen groves.

Notes: The wood lily is an unmistakable and showy wildflower of early summer: look for its large orange flowers. Unfortunately, its beauty has led to a threatened status in Colorado due to overcollecting.

***Lloydia* “alplily”**

The delicate alp lily is a common component of the subalpine and tundra zones of North America and Eurasia. Like true lilies, it has 6 tepals; the flowers are a whitish green color, and not very showy.

Lloydia serotina (L.) Salisbury ex Reichenbach

Plants slender, low, to about 10 cm. Leaves linear, only a few mm wide. Flowers usually somewhat nodding, single, to about 1 cm in diam., white, with darker veins in the tepals.

Habitat: Subalpine and tundra meadows, often in rocky areas.

Notes: Look for the single flower and grass-like leaves. The poisonous *Zigadenus*, another liliaceous species of higher elevation, has multiple flowers on the raceme.

***Maianthemum* “false solomon’s seal”**

This group, close relatives to the eastern mayflower and the familiar garden lily of the valley, are sometimes placed in the Convallariaceae, the Lily of the Valley Family, or in the Ruscaceae. As a whole, the group has leafy stems, berries, and rhizomes.

Maianthemum racemosum (L.) Link

Syn. *Maianthemum amplexicaule*; *Smilacina racemosa*

Plants to about 30 cm, leaves broadly ovate, bases clasping the stem. Flowers white, to about 2 mm, numerous, in a panicle; fruit a red or blackish berry.

Habitat: Montane zone, in conifer and aspen forests.

Notes: A less common species throughout our region than *M. stellatum*. Look for the multiple small flowers and broad oval leaves with clasping bases; the flowers become prominent berries in the fall.

Maianthemum stellatum (L.) Link.

Syn. *Smilacina stellata*

Plants to about 30 cm, leaves narrowly ovate lanceolate. Flowers white, few, in a terminal raceme. Fruit a red berry.

Habitat: An extremely common species with a wide ecological amplitude throughout our region: grasslands, mesas, foothills, and montane zone, from moist streamsides to thicket understories, to grassland.

Notes: Look for the lanceolate leaves where the bases do not clasp the stem, and the relatively few flowers, becoming bright red berries in the fall.

***Streptopus* “twisted stalk”**

See the comments under *Prosartes*.

Streptopus amplexifolius (L.) DC.

Syn. *Streptopus fassettii*

Plants to about 0.5 m, stems somewhat zigzag or jointed in appearance. Leaves broadly elliptical. Flowers on slender pedicels, axillary, tepals creamy, recurved in anthesis. Fruit a smooth, round, berry.

Habitat: Moist shady woods, montane zone.

Notes: While neither *Prosartes* nor *Streptopus* are particularly common in the Pikes Peak region, *Streptopus* is more easily found. The stem is more twisted, the flowers have recurved (bent back) tepals, and the berries are different than in *Prosartes*. Both genera can be found in the Palmer Divide region and on the west side of Pueblo County in the Wet Mountain foothills.

***Zigadenus* “death camas”**

This genus looks like a cross between an orchid and a wild onion. The racemose inflorescence of yellowish-white flowers is reminiscent of some of our orchids, although the habitat of death camas is typically in mesic to dry grasslands and the flowers are not bilaterally symmetrical as they are in orchids. The somewhat succulent stems are like wild onions, which also grow in dry grasslands, but *Zigadenus* lacks the classic smell of *Allium*. The common name is a warning: this plant is poisonous, so confusion with onions would be a bad mistake for foragers! Death camas has also been placed in the Melanthiaceae, False-Hellebore Family.

Zigadenus elegans Pursh

Syn. *Anticlea elegans*,

Plants to about 30 cm tall, flowers yellowish to creamy white. Tepals (sepals and petals that look alike) 0.7-1 cm long, stamens equal in length.

Habitat: Meadows, montane to alpine zones.

Notes: A common species of the higher elevation meadows.

Zigadenus venenosus S. Watson

Syn. *Toxicoscordion venenosus*

Plants to about 50 cm tall, flowers pale yellowish to creamy. Tepals short, to about 0.5 cm, stamens longer than tepals.

Habitat: Dry grasslands, plains and lower elevations.

Notes: Blooms early in the season, usually midMay on the plains.

Linaceae: Flax Family

The Flax Family can be recognized by the flowers of 5 delicate petals and sepals in shades of yellow, blue, or copper. These bloom in the morning light, and petals drop by the end of the day, with additional flowers in bloom the following day. Most stems are single and somewhat drooping at the tip from the flowers; *Linum* is often a component of dryland seed mixes. Some botanists divide the larger genus *Linum* into segregate genera that include *Mesynium* and *Adenolinum*.

Linum australe Heller

Syn. *Mesynium australe*

Plants annual, with stems to ca. 0.3 m, glabrous. Flowers yellow, petals ca. 5 mm long, style branches less than 6 mm long.

Habitat: Grasslands, most common in the Pueblo-Cañon City region.

Notes: Most similar to *L. rigidum* and easily confused except for size of the petals and style branches. It is not entirely clear that these are separate species.

Linum lewisii Pursh

Syn.: *Adenolinum lewisii*

Plants perennial, with stems to 0.5 m, often with multiple and branching from the base. Flowers blue, 1-1.5 cm with inner sepals entire.

Habitat: Plains to montane.

Notes: This is our native species, most easily confused with the annual cultivated *L. usitatissimum*, which has slightly larger flowers and sepals with ciliate margins, and with *L. pratense*, also an annual and often cultivated species that has shorter stems that do not branch. *Linum usitatissimum* has not been documented from our region, but probably occurs here as a roadside planting, at least for short term populations.

Linum pratense Norton

Syn. *Adenolinum pratense*; *L. catharticum*

Plants annual, with stems to 0.3 m, usually unbranched. Flowers blue to whitish.

Habitat: Disturbed areas, roadsides at lower elevations.

Notes: Adventive species, uncommon in our region but occasionally naturalized from seed mixes.

Linum puberulum Englemann in A. Gray

Syn. *Mesynium puberulum*

Plants with short stems, less than 10 cm tall, plants grey pubescent; flowers copper colored.

Habitat: Plains grasslands.

Notes: This is a beautiful species with its distinctive copper colored flowers. It is common, but stems are scattered and often difficult to see if the flowers are not open.

Linum rigidum Pursh

Syn.: *Mesynium rigidum*

Plants annual, stems to ca. 0.5 m, often shorter, glabrous. Flowers yellow, petals over 1 cm long, style branches more than 6 mm long.

Habitat: Plains grasslands.

Notes: This species is difficult to see in the grasslands unless the flowers are open. It is very similar to *L. australe*, which has smaller flowers and shorter style branches.

Loasaceae: Blazingstar Family

This is a distinctive family with its scratchy, velcro-rough leaves that stick to clothing, and often showy flowers. Some of the species can be difficult to distinguish, especially those that have bright yellow petals. Habitat and elevation can be helpful in distinguishing some of them. Segregate genera of *Acrolasia* and *Nuttallia* have been proposed in addition to the traditional *Mentzelia*, but most botanists still place all of our representatives into a single genus. All of our species like open dry ground with little competing vegetation.

***Mentzelia* “blazing star”**

Mentzelia albicaulis Douglas ex Hooker

Syn. *Acrolasia albicaulis*

Plants annual, stems white, few; flowers yellow, petals very short, to ca. 5 mm, notched. Capsules narrowly cylindrical.

Habitat: Dry gravelly or sandy areas in the southern portion of our region, esp. in Fremont County in canyons along the Arkansas River and grasslands of central Pueblo County.

Notes: This is a very distinctive species with its white stems and short yellow petals. It is the only annual species in the group, and often flowers early in the spring from a basal rosette. The small flowers with notched petals are very different from the star-shaped ones seen in the other species we have here; these multiple differences support recognition as a separate genus.

Mentzelia chrysantha Englemann ex Brandegee

Syn. *Nuttalia chrysantha*

Plants biennial, in second year with multiple stems to 0.5 m tall, topped with many bright yellow petalled flowers; seeds with very narrow wings; leaves sinuate dentate.

Habitat: Open dry calcareous road cuts, esp. along CO 50 in the Arkansas Valley, and on limestones, chinks, and calcareous shales throughout the Middle Arkansas Valley.

Notes: Virtually indistinguishable from *M. reverchonii* of the Great Plains and southeast CO except in the seed characteristics: *M. reverchonii* has broader wings on the seeds. *Mentzelia chrysantha* is considered to be a rare species, and is interestingly most abundant now on anthropogenic disturbance along highways.

Mentzelia decapetala Pursh ex Sims

Syn. *Nuttalia decapetala*

Plants robust, biennial or perennial, stems to 1 m. Flowers creamy, large, with 10 long petals 6-10 cm long, showy. Leaves sinuate-pinnatifid.

Habitat: Open banks, often on sandstone, lower elevations and foothills.

Notes: This is an unmistakable species with its huge showy cream colored flowers.

Mentzelia densa Greene

Syn. *Nuttalia densa*

Plants biennial, low, stems few, decumbent and sprawling. Flowers bright yellow, leaves coarsely dentate.

Habitat: Base of cliffs and outcrops, Arkansas Valley from Cañon City west.

Notes: Some botanists consider this species somewhat dubiously distinct from *M. speciosa*, but the growth habit and distribution of the two are very different. *Mentzelia speciosa* is typically a plant of Pikes Peak gravels. *Mentzelia densa* is close in distribution to *M. chrysantha* but the latter species is upright and bushy rather than sprawling.

Mentzelia multiflora Nuttall

Syn. *Nuttalia multiflora*

Plants biennial, stems to 0.5 m, relatively slender and upright. Flowers separate, pale yellow.

Habitat: Lower foothills, canyons, open rocky or gravelly slopes.

Notes: A common species of the foothills; look for the pale yellow flowers.

Mentzelia nuda Pursh

Syn. *Nuttalia nuda*

Plants biennial, stems upright. Flowers white to creamy, petals 10, to 7 cm long.

Habitat: Sandy areas, plains.

Notes: This is abundant on sandhills of eastern El Paso and Pueblo Counties, forming large colonies in areas of open sand. Flowers open at the end of the day. It can be distinguished by flower color and by length of the petals, which are shorter than those *M. decapetala*, as well as the sand habitat.

Mentzelia oligosperma Nuttall ex Sims

Plants relatively slender, stems to 0.5. Flowers bright coppery orange; leaves barely lobed, extremely prone to sticking to clothing.

Habitat: Outcrops and shaley soils, south of Pueblo. Uncommon in our region but more common in southeastern Colorado.

Notes: This species is very distinctive with its orange flowers.

Mentzelia rusbyi Wooton

Syn. *Nuttallia rusbyi*

Plants biennial, flowers creamy to white, petals 5, less than 2 cm long.

Habitat: Montane zone, in gravelly soils, often somewhat mesic.

Notes: Known only in the western portion of our region in Florissant Fossil Beds, and to be expected elsewhere in nearby Teller and Fremont Counties. More common in intermountain parks to our west.

Mentzelia speciosa Osterhout

Syn. *Nuttalia speciosa*; *Mentzelia sinuata*

Plants low and sprawling, stems often single. Flowers bright yellow, leaves narrow, coarsely dentate to almost pinnatifid.

Habitat: Open gravelly soils of the Pikes Peak massif, common on roadcuts and eroding banks.

Notes: A distinctive species with its sprawling habit and yellow flowers. Somewhat difficult to distinguish from *M. densa* of the Arkansas Valley and perhaps dubiously distinct.

Lythraceae: Loosestrife Family

This family looks superficially like the mints: square stems and opposite leaves, plus the preference for damp habitats can fool you! However, look closely at the flowers and you will see that they are regular, not bilaterally symmetrical, and they have an even number of sepals, rather than the 5 fused sepals seen in the Lamiaceae! Loosestrife (the genus *Lythrum*, not the other non-related genus *Lysimachia* in the Primrose family, which also goes confusingly by the common name loosestrife!) includes one of North America's most invasive plants, purple loosestrife (*L. salicaria*), which has become pervasive in wetlands in many northern areas, along with some native, non-invasive species, one of which occurs here. Luckily, although purple loosestrife does occur occasionally in Colorado, the lack of wetlands in our region has kept it from being widely problematic here.

Lythrum "loosestrife"

Lythrum alatum Pursh

Plants perennial, to ca 1 m tall, usually with branched stems. Leaves opposite, sessile, lanceolate to oblong, 3-5 cm. Flowers solitary or in pairs, axillary, purple, radially symmetrical.

Habitat: Plains wetlands, drainages of lowland areas.

Notes: This is a very uncommon species in our area, known only from wetlands of the Chico Basin region and into northern Pueblo Co. around springs and areas of high water table. It can be distinguished from the "bad" *Lythrum* by its shorter stature, and its few, axillary flowers rather than the showy purple spikes.

Lythrum salicaria L.

Plants perennial, to 1.5 m, usually with highly branched stems. Leaves lanceolate, opposite to whorled. Flowers purple, in spikes.

Habitat: Wetlands, streams, sometimes as a garden escape. Known here from the Peyton area, and in isolated small occurrences in urban areas.

Notes: This is an aggressive noxious weed that has been very destructive in the East and Midwest. It is more robust and has more flowers per inflorescence than the uncommon, nonweedy, *L. alatum*.

Malvaceae: Mallow Family

This family is exemplified by the familiar garden hollyhock (*Alcea*) and hibiscus. Along with the horticultural members, the mallow family includes a number of very attractive native species as well as some quite weedy and troublesome ones. The family can be readily recognized by the distinctive flower that has numerous stamens with united filaments arranged in a column around the pistil. The anthers, often with colored tips, spray out below the style. The ovary typically has numerous partitions that, when in fruit, come apart like wedges of cheese, although the ovary can also become a capsule as in *Hibiscus*. Minute stellate (star shaped) hairs on the leaves are also characteristic in the family. Use a lens to see these.

