

see, sometimes not! The most easily confused group with true *Polygonum* are the species in *Persicaria*; these are typically in wet soils while knotweeds are in drier areas.

Polygonum aviculare L.

Syn. *Polygonum arenastrum*

Plants annual or perennial, with a taproot; stems prostrate-creeping, sometimes to several m long. Leaves lanceolate to oblong, to ca 2 cm long or less. Flowers pinkish to pale lavender or white, minute, often in clusters in the leaf axils.

Habitat: Disturbed areas, gardens, lower elevations to montane.

Notes: An extremely common weed throughout our region. The long, tough stems have earned this the common name of “devil’s shoestrings”.

Polygonum douglasii Greene

Syn. *Polygonum montanum*

Plants with erect stems, to 50 cm, not striate. Leaves linear, narrowly oblong, or oblanceolate. Flowers in axils or terminal, in spikelike inflorescences, greenish to tan, often reflexed in fruit.

Habitat: Disturbed ground, sandy to gravelly soils, lower elevations to montane.

Notes: Highly variable, with variants often considered as separate but intergrading species. This is a difficult group, about which multiple interpretations exist. Species recognized in the complex include *P. sawatchense* Small, where the pedicels are erect to spreading rather than reflexed as in *P. douglasii* narrowly defined, and *P. engelmannii* where the pedicels are also reflexed, but sheaths are very short, only a few mm long.

Polygonum erectum L. ssp. *achorum* (S.F. Blake) Löve & Löve

Syn. *Polygonum achorum*

Plants with erect stems, sometimes becoming decumbent or prostrate. Leaves elliptic to obovate, light yellowish green, flowers yellowish green, in axils.

Habitat: Disturbed ground, fields, roadsides, lower elevations.

Notes: Adventive species, probably spreading in our region, especially along the I-25 corridor. Separated with uncertainty from *P. erectum* as a separate species. Look for the light yellow green color.

Polygonum ramosissimum Michaux

Plants annual, stems to over 1 m, strongly branched from a main stem, especially above, and appearing top heavy. Leaves narrowly lanceolate, flowers yellowish green, in leaf axils.

Habitat: Disturbed areas, lower elevations.

Notes: Look for the top heavy appearance of the upper portion of the stem.; lower leaves drop early.

***Rumex* “dock”**

This is a large and difficult genus, where species complexes are common and hybrids likely. We have both native species and adventive species here, some of which (such as *R. crispus*, curly dock) are extremely common and some of which are relatively rare. All of the species, native or not, have a weedy look to them: ungainly, sprawling, or erect, occurring in disturbed habitats, rather unlovely plants. The fruits are often required for identification purposes: look at them carefully under magnification. The inner 3 (*sepals* and *petals* that look alike) of the flower become what are called “*valves*” in fruit-these are key to identification and are particularly important to examine. Habitat, growth form, and leaf shape are also useful characteristics in identification. See also the genus *Acetosella*, sometimes placed into *Rumex*.

Rumex altissimus Wood

Plants to ca 1 m, stems erect, somewhat ribbed, with axillary shoots, especially below the inflorescence. Basal leaves not present, stem leaves lanceolate to narrowly elliptic, ca 15 cm long, margins not wavy curled. Flowers with valves entire, 4-6 mm long.

Habitat: Plains, wet areas.

Notes: Look for the tall, branched stem, leaves without curly edges, and the valves that are not toothed.

Rumex crispus L.

Plants to 1.5 m, stems erect, branched. Basal and stem leaves present, leaves usually lanceolate, margins strongly crisped (curly) and undulate. Flowers with valves entire, 3-6 mm, with a “grain” (hump in the middle).

Habitat: Roadsides, disturbed areas, meadows, fields, plains to upper elevations.

Notes: An extremely abundant adventive species, occurring virtually everywhere. Look for the deep brown inflorescences late in the season, and the ruffled or “crisped” leaf margins.

Rumex densiflorus Osterhout

Plants rhizomatous, stems to 1 m, erect, branched in the inflorescence. Basal and stem leaves present, leaves oblong or oblong lanceolate, margins entire, flat. Flowers with valves entire, 5-6 mm.

Habitat: Upper montane to subalpine bogs.

Notes: Look for the rhizomatous growth habit that makes this species grow in patches.

Rumex obtusifolius L.

Plants to 1.5 m, stems erect, branched. Basal and stem leaves present, leaves broadly ovate to oblong, base prominently cordate or truncate. Flowers with valves obviously dentate.

Habitat: Plains, wet disturbed areas.

Notes: An uncommon adventive species here; look for the broadly ovate or oblong leaves with cordate to truncate bases, and the toothed valves.

Rumex occidentalis Hultén

Syn. *Rumex aquaticus* ssp. *occidentalis*

Plants to 1-1.5 m, stems erect, branched above the middle. Basal and stem leaves present, leaves narrowly ovate-triangular, ovate-lanceolate, or oblong-lanceolate, 10-35 cm long, margins entire, wavy or slightly curly. Flowers with valves entire to very slightly erose (ragged), 5-10 mm long.

Habitat: Wet areas, montane to subalpine.

Notes: An upper elevation native species of wet meadows and riverbanks. Quite variable, and somewhat similar to *R. altissimus*, but occurring at higher elevations and having basal leaves. It can resemble *R. densiflorus* somewhat, but lacks the rhizomes in that species and does not grow in patches.

Rumex triangulivalvis (Danser) Rechinger

Syn. *Rumex salicifolius*

Plants to 1 m stems erect, branched, sometimes from short rhizomes. Basal leaves lacking, stem leaves linear lanceolate, bases somewhat wedge-shaped, margins entire, flat or undulate. Flowers with triangular valves, margins entire, to 3 mm.

Habitat: Disturbed areas, plains to montane zones.

Notes: A common species throughout the region; look for the narrow leaves and triangular valves.

Rumex venosus Pursh

Plants from creeping rhizomes, growing in short clumps, stems erect, to ca 30 cm. Leaves ovate-elliptic or ovate lanceolate, thick, abundant. Flowers with long, prominent orbiculate valves, to ca 20 mm.

Habitat: Gravelly or sandy areas, lower elevations, especially common along roadsides and trails.

Notes: This is a common and distinctive species of the late spring and early summer. Look for the long, prominent valves, the pinkish flowers, and the growth habit of short clumps. It grows in drier areas than other *Rumex* species; the common name is “wild begonia” as it does resemble the cultivated begonia somewhat, especially when in fruit. This is one of the most attractive species in the genus.

We may have other species of *Rumex* occurring here that are not yet documented. Among the likely species to find (known from elsewhere in Colorado) are *Rumex maritimus*, a low sprawling annual species with distinctive valves that are dissected into slender teeth and *Rumex stenophyllum*, another of the taller, erect species, but with shallowly toothed valves and narrow leaves that typically have wavy margins. Both might occur from the plains to middle elevations. Given the weedy nature of *Rumex* and tendency of species to spread in cultivated areas especially, other adventive species from eastern North America might be found here, especially in the Arkansas Valley region.

***Truellum* “tearthumb”**

Truellum sagittatum (L.) Sojak

Syn. *Persicaria sagittata*

Plants annual, stems slender, decumbent on the ground or trailing, 4-angled with sharp prickles. Leaves lanceolate or oblong, sagittate at the base, to ca. 10 cm, flowers in dense terminal clusters, white, green or rosy.

Habitat: Wet meadows, ditches; known here from the Black Forest.

Notes: A locally rare species, historically known from north of Colorado Springs. Look for the distinctive and immediately noticeable (by touch) prickly stems.

Portulacaceae: Purslane Family

This family is exemplified by the well known *Portulaca*, purslane, a genus that can be a colorful garden plant for hot dry areas, or a non-showy common weed. We also have representatives that are striking wildflowers, including spring beauties (the genus *Claytonia*) and bitterroot, the genus *Lewisia*, named for explorer Meriwether Lewis. The family contains plants that have succulent leaves and 2 sepals underlying regular flowers with 2 to many petals. The capsules are also diagnostic: they have a lid-like top.

Claytonia, *Montia* and *talinum/Phemeranthus* sometimes placed into a separate family, the Montiaceae

Key to the Genera

- 1. Plants prostrate, spreading along the ground, flowers inconspicuous, yellow or orange red.....*Portulaca*.
- 1. Plants erect or stemless, not prostrate, flowers showy, pink, white, or reddish.....2
- 2. Stems with stolons, usually with several pairs of opposite leaves, growing in very wet areas...*Montia* (*Crunocallis*)
- 2. Stems not as above, leaves mostly basal or few on stem, plants of drier areas.....3
- 3. Plants with linear basal leaves, flowering portion an open cyme on a stalk much above leaves.....*Talinum/Phemeranthus*
- 3. Plants either with broad leaves, or if linear, in short tufts, plants of high elevations.....4
- 4. Leaves broadly spatulate or linear, not tufted, obtuse, flowers white with pink veins.....*Claytonia*
- 4. Leaves linear, in tufts, sometimes absent at flowering, flowers red or pink, rarely white.....*Lewisia*

***Claytonia* “spring beauty”**

Spring beauties are common wildflowers across the United States, where the genus is large and quite diverse. As the name suggests, most bloom early, but our alpine representative, *C. megarhiza*, can be found in bloom whenever the snow melts, sometimes quite late in the summer.

Claytonia megarhiza (Parry ex A. Gray) S. Watson

Plants low, stems less than 10 cm, from a thick taproot; leaves noticeably succulent, blade broadly spatulate. Flowers white to light pink.

Habitat: Rocky alpine areas, late snowbeds, tundra and upper subalpine zones.

Notes: Very common on Pikes Peak, especially around the Summit House. Look for the broad, spoon-shaped leaves.

Claytonia rosea Rydberg

Plants with stems to 20 cm, from a thick corm (firm, fleshy bulblike base of stem below ground); basal leaves few to lacking, lanceolate, stem leaves linear. Flowers pink to white.

Habitat: Ponderosa pine forests, montane zones and lower foothills.

Notes: Not uncommon, but often missed since it blooms early. It appears to be particularly common in western Pueblo Co. and in Fremont Co.

Two other species are worth mentioning. *Claytonia rubra* is a delicate annual with long petiolate, ovate basal leaves and a perfoliate (surrounding the stem in a circle) leaf below the inflorescence, has been found

in nearby areas to the north and might occur here, although it has not been documented thus far. *Claytonia lanceolata* is a species of the subalpine zone elsewhere in the Front Range; it lacks basal leaves and the stem has only a pair of broadly oval leaves.

***Montia/Crunocallis* “water spring beauty”**

Montia chamissoi Ledebour ex Sprengel

Syn. *Crunocallis chamissoi*

Plants with weak stems, sometimes prostrate and rooting at the nodes, containing several pairs of stem leaves, basal leaves lacking. Flowers white.

Habitat: Wet streamsides, springs, and seeps, montane zones.

Notes: Look for the weak sprawling stems with opposite leaves. This species occurs in very wet habitats.

***Lewisia* “bitterroot”**

Lewisia pygmaea A. Gray

Oreobroma pygmaea

Plants small, inconspicuous, leaves linear, in a basal tuft from a thick taproot. Flowers bright pink to whitish, single.

Habitat: Subalpine and alpine meadows.

Notes: The bright pink flowers in this otherwise inconspicuous plant can be instantly recognizable. When not in flower, the tuft of short, succulent, narrow leaves are difficult to see, although plants are common, especially in open rocky meadows.

***Portulaca* “purslane”**

Portulaca halimoides L.

Plants sprawling, leaves terete (round in cross section), flowers yellow, orange or bronze colored, leaf axils conspicuously hairy.

Habitat: Sandy areas on the plains, southern portion of our region.

Notes: Uncommon or overlooked here, but easily recognized by the unusual leaves, flower colors, and hairy leaf axils. Known here from Pueblo County and the Chico Basin area.

Portulaca oleracea L.

Plants sprawling, leaves flat, obovate, petals light yellow, leaf axils glabrous.

Habitat: Disturbed areas, gardens, roadsides.

Notes: Extremely common adventive weed throughout the region, especially in hot dry areas of the plains, and around gardens. This species has small yellow flowers, and lacks the hairy leaf axils of *P. halimoides*.

***Talinum/Phemeranthus* “fame-flower”**

Talinum parviflorum Nuttall ex Torrey & Gray

Syn. *Phemeranthus parviflorus*

Plants usually less than 10 cm tall, leaves narrow, in a basal rosette or appearing so. Stem usually longer than the leaves in an open cyme, flowers 1-5, closing in daylight, white to slightly pink.

Habitat: Sandy, rocky or gravelly areas, grasslands, foothills.

Notes: Look for the narrow succulent leaves and the taller stem bearing (usually closed) flowers. Common, but easy to overlook. The genus name *Phemeranthus* has been used recently for the North American species formerly placed in *Talinum*.

Potamogetonaceae: Pondweed Family

Pondweeds are usually easy to recognize to genus, as they are common floating plants in ponds, but difficult to get to species as their leaves can vary and reproductive structures are often missing or very small. All are aquatic, and typically occur in shallow ponds at all elevations. Submerged leaves can be different than floating leaves, so it is best to get as much of the plant as possible for identification purposes, especially the fruit if possible. Look carefully at the stipules at the base of the leaves. These species are all known or likely to occur in our region; others may be present as well, but simply not yet collected here. The group is undercollected, but for good reason, as swimming or a boat may be the only way to get material, and they do pose identification challenges with their diverse, variable leaf forms! The genus

Stuckenia, sometimes placed into *Potamogeton* some books, is a close look-alike. Submerged leaves have channels in *Stuckenia*, but not in *Potamogeton*.

SPECIES OCCURRING IN HIGH ELEVATIONS, FROM UPPER MONTANE TO ALPINE

Potamogeton alpinus Balbis

Plants with submerged leaves linear-lanceolate or broader, thin and delicate, floating leaves often lacking, sometimes present; if so, tapering to a short petiole. Whole plant reddish in color, fruits tawny olive.

Habitat: Middle to upper elevation ponds.

Notes: Look for the thin, translucent submerged leaves that are reddish and if possible, the tawny fruits. Differs from *P. filiformis* in having the (submerged) leaf blade attached directly to the stem, with stipules unattached; *P. filiformis* has attached sheathing stipules.

Potamogeton filiformis Persoon

Plants with linear-lanceolate leaves to 5 mm wide, all submerged, stems dichotomously branched, with 1 to several whorls of flowers, plants greenish brown, leaves with sheathing stipules at the base. Fruits with a dentate to undulate, somewhat gnarly, dorsal ridge.

Habitat: Middle to upper elevation ponds.

Notes: Similar to *P. alpinus*, but differing in color, stem branching, and the presence of sheathing stipules at base of leaves.

Potamogeton gramineus L.

Plants with narrow, ribbon-like, submerged leaves to 1 cm wide or narrower, floating leaves 2-9 cm long, 1-4 cm wide, ovate to elliptical. Fruits obscurely keeled, with a short, recurved beak.

Habitat: Middle to upper elevation ponds.

Notes: One of the more common upper elevation species of pondweed; look for the broader floating leaves, very different from the submerged ones.

SPECIES OCCURRING IN LOWER TO MIDDLE ELEVATIONS

Potamogeton diversifolius Rafinesque

Plants with linear submerged leaves, to 5 mm wide, stipules joined to the blade for several mm, floating leaves elliptical, to 4 cm long, tapering to a petiole. Inflorescences occurring both in the axils of the submerged leaves and in spikes in the floating leaves. Fruits orbicular to kidney shaped, flattened.

Habitat: Ponds, plains to lower foothills.

Notes: Look for the dramatically different ("*diversifolius*") leaf types in floating and submerged leaves, and the fused stipules on the submerged leaves.

Potamogeton foliosus Rafinesque

Plants with only submerged leaves, all alike, linear, less than 6 mm wide, to about 4 cm long, stipules present, not fused to leaf base, lacking glands at the base of the stipules.

Habitat: Ponds, plains and lower elevations.

Notes: Look for the narrow, entirely submerged leaves, from which flowering stalks appear to emerge from the water.

Potamogeton natans L.

Plants with very narrow submerged leaves, these reduced to petiole-like threads to only 2 mm wide or disappearing in age, floating leaves ovate to oblong ovate with a cordate or rounded base.

Habitat: Ponds, plains and lower elevations.

Notes: Look for the shredded or lacking submerged leaves and the broader floating leaves with usually heart shaped bases.

Potamogeton pectinatus L.

Syn. *Stuckenia pectinata*

Plants with stipules fused to base of narrow, filiform (to ca 1 mm wide) submerged leaves for several mm, floating leaves lacking. Inflorescences occurring with 2-5 whorls on terminal spikes.

Habitat: Ponds, lower elevations.

Notes: Common in Colorado; look for the very narrow leaves with channels, all submerged, and with sheathing fused stipules at the base, and whorls of flowers in terminal spikes emerging from the water.

Potamogeton pusillus L.

Plants with stipules not fused to the base of narrow all submerged leaves, stipules with small, translucent glands at the base. Floating leaves lacking. Inflorescences occurring in 1-3 whorls on terminal spikes.

Habitat: Ponds, lower elevations.

Notes: Look for the nonsheathing stipules that have translucent glands at the base.

Other species of *Potamogeton* to look for in our region: *P. crispus* has distinctive, finely serrate, curly leaf edges; *P. perfoliatus* has broad, clasping leaves and stipules that thread to whitish fibers; *P. nodosus* has submerged leaves that deteriorate by flowering time, broad elliptical to oblong floating leaves with winged petioles, unbranched stems, and reddish brown fruits with a sharp edge.

Primulaceae: Primrose Family

The primrose family contains a number of spectacular alpine wildflowers. The treatment here, which includes *Centunculus*, *Glaux*, and *Lysimachia*, is the traditional circumscription. Molecular genetic analyses have indicated that these genera are more closely related to the Myrsinaceae (myrsine family), a mostly tropical family, than to the primroses, but also differ substantially from the woody, evergreen, tropical members of this family. Other botanists prefer to place all of the Myrsinaceae into a broad concept of the Primulaceae. Those genera are placed in the traditional position here until more is known about the appropriate family position for these genera.

- 1. Plants with leafy stems.....2
- 1. Plants with basal leaves only (clustered on prostrate stems in the alpine *Androsace*).....4

- 2. Flowers greenish, 4-merous, tiny and inconspicuous in leaf axils of stems..... *Centunculus*
- 2. Flowers colored, plants not as above.....3

- 3. Flowers yellow, on long pedicels in leaf axils*Lysimachia ciliata*
- 3. Flowers pink, petaloid sepals, (petals lacking), stems low and prostrate, blue-green ...*Glaux*

- 4. Flowers with corolla lobes reflexed, stamens exerted in a tube projecting forward like a beak
.....*Dodecatheon*
- 4. Flowers with erect or spreading corolla lobes, stamens not exerted in a forward projection.....5

- 5. Flowers white, less than 5 mm in diameter, fading pinkish, corolla tube short, less than 5 mm, barely equal to the calyx, capsules globose
.....*Androsace*
- 5. Flowers pink to maroon (white in mutants and in *P. incana*), usually larger than 5 mm in diameter, corolla tube ca 8 mm or more, usually longer than calyx; if flowers white, then leaves and stem typically with yellow meal (*P. incana*), capsules cylindrical to elliptical.....*Primula*

Centunculus "chaffweed"

Centunculus minima L.

Syn. *Anagallis minima*

Plants minute, usually ca 5 cm, stems weak, unbranched, somewhat decumbent, forming small mats or clumps. Flowers solitary, minute, in leaf axils of alternate, ovate to oblong leaves.

Habitat: Plains, moist areas along streams or subterranean water courses.

Notes: Known from a historical record only here, but so inconspicuous that it is easily missed. Look for it growing with *Juncus arcticus*. Watch out: it can look like similar annual species such as *Elatine*, *Callitriche*, and *Limosella*! The alternate leaves, globose capsules, and 4-merous flowers should help id it.

***Androsace* “rock jasmine”**

This genus is well known to rock gardeners, and is very abundant in the mountains of Europe and Asia. Our species include three annuals (one extremely common, two rare) and a mat-forming alpine perennial. The genus as a whole is so diverse that probably some splitting is in order; no world wide perspective as yet is available, so currently the genus encompasses considerable diversity in form.

Androsace chamaejasme Host

Plants perennial, forming dense tufts or mats joined by thin aboveground stems. Leaves ciliate-hairy. Flowers white with a yellow center, turning pink in age, less than 5 mm in diameter.

Habitat: Alpine tundra.

Notes: Locally common on Pikes Peak and surrounding high ridges above treeline. This is an arctic-alpine species complex; our variety was once distinguished as a separate taxon (either as *A. carinata* or as subspecies *carinata*), but the distinguishing feature, a keeled leaf and tight growth form, disappears entirely when plants are grown at low elevation or in protected sites, and is not a valid distinction. Ours may best be recognized as ssp. *lehmanniana*, the same taxon that occurs in the North American Arctic.

Androsace filiformis Retz.

Plants annual, leaves in basal rosettes, abruptly narrowed to a noticeable petiole. Leaves glabrous. Flowers white, less than 5 mm, on long, arcing pedicels from the umbel.

Habitat: Upper montane to subalpine zones, in willow bogs.

Notes: Known from only one historical collection in Teller County, but a very inconspicuous species and easily overlooked. Look for the distinct petioles and the willow-moss habitat. The other species of *Androsace* occur in much drier habitats.

Androsace occidentalis Pursh

Plants annual, leaves in a basal rosette, lacking noticeable petioles. Leaves glabrous. Bracts below the umbel broad, approaching ovate; calyx U-shaped at base.

Habitat: Seasonally moist grasslands, plains and possibly lower foothills.

Notes: Known from historical collections on the plains, but probably still present and overlooked as it blooms early. Look for the broad bracts and blunt, U-shaped calyx to distinguish this from the extremely common (and variable) *A. septentrionalis*.

Androsace septentrionalis L.

Plants annual, leaves in a basal rosette, lacking noticeable petioles. Bracts below the umbel narrow, linear to lanceolate; calyx V-shaped at base.

Habitat: Grasslands, rocky areas, open soil, from higher regions of the plains to highest mountain peaks.

Notes: An extremely abundant and highly variable species that varies by population, elevation, and exposure to light or shade. Height of stem, number of flowers, and length of the pedicels are the most variable parts: the narrow involucral bracts and V-shaped calyx are diagnostic.

***Dodecatheon* “shooting star”**

Shooting stars are a common component of our foothills and alpine streambanks and wet meadows-in Park County, wet meadows provide astounding displays of this species in early summer. Look for the reflexed petals (like *Cyclamen*) and fused “nose cone” of anthers, when in full bloom-this may not be apparent when flowers first begin to bloom, and when in fruit, they can look a great deal like small *Primula parryi*! When in doubt about it, smell the plants-the distinctive skunky odor of *P. parryi* is unmistakable. Some botanists prefer to treat *Dodecatheon* species as part of *Primula*, but their numerous distinctive characters make them easy to separate out.

Dodecatheon pulchellum (Rafinesque) Merrill

Syn. *Primula pulchella*

Plants perennial, with basal rosette of broadly lanceolate to sometimes spatulate or elliptical leaves.

Flowers purple, anthers forming a yellow and purple tube.

Habitat: Streambanks and wet areas, foothills to subalpine zones.

Notes: Common in the region, especially along montane streams.

Lysimachia “loosestrife”

This “loosestrife” is not the invasive purple weed *Lythrum salicaria* (Lythraceae). The yellow flowers on long pedicels out of the leaf axils are distinctive. This loosestrife is uncommon here, and can be considered an eastern prairie relict. Other species of *Lysimachia* are possible as short term introductions from garden escapes; in particular, *P. nummularia* is a prostrate plant with round, opposite, glandular leaves that may occur in regions where gardens are abundant. It does not seem to persist.

Lysimachia ciliata L.

Plants erect, stems to over 20 cm, leaves ovate to ovate-lanceolate, usually with cilia, especially on the petioles. Corollas yellow, ca. 1 cm in diameter, flowers single or in pairs on long petioles out of leaf axils.

Habitat: Streambanks, moist thickets, lower elevations.

Notes: Uncommon species, known here generally from the Black Forest, and along the Fountain and Monument Creek drainages, typically grows as an understory species in mixed shrub-graminoid zones.

Primula “primrose”

These wildflowers are photogenic additions to many alpine areas of the world, and are typically found in cool, moist regions where they bloom early in the season. Our two documented species are *P. angustifolia* and *P. parryi*, both common on Pikes Peak. *Primula incana* occurs just over the border in Park County and abundantly in South Park, so is included here as a possibility. See the comments on the similar *P. egalikensis*, which is known in Colorado only from cold fens in South Park where it grows with *P. incana*.

Primula angustifolia Torrey

Plants perennial, less than 10 cm, usually 5 cm or less. Leaves lanceolate to spatulate, flowers pinkish to rose or maroon-pink (drying purple), solitary, or sometimes in pairs of short pedicels, usually ca. 8 mm in diameter.

Habitat: Alpine tundra meadows, subalpine krummholtz and forest zones of Pikes Peak.

Notes: Generally a short tundra species, but sometimes occurring in the upper forests as well. The narrow leaves and bright pink flowers are diagnostic for this “fairy primrose”, a classic of Pikes Peak and other Front Range mountains of Colorado. These flowers are heterostylous, where two morphs exist: pin (with an extended style much above the anthers which are low in the corolla tube) and thrum (where the positions are reversed). This is an adaptation for outcrossing, as these species need insects to cross pollinate the flower morphs.

Primula incana Jones

Plants perennial, leaves in basal rosettes, shortly elliptical lanceolate, usually lengthening in age, noticeably yellow farinose (mealy) when young. Stems short, to only a few cm when young, elongating to over 25 cm in age. Flowers white to slightly pink or lavender, on many flowered umbels, typically on short pedicels when young, elongating in age.

Habitat: Moist meadows, along branches of the Platte River and its tributaries. Known from eastern Park Co. close to the Teller Co. border, but most abundant in South Park. To distinguish this species from the look alike *P. egalikensis* (known only from South Park), look for the yellow farina, the many flowered umbels, and the indistinctly petiolate leaves. *P. egalikensis* never has farina, has few flowers, and the leaf blades are more rounded with a more distinct petiole.

Primula parryi A. Gray

Plants perennial, robust, leaves in basal rosettes, variable in shape from broadly lanceolate, to oblong, to elliptical. Plants robust and stocky, but sometimes short initially, usually tall, to 4 dm., entire plant encompassing a distinctively skunky aroma. Flowers maroon to rose pink (drying purple), often in many flowered clusters.

Habitat: Wet areas, subalpine and alpine zones, in late snowbed sites or along rivulets with marsh marigolds (*Caltha*).

Notes: A distinctive alpine species, noticeable by its pungent odor even when not in its spectacular bloom. Like *P. angustifolia*, it is heterostylous and uses insects, often bees, to cross pollinate. Look for Parry primrose in very wet areas of the subalpine and alpine zones.

Pyrolaceae: Wintergreen Family

Botanical opinions vary as to whether the Pyrolaceae should be considered part of a larger, more diverse, consideration of the Ericaceae (Heath Family). Certainly the waxy flowers and leathery leaves of both are visible indicators of their relationship; differences include the herbaceous nature of the Pyrolaceae species against the woody or semiwoody aspect of the Ericaceae proper, along with some technical aspects of the anthers. The families are separated here, as our species are easily recognized, by their rounded, leathery evergreen leaves and characteristic flowers, as well as by their herbaceous growth habit, but a more expansive recognition of the Ericaceae may be appropriate. The common name of the group comes from an eastern genus (*Gaultheria*) that does smell like wintergreen: ours do not carry that lovely fragrance.

- 1. Plants with stems carrying whorls of sharply serrate, oblanceolate leaves.....*Chimaphila*
- 1. Plants with leaves mostly at base or on lower stem, leaves ovate to rounded.....2
- 2. Flower solitary on the stem.....*Moneses*
- 2. Flowers several on the stem.....3
- 3. Leaves on lower portion of stem, inflorescence with flowers on 1 side (second).....*Orthilia*
- 3. Leaves basal, flowers not occurring on 1-side of stem.....*Pyrola*

Chimaphila “pipsissewa, prince’s pine”

Chimaphila umbellata (L.) Barton

Plants with oblanceolate, toothed leaves 3-9 cm long in whorls along stem, inflorescence almost an umbel, flowers white to pinkish, saucer-shaped.

