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COLORADO OUTDOOR EDUCATION CENTER
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Pikes Peak Research Station is a nonprofit organization dedicated to promoting the understanding of the natural world through research and education. Actively engaged in interdisciplinary research on the ecosystems of the Pikes Peak region, PPRS is a part of Colorado Outdoor Education Center, a pioneer in nature programs for all ages since 1962.

COVER ILLUSTRATION
Mariposa Lily
Calochortus Gunnisonii
PLANTS
OF THE
FLORISSANT FOSSIL BEDS NATIONAL MONUMENT
Mary E. Edwards and William A. Weber

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Plants manage the business of life from a fixed spot. What animals achieve by active movement plants must accomplish by adaptive form. The feather-like stigmas of a grass flower filter the air for floating pollen; a dandelion with tiny paratroopers establishes a new beachhead; and a mountain mahogany seed drills itself by hygroscopic movement through the leaf litter on an arid hillside. These examples illustrate plant-life's shrewd mastery of the environment.

Plants are highly sensitive to their surroundings. From their small fortresses they must endure the coldest temperatures, the strongest winds, the longest drought, fire, and the attacks of predators. Because of their sensitivity, plants are the best indicators of environmental conditions. The shade of a branch, reflection from a rock, or burrowing of a gopher may have drastic effects. By observing vegetation closely we may determine the depth and reliability of the water table, the strength and direction of winds and the haunts, numbers and types of animals in an area. We may also discover the long forgotten business of man--an old road is now a gully; a line of bushes marks a decayed fenceline; a scarred pine trunk reveals an indian campsite.

Once again we are struck by the interrelatedness of all life, both past and present, and its effect upon the future. We hope the following lists, used together with the herbarium of the Florissant Fossil beds can help us understand more about the incredible happenings that can be seen and understood when our consciousness is free and finely tuned. No matter how we care to divide the phenomena of life, regardless of the names we choose to give species, each individual adds to the wondrous variety of the whole.

Frederick E. Sanborn
Director,
Colorado Outdoor Education Center

"I believe a leaf of grass is no less than the journeywork of the stars."

Walt Whitman
PLANTS OF FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

by Mary E. Edwards & William A. Weber

Introduction

The beautifully preserved Oligocene plant and insect fossils found near Florissant, Teller County, Colorado, are famous throughout the world. Although they were known much earlier by ranchers, specimens were first collected by Theodore L. Mead, a young student at Cornell University, who brought them, in 1871, to the attention of the paleoentomologist Samuel Scudder of Harvard. The specimens were first described by A. C. Peale, geologist with the U. S. Geological Survey and the Hayden Survey of 1874. However, the present-day flora was not investigated until much later.

In August, 1905, Dr. Francis Ramaley, plant ecologist at the University of Colorado, made the first collections of the modern Florissant flora. His specimens and field notebooks are housed at the University of Colorado Herbarium (COLO) at Boulder, and a duplicate set of specimens is at the Rocky Mountain Herbarium (RM) at Laramie, Wyoming. In the 1930's, 1940's and early 1950's, Dr. C. W. T. Penland, botanist at Colorado College, Colorado Springs, and his colleague, Dr. John B. Hartwell, a prominent Colorado Springs surgeon, did some collecting in Teller County. Ramaley wrote a short paper (Ramaley 1906) describing the Florissant area and listing the species of his collections. He intended to write a detailed, formal report, but, unfortunately, never did.

In 1981 The Colorado Native Plant Society (CONPS) was asked by Dr. F. Martin Brown, on behalf of the National Park Service, to begin a long-term inventory and to make an herbarium for the Florissant Fossil Beds National Monument. This project lasted from the summer of 1981 through 1988. An herbarium of about 1,000 specimens representing about 430 taxa was presented to the Monument in 1987. Because of lack of space at the Monument, the herbarium is temporarily housed at Pikes Peak Research Station of the Colorado Outdoor Education Center located five miles southwest of the Monument. Herbarium COLO has the first duplicate set, and the Denver Botanical Garden’s Kathryn Kalmbach Herbarium has a partial set.

The Colorado Native Plant Society wishes to acknowledge the tremendous help it has received from many sources without which the project would not have succeeded, and to thank the following people: Dr. F. Martin Brown, entomologist, naturalist and head emeritus, Fountain Valley School Science Department, Colorado Springs, who inspired the project; Thomas Wylie, Roger Martin and Robert Reyes, Monument superintendents, and members of their staffs for their assistance, interest and gracious hospitality; Gary Waggoner, National Park Service botanist, for his valuable help, and Dr. Boyce A. Drummond, director of Pikes Peak Research Station, who has been most thoughtful and cooperative in making the herbarium available.