- 1. Petals white or yellowish, with a purple edge; fruit a capsule that opens on one face.....*Hibiscus*
- 1. Petals uniform in color, fruit a schizocarp, splitting into sections.....2

- 2. Style branches with stigmas occurring down one side.....3
- 2. Style branches with capitate or disk-like stigmas at the end.....6

- 3. Calyx with 6-9 small bracts in 2 layers and united below; tall showy plants (garden escapee).....*Alcea*
- 3. Calyx with only 3 bracts or none; bracts, if present, not united below.....4

- 4. Petals obovate, white or pale pink, often with purple veins, usually less than 1 cm long, plants sprawling.....*Malva*
- 4. Petals truncate, rose-purple, over 1 cm long, plants sprawling or erect.....5

- 5. Basal leaves shallowly lobed or crenate, upper leaves deeply lobed; erect plants of wetlands.....*Sidalcea*
- 5. All leaves deeply lobed; plants sprawling, occurring in dry or mesic sites.....*Callirhoe*

- 6. Flowers orange (drying pinkish), leaves somewhat scratchy to the touch.....*Sphaeralcea*
- 6. Flowers not orange, or if so, leaves soft and velvety.....7

- 7. Plants horticultural escapees, flowers pink, red, or orange; leaves velvety to touch.....*Abutilon*
- 7. Plants variable in color, native; leaves not distinctly soft to the touch.....8

- 8. Leaves without silvery hairs, corolla lavender-blue, leaves 3-lobed.....*Anoda*
- 8. Leaves with silvery hairs; corolla whitish, tinged with pink and drying pink.....*Malvella (Sida)*

Abutilon "velvetleaf, Indian mallow"

These species, all uncommon here, are mostly found in the Arkansas Valley from Cañon City to La Junta. They are characterized by leaves that are entire, toothed or lobed, and rounded to cordate (heart shaped) the soft hairs on the leaves give the plant its common name of velvetleaf.

Abutilon parvulum A. Gray

Plants perennial, ovaries with 4-6 sections, lacking long awns. Stems slender, spreading or trailing on the ground; flowers pink to red.

Habitat: Cultivated ground, around dwellings.

Notes: Look for the trailing stems and few sections of the ovary.

Abutilon theophrasti Medikus

Plants annual, ovaries with 12-15 sections, each with long divergent awns. Stems erect, mostly unbranched.

Habitat: Cultivated ground.

Notes: Look for the erect stem and ovary with many sections. This can become a problematic weed species in some areas, but does not yet seem to be aggressively spreading here.

Alcea “hollyhock”

Hollyhocks are very common garden plants and they frequently become naturalized in areas around towns or along roads. Their color is variable, but the tall showy stalks are unmistakable.

Alcea rosea L.

Plants biennial, up to several meters tall; flowers to 5 cm wide, variously colored, in spikes at the top of stem. Leaves lobed, to 10 or more cm broad.

Habitat: Fields, roadsides, disturbed areas around towns.

Notes: Adventive species, not persisting very long, but quite attractive and rarely problematic.

Anoda “anoda”

Anoda cristata L.

Plants annual, stems branched from base, to 1 m tall. Leaves deltoid to triangular-ovate or hastate (with a base like a sword handle), extremely variable, most leaves with lobes or divisions. Flowers solitary, in the axils, calyx purplish-red, corolla light purple to lavender or bluish, petals 1-2.5 cm

Habitat: Roadsides, disturbed areas.

Notes: Adventive species of the Midwest, uncommon here but documented from the Arkansas Valley. Look for the oddly colored flowers and the calyx that spreads out flat under the fruit.

Callirhoë “poppymallow; winecups”

Callirhoë involucrata (Torrey & Gray) A. Gray

Plants perennial, with deep tap roots and sprawling stem. Leaves palmately divided into 5-7 segments, with divisions also divided into narrow segments. Flowers 4-6 cm across, deep red purple.

Habitat: Grasslands, plains, lower elevations.

Note: An attractive native grassland species, now used in xeriscape gardens and sometimes escaping along roadsides. Look for the narrowly divided leaves and large, red-purple flowers.

Hibiscus “flower of an hour”

This genus of plants is well known as a houseplant in our latitude, and a common outdoor landscaping plant. Our species is an annual weed, not as attractive as horticultural varieties, but with unusual coloring of white or yellowish petals and a purple border or spot at the base. The common name comes from the short-lived nature of each flower, also a characteristic of the horticultural hibiscus.

Hibiscus trionum L.

Plants annual, stems branching from the base, leaves ovate in outline and divided into 5-7 lobes or parts. Flowers in axils on short stems, showy, 1-4 cm long; calyx “nerved” (with visible veins) inflated in fruit.

Habitat: Fields, gardens, disturbed areas.

Notes: Odd-looking adventive species with its unusual flower coloration and inflated calyx in fruit.

Malva “mallow”

Malva neglecta Wallroth

Plants annual or biennial, stems 10-30 cm, sprawling and branching from the base. Leaves 2-4 cm, rounded to kidney shaped, often with shallow lobes, pubescent. Flowers to about 2 cm wide, pinkish or white; fruits with many sections.

Habitat: Disturbed areas, gardens, roadsides and trails.

Notes: An abundant weed in the region, primarily at lower elevations.

Two other weedy *Malva* species have been known from Colorado, but appear to be rare: *M. parviflora* has very short petals (ca. 0.5 cm) and erect stems that are 20-90 cm tall and *M. crispa* has petals that resemble the size of those in *M. neglecta* but has tall erect stems and distinctive crinkly margins on the leaves.

***Malvella* “little mallow”**

Malvella used to be in the genus *Sida*, and species are characterized by the presence of star-shaped hairs or lepidote (scurfy, as in the Elaeagnaceae) scales.

Malvella leprosa (Ortega) Krapovickas

Syn. *Sida hederacea*

Plants sprawling, stems to 40 cm, white stellate hairs present; leaves to 5 cm wide, triangular, rounded, or kidney-shaped in outline, with dentate margins; teeth with rounded apex. Flowers white to yellowish, drying pink, to 1 cm

Habitat: Fields, disturbed areas.

Notes: Adventive species of the Arkansas River Valley; little collected and probably only occasional here.

Malvella sagittifolia has been collected rarely on the margins of our region and may also occur here: it is characterized by the triangular arrow-shaped leaves, hastate at the base, with scurfy scales.

***Sidalcea* “checkermallow”**

Sidalcea candida A. Gray

Plants to 1 m tall, stems simple, erect. Leaves 4-15 cm wide, palmately cleft, lower leaves round, lobed, stem leaves more deeply cleft; generally glabrous. Flowers in a raceme; petals white, 10-15 mm long.

Habitat: Wet areas along streams, meadows, montane zones.

Notes: Relatively common in southern Pueblo and Fremont Counties, especially in the Wet Mt front; uncommon to rare in the drier region of the Pikes Peak massif in El Paso and Teller Counties. This is a very striking plant of midsummer with prominent white flowers.

Sidalcea neomexicana A. Gray

Plants 20 to 90 cm tall, with 1 to several stems, branched or decumbent at base. Basal leaves round, lobed, stem leaves cleft; surfaces pubescent. Flowers in a raceme, petals deep purple-rose, 12-15 mm long.

Habitat: Wetland areas, plains to montane.

Notes: More common near the Wet Mountains, occurring infrequently in eastern El Paso and Pueblo Counties, often along wetland areas by roadsides and in regions where the water table is high. This species somewhat resembles *Callirhoe*, but can be distinguished by the smaller flowers and different habitat.

***Sphaeralcea* “globe mallow”**

Globe mallows are a very attractive and common species blooming in early summer on the plains. They have distinctive light orange flowers and are becoming popular as xeriscape garden plants; in garden settings they spread readily from rhizomes, and in the wild, often occur in patches.

Sphaeralcea angustifolia (Cavanilles)D. Don

Plants with thick woody crowns, stems 30 cm to over 1 m tall, erect. Leaves 5-10 cm long, lanceolate, shallowly lobed, stellate pubescent. Flowers orange to pinkish orange, petals ca. 1 cm long.

Habitat: Plains grasslands.

Notes: This is a common species of Pueblo and Fremont Counties, barely making it into El Paso County. Look for the tall stems and narrow, shallowly lobed leaves to distinguish it from *S. coccinea*.

Sphaeralcea coccinea (Pursh)Rydberg

Plants perennial, from rhizomes; stems to 25 cm tall, branched, decumbent at the base. Leaves cleft to base, often with many divisions, stellate pubescent. Flowers orange to pinkish orange, petals ca. 1 cm long.

Habitat: Plains grasslands.

Notes: An extremely common species of early summer throughout our region, sometimes also blooming later in the summer with moisture.

Martyniaceae: Unicornplant Family

Proboscidea “devil’s claw”

Proboscidea louisianica (Mill.)Thell.

Syn. *Martynia louisianica*

Plants annual, stems short, often with spreading branches, 20-100 cm Leaves simple, opposite, petiolate, blades suborbicular, entire to sinuate on the margins. Calyx to 2 cm, flowers to 5 cm long, cream colored or spotted with purple or red violet. Fruit up to 10 cm, with long curved horns.

Habitat: Waste areas, southern portion of our region, particularly in the Arkansas Valley.

Notes: Plants are often difficult to find but the fruits are common and very distinctive. The long curved horns look like mammoth tusks. The flowers are quite large and attractive; they resemble a catalpa.

Montiaceae (*Claytonia*, *Lewisia*, *Montia*, & *Talinum/Phemeranthus*) are treated here in the **Portulacaceae**

Moraceae: Mulberry Family

We have no native members of this family here, but two cultivated representatives can sometimes be found as horticultural escapees: *Maclura pomifera*, osage orange, is a shrub or small tree with thorns and a large, grapefruit sized cluster of small fruits, and mulberries (*Morus*, for which the family is named), have fruits that look like elongated blackberries. Both are grown in the Midwest, and might occur in our region, especially in the Arkansas River Valley.

Nyctaginaceae: Four O’Clock Family

This family is abundant in tropical regions; native species are many and representatives such as *Bougainvillea* are also often cultivated as ornamentals. Our species are relatively few. The family is easily recognized by opposite leaves with slightly swollen nodes at the joints, its petaloid sepals and lack of true petals. The flowers typically occur in a cluster subtended by a circle of papery bracts called an “involucre”. The fruits are anthocarps, where a single seed matures into a hard structure composed of the calyx enclosing an achene, and fused to it as a single structure.

Key to the Genera

1. Flowers many, in umbels subtended by 4-6 separate bracts, anthers not strongly exerted.....2
1. Flowers few, in clusters subtended by united bracts or 3 bracts united at the base, anthers strongly exerted.....3
2. Fruits over 1 cm long, wings broad and papery, transparent.....*Tripterocalyx*
2. Fruits less than 1 cm long, wings less broad, not transparent or papery.....*Abronia*
3. Leaves 1-2 cm long, elliptical-ovate, sticky glandular, flowers small and purple, plants prostrate
.....*Allionia*
3. Plants not as above.....4
4. Leaves relatively thin, all cordate, plants sprawling or somewhat erect.....*Mirabilis oxybaphoides*
4. Leaves leathery or at least somewhat thick, not all cordate, plants generally erect (if sprawling, plants growing in clumps, *M. multiflora*).....*Mirabilis* (inc. *Oxybaphus*)

Abronia “sand-verbena”

Abronia fragrans Nuttall

Plants perennial, stems erect or sprawling; leaves ovate-oblong or deltoid-ovate, usually truncate at the base. Flowers numerous, to 2 cm long, white, and very fragrant. Fruits with short, winglike lobes.

Habitat: Sandy soils, roadsides at the lower elevations; especially common in sandy grasslands of eastern El Paso and Pueblo Counties.

Notes: The long, white, fragrant flowers in a cluster are characteristic.

***Allionia* “allionia; windmills”**

Allionia is a southwestern genus, common in the deserts of Arizona and California. Our record of these two species is only historical; neither species is likely to still exist here and probably were originally only accidental introductions. The sticky glandular aspect is characteristic but not definitive, as *Mirabilis oxybaphoides* can also be sticky glandular as well. *Allionia* has a 3-lobed involucre; *Mirabilis* has a 4-5 lobed involucre.

***Allionia choisyi* Standley**

Plants annual, flowers pink, fruits with three slender, glandular teeth on each side, not incurved.

Habitat: Dry soil, eastern Arkansas Valley.

Notes: Known only from a historical record on the eastern edge of our region.

***Allionia incarnata* L.**

Plants sprawling perennials, flowers pink, fruits with three triangular teeth on each side, incurved and prominent.

Habitat: Hot, dry, gravelly or sandy soils, often in decomposing sandstone.

Notes: Known from an historical record in Cañon City, believed to be from a site now covered by development in the town, so the population is likely to be extinct. Also known from southeastern CO.

***Mirabilis* “four o’clock”**

This genus is a very large one in the Southwest, and is split into different sections that some botanists recognize as separate genera. All of our species except *M. multiflora* and *M. oxybaphoides* belong to section *Oxybaphus*, and are sometimes recognized as the genus *Oxybaphus*. Following most contemporary treatments, all of our species are recognized under the inclusive genus *Mirabilis*. Habitat and leaf characteristics are important diagnostic tools for recognizing the species. All of our species have bright pink flowers that open in early morning but shut when the temperatures rise.

***Mirabilis carletonii* Standley**

Syn. *Oxybaphus carletonii*

Plants tall, stems to about 1 m, relatively stout, with few branches; stems and leaves densely glandular pilose. Leaves broad, somewhat triangular ovate, fruits glabrous.

Habitat: Deep, loose, sandy soils of the plains.

Notes: In our region, this is a very characteristic and distinct entity from other plains members of *Mirabilis*. Elsewhere in the Great Plains, the species appears to blend into *Mirabilis glaber* with narrow leaves, and much less pubescence; as a consequence, *M. carletonii* is sometimes considered a variety of *M. glaber*. Given its distinctive nature and habitat here, it is treated separately.

***Mirabilis glaber* Watson**

Syn. *Oxybaphus glaber*; *Mirabilis glabra*

Plants tall, stems to about 1 m, relatively stout and with few branches; stems and leaves glabrous. Leaves narrowly oblong but not linear; flowers single in the involucre, fruits glabrous.

Habitat: Plains grasslands.

Notes: See comments under *M. carletonii*. Generally differs from that species by its narrow, glabrous leaves and occurrence in the deep, loose, aeolian sands.

***Mirabilis hirsuta* Pursh**

Syn. *Oxybaphus hirsutus*

Plants densely hirsute-pubescent, stems 20-80 cm, leaves oblong-ovate. Flowers 3 per involucre, fruits densely pubescent.

Habitat: Foothills, montane, occasional on the plains, usually in open gravelly soils.