Habitat: Moist cool areas of montane and subalpine zones, usually under conifers, in duff or moss on north facing slopes.

Notes: Uncommon in most of the Pikes Peak region, more common in moist cool areas close to the Palmer Divide and in the Wet Mountains. The long toothed leaves and open flowers are diagnostic.

Moneses “wood nymph, one-flowered wintergreen”

Moneses uniflora (L.) S. Gray

Plants with basal leaves, ca. 1-2 cm wide, flowers single, saucer-shaped, hanging upside down, white to pink.

Habitat: Cool, moist, upper elevation conifer forests, from montane to subalpine.

Notes: An uncommon species here, but distinctive with the single, open, hanging flower.

Orthilia “one-sided wintergreen”

This genus was once included in *Pyrola*, but is now considered distinct. The secund inflorescence (flagged, with flowers on one side only) makes it easy to recognize.

Orthilia secunda (L.) House

Syn. *Pyrola secunda*

Plants with rounded or pointed leaves, occurring on the lower portion of the stem and at the base; flowers bell-shaped (like blueberry flowers), greenish white, hanging from 1 side of the flowering stalk.

Habitat: Montane and subalpine forests, moist to mesic slopes, usually under conifers and often on north faces or below rocky outcrops.

Notes: A common species here in the cool conifer forests of the foothills throughout the region.

Pyrola “wintergreen”

Pyrola species can be identified by characteristics of the style, coloration of the leaves, and color of the flowers. When not in bloom, they can be difficult to identify, with the exception of the characteristic (and rare here) *P. picta* which has bi-colored leaves.

Pyrola chlorantha Swartz

Plants with all green leaves, flowers greenish, with style hanging down and curving outward.

Habitat: Montane conifer forests, under pine, spruce, and fir.

Notes: Look for the greenish white flowers and curving style. This species occurs in drier sites than some of the other wintergreen species.

Pyrola minor L.

Plants with all green leaves, flowers pink to rosy or sometimes white, style short and straight.

Habitat: Cool, moist, conifer forests of the montane and subalpine zones.

Notes: Look for the short, straight style. This is the only one of our *Pyrola* species with a straight style; the flowers are usually pinkish but can also be white. The petals on this species are short, only 4-5 mm.

Pyrola picta Smith

Plants with mottled leaves, white along the veins but green otherwise, leaves sometimes missing entirely, blades narrowed at the tip; flowers greenish white, style curved.

Habitat: Moist conifer forests, montane zones.

Notes: Uncommon to rare in the Pikes Peak region, but more common in the Wet Mts and near the Palmer Divide. The pale or mottled leaves (sometimes lacking) are diagnostic: they lack chlorophyll and the plant obtains some of its nutrients by being a hemiparasite.

Pyrola asarifolia Michx. *rotundifolia* L.

Syn. *P. rotundifolia* ssp. *asarifolia*

Plants with dark green leaves, blades rounded; flowers distinctly pink to rosy, style curved.

Habitat: Moist to wet habitats, upper elevation conifer forests.

Notes: This species inhabits wet sites and can indicate seeps or springs; the pink flowers are relatively large (petals 7-8 mm) and the scape relatively tall. Look for the combination of wet habitat, pink flowers, and curved style.

Ranunculaceae: Buttercup or Crowfoot Family

The buttercup family is large, diverse, and complicated in its floral biology. Some botanists recognize the diversity by splitting it into segregate families such as the true Ranunculaceae in which the fruits are *achenes* (a dry, nonsplitting one seeded fruit where the ovary wall is attached to the seed inside) and the flowers have distinctly different-looking petals and sepals (as in true buttercups), the Helleboraceae (Hellebore Family) in which the genera have *follicles* (a dry fruit that splits longitudinally along a single suture) or *berries* (a fleshy nonsplitting fruit) instead of achenes for fruits, and the Thalictraceae, the Meadow Rue Family, with compound leaves and greenish *tepals* (sepals and petals that look identical). Even if fruits are not ripe, a sense of what kind they are can be achieved by looking at the ovaries. The treatment here is traditional, placing those groups into a larger familial context. To recognize genera in the Ranunculaceae, look for characteristics such as a combination of compound or lobed leaves, many stamens and pistils per flower, and separate petals and sepals. Sometimes the sepals are petaloid (looking like petals) and flowers can be radially symmetrical or bilaterally symmetrical or spurred, such as columbines. Most species prefer moist habitats and many have diverse leaf shapes; divided leaves are common.

Key to the Genera

1. Flowers minute, greenish white, with sepals and petals alike..... *Thalictrum*
 1. Plants not as above.....2
 1. Flowers irregular (bilaterally symmetrical), usually blue, purple or white, fruit a follicle.....3
 2. Flowers regular (radially symmetrical), fruit a follicle, achene, or berry.....4
 3. Upper sepal with a prominent spur at the base..... *Delphinium*
 3. Upper sepal lacking a prominent spur*Aconitum*
 4. Plants annual, a few centimeters high, occurring on shores of plains ponds.....*Myosurus*
 4. Plants not as above.....5
 5. Petals spurred, flowers brightly colored yellow, blue-white or rarely red.....*Aquilegia*

- 5. Plants not as above.....6
- 6. Petals lacking, sepals petaloid, fruit a follicle.....7
- 6. Petals present, sepals deciduous, dropping at flowering time..... 10
- 7. Leaves simple, not lobed, fruit a follicle..... *Caltha*
- 7. Leaves lobed or compound, fruit an achene.....8
- 8. Basal leaves with long petioles, plants not vines..... .9
- 8. Plants vines or somewhat sprawling when mature (may not appear so when young), basal leaves lacking long petioles, stem leaves present..... . *Clematis* Group
- 9. Styles elongate and plumose, esp. when mature, flowers large, sepals over 2 cm,
..... . *Pulsatilla*
- 9. Styles not as above, flowers smaller..... . *Anemone*
- 10. Fruit a red or white berry, flowers in a prominent raceme.....*Actaea*
- 10. Fruit an achene, not in a prominent raceme..... . *Ranunculus*

***Aconitum* “monkshood”**

There are many horticultural varieties of monkshood, and the plant has a history of medicinal uses dating back to the Middle Ages; “aconite” is a notorious poison and the plants should be considered toxic. *Aconitum* and its cousin, *Delphinium* (larkspur) have very similar leaves and fruits (both follicles) although the flowers are quite different. Larkspur has a long spur extended back, and the flowers of *Delphinium* do indeed resemble the hood of a monk’s habit.

Aconitum columbianum Nuttall ex Torrey & Gray

Plants tall, stems to 2 m. Flowers in racemes, showy, blue or sometimes white (f. *ochroleucum*), irregular, with an arched hoodlike sepal above. Leaves palmately compound, deeply divided into multiple segments.

Habitat: Moist meadows, thickets and around ponds, lower foothills, montane to alpine.

Notes: Without flowers, this can be confused with *Delphinium* in the subalpine and alpine zones, but the flowers should distinguish the two genera otherwise. Monkshood can occur low in the foothills in moist canyons, though is more common at higher elevations.

***Actaea* “baneberry”**

Actaea rubra (Aiton) Willdenow

Plants stout and bushy, to over 1 m tall. Leaves large, ternately (3 times) compound. Flowers in a raceme, (elongated inflorescence, with single flowers on short stalks) petals 4-10, small and narrow with clawed (abruptly narrowed) bases. Raceme elongating in fruit to 10 cm, with prominent white or red berries.

Habitat: Moist thickets and streamsides, montane zone.

Notes: The most noticeable parts of this plant are its stout bushy appearance, the large divided leaves and late in the season, the brilliant white or red fruits. These are toxic, hence the common name of baneberry.

***Anemone* “anemone, windflower”**

The flowers of anemones all have a delicate appearance and the sepals are deciduous (dropping early) as well as petaloid (resembling petals). They are close relatives of buttercups (*Ranunculus*), but never have that brilliant shiny yellow color that characterizes buttercups; *Ranunculus* sepals also remain on the flowers and look distinctly different than the petals. Anemone fruits are achenes (a hard, teardrop shaped fruit with a single seed). The genus *Pulsatilla* is sometimes treated as an *Anemone*, but is separated here.

Anemone canadensis L.

Syn. *Anemonidium canadense*

Plants to 0.5 m, stems branching above, basal leaves ca. 10 cm, 3-5 parted, each division also cleft. Petaloid sepals creamy white, 4-6, ca 15 mm long.

Habitat: Moist meadows and streamsides in the montane zone, foothills and plains, especially in the Black Forest region.

Notes: A common species in the foothills grasslands.

Anemone cylindrica A. Gray

Plants to 60 cm, stems slender, leaves palmately compound, deeply dissected with 3-5 toothed segments. Flowers small, to ca 1.5 cm, with 5-9 white sepals, receptacle elongating in fruit to an extended cylinder.

Habitat: Grassy areas in meadows and roadsides, plains and mesas to middle elevations.

Notes: Look for the characteristic thimble-like receptacle that develops early, giving the species the common name of "thimbleweed".

Anemone multifida Poiret ssp. *globosa* (Nuttall) Torrey & Gray

Plants to ca 30 cm, leaves palmately compound into 5 segments, divided into linear leaflets. Flowers to ca 1 cm, bright red to magenta, with 9 petaloid sepals.

Habitat: Rocky areas, dry meadows, forests, montane zone through the subalpine or alpine.

Notes: Look for the unusual and attractive red flowers for this species.

Anemone narcissiflora, a common species of moist subalpine meadows elsewhere in Colorado, has not yet been recorded in our area, but it is possible that it might occur on Pikes Peak in remote areas where more moisture exists. The species is recognized by its large (to 2 cm wide) creamy white flowers.

***Aquilegia* "columbine"**

Columbines are one of the most instantly recognizable wildflowers, a beautiful component of the foothills and mountains. Blue columbine, *A. coerulea*, is the state flower of Colorado. The complex flower of a columbine includes (usually some flowers are "spurless") elongated petals that extend into elongated, backward pointing "spurs" that contain nectarines to attract pollinators. The leaves of columbines and *Thalictrum* (meadow rue) are very similar, both arranged in threes, so watch out if no flowers are available. Columbines have follicles for fruits; meadow rue has achenes.

Aquilegia chrysantha A. Gray

Plants 30-50 cm, sometimes to 1 m. Flowers golden yellow, sometimes pale yellow, relatively large, 6-9 cm long, with usually long, slender spurs to 9 cm. The species occurs in Arizona, and our variety here has sometimes been distinguished as var. *rydbergii* Munz on the basis of the longer spurs and disjunct location.

Habitat: Moist areas in the middle to lower foothills around Pikes Peak, occasional or rare in Fremont County.

Notes: Relatively uncommon in the Colorado Springs area. This species appears to hybridize with *A. coerulea* where the ranges overlap in the Pikes Peak region, and mixed populations where the colors range from yellow to white to dark or pale bluish are not uncommon. Yellow columbines are also known as a common component of wildflower seed mixes or horticultural varieties, and many of these are easily established or spread. The native species would be found in the foothills only.

Aquilegia coerulea James ex Torrey

Plants to 80 cm, shorter at higher elevations. Flowers 6-8 cm long, with deep blue sepals and white petals. Plants at higher elevations are generally smaller overall than those in shady areas at lower elevations.

Habitat: Pine forests, aspen groves, lower montane to subalpine or alpine meadows, rocky slopes and boulderfields, generally in moist soil.

Notes: A common species throughout our region. It can be distinguished by its larger flowers and more robust appearance from the uncommon (and always alpine) *A. saximontana*. Some flowers of *A. coerulea* may be quite pale in appearance (see note under *A. chrysantha*). This is the state flower of Colorado.

Aquilegia elegantula Greene

Plants 20-40 cm, slender. Flowers to 4 cm long, slender, red and yellow, sometimes mixed with green.

Habitat: Moist forests, montane zone, southern portion of our area, in the Wet Mountains, rare in the Pikes Peak foothills.

Notes: This species is rare in the dry foothills of Pikes Peak granite, but relatively common in the wetter forests of the Wet Mountain front. The striking red and yellow flowers are very distinctive, and the plants are generally much smaller and more slender than *A. coerulea*, with which it may hybridize.

Aquilegia saximontana Rydberg

Plants to 30 cm, usually compact and somewhat tufted. Flowers with blue sepals and white petals, relatively small, ca. 1.5-3 cm long.

Habitat: Rocky areas, often in boulder fields, subalpine to alpine zones.

Notes: Relatively uncommon, but sometimes locally abundant. Our records are from Pikes Peak, where it is sometimes abundant on boulder fields and cliffs. Plants growing in protected areas are often larger than those in exposed windy habitats on the tundra.

Caltha “marshmarigold”

Caltha leptosepala D.C.

Syn. *Psychrophila leptosepala*

Plants glabrous, flesh; leaves mostly basal, simple, with broad ovate blades, base cleft into a deep sinus. Stems often reddish with papery sheaths at the base. Flowers showy white to somewhat bluish, with petaloid sepals. Fruit a follicle.

Habitat: Wet meadows, bogs, and along streams, montane, subalpine and alpine zones.

Notes: A very common wildflower in wet areas, often abundant in large patches under late-lying snowbeds. Marsh marigold is one most characteristic alpine wildflowers of the American West. This generally occurs more commonly at high elevations but can reach to the foothills in cold, wet bogs.

Clematis Group “virgin’s bower”

Gardeners know clematis as a showy vine with strikingly colored flowers. The traditional circumscription the genus includes several subgenera (*Atragene*, *Coriflora*, *Viticella*, and *Clematis*) that many botanists now recognize as segregates in their own right. All have some tendency towards a climbing growth habit, but when young, this may not be recognizable. Given the substantial differences between these species, a key to the subgroups is given, and nomenclature for the different treatments is provided here. Your choice! All have usually 4 non-overlapping tepals (sepals and petals that look alike), achenes, and the leaves are alternate on the stem below the inflorescence. When the achenes are mature, the styles of these species are long and feathery, very noticeable and beautiful.

Key to subgroups (sometimes treated as genera) in “Clematis”

1. Tepals purple, thick and leathery, urn-shaped, plants erect when young, later sprawling...*Coriflora*
1. Tepals thinner, white, blue-purple, or yellow, not urn shaped, plants sprawling or vines.....3

2. Tepals blue-purple.....*Atragene*
2. Tepals yellow or white.....4

3. Tepals bright yellow.....*Clematis* (*Viticella*)
3. Tepals white to creamy yellow.....*Clematis*

Atragene columbiana Nuttall

Syn. *Clematis columbiana*, *C. pseudoalpina*)

Plants with leaves twice-compound, in 3's, segments usually narrow, sometimes broader; low and sprawling, not appearing vinelike. Flowers blue-purple, hanging down.

Habitat: Forests, middle elevations, shady areas, usually as an understory species with pines.

Notes: Look for the thinner tepals, and narrow leaf segments.

Clematis ligusticifolia Nuttall ex Torrey & Gray

Plants true vines, often to 4-6 m tall, growing on fences and other plants; leaves pinnately 5-7 foliate, with long petiolate leaflets. Flowers many per inflorescence, white, with long feathery styles off the achenes when in fruit.

Habitat: Lower elevations, plains, lower foothills, roadsides.

Notes: A common native species, often covering shrubs and fences. Look for the white flowers; this species is somewhat similar to the invasive *Viticella*, which differs in having yellow flowers that are usually single or few per inflorescence.

Clematis orientalis L.

Syn. *Viticella orientalis*

Plants climbing vines, often with thick stems to 6 m, covering shrubs and small trees. Leaves variously divided, usually in multiples of three, leaflets variable. Flowers usually solitary or few, golden yellow.

Habitat: Very common around Colorado Springs, spreading along roadsides and into the mountain shrub zone of the lower foothills.

Notes: This is considered a noxious weed with serious detrimental impacts on other native shrubs. The yellow flowers distinguish it from *C. ligustifolia*, but the two species can be difficult to distinguish in fruit, as both have very feathery styles on their achenes.

Coriflora hirsutissima (Pursh) W. A. Weber

Syn. *Clematis hirsutissima*

Plants with mostly erect stems, to 70 cm, leaves pinnately compound with many linear divisions, densely pubescent to nearly glabrous later. Flowers deep purple, solitary, to 4 cm long, thick and leathery, urn-shaped, tepal margins not strongly crinkly-hairy.

Habitat: Pine forests, meadows, foothills and middle elevations.

Notes: The common name for the *Coriflora* species is “leather flower” or “sugarbowls”, referring to the distinctive thick texture and shape of the flowers. Look for the narrower leaf divisions, the more erect growth habit, and less hairy flower parts to distinguish this from the following species. Many botanists consider *C. scottii* as a variety of *C. hirsutissima* as they can intergrade frequently.

Coriflora scottii (T. C. Porter in Porter & Coulter) W. A. Weber

Syn. *Clematis scottii*, *Clematis hirsutissima* var. *scottii*

Plants with sprawling stems, to 1 m or more, leaves pinnately compound with elliptical divisions, variously pubescent. Flowers deep purple, solitary, to 4 cm long, thick and leathery, urn-shaped, tepal margins strongly crinkly-hairy.

Habitat: Pine forests, meadows, foothills and middle elevations.

Notes: See comments under *C. hirsutissima*.

***Delphinium* “larkspur”**

Larkspur and monkshood (*Aconitum*) are vegetatively almost identical with their palmately lobed leaves, but easily distinguished by the flowers: *Aconitum* flowers show the classic “hood” similar to that of a medieval monks robe, and delphinium has the classic elongated “spur” formed by a petaloid sepal, that hold nectaries within. Both genera have fruits that are follicles.

Delphinium carolinianum Walter ssp. *virescens* (Nuttall) M. C. Johnston

Syn. *Delphinium virescens*

Plants with stems single or few, flowers white to slightly bluish tinted.

Habitat: Plains grasslands, mesas, lower foothills.

Notes: A common grassland species; look for the white or almost white flowers.

Delphinium nuttallianum Pritzell ex Walpers

Syn. *Delphinium nelsonii*

Plants with a cluster of tuber-like roots, stems few, to 50 cm. Flowers showy purple, leaves with many deep narrow lobes.

Habitat: Meadows, open woods, grasslands, from plains to the montane zone.

Notes: Look for the deep purple flowers and narrowly lobed leaves; this is typically found in a relatively dry habitat.

Delphinium barbeyi (Huth)Huth

Syn. *Delphinium occidentale* var. *barbeyi*

Plants with a single stem, ca. 20 cm. Flowers dark purple, rachis (stem holding the flowers) strongly glandular hirsute, leaves with broad segments.

Habitat: Wet areas, streamsides, cool conifer forests of the upper montane and subalpine zones.

Notes: Look for the deep purple color of the flowers and the prominent glandular aspect of the inflorescence.

Delphinium ramosum Rydberg

Plants with stems 50-100 cm. Flowers various shades of blue, rachis pubescent but not prominently glandular, leaves with many divisions.

Habitat: Meadows, forests, and thickets, upper elevations from the montane to subalpine.

Notes: The flowers are more blue than purple in this species, and it grows in drier habitats than *D. barbeyi*.

***Myosurus* “mousetail”**

This inconspicuous annual of moist areas on the plains, with small flowers containing rudimentary petals is not uncommon here, but easily missed; there is little to see that connects it to buttercups or any of its showier relatives.

Myosurus minimus L.

Plants short, 2-10 cm tall, sometimes taller in very wet conditions; leaves basal, narrowly linear or filiform. Sepals to 3 cm, with minute spurs at the base, petals rudimentary or missing, flowering stalks cylindrical, elongating in fruit; fruit an achene.

Habitat: Wet areas, often in disturbed sites such as cattle ponds, on the plains.

Notes: Very nondescript and easily overlooked; the narrow basal leaves and the cylindrical inflorescence, like a tiny mousetail in appearance, are key aspects.

***Pulsatilla* “pasqueflower”**

These flowers bloom around Easter time, hence the common name. They are attractive blue flowered components of grasslands, from the mesas through the subalpine. Look for the feathery plumes (the styles) on top of the cluster of achenes later in the season after they bloom.

Pulsatilla patens (L.) P. Miller ssp. *multifida* (Pritzel) Zamels

Syn. *Pulsatilla ludoviciana*; *Anemone patens*

Plants with stems to 40 cm, densely hairy, leaves deeply divided and lobed multiple times into linear segments. Flowers appearing before the leaves, mostly solitary on a stalk, sepals whitish to blue-purple, appearing petaloid. Fruit an achene, pubescent, with long feathery styles.

Habitat: Grasslands, meadows, plains to the upper subalpine zone.

Notes: This is a common and distinctive species of early spring: look for the feathery styles after they bloom, and the deeply divided leaves, that once led to the name “cutleaf anemone”.

***Ranunculus* “buttercup”**

In their typical form, buttercups are recognizable by the shiny yellow flowers, a classic open flower with five petals. They all grow in moist habitats, and are common components of meadows and streamsides at all elevations. However, the genus is large and diverse, and many botanists subdivide it into segregate groups, some treat these at the generic level, others prefer to lump them into a larger concept of *Ranunculus*. They are separated here by groups, with synonyms. Look carefully at the leaves of all these species, as they are often critical for identification purposes. All these species have fruits that are achenes.

AQUATIC PLANTS WITH WHITE FLOWERS AND DEEPLY DIVIDED LEAVES AND NARROW SEGMENTS **(BATRACHIUM TYPE)**

Ranunculus trichophyllus Chaix

Syn. *Batrachium trichophyllum*; *Ranunculus aquatilis*

Plants floating, stems branched, to 1 m long, growing in mats. Leaves finely divided into many segments. Petals white, 4-8 mm long; sepals light green.

Habitat: Ponds, streams, most common in the montane zone but sometimes lower and higher.

Notes: Look for the finely dissected leaves, the white flowers, and mat-like growth form.

It is possible that other related species in this complex (also with white flowers and divided leaves) occur here; they would be distinguished by fruit characters such as shape of the achenes. No definitive identification of other species in the *Batrachium* group have been made for our region.

PLANTS OF MUDDY SHORES; FLOWERS YELLOW, BASAL LEAVES ROUND OR OVAL, TOOTHED (HALERPESTES TYPE)

Ranunculus cymbalaria Pursh

Syn. *Halerpestes cymbalaria*

Plants stoloniferous, stems to 30 cm, leaves mostly basal, cordate (heart shaped) at the base, blade rounded or kidney-shaped, with shallow crenate (scalloped) teeth. Petals yellow, 3-8 mm long, sepals greenish yellow.

Habitat: Pond shores, muddy disturbed areas, generally in lower elevations.

Notes: Look for the stolons and the rounded, crenate leaves and very short petals that make the flowers quite inconspicuous.

PLANTS OF DISTURBED SITES, LEAVES DEEPLY DIVIDED, STEMS STOUT AND HOLLOW (HECATONIA TYPE)

Ranunculus scleratus L.

Syn. *Hecatonnia scelerata*

Plants stout, stems to 70 cm tall, somewhat fleshy and hollow. Basal leaves kidney shaped, with long petioles, 3-parted, with lobes again divided. Petals yellow, 2-5 mm long, sepals sometimes longer than the petals.

Habitat: Wet areas, pond margins, stream banks, cattle wallows, lower elevations.

Notes: Look for the robust growth habit, hollow stoloniferous stems, and small flowers.

PLANTS OF VERY WET AREAS OF THE FOOTHILLS, FLOWERS SMALL, WITH NARROW PETALS WITH A CLAWED (ABRUPTLY NARROWED) BASE (CYRTORHYNCA TYPE)

Ranunculus ranunculinus (Nuttall) Rydberg

Syn. *Cyrtorhyncha ranunculina*

Plants not stoloniferous, stems 7-35 cm tall, basal leaves on long petioles, divided in 3's, each division again 3-parted, long and linear, stem leaves few, pinnate or divided in 3's. Flowers few, sepals yellow and petaloid, 3-5 mm long, petals slightly longer, light yellow, narrow with a clawed base.

Habitat: Wet areas, snow seeps, streambeds on mossy cliff faces, foothills to montane.

Notes: Rare to uncommon in our region. Look for the small flowers with yellow petaloid sepals.

TRUE BUTTERCUPS (RANUNCULUS TYPE)

Ranunculus abortivus L. ssp. *acrolasius* (Fernald) Kapoor & Löve

Plants with stems branched, to 60 cm tall, somewhat slender, basal leaves simple, coarsely toothed, stem leaves divided. Flowers yellow, minute, sepals 2-3 mm, longer than the petals.

Habitat: Moist areas, foothills to montane.

Notes: An uncommon species here; look for the minute flowers and tiny achenes, along with the crenately toothed, simple basal leaves. While the basal leaves are similar to *R. inamoenus*, this is a much more slender and graceful plant, and the flowers are smaller.

Ranunculus acriformis A. Gray

Plants with slender erect stems, not branched. Basal leaves divided into 3's, 2-6 cm wide, segments 2-3 cleft as well. Flowers with petals 6-10 mm long, yellow, round to ovate, sepals shorter, long hairy.

Habitat: Moist to wet meadows, lower elevations, possibly montane.

Notes: This species has not been documented here but it is possible it occurs. Look for the slender unbranched stems, and rounded petals.

Ranunculus cardiophyllus Hooker

Plants with erect stems, to 40 cm, somewhat pilose. Basal leaf blades 1-5 cm wide, simple to only slightly lobed, heart-shaped, crenate, sometimes also pilose; stem leaves divided into linear segments. Petals yellow, 8-15 mm, surfaces often hairy, sepals shorter than petals, also hairy.

Habitat: Montane and subalpine bogs and wet meadows.

Notes: Look for the heart-shaped leaves and relatively large flowers. *Ranunculus inamoenus* can also grow in similar habitats, but has somewhat smaller flowers, lacks the heart-shaped base of the leaves, and its stem leaf divisions are relatively broad.

Ranunculus eschscholtzii Schlechtendal

Plants with stems 10-30 cm tall, little branched. Basal leaves 1-4 cm wide, ovate to kidney-shaped, deeply 3-parted, lobes each divided into often multiple parts. Petals yellow, ovate to oblong, ca 8 mm long, sepals shorter.

Habitat: Moist subalpine meadows.

Notes: Look for the deeply divided leaves with multiple narrow divisions. The alpine snowbed species *R. adoneus* (not documented in our region, but occurring in the Mosquito Range to the west, possible on Pikes Peak) has much larger, showier flowers and even finer leaf divisions.

Ranunculus hyperboreus Rottboel ssp *intertextus* (Greene) Kapoor & Löve

Plants with floating or prostrate stems, rooting at the nodes, clumped, growing in water or on muddy banks. Leaves

3-lobed, lobes sometimes notched. Flowers yellow, petals 3-4 mm long.

Habitat: Montane to subalpine, in ponds, bogs, and along or in streams.

Notes: A relatively common upper elevation species. Look for the sprawling stems that root at the nodes and the small yellow flowers.

Ranunculus inamoenus Greene

Plants with stems to 30 cm tall, not rooting at the nodes. Basal leaves 1-4 cm wide, ovate to orbicular, sometimes only crenate on the margins, generally not broadly lobed, but some 3-lobed or divided. Stem leaves divided into segments. Flowers yellow, petals 3-4 mm long, sepals somewhat shorter.

Habitat: Moist meadows, streambanks, montane to subalpine.

Notes: Look for the small flowers; otherwise somewhat similar to *R. cardiophyllus*, which has heart-shaped leaves and much larger flowers, and to *R. macounii* which has somewhat more divided leaves, and often decumbent stems that root at the nodes. See comments under *R. cardiophyllus*.

Ranunculus macounii Britton

Plants to 60 cm, stems pubescent, often decumbent and rooting at the nodes. Basal leaves divided into 3's to pinnate, long petiolate segments often again divided or lobed. Petals 5-7 mm, yellow, sepals somewhat shorter.

Habitat: Moist meadows, streambanks, montane to subalpine.

Notes: Look for the stems that sprawl and root at the nodes, along with the multiple divisions on the leaves. Flowers are relatively small in this species.

Ranunculus pedatifidus Smith

Plants with relatively short stems, to ca 20 cm, slender, erect. Basal leaves digitately lobed or divided into narrow segments or lobes, stem leaves divided into narrow segments. Flowers few, sepals densely hairy, 3-5 mm long, petals yellow, 6-10 mm long.

Habitat: Montane, subalpine and alpine meadows, slopes, rocky areas.