Last, but far from least, a special acknowledgement and thanks is extended to all of the members of CONPS who helped with collecting, mounting of plants, filing, and a myriad of other chores; to Velma Richards for suggestions, editing and proofreading; and to Leslie Shader for his many hours of computing in preparation of plant lists. The Florissant Committee in charge of the project comprised: Ann Armstrong, Athalie Barzee, Ann Cooper, Miriam Denham, Mary Edwards, Lloyd Hayes, Diana Mullineaux, Velma Richards, Peter Root, Rick Sanborn, Leslie Shader, Eleanor von Bargen, and Janet Wingate. The project was enthusiastically supported by the entire membership of CONPS.
The Florissant Fossil Beds

By an Act of Congress on August 20, 1969, 5,992.5 acres of the ancient Lake Florissant basin and surroundings became Florissant Fossil Beds National Monument. The Monument lies 35 miles west of Colorado Springs in Teller County, one half mile south of US Hwy. 24 and the town of Florissant. County Road, Teller 1, bisects the Monument from north to south; Upper Twin Rock Road crosses the northeast corner, while Lower Twin Rock Road crosses the southeastern section. The monument is surrounded by privately-owned land in small ranches and subdivisions. The western boundary of the Monument is less than a mile from the Pike National Forest boundary.

The geology of the Florissant area begins with a huge Pre-Cambrian batholith of Pikes Peak Granite, which formed well below the earth's surface just over one billion years ago. This uplifted mass of coarse-grained pink crystalline rock extends over a wide area and forms the basement layer under the Monument; it also forms the core of Pikes Peak (14,108 ft.), the dominant feature of the landscape 15 miles to the east. Weathered rounded boulders, outcrops, and coarse gravels of this ancient granite are evident on the low Florissant hills today.

Rocks formed in this region after Pre-Cambrian times were weathered away, creating a geological gap, or unconformity, between Pikes Peak Granite and rocks formed during the Tertiary period. Thirty-five million years ago, in the early Oligocene Epoch, a series of violent volcanic eruptions in the Thirtynine Mile volcanic field near Guffy, 15 miles southwest of the Monument, covered a broad area, including the Florissant Basin, with volcanic debris consisting of massive mudflows, breccia, tuffs, and ash. Fossilized stumps of an extinct species of giant sequoia seen today are remnants of an ancient buried forest.

Later in the Oligocene, mud and lava, flowing from the Guffy volcanoes across the south end of the Florissant Basin, blocked south-flowing streams and created a narrow lake approximately ten miles long and two miles wide. Ancient Lake Florissant extended from just south of the present-day Monument boundary almost to present-day Lake George at its north end. The climate during this period was warm-temperate and fairly dry, much like that of the present Monterey region of northeastern Mexico. A forest of mixed conifers and hardwoods grew along the streams and lake shore of the Basin, consisting of white cedar, Chamaecyparis and giant sequoia, Sequoioxylon pearsallii, as well as ancestral species of ash, maple, elm, poplar, and other deciduous trees. A dry scrub forest of pine and live-oak covered the higher ground.

Subsequently, during intermittent eruptions over a period of a hundred thousand years or more, volcanic ash and dust drifted over Lake Florissant, trapping plant parts and insects in layer upon layer of thin sediments. These fine-grained shale layers, containing delicate, often carbonized, fossils are known as the Florissant "paper shales." Following the deposition of the shales, continuing massive mud and ash flows capped the shale layers in many places. This hard caprock helped to preserve the easily-eroded shales during the subsequent uplift of the region. Remnants of these Oligocene volcanic deposits form scattered outcrops on hills surrounding Florissant today (MacGinitie 1953).

When ancient Lake Florissant was formed, 35 million years ago, elevation may have been as low as 2,800 ft. above sea level. As the modern Rocky Mountains began to rise in the Laramide orogeny starting about 65 million years ago, erosion was occurring at the same time, forming an apron of debris around mountaintops. Erosion cut into the granite of the peaks, scouring them down until a relatively flat, undulating surface, the Tertiary Pediment (sometimes called the Rocky Mountain Peneplain) remained. This is visible along the Front Range between 8,000 and 9,000 ft. above sea level, in broad, rolling uplands, evident in the Florissant area today. Beginning about 29 million years ago, the
land from mid-Kansas west to Utah was uplifted 5,000 ft. in a great dome. Elevation at the Monument today is 8,200-8,800 ft.