Notes: Our most common species in the lower foothills, and quite variable. It appears to hybridize with *M. linearis*, so leaf shapes of an intermediate type are common. Look for the pubescent fruits and overall dense pubescence on the plant.

Mirabilis linearis Pursh

Syn. *Oxybaphus linearis*, *Oxybaphus decumbens*, *Oxybaphus lanceolatus*

Plants tall and slender, stems simple or branched, somewhat whitish in color, pubescence ranging from none to somewhat viscid-puberulent. Leaves linear. Flowers 3 per involucre, fruits pubescent.

Habitat: Plains grasslands.

Notes: See comments under *M. hirsuta* about hybridization. *Mirabilis linearis* is common on the plains and seems to extend to lower elevations here than *M. hirsuta*. *Mirabilis decumbens* was originally described as a separate species, with a type locality in the Cañon City area, differing in having several short stems branching from the base. While some forms resembling this have been found on the plains of eastern El Paso County and Chico Basin, most botanists now regard *M. decumbens* as an aberrant growth form of *M. linearis*. Similarly, the entity formerly known as *Mirabilis (Oxybaphus) lanceolatus* is now considered just a wider-leafed version *M. linearis*.

Mirabilis multiflora (Torrey) A. Gray

Plants large and sprawling, typically forming clumps, stems and leaves glabrous (lacking hairs), blades ovate, cordate at the base, thick, petiolate. Flowers several to many per involucre.

Habitat: Barrens, piñon-juniper woodlands, dry rocky slopes of the Arkansas Valley region, usually in areas with little surrounding vegetation.

Notes: A very common and attractive species of the Arkansas Valley area, often now cultivated in xeriscape gardens. The thick, glabrous leaves are easily identifiable.

Mirabilis nyctagineus Michaux

Syn. *Oxybaphus nyctagineus*

Plants tall and slender, stems to ca 1 m. Leaves deltoid or ovate-triangular, blades large, to 3 or more cm wide, petioles 1-3 cm. Plants glabrous throughout.

Habitat: Garden and roadside weed, common throughout the region.

Notes: It is unclear as to whether this species is adventive here or originally native. Look for the tall erect stems.

Mirabilis oxybaphoides (A. Gray) A. Gray

Plants somewhat sprawling, stems decumbent, 30-40 cm. Leaves distinctly cordate, somewhat thick, often sticky glandular. Flowers usually 3 per involucre, fruits glabrous.

Habitat: Rocky gravelly soils, usually in open piñon-juniper woodlands, sometimes mixed with oak thickets, lower foothills.

Notes: Uncommon but not rare in our region; look for the cordate-leaves and sticky-glandular texture. Throughout its range, this species is not always sticky glandular, but most of our representatives appear to carry this characteristic.

Mirabilis rotundifolius Greene

Syn. *Oxybaphus rotundifolius*

Plants usually low, stems less than 20 cm occasionally taller with abundant moisture. Leaves ovate-orbicular, usually 1-3 cm wide, shortly petiolate, quite variable depending on moisture and growing conditions. Stems and leaves densely hairy with long stiff hairs. Flowers 3-4 per involucre, fruits glabrous.

Habitat: Known only from Niobrara Formation chalk and shale barrens in the Arkansas Valley, primarily between Pueblo and Cañon City, with outliers in Las Animas County.

Notes: A rare species of conservation concern; very limited in its habitat.

***Tripterocalyx* “sand-verbena”**

Tripterocalyx and *Abronia* both carry the common name of sand-verbena, though neither is a true verbena. They look superficially similar to one another, but *Tripterocalyx* is a somewhat succulent annual, with a cluster of flowers underlain by an involucre of separate bracts; its fruits have broad wings. In *Abronia* (a perennial), the bracts are fused and the wings less broad and papery.

Tripterocalyx micranthus (Torrey) Hooker

Plants to about 40 cm, stems usually somewhat branched. Leaves and stems succulent; leaves long petiolate, unequal. Flowers in a capitate cluster, white, involucre bracts separate; fruits with 3 papery and distinctive wings.

Habitat: Sandy soils, lower elevations.

Notes: Look for the white flowers and divided bracts, the long petiolate leaves, and the winged fruits. This is a very eye-catching species in flower or fruit.

Oleaceae: Olive Family

The Olive Family is typically woody or semi-shrubby, and contains many economically important species, in addition to the olive itself (*Olea*). The horticultural shrub *Forsythia*, lilacs (*Syringa*), and privet (*Ligustrum*) are all members of the Oleaceae. Look for opposite leaves, somewhat square stems, 4 united sepals, 4 united petals, and 2 stamens to recognize the family.

Key to the Genera

1. Plants woody only at the base, stems less than 1 m, leaves linear.....*Menodora*
1. Plants tall shrubs or trees.....2
2. Trees, flowers minute, fruit a samara (maple-like), leaves compound.....*Fraxinus*
2. Tall or medium shrubs, fruits and leaves not as above.....3
3. Leaves large, broadly ovate, apex pointed.....*Syringa*
3. Leaves lanceolate-oblong, lacking a distinctly pointed apex.....*Forestiera*

Forestiera “forestiera, adelia”

Forestiera neomexicana A.Gray

Syn. *Forestiera pubescens*

Plants medium sized shrubs, usually to less than 2 m, stems sometimes somewhat spiny. Leaves 1-3 cm, lanceolate oblong, margins entire to slightly dentate, somewhat clustered. Flowers inconspicuous, fruits a black drupe.

Habitat: Plains, lower elevations, especially known from the Peyon area in eastern El Paso County.

Notes: Plants are not uncommon on the plains, but it is uncertain whether they are an introduction from homestead days or native to our region. The species is most common in New Mexico and on the west slope. *Forestiera* is frequently used as a xeriscape plant, and likely to be naturalized. Look for the clustered leaves and black berries.

Fraxinus “ash”

Fraxinus pennsylvanica H. Marshall

Plants when mature becoming tall trees. Flowers inconspicuous, leaves pinnately compound with 5-9 leaflets, margins toothed. Fruits a single-winged, spatulate samara.

Habitat: A cultivated species of lawns, now widely established and naturalized in the foothills and mesas and along roadsides at the lower elevations.

Notes: Look for the single winged samara and pinnately compound leaves.

Menodora

Menodora scabra (Engelmann) A. Gray

Plants low, shrubby only at the base, stems multiple, to about 0.5 m high. Leaves opposite below, alternate above, 1-3 cm long, linear-lanceolate. Flowers yellow, about 1 cm long, developing into characteristic deeply 2-lobed fruits.

Habitat: Dry rocky slopes, common in Fremont and western Pueblo Counties.

Notes: Locally abundant, and often forming a co-dominant in pinon-juniper communities outside Cañon City. Look for the deeply lobed, circumscissile capsules (where the top comes off like a lid). The young buds are deep red color.

Syringa “lilac”

Syringa vulgaris L.

Plants tall shrubs, often forming wide clumps. Flowers purple or white, blooming early, in clusters. Leaves broadly ovate, 2-3 cm, with long tipped apices.

Habitat: Horticultural species, now widely naturalized in the region and often persisting around old homesteads, plains, foothills, montane.

Notes: An attractive horticultural species, spreading along roadsides now and increasingly well established in the foothills of Pikes Peak.

Onagraceae: Evening Primrose Family

The Onagraceae is an easily recognizable and often very attractive family: its representatives include the fireweed (*Epilobium*) as well as the traditional evening primroses (*Oenothera*) that provide showy arrays on the plains and in the garden. The flowers are 4-petaled and cross-shaped like the Brassicaceae, but the ovaries are inferior, often very long, and the fruit is a capsule.

Key to the Genera

1. Leaves broadly ovate, long petiolate, ovaries spherical, flower with 2 petals.....*Circaea*
1. Leaves narrow, short petiolate or sessile, ovaries elongate, flowers with more than 2 petals.....2
2. Stigmas deeply 4-lobed.....3
2. Stigmas entire, capitate, discoid, or shortly club-shaped.....5
3. Flowers yellow or white (if white, then stems leafy with lobed or pinnatifid leaves).....*Oenothera*
3. Flowers white or pink, to rosy.....4
4. Floral tube (inferior ovary below petals) not obvious, fruit a capsule and seeds with tuft of hair.....*Chamerion*
4. Floral tube obvious, fruit an indehiscent nutlike capsule.....*Gaura*
5. Petals yellow, usually over 5 mm long*Oenothera* (*Calylophus* group)
5. Petals white or pinkish, usually less than 5 mm long.....6
6. Plants of dry areas, delicate, with minute flowers on slender pedicels, leaves usually less than 3 mm wide*Gayophytum*
6. Plants generally of wet areas (exc. *E. brachycarpum*), small or robust, but flowers not minute, up to 0.5 cm in diam., leaves usually more than 3 mm wide.....*Epilobium*

Chamerion “fireweed”

The fireweeds used to be placed in the related genus *Epilobium*, but they differ in multiple aspects of genetics and appearance, and can be easily recognized by their showy purple-red, almost magenta flowers. They are very showy representatives of late summer in the montane and subalpine zones. Although a second species, *C. latifolium*, occurs elsewhere in Colorado, it has not been found in our region. It has wider leaves and shorter, few-flowered inflorescences.

Chamerion angustifolium Daniels

Syn. *Chamerion danielsii*; *Epilobium angustifolium*

Plants 0.5- 1 m, inflorescence an elongate, many-flowered raceme. Flowers over 1 cm wide, magenta pink. Leaves relatively long to 10 cm or more, plants robust.

Habitat: Common along streams, moist meadows, and roadsides in the montane and subalpine zones often forming large patches of purple in late summer. Also occurs occasionally in the Black Forest.

Notes: An attractive eye-catching species of moist high elevation habitats.

Circaea “enchanter’s nightshade”

This delicate plant is not very common here, given our lack of moist habitats. In spite of its magical sounding name, it is not related to the true nightshades in the genus *Solanum*.

Circaea alpina L.

Plants delicate, stems to about 20 cm or less. Leaves broadly ovate, long petiolate, margins dentate. Flowers very small, less than 5 mm in diameter, white. Fruits with hooked bristles.

Habitat: Cool moist shady habitats along streams or around boulders in the foothills and montane zones. Often forming big patches in wet areas when it does occur.

Notes: The inconspicuous flowers don't last long. Look for the distinctive leaves.

***Epilobium* "willowherb"**

This genus is the more diminutive relative of *Chamerion*. Look for the small pinkish or white flowers, and the wetland habitats, along with the tufted hairy seeds from the splitting capsules. Often seeds are needed for identification to species, as are the lower stem bases in the ground to check for "turions": a short scaly bud at the base of the stem. Caution: the related annual *Gayophytum* can resemble a small, delicate *Epilobium*.

Epilobium anagallidifolium Lamarck

Plants perennial, low and sprawling, stems in clumps, to about 20 cm. Leaves elliptical, to about 2 cm. Flowers pink, nodding in bud, usually less than 5 mm in diameter.

Habitat: Snowmelt areas, subalpine and alpine zones.

Notes: Our highest elevation species, very characteristic of the wet gravels under late snowbeds.

Epilobium brachycarpum K. Presl

Syn. *Epilobium paniculatum*

Plants annual, stems ca. 0.5 m, branching above, with characteristic peeling epidermis. Flowers small, white to pinkish.

Habitat: Disturbed areas along roadsides, dry meadows, montane zone.

Notes: Resembles *Gayophytum*, but differing in its more robust stature. Look for the peeling epidermis.

Epilobium ciliatum Rafinesque ssp. *glandulosum* (Lehmann) Hoch & Raven

Syn. *Epilobium glandulosum*, *Epilobium brevistylum*, *Epilobium adenocaulon*

Plants erect, stems few together or single, typically branching above leaves more than 5 mm broad, sometime appearing alternate. Flowers pale pink to whitish. Seeds with parallel ridges (use a lens).

Habitat: Wet ditches, stream banks, and sloughs, low elevations to montane.

Notes: A very common and variable species, somewhat weedy but apparently native here.

Epilobium halleanum Haussknecht

Plants perennial, stems to ca. 30 cm, leaves oblong, relatively broad, over 5 mm wide, margins somewhat dentate. Lower stems with turions (scaly buds) at the base. Flowers white.

Habitat: Montane and subalpine zones, moist areas in conifer forests.

Notes: Look for the tall stems with turions and the white flowers.

Epilobium hornemannii Reichenbach

Plants perennial, stems to ca. 30 cm, leaves broadly ovate, short petiolate. Lower stems lacking turions. Flowers pink-purple, petals ca. 5 mm or more long.

Habitat: Upper montane and subalpine, along streams and rivulets.

Notes: Look for the pink flowers and lack of turions. *E. lactiflorum* has white flowers that are smaller. See note about *E. lactiflorum* as a variety of *E. hornemannii*.

Epilobium lactiflorum Haussknecht

Plants perennial, stems to ca. 20 cm, often growing in clusters. Lower stems lacking turions, often with withered leaves. Flowers white with pink tips, petals less than 5 mm.

Habitat: Upper montane and subalpine, along streams and rivulets.

Notes: Similar to *E. hornemannii* but with white flowers and smaller petals. Some botanists prefer to treat this entity as a variety of *E. hornemannii*.

Epilobium leptophyllum Rafinesque

Plants perennial, stems to 30-100 cm, tips erect. Leaves narrowly oblong to linear, usually 3 mm or less wide, upper surfaces hairy and margins somewhat revolute. Flowers white or pink.

Habitat: Wet meadows, lower elevations to montane.

Notes: Look for the narrow leaves. Similar to *E. palustre* but with erect rather than nodding stem tips and hairy leaf surfaces. Turions are inconspicuous on both species.

Epilobium palustre L.

Plants perennial, stems to 40 cm, tips nodding. Leaves narrowly oblong to almost linear, 3 mm or less wide, upper surfaces glabrous. Flowers white.

Habitat: Montane meadows.

Notes: Look for the nodding stem tips and white flowers. An uncommon species here.

Epilobium saximontanum Haussknecht

Plants perennial, stems to 40 cm Leaves 2-4 cm, ovate to elliptical, clasping the stem, margins entire. Flowers pink or purple, rarely white, petals to 4 mm long.

Habitat: Wet montane and subalpine meadows.

Notes: This species is most similar to *E. halleianum*, but has more entire leaf margins, and usually has pink or purple rather than white flowers.