Notes: An uncommon to rare species here; look for the high elevation habitat and the "bird's foot" look to the basal leaves.

Ranunculus pygmaeus Wahlenberg

Syn. *Ranunculus natans*

Plants very small, stems less than 10 cm. Leaves ca 1 cm or less in diameter, circular, divided into 3 lobes or narrow segments. Flowers small, sepals to 3 mm, petals yellow, about as long as sepals.

Habitat: Rock crevices, ledges, alpine tundra.

Notes: Possible presence in our area; if it occurs, it would be likely on the cold, wet and rocky slopes of Pikes Peak. Somewhat rare throughout the Colorado mountains.

Ranunculus repens L.

Plants with prostrate to creeping stems, rooting at the nodes. Leaves 2-8 cm wide, with 3 leaflets, these sometimes also cleft or divided. Flowers with petals 7-13 mm, yellow, sepals ca. 3-6 mm.

Habitat: Moist areas, often around habitation.

Notes: This is a horticultural species that can become naturalized in moist areas, and can be somewhat invasive. It occurs commonly along Fountain Creek south of Colorado Springs. Look for the creeping stems and distinctive leaves with many divisions.

Thalictrum "meadowrue"

Thalictrum is a common understory component of foothills forests; one additional diminutive species grows on the tundra and in subalpine meadows. *Thalictrum* leaves strongly resemble those of columbine, but the flowers and fruits are very different: minute achenes from nondescript greenish small flower clusters in *Thalictrum*, follicles from the showy, well known flowers of columbines. In *Thalictrum*, the petals are lacking and the sepals are greenish and petaloid. Some botanists put this genus into its own family, the Thalictraceae.

Thalictrum alpinum L.

Plants usually very small, occasionally 10-20 cm. Leaves mostly basal, divided in threes with pinnate additional divisions; leaflets less than 1 cm. Flowers tiny, in leafless racemes or panicles, sepals 4-5, 2-2 mm long.

Habitat: Subalpine bogs, tundra.

Notes: Often a very inconspicuous plant; look under willows and on bog tussocks.

Thalictrum dasycarpum Fisher & Ave-Lallemant

Plants 50 cm to 2 m tall, erect and robust, often branched above. Leaves 3-5 ternate, leaflets oblong to obovate, relatively thick, margins entire to 3-lobed at apex. Inflorescence a large and showy pyramid-like panicle.

Habitat: Wet areas, plains.

Notes: Look for the very robust and tall aspect of this species; it is the only low elevation *Thalictrum* here.

Thalictrum fendleri Engelmann ex A. Gray

Plants to 60 cm tall, leaves 3-4 ternate, leaflets rounded to heartshaped, 3-lobed. Flowers in a leafy panicle, unisexual, achenes compressed and 2-edged, 1 edge nearly straight.

Habitat: Foothills forests and thickets to subalpine, meadows, and aspen groves.

Notes: This is our most common species; it is difficult to tell this species from *T. sparsiflorum* without flowers. *Thalictrum sparsiflorum* has perfect (stamens and pistil are both present in a flower) and its anthers are quite short; *T. fendleri* has quite long anthers, more than twice as long as wide.

Thalictrum sparsiflorum Turczaninov ex. Fisher & Ave-Lallemant

Plants to ca. 1 m tall, leafy, often branched, leaves 2-4 ternate, leaflets variable, usually 3-cleft and the divisions further lobed or divided. Flowers in a leafy panicle, perfect (bisexual, with anthers and a pistil), achenes swollen, not compressed.

Habitat: Foothills forests to subalpine, meadows and aspen groves.

Notes: See *T. fendleri*. Look for the perfect flowers and the short anthers.

Resedaceae: Mignonette Family

This family is unusual with its 1-sided flowers, where the many stamens occur on one side of the flower and the other side has a fleshy disc. There are 4-7 petals, which are cleft and unequal in size.

Reseda lutea L.

Plants to 60 cm tall, erect or sprawling. Leaves 5-10 cm, oblong, deeply lobed or pinnatifid with linear or oblong segments. Flowers greenish yellow, petals 3-4 mm long, irregularly divided. Fruit a capsule, with a few teeth at the apex.

Habitat: Known in two areas in our region: alkaline clay soils on Fort Carson and on similar rocky slopes of calcareous shale along the Arkansas River.

Notes: Adventive species, apparently locally common in some sites on Fort Carson, restricted in distribution on the north side of the Arkansas River, between Pueblo West and Penrose.

Rhamnaceae: Buckthorn Family

This family of shrubby plants is very diverse in California, but relatively limited here. It is characterized by leaves having prominent veins and flowers where the stamens are opposite the petals. The leaves can be alternate, opposite, or fascicled (in small bundles).

Key to the Genera

1. Leaves alternate, with prominent parallel veins, fruit a dry capsule, petals white, with a clawed base (abruptly narrowed).....*Ceanothus*
1. Leaves alternate, opposite, or fascicled (in clumps), with pinnate veins, fruit a berry.....2
2. Leaves less than 5 cm long, with two prominent veins (and smaller ones) margins fine-toothed, each tooth with a dark gland (use a lens).....*Rhamnus*
2. Leaves more than 5 cm long, with more than 5 prominent veins and smaller ones), margins entire or almost so.....*Frangula alnus*

Ceanothus “buckbrush”

This shrubby genus with small alternate leaves is identifiable by its leaves with prominent main veins that appear parallel, even though it is a dicot. It is a common component of hot dry slopes, especially in Fremont County.

Ceanothus fendleri A. Gray

Plants low sprawling shrubs, less than 1 m. Branches with small spines, leaves to ca. 25 mm long, to 8 mm wide narrowly elliptical or oblong, glabrous above, hairy or silky below. Flowers white, in umbel-like clusters within terminal racemes.

Habitat: Dry forest or open slopes of the foothills and lower montane.

Notes: Relatively uncommon on Pikes Peak except in areas of old burns that are regrowing from meadow to forest; very common to the south, especially on south-facing slopes and in the Wet Mts. Look for the thin spines on the branches.

Ceanothus herbaceus Rafinesque

Plants low shrubs to 1 m, usually somewhat erect, branches lacking spines. Leaves 2-3 cm long, to 2 cm wide, oblong elliptic to ovate-lanceolate, serrulate, glabrous above (or pubescent only on veins), pubescent below. Flowers white, in clusters.

Habitat: Lower foothills.

Notes: Uncommon in the Pikes Peak region, more common to the north. Less sprawling than *C. fendleri*, and lacking spines. The leaves are unscented.

Ceanothus velutinus Douglas

Plants small shrubs, 1-2 m. Branches lacking spines. Leaves elliptical to ovate, twice as long as wide, strongly scented, glandular on blades and margins, velvety hairy. Flowers white, in a dense panicle.

Habitat: Foothill slopes, often in steep canyon or rocky outcrops.

Notes: Rare to uncommon here, more common to the north. Look for the strongly scented, resinous leaves.

Frangula “glossy buckthorn”

This species was formerly placed into the genus *Rhamnus*, true buckthorn, but has now be moved to its own genus based on a number of significant reproductive differences. It is a significant noxious weed in the East, but has not yet become particularly problematic here, even though it can be found relatively commonly around the city of Colorado Springs.

Frangula alnus Miller

Syn. *Rhamnus frangula*

Plants small shrubs, one to several m tall. Leaves ovate-elliptical, glossy, several cm long.

Habitat: Vicinity of gardens or horticultural plantings.

Notes: Known from the Cheyenne Canyon area on the west side of Colorado Springs and various locations around the city. Look for the shiny leaves, and multiple veins on either side of the main vein. This species

is spread easily by birds and scattered individuals appear commonly along roadsides, in grasslands, and shrub thickets.

***Rhamnus* “buckthorn”**

Rhamnus cathartica L.

Plants tall shrubs to small trees, to several m tall, appearing somewhat opposite and often with thorns. Leaves appearing opposite at least on mature branches, oval to ovate or elliptical, unevenly crenate, mostly glabrous or only slightly puberulent with short hairs. Flowers occurring in the leaf axils.

Habitat: Often around dwellings, but now appearing in the Colorado Springs area increasingly commonly along roads or as isolated individuals on the mesas or lower foothills.

Notes: Look for the flowers (later berries) in the leaf axils. This is a cultivated species, but easily naturalized here.

Rosaceae: Rose Family

The rose family is an enormous one, with many common groups known to gardeners around the world. It includes the familiar cherry, apple, plum, “berries” like strawberries, raspberries, and blackberries, and many wildflowers. Its members can be trees, shrubs, or forbs. Apple blossoms are typical for the family: classic characteristics of the Rosaceae include five separate petals (typically white, pink or yellow), five separate sepals, numerous styles and numerous stamens. Leaves are often toothed, and almost always have a small stipule (a tiny leaflike structure at the base of the leaf petiole). The presence of stipules in one way you can tell yellow-flowered members of the Rosaceae from the Ranunculaceae (Buttercup Family), since stipules don’t occur in buttercups. The fruits in the Rosaceae are quite variable: achenes, drupes (like a cherry or apricot), pomes (like an apple) and “aggregate accessory fruits”, the technical name for a structure that is a swollen receptacle holding achenes with fleshy covering (raspberry, strawberry) are all possibilities. In this family, divided leaves are common. Remember that compound leaves are divided with segments separate at the base; pinnately compound has paired leaflets up a “rachis” or internal stem of the leaf, and palmately compound leaves have the leaflets separate to a central point. Pinnatifid leaves are deeply divided into segments, halfway or almost to the center midrib, but the segments are not separate at the base.

Key to the Genera

- 1. Plants growing as trees or shrubs..... 2
- 1. Plants herbaceous, sometimes slightly woody at base..... 16
- 2. Leaves compound, leaflets separate from rachis (internal leaf stalk).....3
- 2. Leaves simple or lobed (sometimes deeply so, look carefully to see if leaflets are attached at the base)6
- 3. Flowers yellow, leaves pinnately compound but appearing palmately compound as they are clustered tightly; plants of upper elevation wet areas, meadows.....*Dasiphora/Pentaphylloides floribunda*
- 3. Flowers pink or white, leaves clearly pinnately compound..... 4
- 4. Plants a small tree, leaflets 11-15, berries orange, stems lacking prickles.....*Sorbus scopulina*
- 4. Plants small shrubs leaflets usually 5-7, stems with prickles, fruit not an orange berry.....5
- 5. Flowers white, fruit a raspberry.....*Rubus*
- 5. Flowers pink, fruit a rosehip.....*Rosa*
- 6. Leaves deeply pinnately lobed with linear leaflets, flowers white, styles prominently feathery*Fallugia*
- 6. Leaves and plants not as above.....7
- 7. Plants a shrub to small tree, branches with relatively large, smooth thorns.....*Crataegus*
- 7. Plants shrubs, sometimes to several m tall, branches lacking strong thorns.....8
- 8. Leaves with fine teeth on the margin, not lobed.....9

8. Leaves coarsely toothed on margin or lobed.....	10
9. Flowers yellowish white in a raceme, fruit a black berry, most leaves with a reddish gland (use lens) just below the leaflets.....	<i>Prunus virginiana</i>
9. Flowers white, in clusters, fruit plum or cherrylike, leaves lacking reddish gland.....	<i>Prunus</i>
10. Leaves either simple or shallowly pinnately lobed.....	11
10. Leaves palmately lobed (sometimes only slightly so).....	12
11. Flowers white, in a terminal, many-flowered pyramid, fruits lacking plumose style...	<i>Holodiscus</i>
11. Flowers white or yellowish, usually few (rarely many, in clusters or leaf axils).....	13
12. Leaves tapering at base, somewhat oblong, apex toothed, fruit an achene with a long feathery style.....	<i>Cercocarpus montanus</i>
12. Leaves ovate or orbicular, toothed at apex but entire below, not tapering at base, fruit a pome (like a tiny apple).....	<i>Amelanchier</i>
13. Leaves oblanceolate, deeply few lobed at apex, white hairy beneath.....	<i>Purshia</i>
13. Leaves not as above.....	14
14. Flowers small, many, in umbel-like clusters, bark peeling off stems in shreds.....	<i>Physocarpus</i>
14. Flowers larger, single or few in a cluster, bark not peeling.....	15
15. Leaves 3 to 6 cm wide, with rounded lobes.....	<i>Rubus (Oreobatus) deliciosus</i>
15. Leaves very large, to 20 cm wide, with acute lobes.....	<i>Rubus parviflorus (Rubacer parviflorum)</i>
16. Plants with leaves simple, margins, stems short, spreading into mats, flowers yellowish white, often with 8 petals.....	<i>Dryas octopetala</i>
16. Plants with compound or divided leaves, not as above.....	17
17. Leaves palmately compound, with 3 or more leaflets.....	18
17. Leaves pinnatifid, subdivided into parts of three, or pinnately compound.....	21
18. Flowers yellow.....	19
18. Flowers pink or white.....	20
19. Snowbed plant of the tundra, leaves few toothed at apex, flowers minute,	<i>Sibbaldia procumbens</i>
19. Plants not as above, leaves palmately or pinnately compound, flowers at least 0.5 cm in diameter.....	<i>Potentilla</i>
20. Stems rhizomatous, leafy, flowers rose purple or white, fruit a raspberry.....	<i>Rubus (Cylactis)</i>
20. Stems with stolons (aboveground runners), leaves basal, flowers white, fruit a strawberry...	<i>Fragaria</i>
21. Leaves several times divided in 3's, flowers minute, white.....	<i>Chamaerhodos</i>
21. Leaves pinnately compound or divided.....	22
22. Leaves pinnately compound, leaflets more or less equal.....	23
22. Leaves variously pinnatifid, leaflets unequal.....	27
23. Flowers in short, stubby spikes or tight heads.....	<i>Sanguisorba minor</i>
23. Flowers in more open inflorescences, if spike-like, rather slender, not appearing short and stuggy.....	24
24. Plants with basal leaves only, silvery below, strongly stoloniferous.....	<i>Potentilla (Argentina) anserina</i>
24. Plants with leafy stems, not stoloniferous.....	25

25. Plants with flowers in a narrow spikelike inflorescence, floral tube with prominent hooked bristles.....*Agrimonia*
 25. Plants with flowers in a branched inflorescence, floral tube lacking hooked bristles.....26
26. Leaflets broadly oval, style attached near base of ovary.....*Drymocallis*
 26. Leaflets variable but not broadly oval, style attached at top of ovary.....*Potentilla*
27. Style jointed, lower part remaining with a terminal hook, leaves pinnately compound with a few unequal leaflets, usually upper one larger.....*Geum*
 27. Style not jointed, not hooked, leaves with many narrow segments.....28
28. Petals pinkish white, style feathery when mature, flowers nodding, montane meadows...*Erythrocoma*
 28. Petals yellow, flowers erect, subalpine to alpine meadows.....*Acomastylis rossii*

One common cultivated species, but sometimes persisting around old abandoned cabins or homesteads is the familiar apple tree (*Malus*). Few of us would not recognize it: when not in fruit, the leaves are similar to those of the chokecherry shrub, but larger and more leathery. Cultivated pears and crabapples are also in the genus *Malus* and might be found around settlements or in agricultural zones.

Acomastylis “alpine avens”

This genus is sometimes put into a larger concept of *Geum* (described below) but differs substantially in its deeply pinnately divided leaves and yellow flowers, and some technical aspects of the style. Our single species is very common, often dominant in the alpine tundra, and easily separated from *Geum*.

Acomastylis rossii (R. Brown) Greene ssp. *turbinata* (Rydberg) W. A. Weber

Syn. *Geum rossii*, *Geum turbinatum*

Plants with stems to ca. 30 cm tall, carrying only reduced leaves, most leaves basal, pinnate with many subdivided or cleft divisions. Flowers yellow, style not geniculate (bent).

Habitat: Subalpine meadows, alpine tundra.

Notes: Extremely common, often forming extensive mats across the high elevation meadows. Turns a deep red color in late season. The flowers may resemble *Potentilla*, but the pinnately divided and multiply cleft leaves are quite different.

Agrimonia “agrimony”

Agrimonia striata Michaux

Plants to 1 m tall, hairy and glandular, leaves alternate, odd pinnate, with leaflets alternately large and small. Flowers small, yellow, in a slender spikelike raceme, calyx with hooked bristles. Fruits an achene.

Habitat: Moist canyons, foothills, moist areas on the high plains.

Notes: Uncommon here, generally occurring in areas with permanent streams. Look for the bristly calyx, the narrow, spikelike inflorescence, and large-small leaflets.

Amelanchier “serviceberry, shadbush”

This genus can be recognized by the round leaf shape, where the teeth occur only on the top half; the bottom half of the leaf margin is entire. *Holodiscus* has this pattern as well, but the leaf teeth are double and the leaves not distinctly round in their outline. Our two species of *Amelanchier* appear to hybridize, so identification can be a challenge and some botanists treat them as a single species. They are most commonly found here in the moist regions of Fremont County, occasionally near the Palmer Divide. The fruit in this genus is a pome, the technical name for a fruit like an apple: these are very small, only 1-1.5 cm.

Amelanchier alnifolia Nuttall

Plants tall shrubs, to several m, thornless. Leaves oval to suborbicular, teeth coarse and visible to the middle, glabrous below when mature. Flowers white, petals narrowly oblong. Fruit black to purple pome.

Habitat: Moist thickets, foothills and lower montane.

Notes: Uncommon here; this species (in its pure form) can be distinguished by the glabrous underside of the leaves and the narrower petals of the flowers.

Amelanchier utahensis Koehne

Syn. *Amelanchior alnifolia* ssp. *utahensis*

Plants tall shrubs, to several m, thornless. Leaves ovate to orbicular, teeth coarse and visible to the middle, pubescent above and below when mature. Flowers white, petals oval to rounded. Fruit a black to purple pome.

Habitat: Moist thickets, foothills to lower montane.

Notes: Look for the hairy undersides of the mature leaves. See comments under *A. alnifolia*.

Cercocarpus “mountain mahogany”

This extremely common shrub is characteristic of the mesas and lower foothills; it is one of the triumvirate of three species characterizing the mountain shrub zone, along with Gambel oak (*Quercus gambelii*) and three-leaf sumac (*Rhus aromatica*).

Cercocarpus montanus Rafinesque

Plants short to tall shrubs, usually 1-2 m. Leaves wedge-shaped, oval, or elliptical broadly toothed at the apex, lower leaf margin entire. Flowers solitary or in small clusters, sepals 5, whitish, petals lacking, style long and feathery in age, fruit an achene.

Habitat: Mesas, rocky outcrops, grasslands to montane.

Notes: Look for the toothed leaf apex and nontoothed lower leaf margin; the long, curled feathery styles on the fruits are characteristic and often persistent throughout the winter.

Chamaerhodos

Chamaerhodos erecta (L.) Bunge ssp. *nuttallii* (Pickering ex Rydberg) Hultén

Plants generally biennial but possibly perennial, Basal leaves numerous in a rosette, divided into many linear divisions. Stems pilose, stem leaves similar to basal leaves. Flowers small, in a branched inflorescence, petals 5, ca. 2 mm long, white; sepals with transparent long hairs. Fruit an achene.

Habitat: Dry gravelly slopes and open areas, montane zones, often on shoulders of south facing slopes in forest or grassland openings.

Notes: Not very common in our region, but known from the Mueller State Park and Ute Pass; more abundantly in Park County, especially South Park. Look for the tiny white flowers and divided leaf rosettes.

Crataegus “hawthorn”

These shrubs or small trees are not common in the region as native species, but can be recognized by their leaves (lobed like a maple, with extra deep teeth on the lobes, sometimes doubly toothed), long spines or thorns, and small fruits (a pome, like an apple) that are red or black. Many cultivars are known, and these can be frequently seen around towns. Some botanists include *C. erythropoda* under *C. succulenta*. Another species of *Crataegus*, *C. chrysoarpa*, also recognized as a variant of *C. erythropoda*, might also occur here in habitats similar to the other species, but has not yet been reported. *Crataegus chrysoarpa* has pubescent leaves, but the teeth on the leaves have red-tipped glands and the fruit is yellow to orange.

Crataegus erythropoda Ashe

Plants tall shrubs or small trees to 5 m. Leaves glabrous, occasionally with a few hairs, teeth along the leaf margin with black tipped glands (use a lens). Spines 2- 4 cm long. Flowers white to pinkish, anthers pink, rose or purplish. Fruits red to brown or blackish.

Habitat: Moist canyons, foothills to montane, uncommon to rare.

Notes: Look for the glabrous leaves.

Crataegus succulenta Schrader ex Link

Syn. *Crataegus macrantha*

Plants tall shrubs to small trees to several m. Leaves pubescent, teeth on margin lacking glands (use a lens). Spines 4-7 cm, slender. Flowers white, anthers usually white but can be colored. Fruits scarlet to bright red (occasionally black or orange).

Habitat: Moist canyons, foothills to montane.

Notes: Look for the pubescent leaves that lack red tipped glands. Reported from Pueblo County, uncommon. Intergradations occur with *C. erythropoda*.

Dryas "mountain dryad"

This mat-forming species with leaves like miniature oak leaves and creamy flowers is a common component of tundra environments in the northern hemisphere. Look for it from Alaska to the Alps; it is abundant in the mountains of western North America.

Dryas octopetala L.

Plants low mats, semi-woody, with persistent stems. Leaves simple, petioled, oblong to elliptic, white hairy below, margins lobed (crenate) and somewhat revolute. Flowers white, 2-3 cm wide, styles 2-3 cm in fruit, feathery. Fruit an achene, style prominent.

Habitat: Dry tundra meadows.

Notes: Common on Pikes Peak.

Drymocallis

This genus is sometimes included within a broad concept of *Potentilla* (cinquefoil) and it shares with true *Potentilla* the characteristic of an open, radially symmetrical flower with 5 petals (yellow generally, except for *D. arguta*, which has creamy white flowers) and (like some species of *Potentilla*), pinnately compound leaves. In *Drymocallis*, the style is attached near the top of the ovary, and the leaflets are rounded to ovate. It is an easy confusion to make with the yellow flowered species, so check both.

Drymocallis arguta (Pursh) Rydberg

Syn. *Potentilla arguta*

Plants to 1 m tall, stems stout, erect, with long hairs. Basal leaves with long petioles, pinnately compound with 7-9 leaflets, each rounded or rhombic, irregularly toothed, at least somewhat hairy. Petals slightly longer than the sepals (sepals enlarging in fruit), creamy white.

Habitat: Meadows, montane zone.

Notes: Look for the large fruits and when in flower, the creamy white petals. The leaflets are mostly of different sizes. This species is common in Teller Co. and also in the Black Forest.

Drymocallis fissa (Nuttall) Rydberg

Syn. *Potentilla fissa*

Plants to about 30 cm tall, stems stocky, with long hairs. Basal leaves with short petioles, pinnately compound with 9-13 leaflets, each orbicular, more or less the same size, toothed with rounded teeth, hairy. Petals distinctly longer than the sepals, yellow.

Habitat: Meadows, pine forest understory, foothills to montane zones.

Notes: Look for the round leaflets and yellow flowers. This is a common foothills species, and the one most easily confused with true *Potentilla* (look at the round leaflets to tell the difference).

Erythrocoma "prairie smoke"

This genus was originally placed in *Geum*, but differs in the distinctive and beautiful plumose styles and pinnatifid (divided to the midvein) basal leaves.

Erythrocoma triflora (Pursh) Greene

Syn. *Geum triflorum*

Plants 20-50 cm, stems long hairy, often somewhat glandular. Leaves mostly basal, pinnatifid, with long white hairs; leaf divisions 9-20, large near apex and decreasing in size. Flowers nodding, calyx glandular hairy, red purple; petals usually pink to reddish, sometimes whitish yellow. Styles elongating in fruit, becoming plumose.

Habitat: Meadows, open areas in the pine forests, foothills to montane.

Notes: The nodding pink flowers are distinctive, as are the plumose styles. A very attractive common species of montane meadows.

Fallugia “ Apache plume”

Fallugia paradoxa (D. Don) Endlicher

Plants medium sized shrubs to 2 m tall. Leaves deeply divided, segments linear. Flowers creamy white, with long feathery styles from multiple ovaries.

Habitat: Sandy soils, low elevations.

Notes: A distinctive species, common in the San Luis Valley and recorded here long ago from the Pueblo area, perhaps as an introduction. It is used as a xeriscape garden plant and now naturalized around the region.

Fragaria “strawberry”

Strawberries are easy to recognize with their three leaflets and familiar flowers and fruits (for which you have to compete with the local wildlife!). However, identifying ours to species is not easy at all. Look for the color of the leaves to help tell the two species apart. Caution: a rare species of raspberry, *Rubus or Cylactis pubescens*, looks a lot like a strawberry. See the comments under *Rubus pubescens* to tell the difference between the two.

Fragaria vesca L. ssp. *bracteata* (Heller) Staudt

Plants herbaceous off a short rootstock, usually with stolons. Leaves palmately trifoliate, deep green, impressed veins showing on the silky-hairy upper surface. The terminal tooth on the leaf is equal to or longer than the adjacent teeth. Flowering stalk usually as long as or longer than leaves.

Habitat: Moist woods, montane zone, often on shady gravelly slopes.

Notes: Probably less common than the following species; look for the green, not blue-green leaves.

Fragaria virginiana P. Miller ssp. *glauca* (S. Watson) Staudt

Plants herbaceous off a short rootstock, usually with stolons. Leaves palmately trifoliate, blue green above, veins not very visible on the glabrous upper surface. The terminal tooth on the leaf is smaller than the adjacent teeth. Flowering stalk usually shorter than leaves.

Habitat: Moist woods, montane zone and Black Forest.

Notes: Look for the blue-green (glaucous) color of the upper leaf surface.

Geum “avens”

Geum can look like a large *Drymocallis* or stocky *Potentilla*. It is usually identifiable by the large pinnately compound leaves in which the few leaflets are clearly unequal in size; the style has a terminal hook to it.

Geum aleppicum Jacquin ssp. *strictum* (Aiton) Clausen

Plants 40-80 cm tall, stems hairy. Basal leaves lyrate-pinnate, leaflets obovate, unequal in size, often with small leaflets between larger ones, margins deeply incised; terminal leaf segment more or less the same size as other segments. Flowers yellow, lower portion of style below the hooked tip hairy, not glandular.

Habitat: Meadows, gravelly canyonsides, streamsides, foothills to montane.

Notes: A common species; look at the terminal leaflet to distinguish this species from *G. macrophyllum*.

Geum macrophyllum Willdenow

Plants to 1 m tall, stems hairy. Basal leaves lyrate-pinnate, leaflets obovate, unequal in size, often with small leaflets between larger ones, margins toothed to incised; terminal leaf segment notably larger than other segments. Flowers yellow, style below the hooked tip glandular pubescent.

Habitat: Meadows, canyons, streamsides, foothills to montane (inc. the Black Forest).

Notes: Often occurring in wet meadows; look for the larger terminal leaf segment.

Geum rivale L.

Plants to 0.5 m tall, stems glandular-hairy. Basal leaves lyrate-pinnate, leaflets obovate, unequal in size, often with small leaflets between larger ones, margins toothed to incised; terminal leaf segment not larger than other segments. Flowers purplish, flesh colored, or yellow tinged, often nodding in anthesis, erect in fruit, lower portion of style glandular pubescent.

Habitat: Wet meadows, streambanks, foothills canyons, montane and subalpine zones.

Notes: Look for the unusual flower color (the sepals and bracts are also purplish). This is a relatively uncommon species here.

***Holodiscus* “mountain spray”**

This common shrub of rocky slopes in the foothills can be confused with mountain mahogany (*Cercocarpus montanus*) since the leaves are somewhat similar; look at the distinctive pyramid-like inflorescence in mountain spray, and the different fruits to tell them apart.

Holodiscus discolor (Pursh) Maximovicz

Syn. *Holodiscus dumosus*

Plants low shrubs, to 3 m tall, stems lacking spines. Leaves simple, blades 1-5 cm long, elliptic to cuneate, with 3-6 teeth on each side extending below the middle. Inflorescence 5-20 cm long, in a terminal, pyramid-shaped panicle; flowers white to pinkish. Fruit an achene, lacking plumose style.

Habitat: Rocky outcrops at lower elevations, rocky slopes and canyonsides, foothills to montane.