As the land rose, the course of streams was changed; streams that had flowed into the Arkansas River drainage now flowed north into the drainage of the South Platte. The Arkansas–South Platte divide lies a few miles south of the Monument, curves east and is crossed by US 24 near the town of Divide. A number of small intermittent streams, most of them spring-fed, flow through the Monument into Grape Creek, the main water-course, which becomes a permanent but small tributary of Twin Creek west of the town of Florissant. Old stock ponds built by early ranchers and farmers are found in many of the streambeds.

The Florissant region, although it lies in the Montane Life Zone, is rather dry when compared with areas at the same elevation farther north in Colorado. Rainfall here averages between 12 and 16 inches per year with intense but spotty thunder showers in July and August contributing nearly half of the annual precipitation. The heaviest snowfalls are in February, March and April with a total accumulation of about 70 inches a year. However, in the last seven years the total snowfall has been 48 inches a year. Snow on the ground at any one time is usually less than a foot and the ground is bare for long periods. Winters are cold, sometimes reaching -35°F. Summer temperatures are not often above 80°F during the day, but occasionally reach 85°F.

Soils vary with location. In wet boggy locations, as around stock ponds and some stream drainages, the soils are poorly drained, highly organic and typically alkaline. Gravelly to coarse sandy loam soils derived from the underlying Pikes Peak granite are common throughout the monument. More detailed information is given in a soil survey of the Monument made by the U.S. Soil Conservation Service (Wheeler & Hogan 1986).

Early visitors to the Florissant area were transient in nature. Archeological evidence shows that prehistoric hunting and gathering groups camped in the area, probably while traveling seasonally between the plains and the high mountains. These people probably were the first plant collectors here. The Ute Indians were long familiar with this part of Colorado. The old Ute trail from the mountains to the plains passed just north of the Monument. Lieutenant Zebulon M. Pike led the first exploratory expedition into Colorado in 1806 after the Louisiana Purchase by the U.S. government. Major Stephen Long headed another government exploration into Colorado in 1820. He was accompanied by Dr. Edwin James, physician and botanist, who collected plants in the Pikes Peak area and was the first white man to climb Pikes Peak.

From the 1820's to the 1840's fur trappers hunted the area, but it was not until after 1858, when gold was discovered in Colorado, that permanent settlers came into the region. The main route to the South Park goldfields was the old Ute Trail. Trading posts and transportation companies sprang up along the route. In 1870 James Costello of Florissant, Missouri, established a ranch, a trading post, and a hotel on the present-day townsite of Florissant. Little did he know what an appropriate name he had chosen for his new town. Florissant, in French, means "flowering" or "blooming".

In the 1880's and 1890's, following the building of the Colorado and Midland Railroad, farming and ranching became profitable and homesteads were established in the Florissant area. Hay, oats, and potatoes were widely grown and cattle roamed the open range. One of the earliest homesteads on what is now Monument property, now restored for the benefit of Monument visitors, was settled in 1878 by Adeline Hornbeck. There also remain sites of several other small homesteads on the Monument. During the 1920's and 1930's seed potatoes were a profitable crop. The terraced fields of the old Cusack potato farm are still visible and the old potato barn is used by the Monument for storage.
While farming and ranching had the biggest impact on the Florissant area, lumbering was very important to the lives of early settlers. The remnants of a small local sawmill can be seen today a short distance southwest of the Visitor Center. An early photograph taken by Ramaley shows a rather barren scene of downed trees and stumps.

Over many years, the rich treasure of fossil plants and insects in the Florissant Shales was collected by scientists and exploited by land-owners for profit. The small building occupied today by the Monument Headquarters and Visitor Center was, until the early 1960's, a part of a tourist enterprise called the "Pike Petrified Forest" and, under another owner, the "Henderson Petrified Forest". After much effort on the part of state and local citizens, Florissant Fossil Beds National Monument became a reality in 1969.

Present-day Plant Distribution

Vegetational habitats in the Florissant area can be divided roughly into five kinds: broad dry meadows or grasslands; low rolling hills with open stands of ponderosa pine (*Pinus ponderosa*); riparian and other wetland communities along the streams; dry rocky slopes and ridges; and disturbed, ruderal sites.