***Gaura* “butterfly weed”**

The common name for this genus comes from the delicate open flowers that resemble a small butterfly in flight. The fruits are hard and nutlike, very different than the capsules of fireweed and willowherb. Some botanists place *Gaura* into an inclusive concept of *Oenothera*.

Gaura coccinea Nuttall ex Pursh

Syn. *Oenothera suffrutescens*

Plants to about 30 cm, stems in clumps, often hairy with leaves in close proximity. Leaves to about 1 cm, densely hairy, grayish, lanceolate. Flowers with petals ca. 5 mm long, pink to reddish, sometimes almost white, calyx funnellform, reflexed, stamens and style protruding.

Habitat: Dry areas, roadsides and grasslands, plains to montane.

Notes: A very common species throughout our region, blooming spring to early summer.

Gaura mollis James

Syn. *Gaura parviflora*; *Oenothera curtifolia*

Plants tall, stems to 2 m, erect, branched at the top, stems velvety and sometimes sticky. Leaves lanceolate, oblanceolate, to ovate, to 8 cm long, hairy and soft. Flowers in long erect spikes, petals ca. 2 mm, pink to whitish, calyx reddish green, reflexed..

Habitat: Roadsides, dry areas, ditches, lower elevations from plains to foothills.

Notes: Look for the very tall stems, with a soft velvety feel. A federally endangered species, *Gaura neomexicana* var. *coloradenis* occurs in northern Colorado: it differs in having a shorter, unbranched stem to 1 m tall, and larger flowers with petals to ca. 1 cm long.

***Gayophytum* “gayophytum”**

This is a difficult genus to identify to species, although at the genus level, the identity is relatively easy: it looks like a small, very delicate and feathery fireweed with minute white or pink flowers. *Epilobium brachycarpum* may be confused with *Gayophytum*, but is more robust and has a distinctive peeling epidermis. Our species have been generally identified as *G. diffusum*, but it is likely we have other taxa here as well. *Gayophytum racemosum* differs in having a stem branched only in the lower portion, and *G. ramosissimum* differs in having longer pedicels and very small petals, less than 1.5 mm long.

Gayophytum diffusum Torrey & Gray ssp *parviflorum* Lewis & Szweykowski

Plants to about 0.5 m tall, stems branched throughout. Flowers on short slender pedicels, pink to whitish, minute, petals to about 2 mm long.

Habitat: Gravelly areas, roadsides and hills, montane zone.

Notes: See comments above about species identification difficulties. Look for the delicate appearance of the plant as a whole (“gracile” in botanical terms!).

Oenothera “evening primrose”

In spite of the common name, the evening primroses are not related to true primroses. They are typically a showy-flowered group, often used now in gardens where many horticultural varieties exist. The inferior ovary, often with a very long tube, lying under the 4 showy white or yellow petals is distinctive. Look for the 4 linear lobes on the stigma to distinguish the core *Oenothera* group from the related *Calylophus* group, which have a flat disc. See also *Gaura*, sometimes treated under a broad concept of *Oenothera*. Many evening primrose flowers change color dramatically when dry, from white to pink or orange.

CALYLOPHUS GROUP: Its flowers are typically bright yellow, and the species can be readily distinguished by its discoid rather than elongate stigma lobes. The stigma looks a bit like a Frisbee. *Calylophus* has been variously treated either as part of *Oenothera* or as a separate genus.

Oenothera lavandulifolius (Torrey & Gray) Raven

Syn. *Calylophus lavandulifolius*; *Calylophus hartwegii* ssp. *lavandulifolius*

Plants low and sprawling, to about 30 cm, often growing in clumps. Flowers bright yellow, broad, to 5 cm in diameter, opening in early morning and in the evening. Sepals flat, lacking a keeled midrib, leaves grey strigose, broadly dentate.

Habitat: Dry, gravelly areas on barrens, grasslands of the plains.

Notes: A common and very beautiful species in the Arkansas Valley. Look for the large yellow flowers.

Oenothera serrulata Nutt.

Syn. *Calylophus serrulatus*

Plants growing as short somewhat tufted erect clumps, stems to 20 cm, Flowers bright yellow, small, to 1 cm in diameter. Leaves serrulate, narrowly lanceolate. Sepals with a distinct midrib.

Habitat: Grasslands, mesas, lower foothills.

Notes: Look for the finely toothed (serrulate) leaves.

OENOTHERA GROUP

These species have a stigma with 4 noticeable narrow lobes.

Oenothera albicaulis Pursh

Plants annual, stems whitish, to 40 cm, often spreading horizontally. Petals white, to 4 cm long, hypanthium (throat of the flower where it joins the style and ovary) not hairy, capsule oblong. Leaves broad, to about 1 cm, deeply pinnately cleft to the midrib.

Habitat: Open areas on the plains, in sandy or clay soil. Abundant in grasslands in early spring.

Notes: A showy and abundant species, making white splashes across the May grasslands, especially after a moist spring.

Oenothera caespitosa Nuttall ex Fraser

Plants low, caespitose and stemless, with flowers sitting in a basal cluster of leaves. Flowers white, petals to 5 cm long, cordate, very showy.

Habitat: Gravelly slopes, foothills and montane.

Notes: A very showy and distinctive species, often growing in solitary clumps on unstable gravelly slopes of Pikes Peak and the surrounding foothills. Two subspecies are generally recognized here: ssp.

caespitosa, with short appressed or spreading hairs but no glandular hairs, and ssp. *macroglottis*, a villous to hirsute or glabrous plant that always has some glandular hairs.

Oenothera canescens Torrey & Fremont

Plants perennial or biennial, bushy and branched from the base, stems to 20 cm Leaves short, to 2 cm long, lanceolate, clustered. Flowers white (drying pink or reddish), petals to about 2 cm, often pinkish spots.

Habitat: Pond basins on the plains, in drying mud.

Notes: Look for the short bushy stems and short leaves.

Oenothera coronopifolia Torrey & Gray

Plants perennial, rhizomatous and forming patches. Leaves pinnatifid (deeply cut), somewhat grayish green. Flowers white to pinkish, petals to 1.5 cm, hypanthium hairy in the throat.

Habitat: Dry grasslands, foothills, montane, and mesas on the plains.

Notes: Look for the cut-leaf look, and patchy growth habit. This is not a very showy species.

Oenothera elata Humboldt, Bonpland & Knuth

Syn. *Oenothera hookeri*

Plants perennial or biennial, stems tall, 30-150 cm, often branched. Leaves oblanceolate or lanceolate, sinuate (wavy)-dentate. Flowers yellow, petals to 2 cm long.

Habitat: Wet meadows and roadside ditches, lower elevations.

Notes: Somewhat similar to *O. villosa*, but distinguished by its larger flowers.

Oenothera flava (A. Nelson) Garrett

Plants perennial, with very short stems or almost stemless, leaves to 20 cm long, lanceolate, deeply and irregularly toothed to sometimes entire, petiolate. Flowers yellow, petals to 3 cm long, drying orange.

Habitat: Montane meadows.

Notes: A somewhat showy species that is not very common in our region. Look for the low stems and conspicuous yellow flowers.

Oenothera harringtonii W. L. Wagner et al

Plants annual or biennial, with stout branched stems to ca 20 cm, initially short but elongating in anthesis. Leaves to 10 cm, toothed. Flowers white, petals to 3 cm. Fruits very knobby.

Habitat: Moist silty open soils of the southern portion of our region, especially common in the Purgatoire River drainage, but extending north to El Paso Co. and the Pueblo-Cañon City region, often along roadsides.

Notes: This species looks like an elongated *O. caespitosa*, Look for the stout stems and warty fruits. The plant appears abundantly in years when there is winter or spring moisture, then can be only sporadic or appear not at all when dry conditions exist.

Oenothera howardii (A. Nelson) W. Wagner

Plants perennial, stemless, leaves with few teeth to almost entire or wavy. Flowers yellow (drying orange), petals 3-7 cm. Fruits with broad wings.

Habitat: Plains, on shale outcrops and sandy soils.

Notes: Uncommon here; known from southern Pueblo Co. Look for the large yellow flowers and leaves with wavy margins.

Oenothera latifolia (Rydberg) Munz

Syn. *Oenothera pallida* ssp. *latifolia*

Plants sprawling, growing in clumps leaves to 3 cm long, toothed, very pubescent and whitish in cast. Flowers white, petals to 2 cm long.

Habitat: Sand dunes on the plains.

Notes: A very attractive species when in bloom, characteristic of deep sand where little else grows. Uncommon in our region.

Oenothera nuttallii Sweet

Plants perennial, stems to 1 m with a peeling epidermal layer. Leaves to about 7 cm long, linear to oblong lanceolate, almost entire. Flowers white, petals to 2.5 cm

Habitat: Plains, mesas, and montane slopes.

Notes: Relatively common throughout the region; look for the characteristic peeling stem.

Oenothera villosa Thunberg ssp. *strigosa* (Rydberg) Dietrich & Raven

Syn. *Oenothera strigosa*

Plants biennial, stems to 1 m, often hairy. Leaves gray strigose, oblanceolate, margins denticulate. Flowers yellow, petals to 2 cm long.

Habitat: Plains, roadsides and disturbed areas like pond margins at lower elevations.

Notes: A common species and somewhat weedy. Look for the yellow flowers and tall stems.

Orchidaceae: Orchid Family

The orchids species are charismatic, diverse, complex and sometimes rare. Orchid floral morphology is complicated, representing the highest level of reproductive specialization in the monocots. Often floral parts are not recognizable as the standard model of sepals, petals, androecium (stamens) and gynoecium (pistil) seen in other flowering plants. There are three sepals and three petals, with the upper petal appearing as the lower one because of a 180 degree twist. The lower petal is often modified into a *lip* (the “*labellum*”), which can be a spur or saccate. The stamen is usually only 1 (rarely 2 or 3), looks like a cap, and it occurs on one side of the flower; pollen occurs in masses called *pollinia*. The stamen is united to the gynoecium (pistil) in a single structure called the *column*, on which the stigma may look like a shallow depression on one side. Usually there are three stigmas, where two are fertile and one is modified into an outgrowth called a *rostellum*, which may have a sticky portion called a *viscidium* where the pollina become attached. Characteristics of the lip are important for identification purposes, so look carefully at it (you will need a lens). While some of our orchids are rare and endangered, a number are not. However, orchids should always be regarded as a botanical “treat” on the landscape. Most of our species are not very showy: their flowers, however complex in structure, are small, and inconspicuous. Look for the parallel veins in the leaves along with the bilateral symmetry and complex floral structure when in doubt as to whether or not you actually have an orchid

Key to the Genera

1. Plants lacking green leaves, often reddish, saprophytic or parasitic.....*Corallorhiza*
1. Plants with green leaves.....2
2. Lip of the corolla a showy, inflated sac.....3
2. Lip of the corolla not a showy, inflated sac.....4
3. Flowers yellow, leaves 2.....*Cypripedium*
3. Flowers purple, spotted or striped with white, leaves single.....*Calypso*
4. Corolla lip with spurs (projection of the petals).....5
4. Corolla lip lacking spurs.....7
5. Corolla lip greenish, broad, 2-3 lobed at the apex, bracts extending beyond flowers.....*Coeloglossum*
5. Corolla lip variously colored, not lobed at the apex, bracts not extending much beyond flower.....6
6. Leaves solitary, basal.....*Platanthera obtusata*
6. Leaves multiple, occurring on stem, though some or many basal.....*Platanthera*
7. Leaves two, opposite, near middle of stem.....*Listera*
7. Leaves not as above.....8
8. Leaf solitary, basal.....*Malaxis*
8. Leaves in pairs, basal or plants with stem leaves.....9
9. Leaves appearing basal, white along veins and midrib or pale and checkered.....*Goodyera*
9. Stem leaves present, leaves not as above, flowers in a spiky spiral*Spiranthes*

Calypso “calypso orchid, fairy slipper”

Calypso orchids are one of our showiest species, recognizable with its unusual mottled colors and the large slipper-like lip. The name comes from the Greek, meaning “hidden” The Greek *Calypso* was a character in Homer’s *Odyssey*, a female sea-nymph who kept *Odysseus* prisoner for years on her island.

Calypso bulbosa (L.) Oakes

Plants to about 15 cm, leaf basal, single, oval with “pleats” produced by the veins; petals purple or striped white and purple, lip of corolla to about 2 cm long, inflated and prominent.

Habitat: Moist forest sites, foothills and montane, often along streams or near seeps.

Notes: A recognizable orchid that is locally abundant in scattered populations but overall somewhat rare, especially in our dry region. Look for the single, slipper shaped purple or striped flower in late May or early June. Leaves are inconspicuous but can be seen throughout the summer, even after flowering.

***Coeloglossum* “green bog orchid, bracted orchid”**

Coeloglossum viride (L.) C. J. Hartman ssp *bracteatum* (Mühlenberg ex Willdenow) Hultén

Syn. *Habenaria bracteata*

Plants relatively short, to about 10 cm or less, flowers greenish yellow, bract long, extending beyond flower. Lip lobed (use lens).

Habitat: Boggy areas and streamsides, montane zone.

Notes: A somewhat nondescript and relatively common orchid. Look for a short spiky inflorescence, the notched or lobed lip, and the characteristic long bract under each flower.

***Corallorhiza* “coralroot orchid”**

Coralroot orchids don’t look dramatic or conspicuous, so are easily missed. They typically occur singly, reddish brown stalk-like spikes with pale leaves, as understory species in conifer forests, and they are never locally abundant, although relatively common throughout our region. The flowers are small, so you need to look carefully at their structure to identify the species. These species are saprophytes, that is, they lack chlorophyll in the leaves so cannot manufacture their own carbohydrates in photosynthesis, but live symbiotically through associations with other plants and fungi.

Corallorhiza maculata Rafinesque

Plants to 30 cm tall, stems robust, reddish brown (occasionally albino and appearing yellowish white) flowers less than 1 cm long, purplish, maroon, or brown, lip white, spotted, with two small lobes at the base.

Habitat: Dry forests, foothills to montane.

Notes: Look for the reddish brown color and when in bloom, the distinctively spotted lip. This is our most common representative of *Corallorhiza*.

Corallorhiza striata Lindley

Plants to 25 cm tall, stems brownish or golden, flowers over 1 cm long, purple or reddish, distinctively striped.