Notes: While the leaves of this species resemble mountain mahogany, the pyramid-shaped inflorescence is quite distinctive, and mountain spray fruits lack the long plumose style tip.

***Malus* “apple”**

The genus *Malus* includes domesticated pears, apples and crabapples. Apples, *Malus pumila*, have long been cultivated in the region, and often remain around old homesteads and cabin sites. Animals can spread the seeds, so a lone apple tree can appear in otherwise native vegetation. The fruits, of course, are easily recognized. The oblong-ovate leaves have tiny teeth along the margins, and are densely white hairy below.

***Pentaphylloides*/*Dasiphora* “shrubby cinquefoil”**

Pentaphylloides, now sometimes referred to by the name *Dasiphora*, is the shrubby (woody) representative and closely relative of the herbaceous genus *Potentilla* (cinquefoil). Early treatments placed them all in the same genus, but this extremely common shrub of upper elevations is easily recognized and significantly different in many aspects. The name changes reflect both new genetic perspectives, and historical use of certain generic names that follow the code of botanical nomenclature. Some botanists prefer to keep *Pentaphylloides* into an inclusive concept of *Potentilla*.

Pentaphylloides floribunda (Pursh) Löve

Syn. *Dasiphora floribunda*, *Potentilla fruticosa*.

Plants small shrubs, to ca. 1 m. Leaflets appearing trifoliate to palmately compound, but when spread, are pinnate, with 3-7 linear to oblong leaflets. Flowers yellow, fruit an achene.

Habitat: Moist areas, wet meadows, montane to alpine.

Notes: Extremely common, often co-dominant in subalpine bogs with willows. Look for the yellow flowers and leaves that appear trifoliate (but look more closely as they are actually compressed pinnately compound).

***Physocarpus* “ninebark”**

This genus is common in the moist foothills; look for the peeling bark and maple-like lobing of the leaves, with additional teeth on the margins. Unfortunately the species may hybridize, so it is often not easy to decipher the correct species name, as characteristics may blur in the hybrids.

Physocarpus monogynus (Torrey) Coulter

Plants small to medium shrubs, 1-2 m. Leaf blades usually 5 lobed, 2-3 cm long, truncate to cordate at base. Fruit ca. 0.5 cm long, with 2-3 follicle

Habitat: Forest areas and rocky slopes, foothills to subalpine zones. Prefers dry habitats.

Notes: Look for the 5 lobed leaves, flat or cordate leaf base, and smaller fruits. This species typically occurs in drier habitats than *P. opulifolius*. They hybridize and intermediate individuals are possible.

Physocarpus opulifolius (L.) Maximovicz

Plants small shrubs, usually 1 m or less tall. Leaf blades usually 3 lobed, 3-8 cm long, acute at the base. Fruit ca. 1 cm long, with 3-5 follicles.

Habitat: Streambanks, foothills. Prefers moist habitats.

Notes: Look for the 3 lobed leaves, acute leaf bases, and larger fruits with more follicles. See note above under *P. monogynus* about hybrids.

***Potentilla* “cinquefoil”**

The name cinquefoil comes from the French, and refers to a common leaf shape, a compound leaf with 5 leaflets. *Potentilla* may have leaves that are trifoliate, palmately or digitately compound, typically with 3, 5, 7 leaflets (or more, with smaller leaflets below the main ones). They can also be pinnately compound. Once you learn the basic leaf appearances, it is easy to recognize the genus (the only significant confusion might be with *Drymocallis*). However, getting to species can be very hard! The features to look at will be size, number of leaflets, type of leaf (palmately or pinnately compound), color of upper and lower leaf surfaces (a factor of hairs), and certain aspects of the styles or achenes. Some species are only found at certain elevations, others occur quite broadly. Think about the habitat the plant occurs in, as ecology can be quite a useful aid in identification. All species of *Potentilla* have yellow petals, usually a bright yellow like a buttercup (however, the petals are not shiny as in buttercups); some species are sometimes a pale yellow; if this character occurs and is relevant for identification, it is indicated in the descriptions below.

UPPER ELEVATION SPECIES (MONTANE-ALPINE ZONES)

A. Plants with pinnately compound leaves (leaflets growing off a “rachis”, a small internal stem-let)

Potentilla anserina L.

Syn. *Argentina anserina*

Plants creeping, strongly stoloniferous with long runner, stems to 1 m long. Leaves pinnately compound, bright green, leaflets 9-30, with larger leaflets interspersed with smaller ones, margins deeply serrate. Flowers bright yellow, on pedicels in leaf axils.

Habitat: Wet meadows and marshes, plains to subalpine.

Notes: This is a common and very distinctive species with its stolons. Some botanists place it into its own genus, *Argentina*. It is a common saltmarsh species in other parts of the country.

Potentilla pensylvanica L.

Plants with erect or sprawling stems, 10-20 cm tall, leaves mostly basal, with 5-9 lateral pairs of leaflets. Leaflets with revolute (turned below) margins, deeply cut, green, often strigose above and grayish-tomentulose (wooly hairs) beneath. Flowers tightly clustered, pale yellow, petals 3-6 mm long.

Habitat: Rocky, exposed subalpine and alpine habitats

Notes: This species is highly variable and quite common, with a wide elevation range 5,000' to 13,000'. Look for the deeply cut leaves with revolute margins.

Potentilla pulcherrima X *hippiana*

Plants with stems branching, 40 to 50 cm tall, clustered stems rising from a caudex. Leaves strongly bicolored, green above, densely white tomentose beneath, highly variable some pinnate, some subdigitate.

Habitat: Montane meadows and lower foothills slopes, 7,000' to 10,500'.

Notes: Look for the strongly bicolored leaves. This species represents a common hybrid between *P. pulcherrima* and *P. hippiana*, and shows characteristics of both parental species. Check species descriptions for these species as well.

Potentilla ovina Macoun

Plants up to 30 cm tall. Stems sericeous-hirsute, usually several, clustered. Leaves mostly basal, pinnately 9-17-foliolate, cauline leaves few, leaflets deeply lobed. Petals obovate.

Habitat: Subalpine slopes and open woods, through alpine tundra, often in shallow rocky soils.

Notes: Look for prominent orange spot at the base of the petals.

See also *P. diversifolia* and *P. gracilis* described below.

B. Plants with digitately compound leaves (=palmately compound: leaflets radiating from a central point)

Potentilla concinna Richardson

Plants 5 to 10 cm high, taproot well-developed, stems tomentose, leaves mostly basal, digitately 5-7 foliolate, leaflets white-tomentose on the lower surface, strigose-pustulose (with blister-like base) above, toothed to shallowly lobed. Petals notched or truncate-rounded.

Habitat: Open pine and Douglas fir woodland communities, subalpine and alpine meadows, and rocky ridges and saddles.

Notes: Blooms in early spring, one of the first species to flower.

Potentilla diversifolia Lehm.

Syn. *Potentilla glaucophyllum*

Plants 10 to 35 cm tall, stems growing from a branched caudex, leaves mostly basal, glabrate, green or sparsely silky, digitately 5-7 foliolate, with lower leaflets typically smaller than upper. Petals rounded, truncate, or notched apically.

Habitat: Open woods and dry rocky, windswept ridges, montane to subalpine.

Notes: Leaves are extremely variable (hence the species name that recognizes this) in lobe-depth, pubescence, and digitate or subpinnate distribution of the leaflets. This is a common species.

Potentilla gracilis Douglas ex Hooker

Plants 20 to 80 cm, stems with sparse to densely pubescent with spreading or appressed hairs. Leaves mostly basal, digitately compound (some variations subpinnately 5-9 foliolate), leaflets regularly toothed or lobed throughout, lighter in color beneath than above. Petals oblanceolate-obcordate.

Habitat: Moderately moist to wet gravelly meadows, ditch banks, and open woodlands from valley bottoms to subalpine zones.

Notes: This species is often divided into subspecies based on hairs and depth of leaf teeth.

Potentilla hookeriana Lehm.

Plants 10 to 15 cm tall, stems clustered, leaves mostly basal, digitately 5-foliolate, densely tomentose on underside. Stipules hairy and pilose. Petals obovate and notched apically.

Habitat: Rocky areas, gravelly slopes, open woodlands and alpine tundra, common.

Notes: Leaflets in this species are more deeply and narrowly toothed than *P. nivea*.

Potentilla nivea L.

Plants mat or cushion forming, stems 2-15 cm tall. Leaves mostly basal, 3-foliolate, toothed, green and barely pubescent above, white tomentose beneath. Petals obovate, notched.

Habitat: Rocky subalpine and alpine slopes and ridges; common.

Notes: Look for the low, mat-cushion growth form, and 3-foliolate leaves.

Potentilla rubricaulis Lehm.

Plants with stems branched, 5 to 25 cm tall, rising out of branched caudex, ciliate, reddish especially towards the caudex. Petioles pilose. Leaves mostly basal, digitately 5-foliolate, white tomentose (with tangled hairs) on the underside, green above. Petals notched apically, 6-10 mm long, obovate.

Habitat: Rocky, exposed alpine ridges; uncommon.

Notes: Look for the reddish stems. Resembles *P. subjuga* but *P. rubricaulis* has short styles that are often papillose (with little bumps) at the base.

C. Plants with leaves sub-digitately compound (with smaller pairs of leaflets below the main leaflets)

Potentilla subjuga Rydb.

Plants with stems branching, 10 to 40 cm tall, rising from a caudex, leaves mostly basal, leaflets 5-7, green strigose above, tomentose below, 3-5 terminal digitate leaves and 1-2 lower pairs, visible rachis between terminal digitate leaves and lower pairs. Petals 2-3 mm long.

Habitat: alpine and high subalpine ridges and slopes.

Notes: Resembles *P. rubricaulis*; see notes for that species above.

Potentilla pulcherrima

Syn. *Potentilla gracilis* var. *pulcherrima*

Plants with stems branching, to 80 cm tall. Leaves strongly bi-colored, green above, densely white tomentose below, leaflets subdigitate to digitate, toothed along whole length. Flowers large, yellow.

Habitat: Montane to lower alpine zones.

Notes: This is an abundant species that occurs over a wide range of elevation, 5300 to 12,700 feet.

LOWER ELEVATION SPECIES (PLAINS TO LOWER MONTANE ZONE IN THE FOOTHILLS)

A. *Plants with pinnately compound leaves*

Potentilla ambigens Greene

Plants very large, stems stout, 40 cm to 1 m tall, densely pilose, leaves over 20 cm long, leaves with 6-7 pairs of leaflets, silky villous on the rachis and underside veins.

Habitat: 6,700' to 8,400', disturbed gravelly soils.

Notes: Small or immature plants can resemble *P. hippiana* but the species is typically much larger. This is an apparently rare, if somewhat weedy species, known in our region from the Air Force Academy north of Colorado Springs and from Teller County outside Woodland Park. Its very large size and stout hairy stems make it easily recognizable. Some botanists think it may represent a hybrid of *P. hippiana*.

Potentilla anserina L.

Syn. *Argentina anserina*

Plants creeping, strongly stoloniferous with long runners, stems to 1 m long. Leaves pinnately compound, bright green, leaflets 9-30, with larger leaflets interspersed with smaller ones, margins deeply serrate. Flowers bright yellow, on stalks in leaf axils.

Habitat: Wet meadows and marshes, plains to subalpine.

Notes: This is a common and very distinctive species with its stolons. Some botanists place it into its own genus, *Argentina*. It is a common saltmarsh species in other parts of the country.

Potentilla effusa Douglas

Plants with somewhat bi-colored leaves, leaflets 5-11, sometimes irregularly toothed on the margins. Flowers with distinctive bracteoles, smaller and darker than the sepals, calyx densely white hairy at base.

Habitat: Dry slopes, montane zones.

Notes: This is a difficult species to determine, and intergrades with *P. hippiana*, a very common and variable species here. Look for the dark bracteoles (small bracts on the calyx), silvery leaves, and hairy calyx.

Potentilla hippiana Lehm.

Plants up to 60 cm tall, stems and petioles strigose and tomentum. Leaves mostly basal, pinnately 5-13 foliolate, deeply cleft to within about halfway to the midrib or less, leaflets bicolorous. Calyx sericeous (with long hairs, not tangled) at the base. Petals obovate, slightly longer than the sepals, notched or rounded,

Habitat: Dry hillsides and meadows, plains to subalpine.

Notes: *P. potentilla* hybridizes easily when growing in the vicinity of *P. diversifolia*, *P. concinna*, and *P. gracilis* var. *pulcherrima*. See notes for these species as well. The complex is a difficult one to decipher.

Potentilla plattensis Nutt.

Plants up to 30 cm tall, stems several, usually clustered, hairs of lower stem and petioles mostly straight and appressed, the leaflets sparsely so to sometimes glabrous. Leaves mostly basal, pinnately 11-23 foliolate, leaflets pinnately divided to the midvein into narrowly linear segments. Petals obovate, notched or sometimes rounded, yellow.

Habitat: Moist valley, montane meadows, and streambanks.

Notes: *P. plattensis* is hard to distinguish from the alpine species *P. ovina* except by its ecology and elevation. In *P. plattensis* the pedicels become recurved in fruit, and the somewhat stiffer hairs of the stem of *P. plattensis* are more spreading than in *P. ovina*. Look also for the narrowly linear leaflets.

Potentilla rivalis Nutt.

Plants 30-50 cm tall, lower portion of stems with fine, often appressed hairs, non-glandular. Leaves bright green, mostly cauline (on the stem), reduced upward, 3-foliolate above and mostly pinnately 5-foliolate below, often coarsely toothed. Petals broadly oblanceolate to obovate or wedge-shaped, rounded, 2-3 mm long, shorter than the sepals.

Habitat: Moist meadows, streambanks, and shores of ponds and lakes.

Notes: Sometimes confused with *P. supina* which has larger petals and more pinnate leaves, or *P. biennis*, which is glandular. Look for the small flowers on this species and the very moist habitat.

Potentilla supina L. subsp. *paradoxa* (Nutt.) Sojak

Syn. *P. paradoxa*

Plants with leaves pinnately compound with 5-11 leaflets. Achenes brown and ridged, on one side a large protuberance as large as the fruit. Petals as long or longer than the sepals, ca. 3-5 mm long.

Habitat: Wet bottomlands and shorelines on the plains, and lower valleys.

Notes: Look for the distinctive achenes.

B. Plants with digitately compound leaves (=palmately compound: leaflets radiating from a central point)

Potentilla argentea L.

Plants with strongly bicolored leaves, white tomentose below, leaflets 3-5, segments very narrow, 2 toothed or lobed above the middle, margins revolute.

Habitat: Dry areas, lower elevations.

Notes: Adventive species, currently uncommon in Colorado but likely to occur here.

Look for the unusual leaves, green above and white below.

Potentilla biennis Greene

Plants 10 to 70 cm tall, annual or biennial. Basal portions of stem and leaf rachis with gland-tipped hairs. Leaves mostly cauline (on the stem), lower cauline leaves 3-foliolate. Petals broadly oblanceolate, cuneate, yellow to pale yellow.

Habitat: Moist places on shores of reservoirs, on streambanks, in meadows, seepages, and roadside ditches.

Notes: Look for this species in disturbed areas; a somewhat weedy species here.

Potentilla concinna Richardson

Plants 5 to 10 cm high, appearing clumped, taproot well-developed, leaves mostly basal, digitately 5-7 foliolate, leaflets white-tomentose on the lower surface, strigose-pustulose (with a blister-like base) above, toothed to shallowly lobed. Petals notched or truncate-rounded.

Habitat: Open pine and Douglas fir woodland communities, subalpine and alpine meadows, and rocky ridges and saddles.

Notes: Blooms in early spring, one of the first species to flower. Look for the low growth form, relatively small size, and digitately compound leaves,

Potentilla norvegica L.

Plants relatively robust, most leaves trifoliolate, leaflets large, stems and lower leaf surfaces with stiff spreading hairs, often pustulate (with a blister-like base). Flowers with petals slightly shorter than the sepals.

Habitat: Moist meadows, grasslands, roadsides, often in disturbed areas., plains to montane.

Notes: Adventive species, common in disturbed pastures and grasslands. Look for the large trifoliolate leaflets and short petals.

Potentilla recta L.

Plants 30 to 80 cm tall. Basal leaves often present, leaves coarsely toothed. Flowers pale yellow, mature achenes strongly reticulate (with net veining on the surface).

Habitat: Front Range and Wet Mountain Valley, meadows.

Notes: Adventive species not documented here yet but likely to occur, especially in northern El Paso County; it is considered a noxious weed in the state of Colorado. It is a tall robust species, with pale yellow flowers, and grows in large clumps.

C. Plants with sub-digitately compound leaves (with a smaller set of leaflets below the main ones)

Potentilla gracilis Douglas ex Hook

Plants 20 to 80 cm, stems with sparse to densely pubescent with spreading or appressed hairs. Leaves mostly basal, digitately compound (some variations subpinnately 5-9 foliolate), leaflets regularly toothed or lobed throughout, lighter in color beneath than above. Petals oblanceolate-obcordate.

Habitat: Moderately moist to wet meadows, gravelly areas, ditch banks, and open woodlands from valley bottoms to subalpine elevations.

Notes: Often divided into subspecies based on hairs and depth of leaf teeth, and quite variable here. This is common species across a wide elevational range.

Potentilla pulcherrima

Syn. *Potentilla gracilis* var. *pulcherrima*

Plants with stems branching, to 80 cm tall. Leaves strongly bi-colored, green above, densely white tomentose below, leaflets subdigitate to digitate, toothed along whole length. Flowers large, yellow.

Habitat: Lower montane to lower alpine zones.

Notes: This is an abundant species that occurs over a wide range of elevation, 5,300' to 12,700'.

See also *P. pulcherrima* x *hippiana* described above.

***Prunus* “plum, cherry, chokecherry”**

These familiar fruits have their wild counterparts, easily recognizable at least to “genus”, with their hard stony pits and juicy exteriors: classic examples of the fruit type botanists call a drupe. These quite different species are grouped here under their traditional, inclusive genus *Prunus*, but some botanists prefer to now place them into separate genera, reserving *Prunus* just to plums, and using *Padus* and *Cerasus* for chokecherries and cherries. Wild plums have stout spines or thorns and the largest fruits (though still smaller than commercial plums); chokecherries have a raceme of red-purplish berries and a pair of small reddish glands just below the base of the leaf. Our varieties of cherry have red or deep purple berries.

Prunus americana H. Marshall

Plants short to medium-sized shrubs or trees, usually to 3 m tall. Stems with stout spines, scattered on stems. Leaves oval to obovate, to ca. 6 cm long, sometimes quite narrow, margins with small teeth from apex to base; no glands occurring on the teeth tips (use a lens) or on the petiole. Fruit red to purplish, usually 2-3 cm long.

Habitat: Moist canyons, foothills, typically at the base of the Pikes Peak massif around Colorado Springs.

Notes: This is wild plum. The fruits are loved by wildlife, so you need to be lucky to find them late in summer or in early fall. Look for the stout thorns on the bushes.

Prunus pensylvanica L.

Syn. *Cerasus pensylvanica*

Plants trees or small shrubs, to ca. 3 m tall. Stems lacking thorns. Leaves ovate, with small teeth, teeth carrying minute glands on the tips (use a lens); petioles also sometimes with glands. Fruit a small cherry, bright red, in a cluster

Habitat: Lower foothill canyons and lower slopes of Pikes Peak, in open gravelly soils.

Notes: This is called bird or pin cherry, and is locally common along the foothills of Pikes Peak. Look for the bright red fruits in late summer, and the small, gland-tipped teeth on the leaves.

Prunus virginiana L.

Syn. *Padus virginiana*

Plants small to medium-sized shrubs, sometimes to 4 m or taller. Stems lacking thorns. Leaves ovate, with small teeth, usually pale below and with a pair of glands on the petiole. Flowers and fruits in a distinctive elongate raceme. Fruits small cherries, deep reddish purple, turning darker with age.

Habitat: Moist areas on the plains, mesas, foothills, and along roadsides.

Notes: This is an extremely common species throughout our area; look for the tiny, paired glands at the leaf base (look at several leaves) and for the symmetrical raceme of flowers or fruits at the branch tips. This is our “chokecherry”, a puckery cherry, good for jelly with a lot of sugar added.

Prunus pumila Bailey var. *besseyi* Bailey

Syn. *Prunus besseyi*; *Cerasus pumila* ssp. *baileyi*

Plants low sprawling shrubs, usually less than 1 m. tall. Stems lacking thorns. Leaves usually fairly narrow, to ca. 2 cm wide and to ca. 5 cm. or less long, margins with many fine teeth. Fruit a small purplish, cherry in clusters.

Habitat: Sandy bluffs and rocky outcrops, exposures of the Dawson Formation, on the plains, in the Black Forest, and occasionally around Colorado Springs in the Austin Bluffs area.

Notes: A somewhat uncommon species here now, probably because of habitat loss and decreased moisture. This always found in sandy soils, hence the common name of “sand cherry”. Look for the habitat and the sprawling growth form.

***Purshia* “bitterbrush, antelope bush”**

Purshia tridentata (Pursh) de Candolle

Plants low shrubs, 1-3 m. Leaves distinctively 3-lobed at the apex, margins revolute (turned under), dark green above and densely white tomentose (with tangled hairs) below. Flowers pale yellow, sepals with stalked glands. Fruit an achene.

Habitat: Dry foothills, usually on rocky slopes.

Notes: Uncommon in our region; known from Fremont County and north of Colorado Springs in the foothills of Douglas County. Look for the 3-lobed leaves that are green above and white hairy below.

***Rosa* “wild rose”**

Wild roses are very common throughout our area, and very easy to recognize to genus. Anyone familiar with the garden rose will instantly recognize the wild relatives. However, getting to species is far more difficult, especially if fruit is not available. These species can hybridize, to make identification even more challenging. It is useful to distinguish between thorns, a stout modified branchlet, and bristles or prickles, smaller, finer, softer (but still very sharp) modified hairs.

Rosa arkansana T. C. Porter

Plants small shrubs, usually less than 1 m in height. Leaflets 9-11, obovate to cuneate, sharply toothed, often hairy above and below. Flowers pink to rose, fruit subglobose, not tapering at the tip. Stems densely prickly.

Habitat: Rocky slopes, plains.

Notes: This relatively small species is common on the plains. Look for the hairy leaves and round fruits.

Rosa acicularis Schweinitz ssp. *sayi*(Schwein)W.H. Lewis

Syn. *Rosa sayi*

Plants small shrubs, usually over 1 m in height. Leaflets 5-9, ovate, occasionally with hairs below. Flowers pink, fruit pear-shaped. Stems densely prickly with slender unequal prickles.

Habitat: Lower foothills, outcrops in the montane zones.

Notes: Look for the prickly stems, ovate, usually glabrous, leaflets, and pear-shaped fruit.

Rosa woodsii Lindley

Plants small shrubs, usually to 1 m. or more in height. Leaflets 3-7, usually somewhat hairy below.

Flowers pink, fruit round to pear-shaped. Stems with stout thorns, and relatively sparse prickles.

Habitat: Plains to upper elevations in the subalpine, woods, moist thickets, stream banks.

Notes: This is our most common species and usually the tallest.

***Rubus* “raspberry”**

The wild raspberry is quite common, and usually easily recognizable by its leaves and fruits. Several close relatives also occur here, traditionally placed in the *Rubus* genus, but sometimes now split into their own segregates. This includes *Oreobatus* (Boulder raspberry), recognized by its very large white flowers, and

ovate leaf blades that look more like currants than the typical raspberry, *Rubacer*, with its huge (to 30 cm wide) palmately lobed leaves, and *Cylactis*, with its rhizomatous growth form. Raspberries all have fruits that are “drupes”, a collection of small, separate ovaries with fleshy covering.

Rubus deliciosus Torrey

Syn. *Oreobatus deliciosus*

Plants small shrubs, to about 1.5 m. Stems lacking bristles, leaves simple, 3-6 cm wide, ovate, shallowly 3-5 lobed. Flowers solitary, showy, white, petals 1 to 3 cm long. Fruits somewhat dry, dark purple.

Habitat: Rocky slopes and moist thickets, foothills to montane.

Notes: A common species in the lower foothills. Look for the showy white flowers and round leaf shape. The stems are thornless, and the fruits distinctly non-delicious.

Rubus idaeus L.

Syn. *Rubus strigosus*

Plants short, erect shrubs, stems carrying stiff bristles and hairs, some glandular, leaves compound, 3-5 foliate, leaflets lanceolate-ovate to ovate, to ca. 5 cm long. Flowers inconspicuous, white, in small terminal or axillary racemes, usually 2-6. Fruits red, fleshy.

Habitat: Open rocky or gravelly slopes, foothills to montane.

Notes: An extremely common species, especially on gravel slides of the Pikes Peak foothills. Look for the bristly stems, compound leaves and recognizable fleshy fruits. This is our common “wild red raspberry”.

Rubus parviflorus Nuttall

Syn. *Rubacer parviflorum*

Plants 1-2 m tall shrubs, stems lacking bristles or thorns. Leaves simple, large, to 30 cm wide, broadly ovate, palmately 3-5 lobed, somewhat glaucous (blue-green) below. Flowers white, in a cluster of 2-9. Fruit red, fleshy.

Habitat: Moist valley floors, wet canyons, often along streams, montane zone.

Notes: Look for the huge lobed leaves, somewhat bluish in hue. This is an uncommon species in our area.

Rubus pubescens Raf.

Syn. *Cylactis pubescens*

Plants creeping with runners, only slightly woody at very base, stems lacking thorns or bristles, herbaceous, rooting at nodes and tips. Leaves trifoliate. Flowers on short erect stems, solitary or 1-3, small, petals about 5 mm long, typically closed. Fruits small, red, somewhat fleshy.

Habitat: Moist woods, along streams and rivulets, foothills.

Notes: This uncommon species is known from cold wet areas such as the Palmer Divide and northern Teller County. It strongly resembles a strawberry at first glance due to the growth habit with runners (stolons) and the trifoliate leaves. The fruits are quite different, and *Rubus/Cylactis* has reticulate veins on the leaves, rather than the simple, unbranched veins of strawberry (*Fragaria*).

Another related species, *Rubus/Cylactis arctica* or *R. acaulis*, is known from surrounding areas but we do not have documented specimens from our region. It has large deep rose purple flowers, and the vegetative shoots are fairly short, appearing erect and not very stoloniferous. The raspberry fruits are unmistakable.

Sanguisorba “burnet”

The leaves of this species look a bit like those of *Potentilla*: pinnately compound with oblong leaflets. However, the flowers are very different, and easily distinguish the genera.

Sanguisorba minor Scopoli

Plants herbaceous, stems to 40 cm. Leaves pinnately compound, leaflets oblong, generally ca. 1 cm or less. Flowers usually unisexual, individually tiny, lacking petals, sepals four, greenish, occurring in short oblong short spikes that may appear even rounded.

Habitat: Occasional in southern El Paso County, locally common at Fort Carson, disturbed plains and meadows.

Notes: An adventive species, otherwise unusual in Colorado but thriving here and possibly spreading around Fort Carson.

Sibbaldia

Sibbaldia procumbens L.

Plants usually prostrate or spreading mats, leaves compound, 3-foliolate, bluish-green, leaflets oblong-cuneate with toothed upper edge. Flowers tiny, yellow, appearing greenish as petals are shorter than the green sepals.

Habitat: Snow accumulation areas in subalpine forests and alpine tundra.

Notes: This is a nondescript but common species of the upper elevations, wherever snowbeds occur. Look for the characteristic leaves: 3 wedge-shaped leaflets with a strongly toothed upper margin.

Sorbus “mountain ash”

Sorbus scopulina Greene

Plants small trees, to ca. 5 m in height. Leaves pinnately compound, leaflets lanceolate to oblong, toothed, usually pointed at the apex, and fairly narrow, to ca. 8 cm. long. Flowers white, in a cluster (a cyme, somewhat flat topped). Fruits bright orange, appearing berry-like, but actually a pome (like an apple).

Habitat: Wet canyons of the foothills.

Notes: An uncommon species in our region or at least undercollected. It is known from the wet canyons outside Colorado Springs; the regional distribution is uncertain. Mountain ash is easiest to see in the late summer when the brilliant orange berries stand out.