### Broad dry meadows or grasslands

Flat dry grasslands with extensions into the surrounding low hills mark the ancient Lake Florissant basin and make up the major land areas of the Monument. The plant cover here is low shrubs, grasses, and annual or perennial herbs. As has been noted, the Florissant area is dry compared with areas of similar elevation farther north (partly due to the extreme porosity of the friable Pikes Peak Granite which weathers to coarse gravel). This is evident in the composition of the grassland vegetation.

A number of low shrubby species, most of them composites (Asteraceae) are characteristic of desert-steppe. Some of these are the rabbitbrushes, *Chrysothamnus viscidiflorus* and *C. parryi*; gumweed, *Grindelia subalpina*; snakeweed, *Gutierrezia sarothrae*; silver sagebrush, *Artemisia frigida*; prairie sage, *A. ludoviciana*; horsebrush, *Tetradymia canescens*; and Colorado rubber plant, *Picradenia richardsonii*.


### Low rolling wooded hills

The dry grassland community gives way to low forested hills covered with open stands of ponderosa pine. In fact, nearly 90 per cent of the forested area of the Monument is ponderosa pine interspersed with small aspen groves, *Populus tremuloides*. Grassy openings give the hills a park-like appearance. The bunch grasses, *Festuca arizonica* and *Muhlenbergia montana*, which are subclimax species in the Pikes Peak region, are the most common understory species. Other common grasses are muttongrass, *Poa fendleriana*; Junegrass, *Koeleria macrantha*; and *Elymus longifolius*. 
In grassy openings, the most abundant herbs are puccoon, *Lithospermum multiflorum*; *Packera fendleri*; scarlet gilia, *Ipomopsis aggregata*; loco, *Oxytropis lambertii* and *O. splendens*; and less common but very showy, scarlet penstemon, *Penstemon barbatus*.

Small aspen groves occur in moister parts of the ponderosa woodland and on north-facing slopes and streamsidies. Characteristic of this habitat are the Colorado columbine, *Aquilegia coerulea*; daisy, *Erigeron formosissimus*; gentianella, *Gentianella acuta*; elk thistle, *Cirsium coloradense*; and wild rose, *Rosa woodsii*. Douglas-fir, *Pseudotsuga menziesii*, is usually present on rocky north-facing slopes where the soil is cooler than the microclimate; more mesic. Tall shrubs, such as choke-cherry, *Padus virginiana*; and mountain maple, *Acer glabrum*, are often found here. Understory plants are typical of cool, shaded places; lousewort, *Pedicularis procera*; bearberry, *Arctostaphylos adenotricha*; pyrolas, *Pyrola rotundifolia* and *Orthilia secunda*; twinflower, *Linnaea borealis*; and larkspur, *Delphinium ramosum*.

**Wetland or riparian communities**

Wetland communities are of five types: forested corridors along small streams, open wet meadows near streams and ponds, marshy areas, mud flats, and standing or flowing water.

There are several narrow valleys in which there are small streams; in these the tree canopy is dense, with birch, *Betula fontinalis*; alder, *Alnus incana*; balsam poplar, *Populus balsamifera*; Colorado blue spruce, *Picea pungens*; and douglas-fir. Tall shrubs such as chokecherries and willows are common. Characteristic low shrubs include *Rosa woodsii*; red osier, *Swida sericea*; and bush-honeysuckle, *Distegia involucrata*. Occasionally one meets with the tall herb, baneberry, *Actaea spicata*.


In the more open valleys, the sandbar willow, *Salix exigua*, is abundant on stream-sides. Wide areas of seasonally wet meadows line Grape Creek as it winds across the Monument. Smaller but similar sites occur along some of the smaller tributaries. Among the common grasses of this habitat are foxtail barley, *Critesion jubatum*; timothy, *Phleum pratense*; Kentucky bluegrass, *Poa pratensis*; retop, *Agrostis gigantea*; and sweetgrass, *Hierochloe hirta*. Common low shrubs and herbs include shrubby fivefinger, *Pentaphylloides floribunda*; silverweed, *Argentina anserina*; black-eyed Susan, *Rudbeckia hirta*; and checker mallow, *Sidalea neomexicana*.

Where the water table is at or near the surface along streams or around stock ponds, there are wide expanses of marshy meadow. Dominant here are the sedges *Carex utriculata*, *C. nebrascensis*, and bands of the dark green rush, *Juncus arcticus*. Common grasses include canary-grass, *Phalaroides arundinacea*; reedgrass, *Calamagrostis canadensis*; foxtail, *Alopecurus aequalis*; and ticklegrass, *Agrostis scabra*.