Habitat: Dry conifer forests, foothills to montane.

Notes: Look for the purple cast to the flower and the distinctive striping on the lip.

Corallorhiza trifida (L.) Chatelain

Plants to 25 cm, stems yellowish, slender; flowers less than 10 cm, light yellowish green, lip white, spotted or lacking spots.

Habitat: Moist areas, foothills canyons to subalpine.

Notes: Look for the slender appearance and yellowish cast to this species. It typically occurs at higher elevations and in moister habitats than the other species, but occasionally is found in cool spots of the foothills.

Corallorhiza wisteriana Conrad

Plants to 20 cm, stems slender, purplish to bronze, flowers less than 10 cm, lip white with magenta spots, lacking 2 lobes at the base and somewhat wavy margined.

Habitat: Conifer forests, foothills to montane.

Notes: Look for the slender appearance, bronze coloration and spotted lip that lacks lobes at the base. *C. maculata* has a spotted lip also, but is a more robust species and the lip is lobed basally.

***Cypripedium* “lady slipper”**

Ladyslippers are one of our showiest and most recognizable orchids. They should never be picked, for they are easily extinguished by trampling, picking, or habitat loss. It is always a visual treat to find these, but step carefully and leave them be!

Cypripedium calceolus L. (Salisbury) Hulten ssp. *parviflorum*

Syn. *Cypripedium parviflorum*

Plants to 0.5 m tall, stems relatively robust with several pairs of leaves several, often over 10 cm long. Flowers single, large, to 4 cm long, with a prominent yellow inflated lip (the “slipper”).

Habitat: Moist areas in the foothills and montane zones, along and around seeps and streambanks in aspen groves or cool conifer forests.

Notes: Look for the large size and inflated lip. Another species of ladyslipper, *C. fasciculatum*, occurs elsewhere along the Front Range but has not been found in our region. It has several smaller, brownish purple flowers and 2, broadly elliptical stem leaves. Do not ever pick these species.

***Goodyera* “rattlesnake plantain”**

In spite of the off-putting common name, *Goodyera* is truly an orchid, although a nonshowy one. The mottled or white striped leaves are distinctive and can be easily seen even outside the flowering season. Both species are quite common in the Pikes Peak region; though *G. repens* is surprisingly rare elsewhere in the state, it is easy to find throughout the lower slopes of Pikes Peak. *Goodyera oblongifolia* is less common around Pikes Peak itself, but occurs commonly in the Wet Mountains where there is more moisture, and elsewhere in Colorado.

Goodyera oblongifolia Raf.

Plants with stems 10-30 cm, leaves a basal cluster, to 3.5 cm long, with a distinctive white midrib and mottled green and white coloration, margins wavy. Flowers small, greenish yellow, in a spike.

Habitat: Foothills, in moist conifer forests, especially in the Wet Mts but rare in the dry Pikes Peak foothills.

Notes: Look for the distinctive white midrib on the leaves.

Goodyera repens (L.) R. Brown

Plants with stems to about 10 cm, leaves in a basal cluster, to 2 cm long, lacking white midrib but with a distinctive green and white “checkerboard” pattern. Flowers small, green yellow, in a spike.

Habitat: Locally common in the Pikes Peak foothills, growing on conifer needle duff on north-facing slopes under Douglas fir.

Notes: Look for the white cross vein markings on the leaves.

***Listera* “twayblade”**

The common name for this orchid genus comes from the presence of two opposite leaves on the stem. The only *Listera* species known to occur in our area is *L. borealis*, but the other two are possibilities and may be found in anomalously cool, moist areas, such as the Wet Mountain front. All should be considered rare.

Listera borealis Morong

Plants with rootstocks and fleshy to fibrous roots, leaves 2, near middle of stem. Stems 4-20 cm, succulent, glabrous. Inflorescence with 5-20 flowers, flowers pale green to yellowish or bluish green. Lip of corolla oblong, sagittate (with lobes or auricles) broad at base, without teeth on the sides and having a fleshy ridge near the center at the base.

Habitat: Cool moist coniferous forests, along streams, montane to subalpine.

Notes: The two opposite leaves are distinctive for the genus; otherwise, look for the lip that is not cleft, has blunt, rounded lobes, and a fleshy ridge at the base.

Listera cordata has a lip that is deeply cleft one half to two thirds its length, with 2 long pointed apical lobes. The lip of *Listera convallarioides* lacks lobes or auricles, and also lacks a fleshy ridge. Both would occur in similar moist, cool habitats at higher elevations.

***Malaxis* “white adder’s mouth”**

Malaxis monophyllos (L.) Swartz var. *brachypoda* (A. Gray) F. Morris & E.A. Eames

Syn. *Malaxis brachypoda*

Plants with stems 10-30 cm Leaf with petiolate base sheathing stem, blade light green, ovate-elliptic with an acute apex. Flowers distant in a lax spike, green or greenish white, lip broadly triangular, 3-lobed, middle lobe ovate, lateral ones auriculate, curved, no spurs present.

Habitat: Swamps and bogs, foothills; often in moss along streams. Rare.

Notes: Look for the single leaf with the strongly sheathing base; the spike has flowers that are small and distant from one another.

Platanthera "bog orchid"

The bog orchids have had varied taxonomic treatments over the years, with generic names of *Platanthera* and *Habenaria* being used, and for one species, *Lysiella*. Current treatments place them under the name *Platanthera* and they are thus recognized here. They are typically tall plants, with leaves reduced on the stem to almost bract-like structures near the top. Flowers are many, but sometimes are far apart on the spike; the lip is characterized by 3 lobes at the tip; *spurs* are projections near the base of the lip. Since the *Platanthera* species are so complex and difficult to distinguish, a detailed key is provided here. Some species that vary will key in more than one place. Characteristic smells are noticeable only in live plants.

1. Leaves 1-2; stem naked or with 1(-2, very rarely) bracts; spur slender, tapering from broad base, \pm as long as lip; lip linear to linear-rhombic-lanceolate; widespread*P. obtusata*
1. Leaves (1-)3-several; stem with gradually reduced bracts.....2
2. Flowers white; lip usually with round basal dilation.....*P. dilatata*
2. Flowers greenish, yellowish or white; lip linear to lanceolate, base usually not dilated.....3
3. Column (fused filaments and style) occupies 2/3 of the 'hood' formed by dorsal sepal and petals; lip linear to narrowly elliptic, base undilated, with prominent basal median ridge.*P. sparsifolia*
3. Column occupying less than 1/2 of the hood; lip linear-rhombic/lanceolate, or elliptic, base either undilated or with obscure to round basal dilation.....4
4. Anther low, appearing to lie atop stigma; anther sacs widely diverging from apices; spur clavate (club-shaped); lip rhombic-lanceolate to elliptic, yellowish to whitish..... *P. aquilonis*
4. Anther high, rising above stigma; anther sacs more nearly parallel; spur sac shaped to slenderly clavate; lip usually linear, sometimes with abrupt basal dilation, white to greenish or yellowish.....5
5. Spur generally sac to club shaped, much shorter than lip... ..*P. stricta*
5. Spur slenderly cylindrical to club or sac shaped6
6. Leaves clustered toward base of stem; lip usually oblong, dull yellow*P. sparsifolia*
6. Leaves scattered along stem; lip broadest at base, sometimes with basal dilation, white, greenish, or yellowish.....7
7. Lip pure white, usually with round basal dilation; spur club shaped to slightly capitate, shorter than lip.....*P. dilatata*
7. Lip greenish or yellowish white, linear-lanceolate to ovate, sometimes obscurely dilated at base, spur variable.....8.
8. Spur inflated, sac to club shaped, about 1/2 length of lip; lip yellowish-green to bluish green, sometimes marked with red, linear-lanceolate to rounded-dilated at base, musty scented.....*P. purpurascens*
8. Spur not inflated, a slender club or cylinder, about the length of the lip; lip whitish green, lanceolate, usually obscurely rounded-dilated at base; sweet scented; widespread.....*P. huronensis*

Platanthera aquilonis Sheviak

Platanthera hyperborea

Plants 5-60 cm tall, leaves scattered along stem and reduced above to bracts, blades linear lanceolate to oblong. Spikes few flowered to dense; flowers yellowish green, lip dull yellow to whitish green, lip rhombic-lanceolate to elliptic, not dilated at base. Spur club shaped to cylindrical.

Habitat: Wet meadows, marshes, streambanks, montane to subalpine zones.

Notes: Look for scentless flowers, and the yellowish green coloration of the flowers. This species is similar to *P. huronensis*; *P. aquilonis* has a green flower with a usually yellow lip while *P. huronensis* usually has a whitish green flower and the lip is not yellow.

Platanthera dilatata (Pursh) Lindley

Syn. *Limnorchis dilatata*, *Habenaria dilatata*

Plants to over 1 m tall, leaves usually scattered along the stem and reduced above, blades linear to oblong or lanceolate. Spikes dense or relatively few flowered; flowers white, lip linear to linear lanceolate and dilated at the base, lobes small. Those with small spurs shorter than the lip belong to var *albiflora* while those with spurs equal in length to the lip to var. *dilatata*. Both occur here.

Habitat: Wet areas, marshes, streamsides and around ponds, upper montane to subalpine zones.

Notes: Look for the white (not greenish) flowers and dilated aspect of the lower lip.

Platanthera huronensis (Nuttall) Lindley

Syn. *Limnorchis hyperboreus* var. *huronensis*; *Orchis huronensis*

Plants 10 cm to 1 m tall. Leaves scattered along them or clustered at the base, reduced above; blades oblong to linear lanceolate. Flowers whitish green, spike, lip lanceolate to ovate, spur slender, tapering at the apex and obscurely rounded-dilated at base.

Habitat: Wet meadows, montane to subalpine.

Notes: Part of a complex that extends to the arctic. Look for the nonsaccate short spur, and sweet smell (live plants). See also comments under *P. aquilonis*. This is a very common species.

Platanthera obtusata (Banks ex Pursh) Lindley

Syn. *Lysiella obtusata*; *Habenaria obtusata*

Plants relatively small, stems to 35 cm Leaves usually single, basal, linear lanceolate to elliptic or ovate. Flowers in lax spikes, greenish white to yellowish green; lip linear, spur slender and conic.

Habitat: Wet conifer forests, marshes, middle to upper elevations. Uncommon to rare.

Notes: Look for the few leaves (usually 1), and otherwise naked stem that is relatively short stem.

Platanthera purpurascens (Rydberg) Sheviak & W.F. Jennings

Syn. *Limnorchis purpurascens*; *L. hyperborea* var. *purpurascens*

Plants with stems from 25-80 cm tall. Leaves few to several, diverging at right angles to the stem, blade oblong to ovate or lanceolate. Flowers in lax to dense spikes. Flowers yellowish green to green, sometimes with blue or reddish tinge in the lip; lip clavate (club-shaped) to inflated-scratifform (like a scrotum), strongly scented with musk.

Habitat: Stream banks, shores, marshes, roadsides in middle elevations.

Notes: Colorado plants formerly referred to as *L. stricta* belong here. Look for the musky smell of the flowers and leaves projecting at right angles to the stem.

Platanthera sparsiflora (S.Watson) Schlechter

Syn. *Limnorchis ensifolia*; *P. sparsiflora* var. *ensifolia*

Plants with stems from 20 cm to over 1 m tall; leaves scattered along stem, sometimes grouped at the base and reduced above; blades ovate, oblong, lanceolate or linear. Flowers green to yellowish, lip oblong to linear lanceolate, spur slightly club-shaped or cylindrical, tapering to an acute apex.

Habitat: Wet areas, stream banks, foothills to montane.

Notes: This is part of a variable species complex; many of our representatives are typically quite slender and graceful looking with scattered flowers in a spike, but it can also be short and stout with leaves prominent on the stem. Look for the greenish flowers and long narrow spur. More study is being done on the complex in western North America as a whole.

Platanthera stricta Lindley

Syn. *Limnorchis stricta*, *Habenaria saccata*

Plants with stems 18 cm to 1 m tall. Leaves scattered along stem, blade oblong to ovate or linear lanceolate. Spikes few flowered to dense. Flowers green to yellowish green, lip linear to lanceolate, not dilated at base, spur strongly club shaped, capitate, or sac shaped.

Habitat: Wet meadows, marshes, stream banks, montane foothills to subalpine.

Notes: Look for the broad, saccate spurs, usually scentless flowers, and upper leaves, reduced in size, that abruptly diverge from the stem at about 90 degrees.

Spiranthes “lady’s tresses”

Spiranthes romanzoffiana Chamisso

Plants with stems to 0.5 m tall. Leaves basal, ascending or spreading, linear to linear lanceolate or elliptic, to 26 cm long. Spikes tightly spiraled, dense and fairly short, usually 3 flowers per swirl; flowers white to ivory colored. Lip constricted in the middle, with erose (fringed) tip .

Habitat: Moist to wet meadows, streamsides, foothills to montane. Also known from the high plains near the Black Forest.

Notes: The tight spiral of these floral spikes is unmistakable. They appear as if someone took the spike and twisted it. Another species of *Spiranthes*, *S. diluvialis*, is quite rare and was once known from Cheyenne Canyon in a wet meadow there. However, the site has been long destroyed and it is highly doubtful that *S. diluvialis* occurs in the Pikes Peak region any more. It can be distinguished by its height, the longer, less congested spike, and its general occurrence at lower elevations. Known occurrences in the Front Range are in wet, often flooded meadows, such as those along creeks in the Boulder region.

Orobanchaceae: Broom-Rape Family

This small family (in its traditional narrow sense) is composed of parasitic plants in our region and is typically found on the plains where it is associated with members of the Asteraceae, often *Artemisia*. The flowers are irregular, and the plants are succulent and somewhat “squishy” to the touch; they lack chlorophyll and thus have no green leaves. *Orobanche* is sometimes divided into separate genera, including *Aphyllon*, *Orobanche* and *Conopholis*. Our species are treated here under an inclusive concept of *Orobanche*. See also **Scrophulariaceae** for *Castilleja*, *Pedicularis*, and *Rhinanthus*, genera that some botanists place in the Orobanchaceae.

Orobanche “broom-rape”

Orobanche fasciculata Nuttall

Syn. *Aphyllon fasciculatum*

Plants with flowers on long pedicels, stems and stalks to 15 cm long. Flowers more than 4, lacking bracts near the calyx, purple or pinkish, or rarely with yellow splotches.