Rubiaceae: Madder Family

This diverse family is generally tropical, and very diverse. It includes such different kinds of plants as coffee (*Coffea*), quinine (*Cinchona*), gardenias (*Gardenia*) and madder (*Rubia*, a famous dye plant for which the family is named). Our single representative genus is *Galium*, bedstraw, once used to stuff mattresses.

Galium “bedstraw”

Galium is an easily recognized genus, with square stems that carry prickles that are “retorse” or hooked backwards, tiny 4 parted flowers with inferior ovaries, and whorls of leaves. The stems are weak and trailing, and plants look somewhat matted. The number of leaves per whorl and the shape of the leaves, are important for telling species apart. Look also for whether or not the ovaries (becoming fruits) are hairy or not.

Galium aparine L.

Plants with at least 6 leaves in each whorl, leaves narrowly oblanceolate, ca. 5 mm broad, with a hyaline (clear) point at the tip; flowers whitish, stems noticeably hairy.

Habitat: Thickets, streamsides, disturbed areas in grasslands and along trails; plains to middle elevations.

Notes: Adventive species naturalized widely in our area. Look for the many leaves per whorl and their relatively narrow shape. This is most similar to *G. spurium*, which occurs in similar habitats but has even narrower leaves, yellowish green flowers, and only slightly hairy stems. Some botanists consider these two species to be the same.

Galium pilosum Ait.

Plants with 4 leaves in each whorl, stems usually pilose (with long hairs), leaves relatively broad, ovate to somewhat elliptical in shape, usually hairy; flowers whitish to greenish white, fruits with bristles hooked at the tip. Growth habit somewhat tufted with basal branches.

Habitat: Open areas among oak thickets.

Notes: This eastern species has been found once only in the region around Beulah in Pueblo Co. It has an unusual growth habit, with basal branches emerging from a tuft; it is distinguished from the very common *G. septentrionale* by growth habit, the much broader leaves, and the fruits with hairs that are hooked at tip.

Galium mexicanum Humboldt

Plants with at least 6 leaves in each whorl, leaves broadly elliptical, ca. 1 cm wide, with a sharp point at the tip; flowers purplish, ovaries with short hairs curving over the fruit, with the hook beginning from the base.

Habitat: Moist shady canyons and slopes of the foothills.

Notes: Quite rare in our region. This species is most similar to *G. triflorum*, which is relatively common in similar habitats. Look for the purplish flowers and curved hairs over the fruits in *G. mexicanum* while *G. triflorum* has whitish flowers and white spreading hairs hooked only at the tip.

Galium septentrionale Roemer & Schultes

Syn. *Galium boreale*

Plants with usually 4 leaves in each whorl, leaves very narrow, ca. 1-2 mm wide, blunt at the tip; flowers white, occurring in a pyramid-like inflorescence, fruits glabrous to hairy with straight hairs not hooked at the tip.

Habitat: Woods, thickets, meadows, foothills to upper elevations.

Notes: An extremely common species here. Look for the narrow leaves, 4 to a whorl, and white flowers.

Galium spurium L.

Plants with at least 6 leaves in each whorl, leaves narrowly lanceolate, ca. 3 mm broad, with a hyaline (clear) point at the tip; flowers yellowish-green, stems glabrous.

Habitat: Thickets, streambanks, disturbed areas in grasslands and along trails; plains to middle elevations.

Notes: Adventive species, very common in our area. See notes above for distinguishing this species from the similar *G. aparine* and option of considering them the same species.

Galium trifidum L.

Plants with 4 leaves in each whorl, stems trailing along the ground, leaves somewhat oblong in shape, flowers whitish, fruits lacking hairs.

Habitat: Wet meadows, willow bogs, middle to upper elevations.

Notes: Look for the wetland habitat, and the weak, slender stems, along with the broader leaves than in *G. septentrionale*, which prefers drier habitats.

Galium triflorum Michaux

Plants with 6 leaves in each whorl, stems somewhat sprawling, leaves broadly elliptical, ca. 1 cm wide, with a pointed tip; flowers whitish, ovaries with white spreading hairs, hooked at the very tip.

Habitat: Cool, shady, moist foothills canyons to middle elevations.

Notes: Most similar to the rare *G. mexicanum*, but with whitish flowers and different hairs on the fruits (use a lens). This species is not rare, but occurs only in cool moist habitats, especially along streambanks and rivulets.

Galium verum L.

Plants with 6-12 leaves in each whorl, erect. Leaves linear, minutely hairy. Flowers bright yellow, fading to cream. Ovaries lacking hairs.

Habitat: Dry disturbed gravel soil. Known from the Air Force Academy and possibly spreading elsewhere in the region.

Notes: Adventive species likely to be one that spreads aggressively if allowed to persist.

Rutaceae: Citrus or Rue Family

We normally think of the citrus family, home of oranges, lemons, grapefruits, and their relatives, as subtropical-indeed, many of its representatives are native to more southerly latitudes than ours. However, the family is quite diverse, and includes not only the herbaceous medieval herb rue (*Ruta*) but also two representatives of our region as well. The family can often be recognized by its aromatic leaves with translucent glands that are the oil-bearing components of the cells.

1. Plants woody, occurring as tall shrubs or small trees, leaves trifoliate (leaflets in 3's, like box elder).
.....*Ptelea*
1. Plants mostly herbaceous, suffrutescent only at base, leaves entire, linear.....*Thamnosma*

***Ptelea* "hoptree"**

Ptelea trifoliata L.

Plants a tall shrub to 3 m; leaves alternate, trifoliolate, leaflets elliptical to ovate. Flowers with 4-5 greenish white petals, sometimes unisexual and bisexual on the same plant; fruit a yellowish, ovate, dry samara (somewhat like penny cress, *Thlaspi arvense*).

Habitats: canyons, hillsides and valleys, lower elevations to foothills, southern portion of our region.

Notes: Very common shrub in Fremont and Pueblo Counties, dropping out in El Paso Co. along CO115 near Aiken Canyon. Look for the 3-leaflets and distinctive round fruits with transparent edges.

Thamnosma

Thamnosma texana (Gray) Torrey

Plants herbaceous with a woody base; less than 30 cm tall. Leaves linear, 5-15 mm wide, strongly gland-dotted and aromatic. Flowers with 4 petals and 4 sepals; fruits distinctive: glandular, and lobed like a deeply incised heart with narrow lobes or a pair of pantaloons ("Dutchman breeches").

Habitat: Known only from 1 historical record of over a century ago in Canon City on "Soda Springs ledge"; the site has been destroyed and the species is likely to be extinct now.

Notes: Look for the glandular aromatic foliage and distinctive fruits. Somewhat superficially similar to the common *Menodora scabra* (Oleaceae), which lacks the aromatic glandular foliage and very different fruits: like 2 separate eggs, each with a lid.

Salicaceae: Willow Family

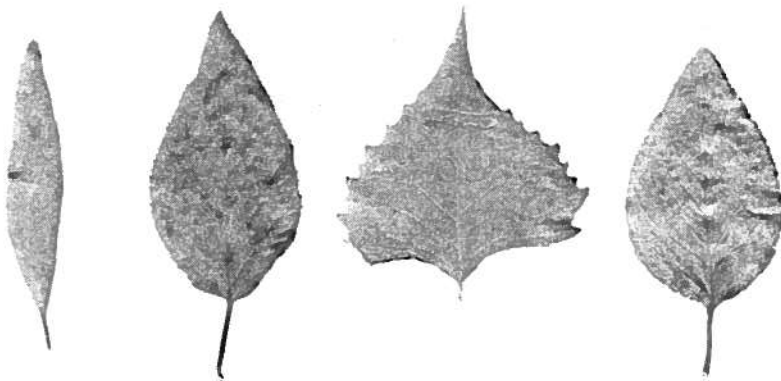
This family is widespread and common in wet areas around Colorado. It includes the species-rich willow genus (*Salix*), as well as *Populus*, the genus that includes cottonwood species and aspen. This group always indicates soil moisture, growing either around ponds or streams, or indicating some subsurface irrigation. The species (and even some tree willows versus cottonwoods) can be tricky to tell apart: look for characteristics of the leaves and the habitat, and for willows, early aspects of the female catkins (the familiar pussy willows of spring that come out before the leaves).

Key to the Genera

- 1. Bud scales overlapping, typically somewhat to strongly sticky resinous, catkins hanging downward.....*Populus*
- 2. Bud scales single, not overlapping, not resinous, catkins usually (but not always) upright.....*Salix*

***Populus* "cottonwood, aspen, poplar"**

This genus would be familiar to most living in the northern portions of the country, and all Coloradans would recognize our familiar aspen. Narrowleaf cottonwood can be a look-like for both peach-leaf willow (*Salix amygdaloides*) and crack willow (*S. fragilis*), with which they share a habitat. Look carefully at the bud scales and if present, the catkins, to be sure you are in the right genus! The species in *Populus* can be determined by their characteristic leaf shapes in conjunction with habitat.



Left to right: *P. angustifolia*, *P. X acuminata*, *P. deltoides*, *P. balsamifera*

Populus X acuminata Rydberg

Plants trees to 15 m; leaf blade to 6 cm wide, broadly ovate with a prominently extended tip, margins finely toothed.

Habitat: Lower canyons of the foothills and stream courses along the plains at higher elevation sites. Also known from the Black Forest.

Notes: This species is a common and apparently stable hybrid between *P. deltoides* and *P. angustifolia*. Look for its characteristic extended leaf tip, and leaves that are broader than in *P. angustifolia* but without the toothed margins of the plains cottonwood. It commonly occurs where the two parent species co-occur. While the leaf shape is similar to that of *P. balsamifera*, that species occurs at higher elevations.

Populus angustifolia James

Plants trees to 15 m; leaves to 3 cm or less wide, lanceolate, margins finely toothed.

Habitat: Plains, mesas to the lower montane, along stream courses and wet areas.

Notes: Look for the characteristic narrow leaves of this “narrowleaf cottonwood”. It is abundant at the lower elevations; because of the leaf shape, it can resemble *Salix fragilis* or *S. amygdaloides* with which it shares a similar habitat. In addition to the bud character that distinguishes willows from cottonwoods, look for the branches of crack willow (*S. fragilis*) that break readily and the pale undersides of the leaves in peachleaf willow.

Populus balsamifera L.

Plants trees to 15 m; leaf blade to 6 cm side, broadly to somewhat ovate, tip extended, margins finely toothed. Leaf buds prominently sticky resinous and aromatic of balsam.

Habitat: Montane zones, usually in cool, moist regions but not necessarily occurring along watercourses.

Notes: This species, “poplar” of some northern states, is uncommon in our area, known from some large groves on Pikes Peak and in scattered areas of Teller and Park Counties. The sticky buds are characteristic, and the leaves are darker green than other species of *Populus*.

Populus deltoides Marshall

Plants trees to over 25 m; trunks with thick corky bark, often with multiple stems, some dead; leaf blades deltoid triangular to ovate, thick and leathery, especially in age, margins broadly toothed.

Habitat: Lower elevations, along permanent streams on the floodplain and in ephemeral watercourses and drainages.

Notes: This tall, distinctive tree is common along remaining waterways of the lower elevations. The trunks can become very broad and often rejuvenate off side shoots. Look for the large triangular leaves with noticeable big teeth on the margin.

Populus tremuloides Michaux

Plants to medium trees, usually to 20 m but sometimes taller; trunks typically single but plants occurring as clones in grove; leaf blades ovate or orbicular (round), usually less than 6 cm in diameter, margins toothed, petioles flat and twisted.

Habitat: Foothills to upper subalpine, disturbed areas in the forest, including burned and landslide slopes.

Notes: The famous quaking aspen is well known in Colorado. While individual trees and small groves can be seen from higher elevations on the plains and in the lower foothills, the larger groves occur in Teller County in areas where disturbance has occurred and moisture is available.

Salix “willow”

There are numerous species in this complex genus, and they can be very tricky to identify. Willows are dioecious, having separate male and female plants. Since the female pistil (catkin) characters are difficult for beginners, and often do not last long, they are not included here for identification purposes. Technical keys will always use the catkins as an identification character, so those with advanced skills should refer those for further identification aids. Habitat and leaf shape, along with some aspects of the twigs can be helpful for starting points. Common names are given since they are relatively standard.

SPECIES OF THE PLAINS AND LOWER ELEVATIONS [SEE ALSO SPECIES DESCRIBED FOR MIDDLE ELEVATIONS]

1. TREE SPECIES

Salix amygdaloides Anderson

Plants tall trees, often bent or leaning, lower trunk sometimes horizontal on ground; leaves thin, lanceolate, elliptic, to ovate, usually less than 10 cm long, margins finely serrate, tip acuminate, lower surface pale green; bark dark and furrowed.

Habitat: Common along streams, plains to lower foothills.

Notes: Look for the tree rather than shrub growth habitat and often bent trunks. Somewhat resembles *S. fragilis* but twigs do not snap at base and the leaf margins are more finely serrate. This is a native species, whereas *S. fragilis* is introduced.

Salix babylonica L.

Plants large trees, to 12 m, branches distinctively pendulous; leaves linear-lanceolate with acuminate tips, margins serrate, surfaces glabrous.

Habitat: Introduced tree, planted in gardens and lawns.

Notes: This is a horticultural species that does not seem to spread here. Look for the distinctive pendulous branches that give it the common name of “weeping willow”.

Salix fragilis L.

Plants medium to large trees, to 25 m tall; leaves thickish, lanceolate to ovate, notably toothed to coarsely serrate, slightly paler green on underside; twigs brittle, easily snapping at base.

Habitat: An adventive species that has spread and become common along watercourses in the lower elevations.

Notes: Similar to *S. amygdaloides*, but generally distinguished by the thicker leaves with more toothed margins and the brittle twigs.

2. SHRUB SPECIES

Salix exigua Nuttall

Leaves linear to linear-lanceolate, up to 15 cm, mostly entire

Plants shrubby or small trees 2-6 m, typically forming thickets spreading from rhizomes; branches reddish, usually with a thin, shredding layer of transparent bark; leaves hairy or not, grayish green, narrowly linear.

Habitat: Sandbars, streambanks, plains to lower foothills.

Notes: This is one of the most common willows in Colorado and very abundant on stream courses on the plains. Look for the distinctive narrow leaves and the thicket forming growth habit. The glabrous members of this complex have sometimes been called *S. exigua* ssp. *interior* (formerly, *S. interior*). Known as coyote or sandbar willow.

Salix irrorata Andersson

Plants shrubby, to 3 m; leaves long and linear to somewhat lanceolate, margins entire to slightly toothed, dark green above, paler below; upper surface with prominent midvein. Twigs of previous years growth with a whitish mealy “pruinose” coating.

Habitat: Along streams, lower foothills, especially in the moist canyons.

Notes: Look for the dark green leaves that are relatively narrow. This species is not rare here, but somewhat uncommon. The common name bluestem willow comes from the whitish bloom on the twigs.

Salix ligulifolia Ball

Syn. *Salix eriocephala* var. *ligulifolia*

Plants shrubby, to 2-3 m, twigs dark yellow to dark brown or black; leaves ligulate (tongue-shaped) or oblong-lanceolate, margins entire or shallowly serrulate, gland-tipped, dark green above, pale and white-glaucous beneath, reticulate on both sides.

Habitat: Streamsides, generally lower elevations.

Notes: There is some doubt about whether this species is distinct from *S. lutea*; some botanists place *S. ligulifolia* and *S. lutea* under the name *S. eriocephala*. If separated, *S. ligulifolia* has dark yellow, or more commonly reddish brown to brown or blackish twigs of the previous year, and *S. lutea* would have yellow

to yellowish gray twigs. *Salix eriocephala* goes by the name strapleaf willow; *S. lutea* and *S. ligulifolia* are typically called yellow willow.

Salix lutea Nuttall

Plants shrubby, to 2-5 m, twigs mostly yellow; Leaves lanceolate to ovate-lanceolate, acute to short-acuminate at tip, margins usually entire, otherwise similar to *S. ligulifolia*

Habitat: Streamsides, lower elevations to foothills.

Notes: See comments under *S. ligulifolia*.

Salix purpurea L.

Plants shrubby, to 4 m; leave variable in shape, usually linear to linear-oblong, margins entire to finely toothed, often purplish in color; appearing opposite as well as alternate.

Habitat: Cultivated species, established along Fountain and Monument Creeks around Colorado Springs.

Notes: Not a common species; look for the purplish cast to the narrow leaves and the unusual opposite arrangement along the stem. This is known as basket willow.

Salix matsudana, globe willow, is a tree species cultivated in the Arkansas River Valley region. It has a notable globose, or spherical, look to the crown and is easily recognizable by the profile.

SPECIES OF THE LOWER FOOTHILLS TO MONTANE [SEE ALSO SPECIES DESCRIBED ABOVE FOR LOWER ELEVATIONS]. THESE ARE ALL SHRUB SPECIES.

Salix bebbiana Sargent

Plants shrubby, to 4 m tall. Leaves elliptic to ovate, undersides light in color, hairy, upper surface dark green and lightly hairy, with veins impressed; margins entire to shallowly toothed, most leaves with a sharp gland at the tip. Catkins with long stalks under each individual flower.

Habitat: Montane valleys, marshes, and wet areas.

Notes: Look for the catkins with distinctive stalks and the impressed veins on the leaves. This is known as Bebb willow.

Salix boothii Dorn

Plants a shrub to 4 m. Leaves elliptical to lanceolate, rarely more oblong, not pale beneath, margins entire.

Habitat: Streamsides and floodplains, generally lower foothills to montane, sometimes lower elevations.

Notes: This is a very nondescript species, with few distinguishing characteristics of color or shape. It is relatively common in our area. It is known as Booth willow.

Salix scouleriana Barratt ex Hooker

Plants shrubby, to 4 m; twigs with a skunk-like odor; leaves obovate, margins entire, not toothed, lower surfaces pale green.

Habitat: Montane elevations, n forested slopes away from stream banks and wet places.

Notes: Look for the habitat away from streamsides, typically a more mesic forest slope. The skunky odor appearing with the bark is stripped away is also characteristic. This is known as Scouler willow.

SPECIES OF THE MONTANE TO ALPINE [SEE ALSO SPECIES DESCRIBED FOR MIDDLE ELEVATIONS ABOVE]. THESE ARE ALL SHRUB SPECIES.

Salix brachycarpa Nuttall/*S. glauca* L.

Plants shrubby, to 2 m. Leaves elliptic to ovate, densely pilose with long hairs, pale on lower surfaces, elliptical, usually less than 4 cm.

Habitat: Moist to mesic areas, montane to alpine zones, streams, moist meadows and rocky slopes.

Notes: The common name for this species is "grey-leaf willow". Look for the short hairy leaves of a grey green color. This species is extremely common in the upper elevations. *Salix brachycarpa* is highly variable, and dubiously distinct from *S. glauca*-some botanists treat them as a single species (under the name *S. glauca*), with the "glauca" type (petioles 5-15 mm long) occurring above treeline and the "brachycarpa" (petioles less than 5 mm long) type occurring below. The complex awaits further study.

Salix drummondiana Barratt

Plants shrubby, to 5 m. Leaves elliptic to oblong, pale on the lower surface, dark green above.

Habitat: Very wet areas, montane to lower subalpine zones, wet meadows, streams, bogs and beaver pond margins.

Notes: Look for the very wet habitat, and the dark leaves with pale undersides. Similar to *S. geeyeriana* and occurring in similar habitats, but leaves in *S. drummondiana* are over 13 mm wide, and less than 13 mm in *S. geeyeriana*. This is known as Drummond's willow.

Salix geeyeriana Andersson

Plants shrubby, to 3-4 m. Leaves linear to narrowly, oblanceolate, dark green above, pale on the lower surface.

Habitat: Montane valley bottoms, stream banks, along the edges of beaver ponds.

Notes: Similar to *S. drummondiana* (see notes on that species) but differing in having narrower leaves. This is known as Geyer's willow.

Salix glauca L.

See comments under *S. brachycarpa*. If considered a single species, *S. glauca* is the appropriate name.

Salix monticola Bebb in Coulter

Plants shrubby, 2.5-5 m ; twigs often yellow to yellow-green (noticeable especially in winter); leaves slightly serrate-crenate, elliptical to elliptical-obovate, lower surface pale, **Habitat:** Montane stream banks and floodplains in the valleys.

Look for the yellow twigs (not noticeable when dry), and dark/light leaf surfaces. This is a common species of the middle elevations known as mountain willow.

Salix planifolia Pursh

Plants shrubby, either short in the higher elevations (less than 1 m) to several m in the montane or subalpine; twigs, smooth and shiny, bright red to dark red to purple to purple-black. Leaves 4-5 cm long, shiny dark green, thick, glaucous underneath, leaf margins revolute and entire.

Habitat: Montane to subalpine zones, valley bottoms to tundra, wet meadows, bogs and seeps.

Notes: This is a very common and variable species in height; look for the shiny dark green leaves and dark red to purple twigs. This is known as planeleaf willow.

SPECIES FOUND ONLY IN SUBALPINE TO ALPINE ZONES [SEE ALSO SPECIES LISTED ABOVE]. THESE ARE ALL SHRUBBY (OFTEN LOW SHRUBS) SPECIES.

Salix reticulata L. ssp. *nivalis* (Hooker) Love et al.

Syn. *Salix nivalis*

Plants prostrate, creeping shrubs less than 0.5 m. Leaves elliptic to ovate, leaf tip mostly rounded, pale on lower surfaces, surfaces (especially lower surface) strongly reticulate (net veined).

Habitat: Tundra.

Notes: This is a distinctive species of the tundra: look for the net veined surface of the small rounded leaves. This is known as snow or netleaf willow.

Santalaceae: Sandalwood Family

This primarily tropical family is well known for its fragrant wood; our representative is an unusual member that is not woody and not fragrant. *Comandra*, with the unattractive common name of "bastard toadflax", is a hemiparasite, meaning that it lives in part off the photosynthetic capabilities of other species of plants. It attaches via its root system to other grassland species, and extracts nutrients from them.

***Comandra* "bastard toadflax"**

Comandra umbellata (L.) Nuttall

Plants low and somewhat bushy, to 20 + cm. Leaves alternate, sessile, linear to lanceolate pale green, glaucous (bluish green). Flowers inconspicuous, 3-4 mm long, with 4-5 greenish to pinkish tepals (sepals and petals that look alike).

Habitat: Plains grasslands.

Notes: A very common species, but often hard to spot due to its drab color and nondescript appearance. Look for the pale colors of the leaves and the very distinctive cortex of the root: break or cut it in half and the center core will appear bluish.

Saxifragaceae: Saxifrage Family

The Saxifrage Family is easy to recognize: its members have a distinctive style structure off the ovary with two pronged, curved styles, looking like a medieval jester's cap. This becomes more pronounced as the flowers go into fruit, but can be seen even in early flowering with a lens. Flowers have radial symmetry, with 5 separate petals, usually white or pinkish but sometimes yellow. The leaves, usually in a basal cluster, are very diverse, so really not a help at all in identification. The large and historically inclusive genus *Saxifraga* is the flagship of the family, but abundant evidence now suggests that its traditional members are mixed genetically, and should probably be considered separate genera. For ease in keying, all the former species in *Saxifraga* are placed into a single genus, but the subdivisions are included as reference; it seems likely that at least some will become well recognized in the future. The genus *Parnassia*, grass of Parnassus (not a grass!) is sometimes placed in its own family, the Parnassiaceae.

Key to the Genera

1. Plants with 4 or 5 fertile stamens (sometimes with staminodia, sterile stamens, between these).....2
1. Flowers with 10 fertile stamens.....4
2. Clusters of staminodia between fertile ones, flowers solitary, leaves entire.....*Parnassia*
2. Stamen all fertile, flowers occurring clusters (spikes or racemes), leaves toothed.....3
3. Petals trifold, pinnatifid or lobed.....*Mitella*
3. Petals entire.....*Heuchera*
4. Leaves compound, deeply palmately lobed, often divided into separate leaflets.... *Saxifraga* (*Muscaria*)
4. Leaves simple, entire, toothed or lobed.....5
5. Leaves kidney shaped, margins crenate, plants growing in large clumps, flowers large, showy, with rose pink petals, clawed (narrowed) at base.....*Telesonix*
5. Plants not as above.....6
6. Flowers yellow.....*Saxifraga* (*Hirculus*)
6. Flowers white or pink.....7
7. Plants forming mats, leaves evergreen, linear.....*Saxifraga* (*Ciliaria*)
7. Plants not mat-forming, leaves otherwise.....7
8. Plants with basal leaves only.....*Saxifraga* (*Micranthes*)
8. Plants with at least some stem leaves, these often reduced in size.....*Saxifraga* (*Saxifraga*)

Heuchera "alumroot"

The alumroots are well known to gardeners, especially the popular species with red flowers called "coral bells". With one exception, the rare *H. richardsonii* (Richardson's alumroot), our species are relatively common and easy to identify to genus. The toothed basal leaves with long petioles are distinctive. The lookalike genus *Mitella* occurs in Park County, but might occur in wetter western or northern areas of the Pikes Peak region. It can be distinguished by the distinctive flowers petals that have small fringe-like lobes

though the leaves are virtually identical to those of *Heuchera*. The species *H. parvifolia* and *H. hallii* can be tricky to tell apart: you will need a good lens to look at flowers in prime condition and color.

Heuchera hallii A. Gray

Plants with leaf blades 1-3 cm wide, lobes coarsely denate. Inflorescence a narrow cylinder, flowers usually bright white, or somewhat greenish white to yellowish, 4-5 mm, deeply bell-shaped, sepals longer than the flowering tube, stamens not exerted.

Habitat: Rocky canyon walls and slopes, foothills through montane.

Notes: This may be one of the least common of the canyon species and is apparently restricted to the area south of Denver, notably the Platte Canyon. North of here the very similar species *H. bracteata* occurs (see note below). Look for the relatively long sepals and stamens included within the flower to be sure you have *H. hallii*. Without the flowers, the variable *H. parvifolia*, *H. hallii*, and *H. bracteata* can be very confusing (and sometimes even if there are good flowers!). *Heuchera bracteata* has a spikelike inflorescence, appearing somewhat secund (flagged, with flowers on one side); the flowers are greenish white, with stamens exerted and longer than the petals. It occurs in rocky canyons, but apparently does not occur in the Pikes Peak region.

Heuchera parvifolia Nuttall ex Torrey & Gray

Plants with leaf blades 2-6 cm wide, lobes crenate-dentate. Inflorescence highly variable, tightly capitate in alpine zones to narrow or loose spikes, especially broadening in age, often with gaps in flowers below; flowers 2-5 mm, yellowish greenish, shallowly bell-shaped, sepals shorter than the flowering tube, stamens not exerted.

Habitat: Broadly distributed from lower foothills and pinon pine zones to the alpine; also known from the Black Forest.

Notes: The upper elevation representatives are much reduced in size and have been referred to previously as *H. nivalis*, though now regarded generally as a variety of *H. parvifolia*. This species is highly variable and quite common in diverse habitats throughout the region.

Heuchera richardsonii R. Brown

Plants robust, with stems to 60 cm tall, leaf blades large, to 10 cm or more wide, shallowly lobed. Inflorescence a panicle, relatively few flowered, flowers large, appearing bilaterally symmetrical, to about 1 cm.

Habitat: Pine-grasslands, mostly known from the Black Forest north of Colorado Springs where it is uncommon.

Notes: This is a distinctive species with its large bilaterally symmetrical flowers and robust stature. Look for it on north-facing embankments with slightly more moisture, in mixed grass understory or open pine savannahs. It should be considered rare in our area.

***Parnassia* “grass of Parnassus”**

Parnassia parviflora de Candolle

Plants with stems 10-30 cm, bearing a single bractlike stem leaf, basal leaves petiolate, blade to 2 cm, ovate; flowers solitary, creamy white, to 2 cm in diameter, stamens 5, alternating with 5 sterile staminodes.

Habitat: Wet meadows and streambanks, montane to alpine; also known from the high plains around the Black Forest.

Notes: Look for the single flower and ovate, petiolate basal leaves. *Parnassia kotzebuei*, a rare species occurring in the Mosquito Range, lacks a stem leaflet, and *P. fimbriata*, not known from our region, has distinctly fringed petals.

***Saxifraga* “saxifrage”**

The common name for this historical genus comes from the words meaning “rock breaker”, a reference for the common habitat in open rocky areas. The species generally occur at higher elevations. The subgroups are given below alphabetically. Molecular genetics and very different leaf morphologies suggest strongly that these may best be considered separate genera; studies continue but both traditional and new nomenclature are given here.