Old stock ponds and slow streams support some aquatic plants. Each stock pond tends to contain a slightly different plant association. A pond east of the Cusack farm hosts water milfoil, *Myriophyllum sibiricum*; and water crowfoot, *Batrachium trichophyllum*. Callitriche hermaphroditica and *Batrachium* are found at another site, while a third pond where the water level had fallen rapidly has no evidence of any aquatic plants. A large stock pond on Grape Creek contains a pondweed, *Potamogeton berchtoldii*. *Batrachium* is common in slow streams throughout the Monument.

**Dry rocky slopes and ridges**

These areas usually are crowned with outcrops of granite boulders or volcanic rocks. The soils in general are porous and coarse-textured. Piñon pine, *Pinus edulis*, occasionally occurs on the summits, along with limber pine, *Pinus flexilis*. Bristlecone pine, *P. aristata* is found in two locations. One small stand is on the west end of Fossil Stump Hill on a dry, steep, west-facing slope; a second one is located in the same general area but on the east side of Grape Creek.

Mountain mahogany, *Cercocarpus montanus*, is an abundant shrub on many south or west-facing slopes. Waxflower, *Jamesia americana*, and Boulder raspberry, *Oreobatus deliciosus*, occur on dry slopes among boulders where moisture accumulates.

Herbs often found in this habitat include golden smoke, *Corydalis aurea*; cinquefoil, *Potentilla hippiana*; and saxifrage, *Micranthes rhomboidea*. *Tetraneuris brevifolia*, while not common on the Monument, is locally abundant in several areas. It is typically an alpine species, unusual to find at Florissant. Mountain ball cactus, *Pediocactus simpsonii*, is abundant on gravelly south-facing slopes. Some of the most common grasses are Arizona fescue, *Festuca arizonica*; and the muhlys, *Muhlenbergia montana*, *M. filiculmis*, and *M. richardsonis*.

**Disturbed or ruderal areas**

These include roadsides, old fields, eroded sites, space around buildings, and denuded floodplains. Adventive taxa dominate these sites and include yellow sweet-clover, *Melilotus officinalis*; pigweed, *Chenopodium berlandieri*; Canada thistle, *Cirsium arvense*; and knotweed, *Polygonum arenastum*. Russian pigweed, *Axyris amaranthoides*, an adventive from southwest Asia, not seen until a few years ago, is now found in fields and dry meadows throughout the monument. It has been present in the north end of South Park for many years.

A sixty-six-foot wide right-of-way owned by the Homestake Municipal Waterline crosses the lower half of the Monument diagonally. After construction, in the early 1960's, this was planted with smooth brome, *Bromopsis inermis*, which now forms a nearly solid swath across the Monument from west to east.

On both sides of Lower Twin Rock Road there are large sections of land that were cultivated for seed potatoes in the 1930's, and the old terraces are still visible. This land appears to be undergoing weedy stages of succession, but it was not studied by CONPS, nor has there been any special effort to collect plants here. There are numerous grasses and other herbaceous plants, one of the most showy and common being mountain pepper-grass, *Lepidium montanum* ssp. *alyssoides*, noted by Ramaley as being an abundant and striking plant.

**Plant Geography**

The Southern Rocky Mountains have been called a crossroads of plant migration, taking place over millions of years. Certain groups characteristic of the Great Basin
reach their eastern limits along the flanks of the Rockies. Species characteristic of the eastern woodlands and prairies abutted against the mountains during the Pleistocene and were isolated in relictual pockets during the desiccation of the High Plains, and ancient connections are evident between our flora and that of Middle and southwest Asia. Genera present in the fossil record of the Oligocene at Florissant and Creede still flourish here (Weber 1965, 1976, 1987).