Habitat: Plains, mesas and foothills.

Notes: Common, but scattered and rarely locally abundant. This is our most common species.

Orobanche ludoviciana Nuttall

Plants to 20 cm, pedicels short, stems clumped or branched. Flowers many in dense spikes, to ca. 3 cm long, purplish, upper lobes acute.

Habitat: Sandy areas on the plains.

Notes: More common in southeast Colorado than in our region, but known from Pueblo and eastern El Paso Counties. Look for the larger purple flowers on short stalks.

Orobanche multiflora Nuttall

Plants to 20-30 cm Flowers many, in dense spikes, to ca 2 cm long, light to deep purple with a yellow cast, upper lobes obtuse.

Habitat: Plains.

Notes: Look for the smaller, deep purple flowers and different lobe shape than *O.ludoviciana*. Neither species is abundant here.

Orobanche uniflora (L.)Torrey & Gray

Syn. *Aphyllon uniflora*

Plants with flowers on long pedicels, stems and stalks to ca 5 cm. Flowers yellowish, 1-3, with calyx lobes longer than the tube.

Habitat: Montane grasslands.

Notes: Uncommon, overlooked, or at least rarely collected in our region. The few flowers are distinctive.

Oxalidaceae: Woodsorrel Family

Oxalis, more commonly known as sorrel, is the shamrock plant of St. Patrick's Day. With its 3-parted leaves, it looks a lot like a clover, although the flowers are very different from clover, a member of the Fabaceae, pea family. Sorrel flowers have 5 petals and 5 stamens and are regularly symmetrical. Our species are either yellow or purple. Sorrels are tangy with oxalic acid, and have culinary uses.

***Oxalis* "sorrel"**

Oxalis dillenii Jacquin

Plants low, with stems branched from the base, usually less than 10 cm tall. Stems with curved or simple hairs, not crinkled; flowers yellow.

Habitat: Grasslands and rocky areas, lower elevations.

Notes: A native species, common on the plains. The weedy species *Oxalis stricta*, which also has yellow flowers, differs in its crinkly hairs and more erect stems.

Oxalis stricta L.

Plants to over 20 cm tall, stems usually unbranched above, rhizomatous below. Stems with crinkly hairs showing reddish crosswalls under magnification (use a lens). Leaves often reddish. Capsules hairy.

Habitat: Adventive species of gardens, often escaping and common in lower elevation disturbed areas.

Notes: Look for the yellow flowers, rhizomes, and crinkly hairs.

Oxalis violacea L.

Plants with stems to 20 cm, usually not branched, containing tubers below. Flowers purple violet.

Habitat: Moist woods, foothills and montane zone. Usually occurring as an understory species, especially along streams or rivulets.

Notes: The violet flowers are distinctive. More common in the Wet Mts. than the Pikes Peak area, but scattered throughout the region.

Papaveraceae: Poppy Family

Thanks to their medicinal powers and horticultural popularity, few would not quickly recognize a flowering poppy with their 4-8 delicate petals, all separate, the lack of calyx in flower (it breaks off when the buds open), and turban shaped capsules with many tiny seeds. Although only one species (not native to North America) contains the narcotic alkaloid that produces opium, virtually all representatives of the family do contain toxins in the bitter, milky-colored sap.

Key to the Genera

1. Stem and leaves prickly, flowers large (usually over 4 cm long), white.....*Argemone*

1. Stem and leaves not prickly, flowers smaller (usually ca. 1 cm long), yellowish.....*Papaver*

Horticultural representatives may also become naturalized and persist for a short time in our region. These include *Eschscholtzia*, the California poppy, an annual yellow-orange flowered species used in horticultural xeriscape garden seed mixes and along roadsides, as well as some species of horticultural poppy such as *P. orientale* (oriental poppy, with brilliant scarlet or other odd-colored petals) or *P. croceum*, the Iceland poppy with pink or yellowish petals.

***Argemone* "prickly poppy"**

This genus is common on the plains and along roadsides at lower elevations in late summer. The sharp prickly stems and large bright white flowers are unmistakable.

Argemone hispida A. Gray

Plants to about 1 m tall, stems with white or yellow sap, densely prickly. Leaves lobed, prickly not only on the veins but also between the veins as well. Flowers bright white, prominent.

Habitat: Plains grasslands, often on shale or limestone outcrops.

Notes: Much less common than *A. polyanthemos*; look for the densely prickly stems and prickles between the veins. *Argemone squarrosa* is a similar species that occurs in southeastern Colorado (and might occur in Pueblo County), but has not yet been found in our region. It differs from *A. hispida* in having simple, not branched, spines on the capsules. In *A. hispida*, the capsule spines are branched from the base.

Argemone polyanthemos (Fedde) G. Ownbey

Plants to about 1 m tall, stems with white or yellow sap, slightly prickly but with wide spacing between the prickles. Leaves lobes, prickly only on the veins. Flowers bright white, prominent.

Habitat: Grasslands, mesas, and roadsides in the lower and middle elevations, sandy soils.

Notes: A very common species throughout the region. Look for spiny veins with smooth interspaces and only slightly prickly stems.

Papaver “poppy”

Papaver radicum Rottb. Ssp. *kluanense* (D. Löve)

Plants to about 20 cm, stems with blackish hairs, leaves basal, deeply lobed. Flowers yellowish to creamy white, petals ca 1 cm long.

Habitat: High alpine areas, in gravelly soil, often around old mine tailings. Known here from Pikes Peak.

Notes: This is an uncommon species of our high mountains with its closest relatives in the arctic. The petals are delicate and often blow off. The narrowly cylindrical capsule and lobed leaves are good indicators.

A number of cultivated poppy species may escape and be locally abundant for a short time but do not persist. These include opium poppy (*P. somniferum*), oriental poppy (*P. orientale*), and Flanders poppy (*P. rhoeas*). These are all showy species, and can be identified usually with the help of garden plant book.

Plantaginaceae: Plantain Family

Many people are familiar with the tropical “plantain”, a relative of bananas (Musaceae, a monocot family). Our plantains, however, belong to the Plantaginaceae, a family recognized by basal leaves in a cluster, a spike of tiny, greenish-white papery flowers, and “circumscissile” capsules, meaning they have a lid-like top. Although some of the leaves look like they have parallel veins, closer examination will reveal the network of connected veins as well, typical of the dicots. The flowers are wind pollinated, minute and nondescript for identification purposes. Some classifications include the Plantaginaceae with members of the Scrophulariaceae/Phrymaceae (figwort families) complex; if so, many members of the “Scrophs” are usually put into a larger concept of the Plantaginaceae. The Plantaginaceae in a narrow sense is separated here on the basis of the very distinctive, wind-pollinated flowers that make the distinction easy, but other defining characteristics of the families are possible and other floras use different criteria to define these related families. Other treatments place *Hippuris* (Hippuridaceae) into the Plantaginaceae as well.

Plantago “plantain”

Plantago eriopoda Torrey

Plants perennial, with lanceolate, thick and somewhat succulent leaves, bases covered with wooly reddish hairs. Flowering spike over 5 cm long.

Habitat: Wet places and alkaline flats, middle elevations.

Notes: Look for the prominent reddish hairs on the leaf bases. This species is somewhat uncommon or at least undercollected.

Plantago lanceolata L.

Plants perennial, with lanceolate leaves, thin in texture and somewhat pointed at the tip, glabrous or white hairy at the base. Flowering spike short and thick, with prominent stamens and longish petals to 2 mm.

Habitat: Adventive species of lawns.

Notes: Occasionally naturalized, but generally occurring around well irrigated lawns and in gardens.

Plantago major L.

Plants perennial, with broadly ovate leaf blades that narrow abruptly to the petiole. Flowering stalks elongated, lacking prominent anthers.

Habitat: Common adventive species of gardens and meadows.

Notes: Look for the large ovate leaves and long inflorescence.

Plantago patagonica Jacquin

Plants annual, with narrow linear leaves, less than 1 cm wide usually only a few mm wide; entire plant grayish wooly pubescent.

Habitat: Plains, barrens, and rocky areas of the grasslands; common in overgrazed pastures.

Notes: A common and somewhat invasive native species that thrives with disturbance in the lower elevations. Look for the narrow leaves and grayish pubescence.

Polemoniaceae: Phlox Family

The phlox family is large, with a wide representation in the western United States. Phlox species are a familiar component of gardens and represent typical aspects of the family: 5 petals above, in a flat, dish or tray-shaped presentation (“salverform” to “campanulate”) and often an elongate, slender corolla tube. The leaves are often (although not always) prominently divided in members of the Polemoniaceae; some species are biennials that produce prominent basal rosettes one year and bloom the next. Always look at the basal leaves in this family, since they can help with identification.

Key to the Genera

- 1. Plants diminutive annuals, lacking a basal rosette of leaves.....2
- 1. Plants annual, perennial or biennial, usually with a basal rosette of leaves.....5
- 2. Flowers over 5 mm long, long tubular, flowers in terminal heads..... *Ipomopsis pumila*
- 2. Flowers less than 5 mm long, tubes variable, flowers solitary.....3
- 3. Leaves elliptic, flowers solitary in leaf axils.....*Microsteris*
- 3. Leaves linear or lanceolate, flowers not in leaf axils.....4
- 4. Leaves narrowly linear, flowers white to pale lavender, solitary, at branch tips.....*Gilia*
- 4. Leaves lanceolate, flowers in dense clusters surrounded by bracts.....*Collomia*
- 5. Leaves simple, entire, opposite.....*Phlox*
- 5. Leaves variously divided or compound, alternate or opposite.....6
- 6. Leaves pinnately compound, with distinct leaflets.....*Polemonium*
- 6. Leaves pinnately lobed, or deeply palmatifid and appearing simple.....7
- 7. Leaves palmatifid, needle-like and sharp, plants somewhat woody, growing in short clumps.....8
- 7. Leaves pinnately lobed or divided, plants herbaceous.....*Ipomopsis/Gilia/Aliciella*
- 8. Flowers deep blue, anthers bright orange.....*Giliastrum*
- 8. Flowers white or cream colored, anthers not orange.....*Linanthus*

***Collomia* “Chinese lanterns”**

Collomia can be identified by its inconspicuous flowers in a terminal cluster, almost hidden by enlarged leafy bracts.

Collomia linearis Nuttall

Plants annual, 5-30 cm tall, leaves to 6 cm long, linear to linear lanceolate. Flowers in terminal clusters, purple, pink to almost white, to 1.5 cm long, almost hidden beneath leafy bracts.

Habitat: Open areas, often in sandy soil, foothills to montane.

Notes: Look for the terminal flower clusters and hidden flowers. Common here, but inconspicuous.

Aliciella, Gilia and Ipomopsis “gilia”

These closely related genera have been the subject on longtime botanical debate on how, or if, they are different. Some botanists use only a broadly defined *Gilia*, others separate at least *Ipomopsis* at the genus level. Adding to the confusion, even botanists who distinguish *Ipomopsis* use the common name of gilia to refer to it, especially to the abundant species *I. aggregata*, scarlet gilia. Some species have been split out of *Gilia* into *Giliastrum* (easily recognizable by their shrubby growth habit and placed here as a separate genus), but some of the other distinctions are difficult, especially between *Gilia* and *Aliciella* where the differences are more genetic than morphological. *Aliciella* seeds become covered with a mucilaginous material when wet, and plants typically do not have the purple or red –colored glandular hairs that are common in true *Gilias* but *Gilia*. Our only representative of *Aliciella* would be *A. pinnatifida*. *Gilias* have reduced leaves on the upper portion of the stem, and often cobwebby hairs in the leaf axils; *Ipomopsis* species lack cobwebby hairs on the leaves, the flowers have a tube in the lower portion of the corolla, with a distinctly broadened corolla limb above appearing like a trumpet, and the upper portion of the stem has well developed leaves. Our species are relatively distinct; all have some diagnostic character that should help in identifying to species; the genera remain a matter of choice!

Aliciella pinnatifida (A.Gray)J.M. Porter

Syn. *Gilia pinnatifida*

Plants annual, biennial, or perennial, glandular throughout with yellowish glands, lacking purple-red tips, throughout, stems to 30 cm, plants often branched and appearing fairly robust. Leaves pinnately divided, sticky. Flowers numerous, to ca 0.5 cm, lavender or pale blue to whitish, slightly campanulate. Stamens clearly strongly exerted on long filaments.

Habitat: Sandy or gravelly soils, plains to foothills and mid-montane zones.

Notes: This is a very common species, especially on riverbanks and flood plains, or disturbed areas. Look for the sticky glandular aspect and the exerted stamens. This species is most similar to *Gilia ophthalmoides*, but lacks the purple-headed glands of that species, and generally is more robust.

Gilia ophthalmoides Brand

Plants annual, biennial or perennial, arachnoid pubescent, to ca 20 cm, appearing somewhat delicate and stems only slightly branched; plants glandular with purple-red tipped glandular hairs. Leaves pinnately divided, somewhat sticky. Flowers few to many, ca 0.5 cm, lavender to pale blue or whitish, slightly campanulate.

Habitat: Sandy or gravelly soils, plains, lower elevations, montane.

Notes: Most similar to *Gilia pinnatifida*, but much less common (or less collected); easily distinguished by the distinctive purple-headed glands and much shorter filaments where the anthers are at the top of the corolla tube and not strongly exerted from it.

Ipomopsis aggregata (Pursh) V. Grant

Syn. *Gilia aggregata*

Plants annual or biennial, to 2 m tall. Leaves pinnately divided into linear divisions; flowers long tubular, 20-45 mm, with a flaring limb above; scarlet, salmon, pink, or white,

Habitat: Plains, foothills, lower montane.

Notes: A very common, and extremely variable, species usually treated with subspecies designations. In our region, ssp. *collina* (scarlet) and ssp. *candida* (white) are common; variations in flower color occur frequently and are correlated with pollination, altitude, and genetics. If flowers are white, compare the root system to distinguish ssp. *candida* from *Ipomopsis laxiflora* and *I. longiflora*. They are also white (usually a pure white) but are annuals, and have a smaller root system. This is an intriguing complex on multiple accounts and the subject of much study by ecologists and geneticists.