CILIARIA GROUP: MAT FORMING, LINEAR LEAVES

Saxifraga bronchialis L.

Syn. *Ciliaria austromontana* (Wiegand) Weber

Plants forming low mats, evergreen; stems reddish, leaves linear, sharply pointed, stiff, with bristly ciliate margins. Flowers white, spotted with reddish-pink dots, ca. 0.5 cm in diameter.

Habitat: Shady, rocky slopes and boulder crevices, foothills to alpine.

Notes: This is a distinctive and common species of our area. Look for the often large mats hanging off steep rock faces, and looking like a robust, sharp moss.

HIRCULUS GROUP: YELLOW FLOWERS

Saxifraga platysepala Trautvetter

Syn. *Saxifraga flagellaris*; *Hirculus platysepalus*

Plants with long stolons (runners), stems to 15 cm. Leaves oblong spatulate, entire, glandular ciliate and spine-tipped. Flowers yellow, ca 2 cm in diameter.

Habitat: Tundra, rocky meadows in the alpine zone.

Notes: Look for the distinctive stolons and glandular pubescence.

Saxifraga prorepens Fischer ex Sternberg

Syn. *Hirculus prorepens*; *Saxifraga hirculus*

Plants lacking stolons, stems to 20 cm. Leaves entire, in rosettes, elliptical linear to oblong. Flowers yellow, 1.5 -2.5 cm in diameter.

Habitat: Wet bogs, subalpine and alpine zones.

Notes: Look for the rosettes of narrow leaves that lack stolons.

Saxifraga serpyllifolia Pursh

Syn. *Saxifraga chrysantha*, *Hirculus serpyllifolius*

Plants lacking stolons, stems to 8 cm, rosettes forming mats; leaves oblong ovate to spatulate. Flowers yellow, to 2 cm in diameter.

Habitat: Rocky alpine meadows.

Notes: Look for the mat-forming rosettes and lack of stolons. This is a fairly small, delicate looking plant.

MICRANTHES GROUP: STEMS WITH BASAL LEAVES ONLY

Saxifraga odontoloma Piper

Syn. *Micranthes odontoloma*

Plants robust, leaves all basal, long petiolate, blades ovate, 2 or more cm in diameter, with prominently toothed margins. Stems to 30 cm, reddish, inflorescence a loose panicle; flowers with white petals and reddish sepals.

Habitat: Streamsides, very wet areas, subalpine and alpine.

Notes: This is a common and beautiful component of upper elevation streamsides, earning the common name of "brook saxifrage". Look for the prominent toothed leaves, forming big clumps on stream edges.

Saxifraga rhomboidea Greene

Syn. *Micranthes rhomboidea*

Plants in a thick basal rosette, thick, blades rhomboid or diamond shaped with an obscure petiole; stems to ca. 20 cm, inflorescence a tight ball like cluster, flowers with white petals and greenish sepals.

Habitat: Meadows, grasslands, tundra areas, montane through alpine zones.

Notes: A common species of upper elevation grasslands; look for the characteristic tight ball of whitish flowers and the diamond-shaped leaves, earning this the common names of snowball or diamondleaf saxifrage.

MUSCARIA GROUP: LEAVES ALMOST ENTIRE, 3 LOBED TO NOTCHED JUST AT THE TOP

This group has a number of members that formerly went under an inclusive name of *Saxifraga cespitosa*. They share the characteristic of leaves that are notched or lobed (sometimes almost entire) at the top margin. There is not consensus as to whether Colorado has several species, or if we should just recognize variants as an inclusive *S. cespitosa*. Only one type is known from Pikes Peak, but others may exist in remote nooks and crannies of the peak. The complex needs further study!

Saxifraga cespitosa L.

Syn. *Muscaria monticula*; *Muscaria delicatula*

Plants low, dwarf, in caespitose clumps, stems to 6 cm. leaves with 3 lobes at the top margin. Flowers 1-4, white, to about 6 mm on less in diameter.

Habitat: Rocky areas on the tundra.

Notes: This is an inconspicuous plant, usually in rock crevices. Look for the lobed leaves.

SAXIFRAGA GROUP: LEAVES KIDNEY SHAPED, WITH 3-7 DEEP LOBES

Saxifraga cernua L.

Plants with palmately lobed, somewhat sticky leaves,; stems twisted, to about 10 cm, bearing red bulblets and a single terminal flower; flowers white, to about 1 cm in diameter, somewhat nodding.

Habitat: Wet areas along rivulets and snowmelt channels, subalpine and alpine zones.

Notes: This is an easily recognized species with its single flower and the bulblets on the stem: asexual reproductive units than can drop off and form new plants. It is sometimes called nodding saxifrage, as the single sexual flower on the top tends to droop.

Saxifraga rivularis L.

Syn. *Saxifraga hyperborean*, *Saxifraga debilis*

Plants small and tufted, basal leaves petiolate, blades heart-shaped to kidney-shaped, 3-7 lobed or toothed; stems glandular hairy, with inflorescence of 1-3 flowers; petals white or pinkish.

Habitat: Alpine tundra, wet areas along rivulets of late snowbed, under wet rocks.

Notes: Rare in our area, known only from Pikes Peak. Look for long, crinkly glandular hairs on the pedicels.

***Telesonix* “boykinia, telesonix”**

This beautiful member of the family is noteworthy for its bright magenta pink flowers that stand up in a spike above the basal cluster of rounded, toothed leaves. It is quite common on north facing rocky outcrops of Pikes Peak, but otherwise scattered and perhaps rare in other areas of Colorado up to the Wyoming border.

Telesonix jamesii (Torrey) Rafinesque

Syn. *Boykinia jamesii*, *Saxifraga jamesii*

Plants clumped, with a semi-woody base; leaves in a basal cluster, stems to about 15 cm, somewhat glandular, leaves long petiolate, round to kidney shaped, deeply and doubly dentate. Flowers rosy to magenta pink, showy, petals with long claws (narrowed at base), to about 1 cm in diameter.

Habitat: Rocky outcrops and canyon walls, foothills to alpine zones.

Notes: Look for the pink flowers, and robust clumped stems. Common across much of the higher elevations of Pikes Peak, but often in areas that are difficult to access.

“Scrophulariaceae”: Figwort or Snapdragon Family

Alas, poor Scrophulariaceae-where have you gone? The advent of molecular genetics have played havoc with some of the traditional taxonomic and nomenclatural groups with which botanists have been long familiar. One of the heavily affected families is the group once well known as the Scrophulariaceae, usually easily recognized by their bilaterally symmetrical flowers (plus some oddities like mullein, with radially symmetrical flowers), and opposite or alternate leaves. Many “Scrophs” as they used to be called, had a resemblance to the popular garden snapdragon. Genetic analyses of many different sequences have indicated that a number of genera in the former Scrophulariaceae should be most accurately placed in different families, leaving only a few remnants in this once-large group. Different treatments are still being suggested, and perhaps sometime we will have resolution and some agreement between botanists. Orobanchaceae, Phrymaceae and an expanded Plantaginaceae (aka Veronicaceae) are often indicated as the “new” families for old “Scroph” genera, but even these have some disagreements. For beginning students of botany, and even for more experienced botanists, it is difficult to show coherent recognition features for the new families-the genetic labels are hidden in the DNA. Thus, for simplicity sake and ease of keying and recognition, the genera are placed together here in a single key, along with the name or

names of the new family placement. Here is a quick summary of the new, more broadly defined, families relevant for our genera (but stay tuned-the geneticists are still working!):

Scrophulariaceae: *Scrophularia*, *Verbascum*, *Limosella*

Plantaginaceae (or **Veronicaceae**): in a wide sense also includes the families Hippuridaceae, Callitrichaceae (both treated separately here), plus *Antirrhinum* (snapdragon) *Gratiola*, *Linaria*, *Veronica*, *Plantago*, *Lindernia*, *Besseyia*, *Collinsia*, *Penstemon*, *Chionophila*

Orobanchaceae: *Orobanche*, *Castilleja*, *Orthocarpus*, *Pedicularis*, *Rhinanthus*

Phrymaceae: *Mimulus*

Key to the genera traditionally recognized under the Scrophulariaceae

1. Flowers radially symmetrical, anther bearing stamens 5.....*Verbascum*
1. Flowers appearing at least somewhat bilaterally symmetrical, anther bearing stamens
2 or 4(rarely 5).....2
2. Plants fleshy, inconspicuous, leaves linear, rooting in mud, sprawling or prostrate,*Limosella*
2. Plants not as above..... 3
3. Corollas with a spur (extended nectary behind), yellow, yellow-orange or bright
blue.....*Linaria*
3. Corollas lacking spurs.....4
4. Corolla strongly bilabiate (2-lipped), upper lip helmet-shaped, keeled or concave.....5
4. Corolla not strongly bilabiate, upper lip not as above.....8
5. Anther sacs equal, parallel, stamens 4.....6
5. Anther sacs dissimilar, separated, stamens 2 or 4 (5) flowers often with colored bracts.....7
6. Leaves opposite, toothed only (not dissected), calyx 4 toothed and becoming inflated in age...*Rhinanthus*
6. Leaves alternate or basal, generally pinnatifid (divided to midvein) in most species, calyx on 1 or 2 sides,
expanding fruit but not bladderlike.....*Pedicularis*
7. Bracts highly colored (or white), covering a modestly bilabiate corolla, upper lip (*galea*) longer than the
lower lip, plants perennial.....*Castilleja*
7. Bracts not highly colored (greenish or slightly purple), plants annual.....*Orthocarpus*
8. Corolla tiny, blue and white, hump-backed, plants minute annuals.....*Collinsia*
8. Plants not as above.....9
9. Stamens 5, 4 fertile and 1 sterile (a “staminoide”).....10
9. Stamens 4 or less, all usually fertile.....13
10. Sterile stamen a scale-like structure on corolla throat, corolla greenish yellow, open and broadly
urn-shaped.....*Scrophularia*
10. Sterile stamen an elongate, sometimes hairy (“bearded”) structure, corolla colored or white.....11
11. Corolla pinkish white, long tubular and abruptly expanded into a trumpet *Penstemon (Leiostemon)*
11. Corolla not as above.....12
12. Calyx obscurely 5-lobed, plants low, occurring on the tundra, flowers yellowish white..*Chionophila*
12. Calyx deeply 5-lobed, plants various in habitat and color.....*Penstemon*
13. Anther-bearing stamens 4.....14
13. Anther-bearing stamens 2.....15
14. Corolla greenish-yellow, open and broadly urn shaped (staminode often obscure).....*Scrophularia*

14. Corolla bright yellow, sometimes purple or reddish, occurring in wet areas.....*Mimulus*
15. Leaves basal, often occurring after flowers, corolla irregular, in dense spikes with protruding stamens.....*Besseyia*
15. Leaves occurring on stems, corolla irregular but not as above, flowers not in spikes.....16
16. Corolla 2-lipped, tubular, white and yellow.....*Gratiola*
16. Corolla 4-lipped, obscurely irregular, appearing rotate, typically blue.....*Veronica*

***Besseyia* “kittentails”**

Look for the distinctive spike inflorescence, with scale-like leaves below; the stamens protrude from the flowers. The plants may flower first, and the leaves develop later, enlarging considerably in *B. plantaginea*.

Besseyia alpina (Gray) Rydberg

Plants hairy-wooly when young, basal leaf blades rounded, cordate-ovate, margins toothed, stems 5-15 cm, with a few bract-like leaves below the inflorescence; inflorescence a dense spike, corollas 6-8 mm, deep purple.

Habitat: Alpine tundra, meadows and rocky areas.

Notes: Look for the protruding stamens on the spike, and the woolly hairs when young. In *B. alpina*, the flowers are a deeper violet than in the taller, more robust lower elevation species *B. plantaginea*.

Besseyia plantaginea (Bentham in de Candolle) Rydberg

Plants hairy when young but becoming glabrous later, basal leaves to 15 cm long, ovate to oblong-ovate, narrowly wedge-shaped at the base, stems 20-40 cm tall (sometime shorter), with bract-like leaves below the inflorescence; inflorescence an elongate spike, corollas 5-8 mm long, white to pale purple tinged.

Habitat: Pine forests, foothills, lower elevations, especially as a forest understory.

Notes: A common species, but flowers not especially showy. Look for the elongate spikes, from which the common name comes.

***Castilleja* “paintbrush”**

Paintbrushes are instantly recognizable components of the western flora: bright, cheerful, and truly a paintbrush of colors from the colored bracts that surround the otherwise drab flowers (look closely inside to see these). While some are relatively easy to identify to species, they do hybridize and the upper elevation species can be particularly challenging when they occur as hybrid swarms! Most of our species are widespread, so check different groups in the divisions below. The elevational segregation can blur in certain areas.

EARLY SPRING BLOOMING SPECIES OCCURRING ONLY ON THE PLAINS AND LOWER GRASSLANDS

Castilleja sessiliflora Pursh

Plants with pale yellowish or greenish white bracts, leaves linear.

Habitat: Grasslands, lower elevations.

Notes: This is one of the first wildflowers to bloom in the spring; most common in the southern portion of our region. Look for the pale flowers and linear leaves.

PLANTS OCCURRING ON THE PLAINS AND INTO THE FOOTHILL GRASSLANDS (LATE SPRING INTO FALL)

Inflorescence Red-Orange

Castilleja integra Gray

Plants growing in low clumps, to 25 cm tall. Leaves divided into narrow segments, lower leaves entire. Bracts orange or orange-red.

Habitat: Grasslands, open rocky or gravelly areas, plains and lower foothills.

Notes: This is one of our most common species, widespread through the region and remaining in bloom throughout the growing season. It tends to be lower and clumpier than *C. miniata* and is the dominant representative at lower elevations.

Castilleja angustifolia (Nutt)G. Don

Syn. *C. chromosa*

Plants growing usually as single stems, not obviously clumped. Leaves divided into narrow linear segments, sometimes entire or further cleft. Bracts red to red-orange.

Habitat: Forested areas, grassland openings, montane, lower foothills.

Notes: Typically more red than orange, possibly hybridizing with *C. miniata*. Bract segments are fairly broad in this species, unlike *C. linariaefolia* where they are narrow; the leaves are deeply cleft into narrow segments-in *C. miniata* these segments are broader.

PLANTS OCCURRING IN THE MIDDLE TO UPPER ELEVATIONS (EARLY TO LATE SUMMER OR FALL)

Inflorescence Red-Orange (generally montane to lower subalpine)

Castilleja linariaefolia Benth

Plants tall and somewhat slender, stems branched. Leaves with very narrow segments. Bracts scarlet, showy, segments also narrow.

Habitat: Montane zone, forested areas and openings.

Notes: The narrow leaf and bract segments and scarlet bracts are distinctive.

Castilleja miniata Douglas ex Hooker

Plants tall, to 1 m, stems not prominently branched, but sometimes so above. Leaves entire or lobed, with relatively broad segments. Bracts red to orange red, segments lobed.

Habitat: Montane zone, forested areas and openings.

Notes: In our area, usually more tending towards orange than scarlet. Very common in the early to midsummer, but blooming into the fall in moist areas.

Inflorescence Yellow (upper montane, subalpine to alpine)

Castilleja occidentalis Torrey

Plants relatively low, to 20 cm, somewhat clumpy. Leaves with narrow segments. Bracts yellowish, sometimes with red streaks.

Habitat: Alpine tundra and meadows.

Notes: Look for the shorter stature of this species and the exclusively high elevation habitat.

Castilleja sulphurea Rydberg

Plants to over 20 cm, appearing tall and somewhat slender, not clumped. Leaves with narrow segments. Bracts yellowish.

Habitat: Upper montane elevations to subalpine or lower alpine.

Notes: Difficult sometimes to separate from *C. occidentalis*, but generally taller, appearing slender and upright. *Castilleja sulphurea* can occur at lower elevations than *C. occidentalis*, which is exclusively a high elevation species.

Inflorescence Rosy Pink

Castilleja rhexifolia Rydberg

Plants growing in clumps, with erect stems to ca. 20 cm tall. Leaves entire, sometimes slightly lobed into narrower segments. Bracts distinctly rosy pink.

Habitat: Subalpine to alpine, forest openings and tundra.

Notes: In its pure form, this is an easy one to recognize, with its unique rosy pink color. It does hybridize with the other species of upper elevations, and beautiful color arrays can occur.

***Chionophila* “snowlover”**

Chionophila jamesii Benth

Plants low, somewhat tufted, stems to about 8 cm. Flowers in a 1-sided (“secund”) cluster, whitish to creamy, tubular.

Habitat: Tundra meadows, usually in somewhat moist areas, near snowmelt or rivulets.

Notes: An inconspicuous species, uncommon on Pikes Peak but more common in other alpine areas of Colorado. This looks like a miniature, clumped, white-flowered penstemon.

***Collinsia* “blue-eyed Mary”**

Collinsia parviflora Douglas in Lindley

Plants annual, very inconspicuous, less than 5 cm tall. Leaves opposite or somewhat whorled, somewhat glandular and purple tinged. Flowers minute, ca 3 mm long in a whorl above or solitary, corolla hump backed, white to pale blue.

Habitat: Open gravelly areas, lower elevations through montane.

Notes: This species is so inconspicuous it is often overlooked, but is relatively common and often abundant when found. Look for the tiny humpbacked flowers.

Gratiola “hedge hyssop”

Gratiola neglecta Torrey

Plants annual, stems to 20 cm, leaves 1-5 cm long, linear to oblong, opposite. Flowers solitary on axillary pedicels, calyx deeply 5-cleft with narrow divisions. Corollas tubular to funnel shaped, 8-12 mm long, yellowish white, somewhat 2-lipped.

Habitat: Wet muddy areas, lower elevations to foothills.

Notes: Adventive species that is uncommon or overlooked in our region. Wet areas around check dams or cattle ponds are likely habitats. This looks like an odd monkey flower (*Mimulus*), with less strongly bilabiate (two lipped) flowers.

Limosella “mudwort”

This is one of those common but inconspicuous “mud annuals” that occur around beaver ponds, cattle wallows, and along muddy stream banks. The succulent leaves occur in a rosette and are narrowly spoon shaped.

Limosella aquatica L.

Plants tiny, to a few cm tall, sprawling with stems sometimes containing leaf rosettes off stolons. Annual or possibly perennial. Leaves linear to spoon-shaped, fleshy. Flowers white, tiny, to 2 mm long, on axillary pedicels.

Habitat: Mud flats, around ponds and streamsides, generally montane to subalpine but also to lower elevations, especially in the Black Forest.

Linaria “toadflax, butter and eggs”

Linaria canadensis Dumont de Cours var. *texana* (Scheele) Pennell

Syn. *Nuttallanthus texanus*

Plants annual or biennial, stems erect but often with prostrate side shoots, leaves linear, scattered on the stem. Flowers blue to bluish white, in slender racemes, spurred.

Habitat: Grasslands, often in disturbed areas, higher elevations on the plains, Black Forest. It is now common in burn areas of the Black Forest.

Notes: The spurred blue flowers and annual growth habit are easy recognition characters. Unlike the other representatives of *Linaria*, it appears to be native and is not a problematic weed.

Linaria dalmatica (L.) Mill.

Syn. *Linaria genistifolia* ssp. *dalmatica*.

Plants perennial, rhizomatous, stems to over 1 m. Leaves broadly ovate to ovate lanceolate, alternate but sometimes appearing opposite. Flowers yellow, sometimes with reddish streaks, spurred, to 3 cm long.

Habitat: Grasslands, roadsides, disturbed areas, spreading rapidly from the lower elevation mesas to the montane zone.

Notes: This is one of our noxious weeds that is aggressively spreading throughout the area, especially into the foothills. It has the distinctive butter and eggs spurred flowers of the very common *L. vulgaris*, but can be distinguished by its robust appearance and much broader leaves.

Linaria vulgaris P. Miller

Plants perennial, rhizomatous, stems to 80 cm, often forming dense patches. Leaves narrowly linear, alternate. Flowers yellow and orange, spurred, in dense racemes, to 2 cm long.

Habitat: Grasslands, oak thickets, roadsides, forest understory, plains to montane zone.

Notes: This is one of our most prevalent noxious weeds, spread throughout much of the region. Although with attractive “butter and eggs” flowers, it forms large patches that preclude the growth of other native

species. It often grows with the increasingly common *L. dalmatica*, but can be distinguished by its linear leaves and more delicate appearance.

Mimulus “monkeyflower”

The monkeyflowers are a readily identified component of wet areas: look for the opposite leaves and classic “snapdragon” (strongly bilabiate 2-lipped) flowers. Our species are mostly yellow but two rare species are reddish or purplish. The larger yellow flowered species (*glabratus*, *guttatus* and *floribundus*) can be difficult: look closely at the calyx lobes!

Mimulus breweri (Greene) Coville

Plants minute, stems only a few cm with few leaves, mostly cotyledons and clustered bracts above subtending a tiny purplish red flower, less than 1 cm long.

Habitat: Wet moss.

Notes: This species is undoubtedly rare in our area, known only from a single old collection in Mueller State Park. The diminutive size and purplish flowers are diagnostic.

Mimulus floribundus Douglas

Plants with yellow flowers extending on long pedicels from the leaf axils, flowers usually with red dots inside; calyx lobes equal, inflated at maturity. Plants somewhat clumped, often in rock crevices. Leaves ovate to triangular ovate, coarsely toothed. Flowers and leaves are variable in size.

Habitat: Wet ledges and wet rocky or mossy areas, along streams, lower foothills through montane.

Notes: Look for the equal lobes on the corolla.

Mimulus gemmiparus Weber

Plants with mostly small abortive flowers, some with open flowers; leaf petiole bases modified to a pocket containing propagules that act as asexual dispersal units. Leaves ovate, plants growing typically in mats.

Habitat: Wet rock faces, montane to subalpine.

Notes: This is a rare species, and quite unusual looking with its abortive flowers and propagule packets at the leaf bases. It is most similar to *M. floribundus*, a species with fertile flowers and lacking the propagule packets.

Mimulus glabratus Humboldt, Bonpland & Kunth

Plants with yellow flowers extending on long pedicels from the leaf axils, flowers often with red dots inside, corolla less than 2 cm long; calyx lobes equal, some lobes absent. Plants typically sprawling. Leaves ovate to kidney shaped, toothed.

Habitat: Lower elevations, along streams and in swampy areas around ponds and wetlands.

Notes: This is a common low elevation species; look for the sprawling habit and the equal corolla lobes with some missing. It has smaller flowers and is generally a smaller plant than the look-alike *M. guttatus*.

Mimulus guttatus de Candolle

Plants with yellow flowers extending on long pedicels from the leaf axils, flowers often with red dots inside, usually over 2 cm long; calyx lobes equal, all present. Plants usually mostly erect, but can be stout and sprawling, rooting at the nodes. Leaves ovate, toothed.

Habitat: Wet areas, springs, pond margins, lower elevations to montane.

Notes: Very similar to *M. glabratus*, but with larger overall aspect and having all of the teeth on the corolla present.

Other species that occur adjacent to our area and possible here, though not yet documented include *Mimulus rubellus* Gray, an annual species distinguished by its small, reddish to yellow flowers and reddish stems, and *Mimulus tilingii*, a yellow-flowered alpine species with stolons and rhizomes that grows along swift streams in the mountains.

Orthocarpus “owl clover”

Orthocarpus luteus Nuttall

Plants annual, stems hairy, to 30 cm, single or branched. Flowers yellow, in spikes, almost covered by linear bracts, to 1.5 cm long. Leaves alternate, linear lanceolate, sometimes lobed or cleft.

Habitat: Montane meadows, usually in dry areas.

Notes: This is a common species of the middle elevations and Black Forest, Look for the small yellow flowers in spikes, almost hidden by the bracts.

***Pedicularis* “lousewort”**

This attractive genus has a rather unpleasant common name. It is diverse group, common in montane forests through the tundra, and at least partially parasitic, although the leaves are deep green in color. Flowers occur in spikes and are relatively large and prominent, with strongly bilabiate corollas. Sometimes the leaves can appear fernlike, and without the flowering stem, can be mistaken for a fern clump! The *galea* of the flower (upper lip) can be distinctive as well.

FLOWERS PINK TO REDDISH PURPLE

Pedicularis crenulata Bentham in de Candolle

Plants with shallowly toothed leaves; stems 10-30 cm, pubescent, inflorescence with leafy bracts, flowers reddish purple, galea not beaked but with 2 small teeth at tip.

Habitat: Wet meadows, montane to subalpine.

Notes: Look for the flower color, the shallow teeth on the leaves, and the pubescent stem.

Pedicularis groenlandica Retzius

Plants with deeply pinnatifid leaves; stems 20-50 cm tall, purplish, inflorescence with a long spike, flowers pinkish purple, galea strongly curved like an elephant's trunk.

Habitat: Wet meadows, montane to alpine.

Notes: Look for the characteristic long curved beak on the flower that gives this common species the name of “elephantilla”.

FLOWERS YELLOWISH TO WHITISH (SOMETIMES WITH REDDISH STREAKS)

Pedicularis bracteosa Bentham ssp. *paysoniana* (Pennell) Weber

Plants with deeply, often doubly, pinnatifid (divided to the midvein) leaves; stems less than 1 m tall, inflorescence to 30 cm long, flowers yellowish, ca. 2 cm long, galea erect, curved near the tip.

Habitat: Cool conifer forests (usually spruce and Douglas fir) of the middle elevations.

Notes: This species is shorter than *P. procera* and the flowers are smaller. The leaves are “fern-like” (deeply divided).

Pedicularis canadensis L. ssp. *fluviatilis* (Heller) W. A. Weber

Plants with simple but pinnatifid leaves, divisions lobed or divided; stems to 45 cm, inflorescence woolly hairy, short and capitate when in flower but elongating in fruit, flowers yellowish, ca. 2.5 cm long, galea arched, with 2 small teeth near the tip.

Habitat: Moist forests, foothills to montane.

Notes: This is a common species of the mid-elevation forests. Look for the capitate hairy inflorescence and the relatively short stems.

Pedicularis parryi A. Gray

Plants with simple but pinnatifid leaves, divisions lobed or divided; stems to 45 cm, inflorescence glabrous, elongate in flower, flowers yellowish, ca. 2 cm long, galea curved downward near the apex, beaked.

Habitat: Conifer forests, montane to subalpine.

Notes: Look for the elongate spike that lacks hairs.

Pedicularis procera A. Gray

Syn. *Pedicularis grayi*

Plants with deeply and doubly divided fernlike leaves; stems to 1 m tall, inflorescence an elongate spike, flowers yellowish often with reddish streaks, ca. 3.5 cm long, galea curving downward and somewhat hood-like.

Habitat: Forests of the middle elevations, foothills to montane.

Notes: This is a tall, sturdy plant, big in every respect. The leaves are very fern-like, and can be mistaken for a fern when there is no flowering spike.

Penstemon “penstemon, beardtongue”

Penstemons represent a genus endemic to western North America, one of our most beautiful, striking and diverse wildflowers. These species have been discovered by gardeners, and the already abundant species ranks have been expanded by horticultural varieties. Penstemons are usually very easy to recognize to genus, a spike of colorful, snapdragon like flowers, but the diversity of species can pose some problems. Our representatives are relatively straightforward, and can be slotted to species by using a variety of characters: color and size of flowers, aspects of the leaves (margins, glaucous or green), color and type of hairs on stamens or the “staminoid” (a sterile stamen, in addition to the fertile 4), habitat (including elevation and soils) and blooming time. Please look carefully, especially inside the flowers, and work with all of these characters for identification purposes. In the following descriptions, early summer is roughly May-June, mid Summer is June-July, and late summer late July to August or September.

Penstemon albidus Nuttall

Plants with white flowers, sometimes tinged with purple, glandular inside. Stems 15-30 cm, clumped, leaves somewhat rough or sandy to the touch.

Habitat: Gravelly or sandy soils, lower elevations.

Notes: Look for the white flowers with glandular hairs inside and the rough leaves. Blooming early summer.

Penstemon ambiguus Torrey

Syn. *Leiostemon ambiguus*

Plants with pink to whitish flowers, tube long and narrow and expanded abruptly. Stems to 50 cm, woody at base, leaves filiform (extremely narrow).

Habitat: Sandy soils, plains.