Ipomopsis laxiflora (Coulter) V. Grant

Syn. *Gilia laxiflora*

Plants annual, to 40 cm Leaves pinnately divided with very narrow linear to filiform divisions; flowers long tubular, tube 15-25 mm, with a flaring limb above, white.

Habitat: Plains grasslands, especially in sandy soils.

Notes: This species can be distinguished from *I. longiflora* by its shorter corolla tube.

Ipomopsis longiflora (Torrey) V. Grant

Syn. *Gilia longiflora*

Plants annual, to 40 cm Leaves pinnately divided, with narrow linear divisions; flowers very long tubular, tube 30-40 mm, with a flaring limb above, white.

Habitat: Plains grasslands, especially in sandy soils.

Notes: This species is characterized by its exceptionally long corolla tube.

Ipomopsis pumila (Nuttall) V. Grant

Syn. *Gilia pumila*

Plants annual, stems 6-20 cm, stems crisp-hairy, wooly. Leaves 2-4 parted, usually into linear lobes, sometimes entire. Flowers at the end of branches, in small clusters, corollas white, pink, or light blue, tubes to 9 mm, lobes only 2 mm.

Habitat: Low elevations, southern portion of our region, in soils with clay components.

Notes: Look for the small flowers located at the end of the branches; an uncommon or overlooked species here; a delicate and inconspicuous species.

Ipomopsis spicata (Nuttall) V. Grant

Plants biennial or perennial, stems to 20-35 cm, distinctly wooly-hairy and sticky. Leaves irregularly divided. Flowers in capitate clusters crowded into a spike, corollas creamy to yellowish white, turning brown when dry, ca. 10 mm long.

Habitat: Grasslands, mesas, lower foothills blooming early in the spring.

Notes: Common in early spring; look for the spikelike inflorescence of yellowish flowers.

***Giliastrum* “prickly gilia”**

Giliastrum rigidulum (Bentham) Rydberg ssp. *acerosa* (Gray) Weber

Syn. *Gilia acerosa*; *Giliastrum acerosum*

Plants perennial, shrubby, stems woody at base, to 25 cm tall, branched from base and clumped. Leaves pinnatifid, divided into sharp, needle-like divisions. Flowers ca 1 cm long, with bright blue, rotate corollas, throat yellow.

Habitat: Rocky outcrops, hillsides, lower elevations, mostly in the southern portion of our region.

Notes: This is a very distinctive small shrub with its bright blue flowers and sharp, needle-like leaves.

***Linanthus* “prickly gilia”**

The genus *Linanthus* now includes those species once placed in *Leptodactylon*, and confusingly, with the common name of prickly gilia that also applies to the blue-flowered *Giliastrum*, a much closer cousin to gilia. Our representative (*L. pungens*) is a distinctive short shrubby plant with prickly leaves and 5-merous (5 petals) yellowish white, pink, or violet flowers. A second species, *L. caespitosum*, is known from northern Colorado and from Mesa de Maya; possibly occurring in the southern portion of our region on sandstone outcrops. *Linanthus caespitosum* has 4-merous flowers and grows in dense tight clumps.

Linanthus pungens (Torrey) L.A. Johnson & J. M. Porter

Syn. *Leptodactylon pungens*

Plants short shrubs to ca. 50 cm, leaves palmatifid, into 3-7 segments, with axillary clusters as well; segments with spine-tips that give a prickly feel. Flowers 15-25 mm long, usually whitish, or with a pink to lavender tinge; petal lobes 5. Plants aromatic.

Habitat: Plains, dry grasslands, outcrops, southern portion of our region.

Microsteris

This genus of small annuals is very inconspicuous, but not uncommon here. It often grows with *Collinsia* (blue-eyed Mary, Scrophulariaceae), which it resembles somewhat. *Collinsia* has alternate leaves, however, while *Microsteris* has paired opposite leaves.

Microsteris gracilis (Hooker) Greene

Plants annual, stems hairy, branched, to ca. 10 cm Lower leaves simple, oblong to spatulate, obtuse, opposite. Flowers at branch tips, tiny, to a few mm long; petals very short, white or pink tinged.

Habitat: Plains, mesas, foothills, lower montane.

Notes: This plant blooms very early in the spring. Look for the sticky-hairy branched stem with opposite, entire leaves and tiny flowers.

***Phlox* “phlox”**

Garden phlox is well known as a very attractive horticultural addition. Our native species, of which there is only one known from our region (although several others occur in Colorado) is also very attractive. Although these plants are short, they immediately remind you of the garden types.

Phlox longifolia Nuttall

Plants prostrate, with ascending branches slightly woody at the base. Stems to 30 cm, usually less. Leaves long and linear, 2-8 cm. Flowers pink, but varying from almost white to rose, tube 1-2 cm, lobes 6-10 mm.

Habitat: Open sandy or clay rich soils of the plains, esp. in the southern portion of our region.

Notes: This species blooms early in the spring, and is especially common on the southeastern plains. In our region, it is relatively rare in El Paso County, but begins to be more abundant south of Pueblo. The sprawling habit and long leaves are distinctive.

Phlox hoodii has been collected on the margins of our region but not verified here. It would occur in dry shortgrass prairie, blooming early. It grows as a matted species, with tangled hairs in leaf axils and white to purplish flowers.

***Polemonium* “Jacob’s ladder, sky pilot”**

The short corolla tubes and broad corolla limb, accompanied by alternate, pinnately compound leaves, make this familiar genus readily identifiable. Sky pilot species are abundant and diverse in the higher elevations.

Polemonium brandegeei (Gray) Greene

Plants to 40 cm, leaves with whorled leaflets, each 2-3 parted. Flowers yellow to yellowish white.

Habitat: Rock slides, canyons of the foothills and on scree and talus in upper elevations.

Notes: This is an uncommon species here, or little collected. The yellowish flowers and oddly divided leaflets are very distinctive.

Polemonium foliosissimum (A. Gray) A. Gray

Plants to 1 m., with thick woody caudices below, stems with leaves not noticeably reduced upwards, leaflets lanceolate, to 25 mm long, typically coming together near the apex. Flowers 8-20 mm long, purplish to white.

Habitat: Streamsides, moist upper elevation meadows, from montane to subalpine.

Notes: A common species; look for the many leaflets that tend to run together at the tip of the leaf. The scientific name means “very leafy”, a good descriptor.

Polemonium occidentale Greene

Syn. *Polemonium caeruleum* L. ssp. *amygdalinum*

Plants to almost 1 m tall, with slender rhizomes, stems with leaves reduced upwards, leaflets 7-40 mm long, lanceolate to ovate-oblong, acute at apex. Flowers 10-15 mm, blue to light violet.

Habitat: Willow-birch bogs, often as understory in tussocks, upper montane and subalpine.

Notes: Little collected here, and known only from Pikes Peak. It is often difficult to see in the tangle under willows, but a distinctive species and probably just overlooked. Look for the tall stems off a thin rhizome and narrow leaflets.

Polemonium pulcherrimum Hooker ssp. *delicatum* (Rydberg) Brand

Syn. *Polemonium delicatum*

Plants short, to only 20 cm or less, stems slender, typically growing in clumps or tufts. Leaflets ovate to elliptical. Flowers 6-12 mm, blue or violet.

Habitat: Dry forest floors, often in shade under conifers, montane to lower subalpine zones.

Notes: This is a common species of the upper foothills. Look for the short tufted “delicate” growth habit, small flowers, and rounded leaflets. It is not sticky, unlike *P. viscosum*, with which it can grow.

Polemonium viscosum Nuttall

Plants to 30 cm, usually shorter, from a branched caudex, stems glandular sticky, with leaflets typically appearing verticillate, linear to oval. Flowers broadly campanulate, only slightly longer than the calyx, in terminal clusters.

Habitat: Subalpine to tundra, often in dry meadows and on rocky slopes.

Notes: A very common and attractive alpine species. The skunky smell is the giveaway character along with the sticky leaves and stem! Some alpine populations can smell sweet, however, so this can vary.

Polygonaceae: Buckwheat Family

This family is familiar to gardeners as the family to which rhubarb belongs; many of its members have characteristics that remind you of rhubarb: small, nondescript flowers in clusters, and leaves with a sheathing transparent stipule at the base called an *ochrea*. Other characters include 3-6 parted flowers (the similar parts are called *tepals*, though sometimes colored like petals), and the trigonous (3-angled) achene fruit. Most of the genera in the family encompass these characteristics and are readily placed in the Polygonaceae; an exception is *Eriogonum* (wild buckwheat), which lacks the ochrea. This can be a difficult genus, with many species in California and the Great Basin, but our representatives are relatively few and can usually be fairly easily identified by leaf and inflorescence characters. With some experience, *Eriogonums* tend to have a distinctive look in the inflorescence of small clustered flowers and a noticeable involucre of fused bracts below in most species.

Key to the Genera

1. Plants herbaceous vines.....*Fallopia*
1. Plants various, but never vines.....2

2. Stems with hooked prickles and arrow-head shaped leaves.....*Truellum*
2. Stems lacking hooked prickles and arrow-head shaped leaves.....3

3. Rare dwarf annuals in wet tundra gravel, red-tinged, with minute flowers in leaf axils
.....*Koenigia*
3. Plants not as above..... 4

4. Flower clusters with involucre of fused bracts below (often small, look closely).....
Eriogonum and *Pterogonum*
4. Flower clusters lacking involucre of fused bracts below.....5

5. Tepals 4 or 6, outer ones spreading or reflexed (bent back) and small, the inner ones erect, enlarged
in fruit.....6
5. Tepals 5, outer not smaller, typically petal-like, white or pink.....8

6. Leaf blades lanceolate to ovate, not lobed at base, plants stout and weedy.....*Rumex*
6. Leaf blades rounded to kidney shaped OR if lanceolate, then basally lobed, plants not stout7

7. Leaves lanceolate, usually with basal lobes, plants of disturbed areas.....*Acetosella*
7. Leaves rounded to kidney-shaped, plants of high elevation rock fields.....*Oxyria*

8. Leaves with a hinge-like joint at point of attachment of blade and sheath, flowers in axillary clusters,
bracts of inflorescence with leaflike blades.....*Polygonum*
8. Leaves lacking joint at attachment of blade and sheath, flowers in terminal or axillary spikelike racemes,
inflorescence bracts reduce to sheaths.....9

9. Plants of alpine and subalpine meadows and rocky slopes, basal leaves present, stem leaves
reduced.....*Bistorta*
9. Plants of various habitats, typically wet areas of lower elevations, basal leaves lacking, stem leaves
present.....*Persicaria*

Acetosella "sheep sorrel"

This weedy species from Eurasia readily colonizes disturbed areas; it is easily identifiable by its narrow leaves with lobes at the base. Some botanists place it in the genus *Rumex*.

Acetosella vulgaris (Koch) Fourreau

Syn. *Rumex acetosella*

Plants annual or perennial, stems slender, off a creeping rhizome. Leaves narrowly hastate, lobed at the base. Flowers in interrupted racemes, greenish white when young, turning reddish at maturity.

Habitat: Disturbed areas, roadsides, fields, lower elevations to montane.

Notes: A common adventive species, but rarely spreading in a problematic way. Look for the narrowly hastate leaves and delicate appearance.

***Bistorta* “bistort”**

Bistorts are common, though not showy, components of our higher elevation meadows. They bloom most of the summer, into the early fall, with a characteristic spike of small white flowers.

Bistorta bistortoides (Pursh) Small

Syn. *Polygonum bistorta*

Plants to 30 cm, or more in wet areas. Basal leaves lanceolate, to 10 cm or more, stem leaves much reduced, sheathing at base with a prominent ochrea. Flowers in dense, terminal cylindrical spikes, white, turning pinkish in age.

Habitat: Meadows, upper montane to alpine.

Notes: The flowers in this species are typically in much broader spikes, and no bulblets exist in the spikes as in *B. vivipara*. Generally this is a more robust plant, but both species can vary with the conditions, especially with respect to the amount of moisture available.

Bistorta vivipara (L.) S. Gray

Plants to 20 cm, rarely taller, and usually ca 10 cm or less. Basal leaves narrowly lanceolate, stem leaves much reduced, sheathing at base with a prominent ochrea. Flowers in narrow, terminal spikes, white, pinkish, or brownish. Lower flowers replaced by bulblets, an asexual propagule.

Habitat: Meadows, subalpine to alpine.

Notes: Generally much less robust and shorter than *B. bistortoides*, and the spikes are much narrower. Look for the little bulblets in the lower portion of the inflorescence. This species can get quite tall when ample moisture is available.

***Eriogonum* “wild buckwheat”**

Eriogonum can be fiendishly difficult in some parts of western North America; it is composed of a vast and intimidating array of species in California and parts of the Great Basin. Luckily for us, we have only a few species here; all are relatively easy to identify. *Eriogonum* lacks the distinctive sheath of other members of the Polygonaceae, but does have a distinctive *involucre*, a sheath of transparent bracts under the inflorescence that are either fused or separate. The flowers are always nonshowy, composed of tepals (petals and sepals that look alike). They are typically whitish or yellow. Separated here from the rest of the *Eriogonum* group of species is the *Eriogonum alatum* (or, to some, a separate genus, *Pterogonum alatum*), winged buckwheat. This tall species (up to a meter in height) with a massive taproot and a basal rosette topped with a stalk from which winged fruits dangle, is a common component of montane meadows. It is monocarpic: it may take several years to bloom, then dies. This dramatically different growth pattern and overall morphology serves to distinguish *E. alatum* from the rest of the buckwheats, and some botanists prefer to recognize it at the generic level.

PLANTS WITH LARGE TAPROOTS AND VERY TALL STEMS

Eriogonum alatum Torrey

Syn. *Pterogonum alatum*

Plants with large taproots and wide basal rosettes, stems to 1 m tall, erect, branched above. Leaves to 10 cm long, mostly basal, spatulate to oblanceolate, inflorescence an open panicle or cyme with leaflike bracts. Flowers yellowish, fruits dangling, yellow-green, 3-angled.

Habitat: Open gravelly soils, plains grasslands, mesas, lower foothills and montane slopes.

Notes: A common and very distinctive species with its tall stem; the dangling trigonous (3-angled) fruits later in the flowering season are very visible into the fall.