Notes: This distinctive species is relatively common on the sandy plains; the long narrow tubular flowers and the woody base of the stem has suggested to some that it be put into a separate genus *Leiostemon*, but genetic analyses place it within *Penstemon*. Look for the narrow filiform leaves and the unusual flowers.

Penstemon angustifolius Nuttall ex Pursh

Plants with sky blue flowers in a congested inflorescence that is not distinctly 1-sided; staminode (sterile stamen) with golden hairs. Leaves generally quite narrow, somewhat glaucous, stems to 30 cm.

Habitat: Gravelly or sandy soils, plains to lower foothills and mesas.

Notes: This is one of the first penstemons to bloom in early summer, often in late April or May. Generally it is easy to recognize with the narrow leaves and light blue flowers. An enigmatic taxon, usually called *P. angustifolius* ssp. *caudatus*, is allied with it, and occurs in our region in sandy soils of the plains. It is much stouter, taller has broader leaves and the upper bracts are tailed (“caudate”). Until further investigation, it is left under this name, but it quite possibly a distinct species.

Penstemon auriberbis Pennell

Plants with pale lavender flowers containing long, noticeable, golden orange hairs inside; stems usually fairly short, to 20 cm but taller with abundant moisture. Leaves narrow, somewhat tufted at base.

Habitat: Sandy, gravelly, and clay-rich soils, plains to mesas.

Notes: The narrow leaves, light lavender flowers, and especially the prominent golden “beard” on the corolla throat are key characters. This species is very abundant in Pueblo and Fremont Counties, and occurs infrequently on mesas and high plains of the Colorado Springs area. Blooming early summer.

Penstemon barbatus Torrey

Plants with brilliant red flowers in a long spike, lower lip of corolla reflexed (bent back). Leaves long and linear, stems to almost 1 m tall.

Habitat: Rocky areas, foothills to montane.

Notes: The brilliant red color of this species makes it stand out; it mimics the color and habit of scarlet gilia in the Polemoniaceae. This is a common garden species and may be somewhat naturalized in some areas. Our native plants are generally on rocky outcrops of the foothills. Blooming mid to late summer.

Penstemon brandegei (T. C. Porter) T. C. Porter ex Rydberg

Plants with very large, deep purple magenta flowers, somewhat humped or swollen in shape. Leaves broad, glabrous and deep green. Stems tall, sometimes to almost a meter, robust.

Habitat: Steep slopes, shale barrens and breaks, lower elevations, especially in the southern portion of the region. Possibly rare or at least undercollected.

Notes: This species has sometimes been put as a subspecies or variant of the very common *P. glaber*, but appears to differ substantially in habitat and certain aspects of the corolla. More study needed, but the name *brandegeei* should probably be applied to the low elevation individuals that occur in southern Pueblo Country. Blooms early summer. See also *P. glaber/alpinum*.

Penstemon caespitosus Nuttall ex A. Gray/*P. crandallii* A. Nelson

Plants mat forming, prostrate, with small bluish purple flowers containing a golden bearded staminode. Leaves linear, grayish wooly.

Habitat: Gravelly soils, montane meadows, mostly Park County but possibly Teller as well.

Notes: This species complex is difficult, but it appears that *P. crandallii* may be the best name for our representative, a distinctive mat forming species that is known from South Park, but also in scattered areas close to the Teller County border. *Penstemon caespitosus* is an all-inclusive name that covers a lot of intergrading taxa. Look for the mat forming habit, and low stems. Blooms midsummer.

Penstemon degeneri Crosswhite

Plants with dark bluish purple flowers, to 2 cm long, at ends of short stems; flowers containing whitish hairs in the throat, leaves lanceolate to 6 cm, entire, stems to ca. 40 cm or less. Stems generally lacking a basal rosette at flowering.

Habitat: Forested areas, usually in pine understory, primarily Fremont County.

Notes: This appears to be a rare species, perhaps limited to the region around Canon City. Most records are from the region west of the Arkansas River. It is a species that can be confused with *P. virens*, which is very common, has smaller flowers, and grows in patches or mats. A more difficult distinction is with *P. griffinii*, generally known from the San Luis Valley but reaching into Fremont County and the Salida area where it overlaps with *P. degeneri*. Theoretical distinctions include a basal rosette of leaves, prominent golden hairs in the throat of the corolla, and deeper ridges in the base of the corolla in *P. griffinii*. Further work will perhaps distinguish these two species more adequately. Both bloom mid summer.

Penstemon glaber Pursh

Syn. *P. alpinus*

Plants with large deep blue purple flowers, inflorescence strongly 1-sided. Stems to about 30 cm slanted, stout, leaves broad, glabrous, deep green.

Habitat: Open gravels and scree slopes, forest areas in the foothills and montane and high plains around the Black Forest on stream gravels.

Notes: This is an extremely common and noticeable species of the Pikes Peak region, especially in the open roadsides of the montane zone of El Paso and Teller Counties. It is a stout plant, with a distinctive look of the slanted stems and big robust flowers on a 1-sided inflorescence. Some botanists add a variety (*alpinum*) to cover some of the variation in the species as a whole but where our representatives fall is not clear. Blooms mid to late summer. See comments on *P. brandegeei*.

Penstemon gracilis Nuttall

Plants with pale lilac purple flowers and densely bearded staminoid, stems narrow, usually solitary, to 60 cm; leaves narrowly lanceolate, distinctly serrate with sharp teeth on the margin.

Habitat: Meadows, openings in pine forests and oak thickets, Black Forest and lower foothills of Pikes Peak, probably also western Pueblo County.

Notes: This species is easily recognized by its lilac flowers and toothed leaf margins; it is not as tall as *P. virgatus*. It is a prairie relict species, and quite uncommon here, perhaps increasingly so, and would be regarded as worthy of protection. Blooms early to midsummer.

Penstemon griffini Nelson

See comments under *P. degeneri*. This species does occur in western Fremont County, and the characteristics that separate it from *P. degeneri* are problematic.

Penstemon hallii A. Gray

Plants with widely campanulate blue-violet flowers, staminode strongly exerted, forming large mats with fairly short, sturdy stems, 20-30 cm.

Habitat: Alpine and subalpine gravels.

Notes: This is a distinctive, common, and beautiful high elevation species. Look for the matted growth habit and broadly campanulate flowers. Blooms mid to late summer.

Penstemon jamesii Bentham

Plants with lavender blue flowers, strongly glandular throughout; leaves glaucous (blue green), glandular, with widely toothed margins. Stems to 45 cm.

Habitat: Clay rich soils of the plains, southern portion of our region. No current records from Pueblo County but possibly occurring there.

Notes: This species is more common in New Mexico, and appears to be rare in time and space in southern Colorado, appearing when there has been abundant winter or spring moisture, but otherwise often not at all. Look for the glandular flowers and upper stems, and the slightly toothed on the leaves. Blooms early summer.

Penstemon procerus Douglas ex Graham

Syn. *Penstemon confertus* ssp *procerus*

Plants with small, blue-purple flowers usually less than 1 cm., calyx lobes with long pointed tips, stems to ca. 30 cm, leaves linear-lanceolate.

Habitat: Wet meadows, upper elevations.

Notes: Look for the distinctively small flowers and long pointy calyx lobes. Blooms mid to late summer.

Penstemon rydbergii A. Nelson

Plants with small blue-purple flowers in whorls, flowers less than 15 cm long, calyx lobes with ragged edges, stems to ca. 60 cm, basal leaves large and oblanceolate.

Habitat: Wet meadows, upper elevations.

Notes: Similar to *P. procerus* but taller, with larger flowers, and distinctive ragged edges on the corolla lobes. Blooms mid to late summer.

Penstemon secundiflorus Bentham ex de Candolle

Plants with pink purple to lavender pink flowers, in a strongly secund (1-sided) inflorescence, stems erect, to 30 cm. Leaves glaucous, broadly lanceolate.

Habitat: Open sandy or gravelly soils, plains to lower montane zones.

Notes: Look for the usually distinctively pinkish cast to the flowers and the strongly flagged (secund) inflorescence. Most common in the lower elevations. Blooms early summer, usually the second species to bloom after *P. angustifolius*. It is somewhat similar to *P. versicolor*, but more uniform pink, grows in more acidic gravel soils, and has a clumped rather than rhizomatous growth habit.

Penstemon strictus Bentham

Plants with dark blue-purple flowers in a 1-sided inflorescence. Stems to 60 cm. Leaves in a basal cluster, linear to elliptical, stem leave narrow and widely separated.

Habitat: Forests, meadows, roadside, montane zone. Often naturalized elsewhere.

Notes: This has become an extremely common horticultural component with an invasive nature that appears to be spreading. It is difficult to determine whether our representatives in the montane zone are native or introduced; lower elevation occurrences are almost certainly introductions. The species is

primarily one of western Colorado. Look for the tall erect stems with narrow dark green leaves and a basal cluster, darker blue-purple flowers, and hairy anther sacs. Blooms mid to late summer.

Penstemon versicolor Pennell

Plants with somewhat streaky lavender pink purple flowers, inflorescence not strongly 1-sided. Stems to 60 cm, often somewhat slanted. Leaves glaucous, broadly oblanceolate to elliptical, with a basal cluster and on the stems. Plants rhizomatous, often occurring in open patches.

Habitat: Calcareous gravels, barrens, and shale breaks, southern portion of our region.

Notes: This species occurs in the Arkansas River Valley from Canon City to eastern Colorado. The multi-colored look of the flowers and the non-flagged look of the inflorescence help distinguish it from *P. secundiflorus* which does not occur on highly calcareous habitats. *Penstemon versicolor* is rhizomatous and populations occur in patches, with individuals occurring separately from the rhizomes. This is a very striking species characteristic of the early summer flora of the barrens of Fremont and Pueblo Counties.

Penstemon virens Pennell ex Rydberg

Plants with small, blue purple flowers, leaves bright green, matted and plants occurring in wide patches, leaves often slightly toothed. Stems 20-30 cm.

Habitat: Gravelly soils, ponderosa forests and open meadows, montane elevations, foothills.

Notes: This is one of the most common species of the ponderosa pine forests, often forming striking large expanses of blue-purple flowers in the early to mid summer. Look for the patches or wide mats, the relatively small flowers, and green leaves.

Penstemon virgatus A. Gray ssp. *asa-grayi* Crosswhite

Syn. *Penstemon unilateralis*

Plants with lilac to lavender flowers in a somewhat 1-sided inflorescence. Flowers with white hairs within. Stems tall and narrow, wand-like, with very narrow leaves, to 70 cm.

Habitat: Meadows, roadsides, forest openings, plains and mesas to montane elevations.

Notes: This is a very distinctive species, often called the wand penstemon. It has a tall skinny look, with very erect stems. The pale flowers carry long hairs within. Blooms mid to late summer, Common throughout our region at a broad elevational range.

Penstemon whippleanus A. Gray

Plants with a wide range of colors, creamy white to purple to deep wine red, relatively large, somewhat bulging, over 15 cm, in a congested inflorescence. Leaves dark green, entire, stems to 60 cm or less in exposed areas.

Habitat: Subalpine to alpine meadows and rocky open areas

Notes: This species is quite distinctive, especially with its floral morphs and the common form with burgundy colored flowers, unique here for penstemon. The flowers change color with age, so some of the color morphs may represent pollination or age responses. The flowers tend to look swollen and lumpy, and a clump at the top of the stem. Blooms mid to late summer.

***Rhinanthus* “yellow rattle”**

Rhinanthus minor L. ssp. *borealis* (Sterneck) Löve

Plants annual, stems to 70 cm, 4-angled, pilose, hairs occurring in lines. Leaves opposite, linear to lanceolate, sharply toothed on the margins. Flowers yellow, in headlike spikes with leafy bracts. Calyx expanding in fruit, conspicuous and swollen.

Habitat: Meadows, montane zone to lower subalpine.

Notes: This species is uncommon in our area; look for the opposite, toothed leaves and the unusual swollen calyx that expands around the fruiting stage of the flower.

***Scrophularia* “figwort”**

This is the type, or “flagship” genus of the Scrophulariaceae. It has distinctive brownish-red flowers and square stems carrying opposite leaves that look a bit like a member of the Mint family at a superficial glance.

Scrophularia lanceolata Pursh

Plants with tall, square stems to 1 m tall; leaves triangular-ovate, opposite, with coarsely toothed margins. Flowers in a spike, greenish to reddish or yellowish brown.

Habitat: Montane zone and lower foothills, diverse habitats from meadows to gravelly slopes.

Notes: Look for the square stems, opposite toothed leaves, and odd-colored flowers.

Verbascum “mullein”

Verbascum blattaria L.

Plants biennial, producing rosettes the first year and a tall flowering stalk the second. Leaves dark green, mostly glabrous, toothed on the margins. Stems to 1.5 m, stem leaves reduced in size upwards. Flowers yellow to white, appearing slightly bilateral to radially symmetrical.

Habitat: Roadsides, disturbed areas, plains to montane.

Notes: This adventive species remains uncommon in this region. Look for the glabrous leaves, very unlike the fuzzy ones of the abundant *V.thapsus*. The two species do apparently hybridize.

Verbascum thapsus L.

Plants biennial, producing leaf rosettes the first year and a tall flowering stalk the second. Leaves very soft fuzzy, light green. Stems to over 2 m tall with sufficient moisture, stem leaves reduced in size upwards. Flowers bright yellow, appearing radially symmetrical.

Habitat: Typically roadsides and disturbed areas, but abundant throughout the region in diverse habitats.

Notes: This species is one of our most abundant weeds, a classic roadside spreader and often massive in size with multi-armed spikes of flowers.

Veronica “speedwell”

This genus, sometimes split into segregates that include *Pocilla* and *Veronicastrum* as well as *Veronica*, can be recognized by the small, blue-purple flowers that are slightly irregular and 4-lobed.

Veronica americana Schweinitz ex Bentham

Plants perennial, stems to 60 cm, erect or sprawling. Leaves opposite, 2-8 cm, blades lanceolate to ovate, on short pedicels, margins serrate with sharp teeth. Flowers in axillary clusters, 4-5 mm in diameter, blue to whitish.

Habitat: Wet muddy areas, low elevations.

Notes: This is a common low elevation species. Look for the flowers coming out of the leaf axils.

Veronica anagallis-aquatica L.

Syn. *Veronica catenata*

Plants perennial, stems to almost 1 m in length, usually sprawling. Leaves opposite, oblong-ovate to orbicular, at least upper ones sessile to clasping the stem, margins serrate to entire. Flowers on axillary clusters, 4-5 mm in diameter, bluish to purple.

Habitat: Wet muddy areas, lower elevations to montane.

Notes: Look for the round leaves that are mostly sessile (lacking petioles) or clasping the stem to distinguish this from *V. americana*.

Veronica biloba L.

Syn. *Pocilla biloba*

Plants annual, stems erect, to 20 cm tall. Leaves opposite, with short, often glandular hairs, coarsely toothed, often with reddish veins, oblong-ovate, margins toothed. Flowers in terminal racemes, bluish. Fruits a flattened 2-lobed capsule divided almost to the base.

Habitat: Fields, moist areas, disturbed areas, lower elevations to montane.

Notes: Adventive species that is becoming common in the region. Look for the distinctive 2-lobed capsules that are cleft to the base to distinguish this from *V. peregrina*.

Veronica peregrina L. ssp. *xalapensis* (Humboldt, Bonpland, & Knuth) Pennell

Plants annual, stems branched, erect to spreading, to 20 cm tall. Leaves alternate or paired, linear to elliptic, on short petioles below and sessile above. Flowers minute, ca 2 mm, born in the leaf axils. Fruit a heart shape capsule.

Habitat: Wet areas, lower elevations through montane.

Notes: Native species, common in wet stream channels and floodplains throughout the region.

Look for the heart shaped fruits, not cleft to the base, and the elliptical leaves to distinguish this from *V. biloba*.

Veronica serpyllifolia L.

Syn. *Veronicastrum serpyllifolium*

Plants perennial, stems rhizomatous, above ground portions creeping and rooting at the nodes. Leaves opposite below to alternate above, lower leaves on petioles, oblong-ovate to oval, entire to crenulate with small blunt teeth. Flowers in a terminal raceme, ca 3 mm in diameter.

Habitat: Moist mud, often along trails or streambanks, montane to subalpine.

Notes: Look for the creeping stems that root at the nodes.

Veronica wormskjoldii L.

Syn. *Veronica nutans*

Plants perennial, stems erect, to 40 cm or less. Leaves opposite, ovate to oblong, crenulate on the margin, sessile. Flowers in terminal racemes, dark blue, 4-6 mm.

Habitat: Tundra or subalpine meadows.

Notes: This is our highest elevation species. Look for the erect stems and dark blue flowers.

Veronica persica (*Pocilla polita*) is a common, sprawling garden weed; it is common here but does not appear to be naturalized or spreading outside of horticultural habitats.

Solanaceae: Nightshade Family

This familiar garden family encompasses potatoes, tomatoes, peppers, eggplant, tobacco, and petunias to name just a few popular horticultural favorites. It is known for its edible species, but also its sometimes highly toxic secondary compounds: many species have poisonous parts. The flowers are radially symmetrical with fused petals and sepals (sometimes only in the lower part); the fruit is either a capsule or a berry (a tomato is technically a berry: a fleshy, not-splitting fruit).

Key to the Genera

1. Plants low shrubs or woody vines.....*Lycium*
1. Plants herbaceous.....2
2. Plants with spines or prickles on the stem and leaves.....*Solanum*
2. Plants lacking spines or prickles.....3
3. Flowers white, very large (over 10 cm long or larger, plants sprawling).....*Datura*
3. Flowers smaller.....4
4. Flowers violet with purple veins, fruits a capsule, in spikes.....*Hyoscyamus*
4. Flowers and fruits not as above.....5
5. Flowering stalks not arising from leaf axils but from the internodes, calyx not enlarged or inflated in fruit (berry).....*Solanum*
5. Flowering stalks arising from leaf axils, calyx inflated or enlarged in fruit, sometimes covering most of the fruit (a berry).....6
6. Calyx clinging to fruit, not obviously veined, lobes open, with top of fruit exposed at maturity.....*Chamaesaracha*
6. Calyx not clinging to fruit, inflated and conspicuously veined, lobes closed, top of fruit not exposed at maturity.....7
7. Corolla yellow, flowers nodding in anthesis.....*Physalis*
7. Corolla purple, flowers erect.....*Quincula*

***Chamaesaracha* “five-eyes”**

Chamaesaracha coniodes (Moricand) Britton

Plants pubescent with simple straight hairs and glandular hairs. Flowers small, white to yellowish green, in the leaf axils. Leaves lanceolate, sessile or almost so, lobed to almost entire. Plants with stems prostrate to erect, to ca. 20 cm.

Habitat: Plains, dry prairie, often in disturbed areas.

Notes: Relatively common in the southern portion of our region; look for the straight and glandular, somewhat sticky hairs to distinguish this from *C. coronopus*, which is less pubescent and has stellate (star-shaped) hairs-use a lens!).

Chamaesaracha coronopus (Dunal) A. Gray

Plants pubescent, but sparsely so, with stellate or branched hairs. Flowers usually yellow, from the leaf axils. Leaves linear to lanceolate, lobed, sessile. Stems sprawling, widely branching.

Habitat: Plains, grasslands, sandstone rim-rock outcrops, southern portion of our region.

Notes: Look for the stellate or branched hairs; plants are not sticky pubescent.

***Datura* “jimsonweed”**

It is not clear whether our representatives of this famously hallucinogenic (and severely poisonous) plant are introduced or outliers from the southwest. *Datura* is often used in xeriscape gardens, and is easily naturalized in hot open areas such as those around Canon City -it is also known as a garden plant farther north. It is also unclear which species occurs here-our specimens seem to fall into the range of the New Mexico native *D. meteloides*, but other names such as *D. stramonium* have also been applied. We may have more than 1 horticultural species at least temporarily established here.

Datura meteloides DC

Plants annual, large and sprawling, with ovate, toothed leaves over 10 cm long. Flowers 20 cm long, white, (possibly pinkish) funnel-shaped. Fruits with sharp spines.

Habitat: Hot, dry disturbed areas of the lower elevations, southern portion of our region, especially in Fremont County. Occasionally seen in gardens or along roadsides throughout the Pikes Peak region.

Notes: No other plant in this family has the huge flowers. It is a big, coarse plant. Highly poisonous!

***Hyoscyamus* “henbane”**

Hyoscyamus niger L.

Plants annual or biennial, pubescent and often foul smelling. Leaves ovate, lobed to pinnatifid. Flowers brownish to pinkish, or greenish yellow, with a distinctive network of purple veins. Fruits about 2 cm long, in 2 spiky rows.

Habitat: Disturbed areas, plains to montane zone, adventive.

Notes: This somewhat uncommon species has rather unusual (and to some, attractive) flowers. It is toxic to people and animals if eaten, and considered to be a problematic plant. Look for the unusual coloration of the flowers, especially the purple veins, and the smell.

***Lycium* “wolfberry/matrimony vine”**

Lycium barbarum L.

Syn. *L. halimifolium*

Plants woody vines, usually climbing on fences or on other shrubs, stems often (not always) with slender spines. Leaves lanceolate, oblong or spatulate, sessile or on short petioles, in clusters. Flowers purple, occurring in the leaf axils. Fruit an orange-red berry.

Habitat: Lower elevations, including the Black Forest, Fountain Creek drainage, and occasionally around homesteads on the plains.

Notes: This is an adventive species, apparently spreading in our area. Look for the bright orange-red “little tomato” berries, and the vining, tangled growth habit. This species is not as spiny as the native one.

Lycium pallidum Miers.

Plants low shrubs to ca. 1 m, usually occurring singly. Stems and leaves pale glaucous (blue green), spiny. Leaves broadly elliptic to oblong, sessile or nearly so, in clusters. Flowers greenish to pale violet, occurring in the leaf axils. Fruit an orange-red berry.

Habitat: Alkaline clay-rich soils on the plains in the southern portion of our region.

Notes: This native species is relatively common in southeastern CO, but barely makes it to our region in the southern portions of the Arkansas and Purgatoire drainages. Look for the pale color of the leaves, the spines, and orange-red fruits.

***Physalis* “groundcherry”**

Physalis is the genus to which tomatillos, a staple of Mexican cuisine, belong. Our native representatives look like tomatillos, with the characteristic papery husk (the calyx) closely covering a small fruit that resembles a green tomato. Some species are believed to be poisonous.

Physalis hederifolia A. Gray

Plants perennial, rhizomatous, stems with long jointed hairs or mixed with short or glandular hairs. Mature calyx not sharply folded; corolla yellow with brownish throat, ca 1-2 cm long, often reflexed, anthers yellow. Leaves ovate, margins almost entire, but sometimes variable.

Habitat: Sandy or gravelly areas, plains and foothills.

Notes: This is a common species in our region. Look for the mixed pubescence (use a lens!) and (usually) lack of teeth on the margins to distinguish it from the similar *P. heterophylla*. A reflexed corolla (maturity only) is common in this species. Both are quite variable in leaf shape and other characteristics, and may be difficult to distinguish. *Physalis hederifolia* is divided by some botanists into 2 species: *P. fendleri* (*P. hederifolia* var. *cordifolia*), hairs mostly simple and not multicellular (use a lens) and *P. hederifolia* var. *comata* multicellular clearly glandular hairs.

Physalis heterophylla Nees

Plants perennial, rhizomatous, stems and leaves with dense, often sticky, pubescence. Mature calyx not folded; corolla yellow with blue or violet-tinged throat, ca. 1-2 cm, not reflexed, anthers yellow. Leaves broadly ovate, margins toothed to entire.

Habitat: Sandy or gravelly areas, plains and foothills.

Notes: This species is common in our region. Look for the dense pubescence and lack of reflexed corolla lobes to distinguish it from the similar *P. hederifolia*. These species are difficult to distinguish.

Physalis hispida (Waterfall) Cronquist

Syn. *P. pumila* ssp. *hispida*; *P. virginiana* var. *hispida*

Plants perennial, stems and leaves with stiff ascending hairs. Mature calyx not folded; corolla yellow with a brown throat, ca. 1 cm long, not reflexed. Leaves broadly ovate to oblong, margins slightly toothed.

Habitat: Sandy soils on the plains.

Notes: This species is typically low growing, and the pubescence is dense & stiff. The flowers are relatively small.

Physalis subulata Rydg. var. *neomexicana* (Rydb.) Waterfall

Syn. *P. foetens* var. *neomexicana*; *P. neomexicana*

Plants annual, stems slightly viscid glandular with capitate hairs, to 1 m. Mature calyx with 5 sharp folds, teeth acuminate; corolla yellow with blue spots, 6-7 mm long, anthers blue.

Habitat: Sandy soils, generally in the Arkansas River valley; known in our region from Fremont County.

Notes: Uncommon species here. Look for the blue anthers and the blue-spotted corolla along with the sharp folds on the calyx. Unlike the other species, this is an annual, and lacks rhizomes (these are often hard to see in the other species since they break off easily).

Physalis virginiana P. Miller

Plants perennial, stems and leaves only slightly pubescent; hairs when present retrorse (downward).

Mature calyx somewhat folded; corolla yellow with a brownish or purplish throat, ca. 1-2 cm long, not reflexed. Leaves ovate to oblong, margins entire to slightly toothed.

Habitat: Plains and lower foothills, often in disturbed areas.

Notes: This is a very common species. Look for the lack of distinctive pubescence. Some botanists consider many of the representatives of *P. virginiana* actually represent another species found only along the Front Range, *P. longifolia*. It has sparse ascending hairs, and wavy margins on the leaves.

***Quincula* “purple ground cherry, Chinese lantern”**

This genus was formerly placed in *Physalis*, but is easily distinguished by the purple rather than yellow flowers, and the greatly inflated bladder-like calyx.

Quincula lobata (Torrey) Rafinesque

Plants perennial, stems branched and sprawling, typically prostrate. Flowers bluish to purple, with conspicuous yellow anthers. Mature calyx angled, inflated around the fruit. Leaves lanceolate, margins lobed to wavy, somewhat scaly with tiny bladder-like structures (use a lens).

Habitat: Disturbed areas, sandy to gravelly soils of the plains and lower foothills.

Notes: Look for the purple flowers, inflated calyx, and sprawling habit. Although native, it is somewhat weedy, preferring disturbed ground.

***Solanum* “nightshade”**

Solanum is a large and complicated genus, abundant in the tropics. It lacks the inflated calyx that occurs in the otherwise similar *Physalis*. A number of species have poisonous compounds (including potatoes, when they are green). Color of the berries and the type of pubescence (including prickles or spines) are important features for identification.

SPECIES WITH SPINES OR PRICKLES ON STEM OR LEAVES

Solanum elaeagnifolium Cavanilles

Plants perennial, to ca. 1 m., rhizomatous. Stems with short spines, stem and leaves with dense pubescence of stellate hairs, appearing silvery. Flowers purple. Fruits orange to yellowish, sometimes black.

Habitat: Disturbed soils, often with high clay content, plains.

Notes: The silvery look to this species and spiny stems is diagnostic. Native to central U.S., but spreading here. Known in our region from Fort Carson; otherwise more common in the lower Arkansas Valley.

Solanum heterodoxum Dunal

Plants annual, to ca. 1 m. Leaves densely prickly on the petioles. Leaves and stems glandular pubescent, with some stellate (star shaped) hairs, not silvery. Flowers purple. Fruits red-orange, with a spiny calyx.

Habitat: Plains, very uncommon in our region.

Notes: This prickly species is a problematic weed on the central plains and in New Mexico. We have only a few records close to our region. Look for the spiny leaves that are deeply lobed, but not silvery.

Solanum rostratum Dunal

Plants annual, to ca. 0.5 m. Stem and leaves densely spiny. Leaves deeply lobed. Flowers yellow. Fruits blackish, with a spiny calyx.

Habitat: Very common in disturbed areas, lower elevations, especially in cultivated fields and sandy soils.

Notes: This is a very painful species to touch due to the long sharp spines all over it. These, and the yellow flowers, are key identification points. The common name is “buffalo bur”.

SPECIES LACKING SPINES OR PRICKLES

Solanum americanum Miller

Plants annual or short-lived perennial, stem bushy branched to ca. 1 m. Leaves glabrous, thin, not lobed. Flowers white, fruits black; calyx not covering part of berry at maturity.

Habitat: Disturbed ground of the plains, often weedy in cultivated fields.