ANNUAL OR BIENNIAL SPECIES WITH SLENDER TAPROOTS, LOWER ELEVATIONS

Eriogonum annuum Nuttall

Plants to ca 50 cm. Basal leaves in rosettes, withering at flowering time, blades oblanceolate, stem leaves many, oblanceolate to elliptic, stems silvery hairy at least when young. Flowers open terminal clusters on 2-3 branches, white, secund (appearing flagged, or one-sided).

Habitat: Dry sandy grasslands, lower elevations.

Notes: Look for the 1-sided, long branched inflorescence of white flowers. This is a common species of late summer on the sandy grasslands of Pueblo and El Paso Counties.

Eriogonum cernuum Nuttall

Plants to 30 cm Basal leaves present at flowering time, blades oval to orbicular, densely white tomentose below. Inflorescence somewhat branched, involucre of flowers solitary, hanging down on reflexed peduncles. Flowers white to pinkish.

Habitat: Open sandy soils, grasslands.

Notes: Uncommon in our region, but common elsewhere on the plains. Look for the broad round leaves and hanging branches of the inflorescence. The tomentum on the undersides of the leaves and the hanging branches of the inflorescence distinguish this species from the similar *E. gordonii*; *E. tenellum* also has rounded leaves, but is a perennial, and a much more delicate plant.

Eriogonum gordonii Benth

Plants to 30 cm Basal leaves present at flowering, blades oval to orbicular, glabrous below and above. Inflorescence branched, branches ascending. Flowers white to pinkish.

Habitat: Sandy soils, plains grasslands.

Notes: Uncommon in our region, known from southern El Paso Co. and Pueblo Co. Look for the ascending branches of the inflorescence and the lack of hairs on the leaf undersides to distinguish this from *E. cernuum*.

PERENNIAL SPECIES

These species have woody taproots and often somewhat woody caudices (rootstocks) or lower parts of the stems. *E. microthecum* var. *effusum* is the most obviously shrubby of this group; the others tend to have a thick, fibrous, semi-woody caudex at or just below the ground surface.

Eriogonum brandegeei Rydberg

Plants perennial, spreading, stems to 25 cm, tomentose to floccose. Leaves basal, solitary, blades oblanceolate to elliptic, to ca 1 cm long, densely tomentose below, flat, lacking revolute (rolled under) edges. Inflorescence capitate to umbellate cymes, tomentose to floccose, flowers yellowish white.

Habitat: Clay soils in sagebrush and juniper grasslands.

Notes: A relatively rare species known from Fremont, Chaffee, and Park Counties, usually along the Arkansas River and the Platte drainage in South Park. Look for the dense tomentum, flat leaves and the off white flowers.

Eriogonum effusum Nuttall

Plants perennial, with a branched, woody base, stems to 30 cm, growing in clumps. Leaves primarily on the stem, linear to oblong, tapering to the petiole, densely grayish hairy below. Inflorescence much branched, like a whisk-broom, somewhat flat-topped, flowers white to pinkish.

Habitat: Grasslands, mesas, lower foothills.

Notes: An extremely common species on the plains and lower foothills, noticeably a deep mahogany color in fall and winter. Look for the branched, broomlike inflorescence (Fig. Z).

Eriogonum fendlerianum (Benth in A. DeCandolle) Small

Syn. *Eriogonum lonchophyllum* var. *fendlerianum*

Plants perennial, with a woody lower stem and caudex, stems 20-40 cm, leafy, with leaves oval to elliptical, usually over 1 cm long, margins wavy. Inflorescence branching, flowers whitish.

Habitat: Barrens, outcrops, clay-rich soils of the Arkansas River Valley, Pueblo and Fremont Counties.
Notes: Locally common, but occurring only in specialized habitats in a small area in the Arkansas River drainage, mostly on barrens. Look for the elliptical leaves and white flowers. It typically co-occurs with *E. lachnogynum*, which has pale yellow flowers and leaves that curl under below.

Eriogonum flavum Nuttall

Syn. *Eriogonum arcuatum* var. *xanthum*

Plants perennial, with branching woody caudex, in tight mats, stems to 20 cm, leaves 2-5 cm, clustered off the caudex branches, elliptic, with a wedge shaped base, hairy below, hairs often rusty in age.

Inflorescence an umbel, usually with several involucre, flowers sulphur yellow, hairy.

Habitat: clay-rich, sandy or gravelly slopes, grasslands, conifer forests, plains to subalpine or lower alpine.

Notes: A variable and widely distributed species. Look for the yellow flowers, in several umbels with a single set of wide involucre bracts below. *Eriogonum umbellatum* can also have a yellow form (var. *aureum*), but has leaves that are glabrous on both sides (usually); the teeth of the involucre are relatively long, and reflexed or spreading. In *E. flavum*, the involucre teeth are short and erect.

Eriogonum jamesii Benth in A. de Candolle

Plants with a woody base, stems spreading, branched, to 30 cm. Leaves mostly basal, oblong to spatulate or somewhat lanceolate, involucre bracts in whorls subtending the umbellate inflorescence. Flowers white to creamy.

Habitat: Mesas, lower foothills, common in the shrub-grassland zones.

Notes: This is a common species in the mountain shrub zone, with great variation of flower colors. Ours are most commonly an off white color. Look for the umbels, each of which has a subtending involucre.

Eriogonum lachnogynum Torrey ex Benth in A. de Candolle

Plants somewhat matted, off a branched caudex. Stems slender, to 30 cm, often with persistent leaf bases. Leaves basal, lanceolate to elliptical, to ca 4.5 cm, densely white hairy on both upper and lower surfaces, margins revolute. Flowers pale yellow, in an open inflorescence.

Habitat: Barrens, clay-rich slopes, Arkansas River drainage.

Notes: This is a common shale barren component of the region around Pueblo and Cañon City. It blooms from late spring into the fall. Look for the pale yellow flowers and hairy leaves with margins rolled under.

Eriogonum subalpinum Greene

Syn. *Eriogonum umbellatum* var. *majus*

Plants prostrate mats, often spreading. Stems to 30 cm, with loose tufts of cottony hairs. Leaves oblanceolate to elliptic, densely hairy below, green above. Inflorescence umbellate, flowers off white to pinkish.

Habitat: Montane to subalpine meadows.

Notes: Very similar to *E. umbellatum* but with whitish not yellow, flowers. Sometimes considered a variety of *E. umbellatum*.

Eriogonum tenellum Torrey

Plants to 40 cm, from a basal rosette. Leaves with small round blades, grayish white hairs on both sides. Inflorescence open, usually spreading, flowers pinkish white.

Habitat: Sandy to rocky soils, outcrops, southern portion our region, especially near Huerfano County.

Notes: This attractive species is common in southeastern Colorado, particularly on canyon walls and outcrops. The rounded leaves, delicate appearance, and pinkish flowers are characteristic. *E. cernuum* also has rounded blades, but leaves are larger, with longer petioles, and plants more robust than in *E. tenellum*.

Eriogonum umbellatum Torrey

Plants to 30 cm, from woody caudices. Leaf blades spatulate, to 4 cm long, with petioles to 4 cm, surfaces variably pubescent on either or both surfaces. Inflorescence multiple umbels, subtended by broad leaflike bracts, flowers sulphur yellow.

Habitat: Mesas, foothills to montane zones.

Notes: A very common but variable species, usually of the middle elevations. Look for the broad leafy bracts below multiple umbels of yellow flowers.

***Fallopia* “black bindweed”**

Fallopia is one of two local genera that carry the common name of bindweed—the other is *Convolvulus* in the Convolvulaceae. One garden species, *Fallopia aubertii* (silver lace vine), often escapes and can be found growing around towns on fences and walls. It is a perennial woody vine with white flowers in broad panicles. Our other species are much more diminutive, with smaller, unattractive flower clusters, and cordate-hastate leaves (with heart-shaped or with a base like a sword handle).

Fallopia convolvulus (L.) Löve

Syn. *Bilderdykia convolvulus*; *Polygonum convolvulus*

Plants annual, to 1 m, usually branching and trailing or climbing. Leaves 2-6 cm, cordate-hastate at base, acuminate at tip; flowers in axillary clusters, greenish white; achenes black, dull, with a granular surface (use lens), lacking prominent wings.

Habitat: Disturbed areas, lower elevations.

Notes: A common weed around towns and in gardens; look for the dull, non-winged fruits to distinguish this species from the next, a native to North America but known only from historical records here.

Fallopia scandens (L.) Holub

Plants perennial or annual, to 3 m, trailing or climbing. Leaves 2-6 cm, cordate-hastate or sagittate at base, short acuminate at tip; flowers in axillary or terminal racemes, yellowish green; achenes black, smooth, shining, strongly winged.

Habitat: Uncertain, usually in shrubby thickets at lower elevations; known only from historical records.

Notes: This species is distinguished from the very common *F. convolvulus* by very different achenes. We have historical records from the Colorado Springs area, but this species has not been relocated recently.

Koenigia

Koenigia islandica L.

Plants annual, tiny, to ca 5 cm. Stems usually reddish, rooting from nodes. Leaves to 5 mm, alternate to sub-opposite along the stem. Flowers less than 2 mm long, greenish, pinkish, or off white.

Habitat: Cold snowmelt areas, in open gravels, Pikes Peak. Its original site is now much modified and the species may be locally extinct now.

Notes: This species is rare overall in Colorado, and has only been found on Pikes Peak in our region. It is one of the few arctic-alpine annual species. Look for the small size, reddish color, and snowbed habitat.

***Oxyria* “alpine sorrel”**

Oxyria digyna (L.) J. Hill

Plants clumped, sometimes rhizomatous, 5-30 cm, rarely taller. Stems reddish, leaves orbicular-kidney shaped, mostly basal, to several cm wide. Flowers in clusters, often somewhat reddish.

Habitat: Rock crevices, boulder fields, and talus of the subalpine and alpine zones.

Notes: This species is common in the mountains of Colorado and very distinctive with its reddish, somewhat succulent, kidney shaped leaves. Look for it wherever you see or hear pikas.

***Persicaria* “smartweed”**

This genus is closely related to *Polygonum*, and used to be included within it. *Polygonum* has a hingelike joint at the base of the leaf (though this can be hard to see), the ochrea (leaf sheath) is usually transparent to silvery, and our species grow in drier areas; in comparison, *Persicaria* lacks the joint, the ochrea is usually papery to somewhat colored, and our species are always found in wet to moist sites. One unusual representative of the group is placed here under the segregate genus *Truellum*; this rare species has arrow-head shaped leaves and distinctive prickles on the stems.

Persicaria amphibia (L.) S. Gray

Syn. *P. coccinea*; *Polygonum amphibibium*

Plants floating or in very wet mud, composed of long stems up to several m, stems often rhizomatous and branching at nodes; leaves highly variable, lanceolate to elliptic or oblong. Flowers in terminal spikes from 3-10 cm long, reddish to rosy in color.

Habitat: Lower elevations to montane, in ponds or wet mud.

Notes: An extremely variable species, with a number of leaf forms. *P. coccinea* was formerly considered a separate species because of its long narrow inflorescence spike, but is now placed under the name of *P. amphibia* and the complex considered highly variable. It typically is floating in water, but can also grow on pond margins in very wet soils.

SHEATHS WITH MARGINAL BRISTLES (USE LENS)

Persicaria maculata (Rafinesque) S. Gray

Syn. *Polygonum persicaria*

Plants annual, stems ca 30 cm. Leaves narrowly elliptical to lanceolate, usually with a dark blotch near the middle. Flowers in dense terminal or axillary spikes, pinkish to white, lacking glands.

Habitat: Lower elevations to montane, along streams, drainage ditches, and pond margins.

Notes: A very common adventive species of lower and middle elevation wetlands; look for the blotch on the leaves, and the glandular, relatively short, thick spikes.

Persicaria punctata (Elliott) Small

Syn. *Polygonum punctatum*

Plants annual or perennial, stems to several m long, usually rhizomatous. Leaves lanceolate to lanceolate ovate or almost rhombic, lacking a blotch in the middle, surfaces glandular punctate. Flowers in slender terminal or axillary spikes, greenish white, glandular punctate.

Habitat: Lower elevations, along streams, drainage ditches, and pond margins.

Notes: Somewhat uncommon adventive species; look for the distinctive punctate glands and the slender spikes of flowers.

SHEATHS LACKING MARGINAL BRISTLES

Persicaria bicornis (Rafinesque) Nieuwland

Syn. *Polygonum bicornis*

Plants annual, stems to 1 m or more, usually erect. Leaves linear lanceolate to ovate lanceolate. Flowers bright pink, heterostylous (see below) in terminal or axillary spikes, short and thick, about twice as long as wide, with red purple glands below the spike. Achenes with a hump in the center of one face.

Habitat: Lower elevations, moist areas, pond margins, ditches.

Notes: Uncommon species here; similar to *P. pensylvanica* but with narrower leaves. Look also for the characteristic achenes, and the heterostylous flowers (with either stamens or style exerted above the other).

Persicaria lapathifolia (L.) S. Gray

Plants annual, stems to 1 m or more, erect. Leaves lanceolate, with a tapered base and acute tip, resembling *Rumex*. Flowers whitish or cream colored, in terminal or axillary spikes, with yellow granular glands on the peduncle of the spike.

Habitat: Lower elevations to montane, moist areas, pond margins, ditches.

Notes: Adventive species, relatively common here on the plains, especially in areas with cultivated crops and irrigation ditches. Look for the yellow glands and whitish flowers.

Persicaria pensylvanica (L.) Gomez

Syn. *Polygonum pensylvanicum*

Plants annual, stems to 2 m, stems erect. Leaves linear lanceolate to ovate lanceolate. Flowers greenish white to rosy pink, not heterostylous, in terminal or axillary spikes, long and narrow, with red purple glands on the peduncle of the spike. Achenes lacking a hump on one face.

Habitat: Lower elevations, moist areas, pond margins, ditches, streamsides.

Notes: Similar to *P. bicornis*, but without heterostylous flowers (stamen or style not exerted), and achenes lack the central hump.

***Polygonum* “knotweed”**

Even in its more restricted sense that leaves out the *Persicaria* group of species, *Polygonum* is a large and complex genus. There are many adventive representatives, and these may show up anywhere at least on a short time basis; these may be particularly common in areas such as the Arkansas River Valley where cultivated fields are common. Our common representatives are few, and fairly easily identified.

Knotweeds receive their name from the knot, or knee-like joint at the leaf base. Sometimes this is easy to