Notes: A relatively common weed of the plains, especially in areas with slightly more moisture and richer soils, such as cultivated fields. Look for the glabrous, unlobed leaves, and short calyx.

Solanum physalifolium Rusby var. *nitidibaccatum* (Bitter) Edmonds

Plants annual or short lived perennial, stem bushy branched. Leaves hairy, thick, not lobed. Flowers white, fruits black; calyx covering lower half of berry at maturity.

Habitat: Disturbed sandy soil, plains.

Notes: Uncommon adventive species in our region. Look for the hairy, unlobed leaves, and calyx that covers part of the mature berry.

Solanum triflorum Nuttall

Plants annual, stem branched from the base, erect to somewhat sprawling. Leaves deeply lobed, with short pubescence to almost glabrous. Flowers white, fruits green.

Habitat: Disturbed areas, lower elevations, common the plains.

Notes: Adventive species, often occurring in cultivated fields or gardens. Look for the deeply lobed leaves.

SPECIES LACKING SPINES OR PRICKLES

Solanum americanum Miller

Plants annual or short-lived perennial, stem bushy branched to ca. 1 m. Leaves glabrous, thin, not lobed. Flowers white, fruits black; calyx not covering part of berry at maturity.

Habitat: Disturbed ground of the plains, often weedy in cultivated fields.

Notes: A relatively common weed of the plains, especially in areas with slightly more moisture and richer soils, such as cultivated fields. Look for the glabrous, non-lobed leaves, and short calyx.

Solanum physalifolium Rusby var. *nitidibaccatum* (Bitter) Edmonds

Plants annual or short-lived perennial, stem bushy branched. Leaves hairy, thick, not lobed. Flowers white, fruits black; calyx covering lower half of berry at maturity.

Habitat: Disturbed sandy soil, plains.

Notes: Uncommon adventive species in our region. Look for the hairy, non-lobed leaves, and calyx that covers part of the mature berry.

Solanum triflorum Nuttall

Plants annual, stem branched from the base, erect to somewhat sprawling. Leaves deeply lobed, with short pubescence to almost glabrous. Flowers white, fruits green.

Habitat: Disturbed areas, lower elevations, common the plains.

Notes: Adventive species, often occurring in cultivated fields or gardens. Look for the deeply lobed leaves.

Tamaricaceae: Tamarisk Family

Although an attractive plant and biologically interesting for its ability to make the most out of saline, water-limited environments, tamarisk is enormously problematic throughout its introduced range in North America. It is quickly invasive, may make a moist area uninhabitable for native species, and can form massive thickets that are difficult to eradicate on streamsides. Our representatives appear to be only a single species, although a record of an additional species, *T. parviflora*, exists for the far southeast corner of Colorado.

Tamarix "salt cedar"

Tamarix ramosissima Ledebour

Syn. *Tamarix chinensis*

Plants medium sized shrubs, to 5 m., often forming dense thickets. Leaves bluish green, scale-like, overlapping.

Flowers minute, pink, in a dense, spray-like raceme.

Habitat: Generally lower elevations and especially abundant along watercourses of the plains, but also known from montane zones to ca. 8000 ft.

Notes: This is a noxious weed that is particularly common along the Arkansas River and its drainages such as lower Fountain Creek, where the plants appear to be moving northward. The scalelike leaves and spray of tiny pinkish flowers are unique.

Typhaceae: Cattail Family

Cattails, with their flat leaves and "flowering" stalks that look like brown fat sausages, are common and distinctive components of wetlands, even small ones such as around culverts. Small ponds that dry up may become cattail marshes, home to many bird species, though often botanically uniform since the cattails rapidly out compete other plants. Some botanists place the Sparganiaceae into this family, treat here as a separate one. Cattails are known for their hybridization, so clear species identification can be difficult.

Typha "cattail"

Typha angustifolia L.

Plants with male and female portions of the spike separated by a bare portion of the stem, female spike (the "sausage") dark brown, relatively slender, less than 2 cm wide, leaves slender, to ca. 1 cm wide, upper sheaths lacking auricles.

Habitat: Wet areas, pond margins, lower elevations.

Notes: This species appears to be less common than *T. latifolia*, but more so than *T. domingensis*. Look for the narrow leaves and slender, dark brown spike. The upper leaf sheaths of *T. angustifolia* have auricles (an ear-like flap at the base) and lack brown glandular dots.

Typha domingensis Persoon

Plants with male and female portions of the spike separated by a bare portion of the stem, female spike (the "sausage") light brown, relatively slender, less than 2 cm wide, leaves slender, to ca. 1 cm wide, upper sheaths with auricles.

Habitat: Wet areas, pond margins, lower elevations.

Notes: This species appears to be uncommon, and thus far documented only from the southern portion of our region. Look for the narrow leaves and slender, light brown spike. The upper leaf sheaths of *T. angustifolia* have auricles (an ear-like flap at the base) and lack brown glandular dots; in *T. domingensis*, the sheaths are auriculate and the brownish punctate dots are visible on the leaves.

Typha latifolia L.

Plants with male and female portions of the spike not separated by a bare portion, female spikes brown, up to 3 cm thick, leaves broad, usually 2 cm or more wide.

Habitat: Wet areas, pond margins, lower elevations to montane.

Notes: This is a very common species, our most common cattail. Look for the thick female spikes and the broad leaves.

Ulmaceae: Elm Family

This family of woody plants is represented here by one native species occurring in the southern portion of our region (*Celtis*: hackberry), and one widespread cultivated and highly invasive tree species (*Ulmus pumila*: Chinese or Siberian elm). American elm, *Ulmus americana*, also occurs as a cultivated species, but does not naturalize. One recognizable trait in the family is the uneven leaf bases, where the lobes of the blade are asymmetrical. *Celtis* is sometimes placed in the Cannabaceae.

Key to the Genera

- 1. Leaves prominently reticulate (net)-veined below, bases not strongly oblique (asymmetrical), fruit round, not winged.....*Celtis*
- 2. Leaves not reticulate veined below, bases strongly oblique, fruit with wings.....*Ulmus*

Celtis "hackberry"

Celtis reticulata Torrey

Plants tall shrubs to small trees, to 8 m. Leaves to ca. 6 cm long and 4.5 cm wide, ovate lanceolate, margins usually entire, sometimes somewhat toothed, blades with prominent net veins ("reticulate") on the lower surface, often with insect galls. Fruit a round, reddish brown drupe (a stony pit inside).

Habitat: Canyons, gulches and slopes, lower elevations. Relatively common in the southern portion of our region, particularly in Fremont County, but uncommon northward.

Notes: Look for the distinctive network of veins on the lower leaf surface and the fruits that look like dry, brownish cherries.

Ulmus "elm"

Ulmus pumila L.

Plants usually a tall tree, but sometimes appearing bushy when regrowth occurs of cut or browsed stumps. Leaves variable in size, often small (to 1 cm long) under dry conditions or becoming much larger (to 6 or

more cm) in maturity or with moisture; blades ovate lanceolate, margins notably toothed. Fruits abundant, with a round papery wing.

Habitat: Abundant at lower elevations along roads, towns, and increasingly established and spreading into canyons, foothills and wetlands; occasional in the middle elevations around towns.

Notes: The leaves are usually smaller in this species than in the rather majestic and noninvasive American elm (*Ulmus americanus*); look for the asymmetrical leaf base, the toothed margins, and abundant papery fruits that cover the ground. In the winter, this species can be recognized by the blackish nubbins of buds on the woody twigs: these produce flowers appear in the early spring before the leaves appear.

Urticaceae: Nettle Family

This family is notorious for species of nettle having painful stinging hairs that deter herbivores: hairs that actually act like miniature hypodermic needles, breaking off and injecting irritating compounds into skin when touched. However, not all genera have these hairs and the family is otherwise diverse in its morphology. Its members have nondescript flowers that are small, with 4 or 5 greenish or brownish sepals and no petals.

Key to the genera

- 1. Leaves alternate, lacking stinging hairs.....*Parietaria*
- 1. Leaves opposite, stinging hairs present.....*Urtica*

***Parietaria* “pellitory”**

Parietaria pennsylvanica Muhlenberg

Plants annual, stems 10-20 cm, rarely taller, slender, weak, leaves thin, alternate, on short petioles, blades broadly lanceolate, margins entire, flowers occurring in leaf axils as small clusters.

Habitat: Growing in shade, under trees, shrubs or rocks, plains, foothills canyons, and montane zones.

Notes: This is a very nondescript and easily missed species since it tends to grow in hidden areas and as an annual, disappears later in the season. It is relatively common, however. Look for the floppy stems bearing lanceolate leaves with the cluster of flowers at the base.

***Urtica* “stinging nettle”**

Urtica gracilis Aiton

Plants perennial, stems 50 cm to 2 m, slender, sometimes branched; leaves thin, leaves opposite, with long petioles, leaves ovate-lanceolate with margins strongly toothed, surfaces with stinging hairs, flowers occurring in axillary clusters.

Habitat: Wet areas, plains to montane zones.

Notes: Leaf shape and the opposite arrangement might suggest the mint family at first glance, which it superficially resembles. However, the tiny greenish flower clusters, flower shape, and of course, stinging hairs will be distinctive.

Stinging nettle is common here and often abundant where it occurs, so learning to recognize it is a worthwhile effort since the stings, though not long lasting, are quite painful.

Valerianaceae: Valerian Family

***Valeriana* “valerian”**

Valerian is a genus with a long history of medicinal use. We have a number of species, some difficult to tell apart. Look for the lobed to compound, basal and opposite leaves, and the small, sweet scented flowers that grow in umbels. These produce a fruit with a plumose pappus on top, a tuft of hairs that helps in seed dispersal. Look at the root system to help distinguish the species (rhizome versus tap root), as well as shape of the corolla and the location of the leaves.

Valeriana arizonica A. Gray

Plants rhizomatous, stems erect, to 50 cm, leaves primarily basal, broadly ovate. Flowers to 15 mm long, funnel form with a clear corolla tube.

Habitat: Montane zone, primarily in the southern portion of our region.

Notes: This southwestern species does not appear to be common in our region; most of the records are from Fremont County. Look for the basal, ovate leaves and relatively large flowers.

Valeriana capitata Pallas ex Link ssp. *acutiloba*

Syn. *Valeriana acutiloba*

Plants rhizomatous, stems erect, to 50 cm, leaves primarily off the stems and somewhat ovate, or, if basal, spatulate. Flowers 8-10 mm long, funnel-form, with a distinct corolla tube.

Habitat: Foothills to montane zone and lower subalpine, in meadows, forests.

Notes: This is our most abundant species, relatively common from the lower foothill canyons to the upper montane or subalpine. In spite of the name, the inflorescence does not remain capitate (in a headlike cluster), but elongates in maturity and can look quite different in fruit than in early flowering. The veins are pinnate in this species.

Valeriana edulis Nuttall

Plants with thick taproots, stems erect, to 60 cm, stem leaves thick, segments somewhat narrow, basal leaves spatulate, long petiolate. Flowers ca. 3 mm long, rotate (divided nearly to the base, with no distinct tube).

Habitat: Gravelly areas, meadows, montane to subalpine zones.

Notes: Look for the thick leaves, where the veins appear almost parallel, and the taproot. Stems often break off at the ground surface, so this root can be difficult to see especially on herbarium material.

Valeriana occidentalis Heller

Plants rhizomatous, stems erect, to 80 cm tall, stem leaves ovate to lanceolate, pinnately lobed, basal leaves petiolate, elliptical to lanceolate. Flowers ca. 3 mm long, rotate (divided nearly to the base, with no distinct tube).

Habitat: Wet meadows, streambanks, montane to subalpine zones

Notes: Look for the thinner leaves than in *V.edulis* that have pinnate veins, the rhizome, and the narrow cuplike flower lacking a distinct tube.

Verbenaceae: Verbena Family

The Verbena Family contains many species whose flowers look a bit like mints or large borages, and the opposite leaves can be misleading. However, members of this family never have the strong aroma in the leaves, and close examination of the flowers shows that the ovary is not deeply lobed as it is in mints. You will need to use a lens to see this.

Key to the Genera

1. Flowers white to pale pinkish, in tight globular or cylindrical heads, stems trailing on the ground...*Phyla*
1. Plants not as above.....2
2. Flowers showy, in deep pinkish lavender, corolla tube longer than the calyx, leaves deeply cleft.....*Glandularia*
2. Flowers small, not showy, bluish to purple, leaves not deeply cleft.....*Verbena*

Glandularia “mock vervain”

Glandularia bipinnatifida (Nuttall) Nuttall

Syn. *Verbena ambrosiifolia*, *Verbena bipinnatifida*

Plants decumbent (with sprawling stems), leaves deeply cleft and toothed; flowers showy, pinkish lavender or magenta, corolla 8 mm long, calyx shorter.

Habitat: Plains, roadsides, lower foothills, especially in the southern portion of the region.

Notes: This species is common in Pueblo and Fremont Counties, and is becoming a popular xeriscape garden plant naturalized elsewhere.

***Phyla* “fogfruit”**

Phyla cuneifolia (Torrey)Greene

Plants with prostrate stems, often sprawling over large areas; leaves thick, toothed, wedge-shaped.

Flowers in dense spikes, pale pink to white, corollas ca 4 mm long.

Habitat: Plains wetlands, especially on pond margins and muddy areas.

Notes: Look for the sprawling stems with thick leaves and cylindrical inflorescence clusters of flowers.

***Verbena* “vervain, verbena”**

Verbena bracteata Cav. ex Lagasca & Rodriguez

Plants decumbent (with sprawling stems), leaves wedge-shaped, pinnately parted or lobed; flowers tiny, imbedded in leafy bracts, pinkish to white.

Habitat: Weedy, disturbed areas, especially on the plains and lower elevations.

Notes: This is a common adventive species, frequently found along roadsides and on overgrazed prairie. Look for the tiny flowers and the prominent leafy bracts.

Verbena hastata L.

Plants erect, stems to 1 meter or more tall, often branched above; leaves thin, large, to 15 cm long, lanceolate to ovate-lanceolate, petiolate. Flowers in narrow spikes, bluish to purple.

Habitat: Plains wetlands and seep areas.

Notes: This is a very distinctive species of wet areas on the plains. Look for the tall stems and the long narrow spikes of flowers, often remaining obvious even in fruit late in the season. It is fairly common, but can be an indicator species that other wetland rarities might be around in these pocket wetlands.

Verbena stricta Ventenat

Plants erect, stems to 1 m tall, sometimes branched above; leaves thin, large, to 10 cm long, ovate to oval, sessile (lacking petioles). Flowers in spikes, purple or bluish.

Habitat: Sandy dry areas in the lower elevations, open areas on the plains to ponderosa pine forests.

Notes: Look for the tall erect (“strict”) habit, the ovate sessile leaves and plants occurring in dry habitats.

Violaceae: Violet Family

True violets are familiar to everyone, and need little introduction. Who does not know “roses are red, violets are blue...” except they aren’t always! A number of species of violet (*Viola*) are white or yellow, and some of the purple-blue species lack the familiar heart-shaped leaves. A violet relative, the genus *Hybanthus* or green violet, looks nothing at all like a true violet. Throughout the world, other genera in the Violaceae would be equally surprising, as they can be trees or shrubs!

Key to the Genera

- 1. Leaves linear-lanceolate, lacking petioles, occurring along the stem only.....*Hybanthus*
- 1. Leaves mostly basal, petiolate, mostly heart-shaped, sometimes divided into segments.....*Viola*

***Hybanthus* “green violet”**

Plants erect, stems to 40 cm tall, somewhat tufted from an indistinctly woody base, Leaves linear-lanceolate, sessile, occurring along the stems. Flowers whitish to somewhat yellowish or greenish brown, often mottled, nodding, petals 2-5 mm long, occurring in the leaf axils.

Habitat: Rocky outcrops and gravelly areas of the plains, especially in the southern portion of our region.

Notes: This species can be confusing since it looks so little like our common concept of violets. Look for the mottled flowers occurring in the axils of narrow leaves off the stem. It blooms early, often in May, and seems to disappear later in the season.

***Viola* “violet”**

This genus is a confusing group of species, though very lovely. To identify them, you will need to look at a number of characteristics. These include aspects of the leaves such as hairs (and on which surface), how deeply incised the base is, whether or not the leaves are segmented, the color of the flowers, the shape and size of the spur, whether they have stolons or not, and as always, the ecology and habitat. Without good

flowers, identification of the purple-flowered species is difficult to impossible. In addition to our native species sometimes horticultural varieties can become established on a short term basis: these are typically varieties of pansy (look for multicolored flowers and divided leaves) or the English violet, *V. odorata*, with large, sweetly scented flowers, and a hooked style.

SPECIES WITH DIVIDED LEAVES

Viola pedatifida G. Don

Plants with stems to 20 cm, lacking stolons. Leaves divided into 2-3 linear segments, each usually further divided, flowers with purple petals, to 10-20 mm, not bearded (that is, lacking hairs in the throat), spur short.

Habitat: Pine forests, meadows, lower elevations to montane zone, always in at least seasonally moist areas.

Notes: Look for the divided leaves. The species is somewhat rare, though broadly distributed from the Black Forest to Teller County. It blooms early, late spring to early summer.

SPECIES WITH YELLOW FLOWERS

Viola biflora L.

Plants usually small, stems 5-10 (rarely to 20) cm, slender. Leaves kidney shaped, flowers yellow with purple streaks, usually single or sometimes 2, to 8 mm long, spur short.

Habitat: Damp to wet areas in cool foothills canyons to alpine meadows.

Notes: This species is more common at higher elevations, but can also be found in the foothills on shady wet streambanks. Look for the small yellow flowers (only sometimes are there two, in spite of the name) and the rounded kidney-shaped leaves.

Viola nuttallii Pursh

Plants usually 10 cm or less tall, sometimes to 20 cm with additional moisture, somewhat tufted. Leaves linear to lanceolate; flowers yellow, sometimes tinged with red or purple, ca. 1 cm long, spur slightly bearded, spur short.

Habitat: Plains grasslands, mesas and rocky outcrops; in some areas of Colorado to subalpine elevations but not known here above the lower foothills.

Notes: Look for the unusual lanceolate leaves. This species is treated broadly here under a single name, but some botanists recognize additional species names in the complex such as *V. vallicola* and *V. praemorsa* to correspond with somewhat variable leaf morphology, notably the width of the leaf segments.

SPECIES WITH WHITE FLOWERS

Viola canadensis L.

Syn. *Viola rydbergii*; *Viola scopulorum*

Plants with leafy well-developed stems, leaves deeply cordate (heart shaped), size variable, pubescence and color variable. Flowers white, often strongly tinged with purple.

Habitat: Middle elevations, especially in foothill canyons, on shady moist banks and streambanks.

Notes: This is a highly variable complex, sometimes treated as two species. It is very common as an understory species, and often is mixed with other species of violet as well. Look for the deeply heart-shaped leaves and white tinged with purple flowers.

Viola palustris L.

Syn. *Viola macloskeyi* Lloyd ssp. *pallens*; *Viola renifolia* A. Gray var. *brainerdii* (Greene) Fernald

Plants usually to about 10 or less tall, stoloniferous or with tufted with stolons lacking. Leaves variable, kidney-shaped, pointed or blunt at the apex; flowers white, ca. 1 cm long, spur short.

Habitat: Moist areas, streambanks of the upper elevations, from upper montane to upper subalpine.

Note: The white flowers are distinctive in this species. The leaf shape is quite variable.

SPECIES WITH BLUE-PURPLE FLOWERS

The blue-purple violets of our region pose particular challenges for identification. These species inhabit zones from the plains to the upper elevations, and in some areas, can overlap and grow together in a single zones from the plains to the alpine, and in some areas, can overlap and grow together in a single habitat! Look carefully at aspects of the flowers (in these species, the spur matters a lot!) and the leaf

characters: shape and hair location. The character of *caulescence* is important in this group: those appearing “acaulescent” have flowers off basal stalks so the stems do not appear leafy, and those that are “caulescent” have flowers off axillary stalks from the stems, so stems appear leafy. It can be difficult to distinguish stems versus rhizomes in these species, as they often grow on stream banks where the mats can be disturbed by floodwaters, and belowground rhizomes turn into apparent aboveground stolons!

Viola adunca J. E. Smith

Plants with a short tufted growth habit, appearing acaulescent when young but visibly caulescent later, lacking stolons but sometimes with slender rhizomes. Leaf base subtruncate to subcordate, usually blunt; surfaces with pubescence when young but later glabrous. Flower spur short, 3-5 mm long, tapering to a point, or more commonly, a small hook.

Habitat: Cool moist canyons of the foothills and middle elevations, often along streams.

Notes: Look for the blunt truncate leaf base (not strongly indented as in a heart) and usually, the hooked spur, though this is sometimes not strongly apparent. The name *V. labradorica* is sometimes used to refer to an arctic-alpine representative (*V. adunca* var. *minor*); the issue of how this entity relates to the rest of the complex has not been resolved genetically.

Viola selkirkii Pursh ex Goldie

Plants tufted, appearing acaulescent, lacking stolons but having slender rhizomes (which often break off). Leaf base deeply heartshaped with a narrow sinus (the cleft) and rounded basal lobes, lobes often almost overlapping, surfaces with prominent silvery hairs on the upper surface, especially on the veins and apparent when leaves are young, becoming less apparent in age. Flowers with a large (4-7 mm long) spur almost equal in length to the flowers, lateral petals beardless.

Habitat: Moist mossy ledges, typically on stream banks or sometimes steep wet slopes.

Notes: This species appears to be quite rare, but this may in part be due to its early blooming (mid May to sometimes very early June) and its habit of growing with other species so that it is hard to spot. Look for the silvery hairs on the upper surface of leaves where the deep sinus separates the almost overlapping lobes, and the enormous spur of the flower. In our area, known from the Wet Mountain front and several foothill canyons to the north.

Viola sororia Willdenow ssp. *affinis* (LeConte) McKinney

Plants with a wide range of morphologies across its range; generally tufted with acaulescent stems, lacking stolons. Leaf bases deeply cordate with a broad sinus, lobes widely separated, surfaces with hairs when young but turning glabrous in age. Flowers with a short spur (2 mm or less long), lateral petals bearded.

Habitat: Plains to middle elevations, often as an understory species in willows or other shrubs.

Notes: This is a confusing complex across North America, and may well represent hybrids. Other names in the complex include *V. pratincola*, *V. nephrophylla*, *V. papilionacea* and *V. affinis*. It has been confused with *V. selkirkii* in the past, but has distinctly more cordate leaves, lacks the long silvery hairs on the upper surface (though can have hairs scattered on either or both surfaces when young), and only a tiny spur. It seems to be most common at lower elevations.

Viscaceae: Mistletoe Family

While the mistletoes carry some glamour from their romantic symbolism (an eastern species is the familiar kissing ball of Christmas fame), they are actually parasitic, and somewhat destructive plants on our conifer species. They are vascular plants, technically related to the rest of the angiosperms, but so reduced that you will not recognize familiar looking flowers! There is little to see, except the pale stalks that protrude from woody stems of conifers, and the resulting cellular disruption that provides us with the “witch’s broom” of distorted, clustered, branches. Since the characters that distinguish species are so technical, the species are described here only by the species that they inhabit, as the host species are unique.

Arceuthobium cyanocarpum Coulter & Nelson

Plants parasitic on limber pine and bristlecone pines.

Arceuthobium douglasii Engelmann

Plants parasitic on Douglas fir.

Arceuthobium vaginatum (Willdenow) K. Presl ssp. *cryptopodum* (Engelmann) Hawksworth & Wiens
Plants parasitic on ponderosa pine.

Vitaceae: Grape Family

Grape vines, and their relative Virginia creeper (*Parthenocissus*), are easily recognized, and common throughout our region as they climb over cliff faces in the foothills. Wild grapes (*Vitis*) are edible, if sour and tangy; *Parthenocissus* fruits, looking like small grapes, are bitter and inedible to humans. The leaf divisions will distinguish the genera easily.

Key to the genera

- 1. Leaves palmately compound.....*Parthenocissus*
- 1. Leaves simple, cordate, with shallow, palmate lobes.....*Vitis*

Parthenocissus “Virginia creeper”

We do have a native species of Virginia creeper that occurs in the southern portion of our region, especially in the canyons of Fremont County; the cultivated species is invasive, and has spread rather abundantly. It is relatively easy to tell them apart in the field, where material is abundant and leaf color apparent, but difficult on dried specimens. Plants in remote areas are likely to be the native species!

Parthenocissus quinquefolia (L.) Planchon

Plants climbing vines; leaves divided into 5-7 segments, margins toothed. Tendrils ending in flat, round discs, leaves dull green above.

Habitat: Lower to middle elevation canyons and thickets, urban areas on buildings and sometimes along roadside shrubs.

Notes: This is a common adventive horticultural species now invading native vegetation in the foothills. Look for the discs at the end of the tendrils that help it stick to buildings and the dull surface of the leaves.

Parthenocissus vitacea (Knerr) Hitchcock

Plants climbing vines; leaves divided into 5-7 segments, margins toothed. Tendrils lacking flat round disks, or disks only a few, leaves shiny above.

Habitat: Lower to middle elevation canyons and thickets,

Notes: Look for the shiny leaf surfaces and the tendrils that have few, if any, disks. This is our native species.

Vitis “wild grape”

Vitis riparia Michaux

Plants climbing vines; leaves large (to 20 cm) simple, not divided into segments but palmately lobed, margins toothed.

Habitat: Foothills and mesas, often in slightly moister areas along streams or on canyon walls, sometimes also in roadside thickets.

Notes: Most common in the southern portion of our region, especially in Fremont County, but also occurring in the foothills of Pikes Peak. Wild grapes look identical to, only smaller than, cultivated grapes. Good luck competing with the bears to find the fruit!

Zannichelliaceae: Horned Pondweed Family

This nondescript aquatic family with a single representative here looks like *Potamogeton* (*Potamogetonaceae*: pondweed) with its linear floating leaves. The horned pondweed, however, has opposite leaves, with a sheathing stipule (minute leaflet) that is separate from the leaf blade. The flowers are unisexual, in pairs: the male flower is reduced to a single stamen on a filament.

Zannichellia palustris L.

Plants aquatic, floating; leaves linear, opposite, with a sheathing stipule, bright green. Flowers unisexual, paired.

Habitat: Lower elevation ponds and ditches.

Notes: This species is known only from an old record in the Colorado Springs area; it is likely more widespread, but under collected due to its nondescript nature and possible confusion with other aquatic species. Look for the opposite linear leaves.

Zygophyllaceae: Caltrop Family

The caltrop family has many representatives in tropical areas, especially in the southern hemisphere. One familiar representative from the Arizona and New Mexican deserts is creosote bush, the genus *Larrea*. The fruit in this family is called a *mericarp* or nutlet, a portion of a larger hard ovary that splits away in sections. The mericarp of *Tribulus*, puncturevine, is problematic for feet and bicycle tires since it bears sharp spines. The flowers of our species of look a bit like a *Potentilla* (Rosaceae), with 5 petals and 5 sepals; look for the different fruit and the opposite, pinnately compound leaves.

Key to the genera

- 1. Fruit with ca. 10 tuberculate (with projections) but nonspiny mericarps.....*Kallstroemia*
- 1. Fruit with 5 spiny mericarps.....*Tribulus*

***Kallstroemia* “ warty caltrop”**

Kallstroemia parviflora Norton

Plants annual, stems prostrate and spreading, leaves pinnately compound. Flowers solitary, peduncled in leaf axils, petals yellow-orange or orange. Mericarp segments warty with projections but not sharp spiny.

Habitat: Open spiny ground, plains.

Notes: This native species is known only from old records here, but is more common in southeast Colorado. It resembles *Tribulus*, but has larger flowers, broader leaf segments, and nonspiny fruits. The common name describes the fruit well.

***Tribulus* “puncture vine”**

Tribulus terrestris L.

Plants annual, stems prostrate and spreading, leaves pinnately compound. Flowers axillary, peduncled in leaf axils, usually pale yellow. Mericarp segments sharp spiny, painful to touch.

Habitat: Disturbed gravelly areas, roadsides and trails.

Notes: This low elevation adventive species is common throughout our area, unfortunately so along bike trails and in campgrounds. The spiny fruits are very distinctive. The leaf segments in *Tribulus* are narrowly oblong.