From the standpoint of the modern Florissant flora, the fossil discoveries reported by MacGinitie (1953) from Florissant and by Stewart (1940) from Creede, demonstrate that the modern flora still possesses elements of the Tertiary one. Stewart reported leaf impressions of *Jamesia*, and fossils of taxa comparable to the modern *Populus acuminata*, *Ribes coloradense*, *Mahonia*, *Cercocarpus*, and *Sabina*. MacGinitie reported *Pinus floriss-santii* (aff. *P. ponderosa*), *Populus crassa* (aff. *P. angustifolia*), *Salix taxifolioides* (aff. *S. exigua*), as well as the genera *Quercus*, *Rosa*, *Acer*, and *Humulus* (incorrectly listed as *Vitis*). Other genera, such as *Platanus*, *Carpinus*, and *Cercis* have since retreated southward into southern Arizona and Mexico. Many other genera no longer exist, or are now restricted to eastern Asia, and, of course, the giant *Sequoioxylon pearsallii* (*Sequoia affinis*), seen as great stumps at Florissant, is extinct.

At Florissant, the following species may be said to have a high probability of being relictual since the Tertiary: *Jamesia americana*, *Oreobatus deliciosus*, *Harbouria trachypleura*, *Aletes anisatus*, *Asplenium septentrionale*, and *Dryopteris filix-mas*. *Mahonia repens*, inexplicably, has not been found here.

Taxa belonging to the eastern woodland and prairie element include lousewort, *Pedicularis canadensis*. This has been found in several locations where it grows abundantly on cool, moist, northeast-facing slopes in mixed forest.

The rarest species on the Monument also belongs to the woodland-prairie group. The white upland aster, *Unamia alba*, is listed by the Colorado Natural Heritage Inventory as a "species of special concern". So far three thriving populations have been found. *Unamia* occurs in grassy openings at the edge of moist aspen groves on gentle northeast-facing slopes. It is associated with low-altitude grassland species such as *Festuca arizonica*, *Castilleja Integra*, and *Orthocarpus luteus*, although in a more mesic site the low goldenrod, *Solidago nana*, and *Genlianella acuta* occur with it. Blooming time is late July and August.

In southern Colorado, the unpredictability of wet and dry seasons results in rather great temporary changes in the flora as seen from year to year. New disturbances result in new immigrant weed species. A single season, or a few seasons of inventory activity do not guarantee a comprehensive catalog of a local flora. The following catalog of plants is representative and exhaustive but probably not complete; future collectors are encouraged to add to it.

**Key to the Habitats**

For the sake of brevity, the habitats in which the plants listed below are generally to be found are abbreviated, e.g. 3C, meaning in marshy areas. A key to these habitat types follows.

1. Broad, dry meadows or grasslands.
   A. Probable former lake bed.
2. Rolling wooded parkland
   A. Open ponderosa pine forest
   B. Aspen groves
   C. Shaded north-facing slopes, mixed woods
3. Riparian and other wetland communities
   A. Wooded streamsides (riparian)
   B. Open wet or moist meadows near streams or ponds
   C. Marshy areas
   D. Mud flats
   E. Aquatic habitats (floating or submerged)
4. Dry rocky slopes and ridges
   A. South or southwest-facing slopes
   B. North or northwest-facing slopes
5. Ruderal sites (disturbed areas, old fields, roadsides, eroded areas, compacted ground and floodplains)
CHECK LIST OF VASCULAR PLANTS

Note: The names follow Wittmann, Weber & Johnston (1989) Catalog of the Colorado Flora. Commonly used names for the same taxa are enclosed in square brackets; these are not always true synonyms. Introduced taxa have the abbreviation ADV (adventive) following the name. The three-letter acronym following the family name is a useful short reference to the family (Weber 1982). Vernacular names follow the scientific names when available; new vernacular names are not coined.

PTERIDOPHYTES

ASPIDIACEAE - SHIELD-FERN FAMILY (ASD)

Dryopteris filix-mas (L.) Schott, Male Fern (4B)

ASPLENIACEAE - SPLEENWORT FAMILY (ASL)

Asplenium septentrionale (L.) Hoffmann, Grass Fern (4A, 4B)
Asplenium trichomanes L., Maidenhair Spleenwort (4B)

ATHYRIACEAE - LADY FERN FAMILY (ATY)

Cystopteris fragilis (L.) Bernh., Brittle Fern (3A, 4B)
Cystopteris reevesiana Lellinger (3A)

EQUISETACEAE - HORSETAIL FAMILY (EQU)

Equisetum arvense L., Horsetail (3A,B)
Hippochaete laevigata (A. Braun) Farwell [Equisetum], Scouring-rush (3B)

SELAGINELLACEAE - LITTLE CLUB-MOSS FAMILY (SEL)

Selaginella densa Rydberg (4B)
Selaginella underwoodii Hieronymus (2C)

SINOPTERIDACEAE - LIP FERN FAMILY (SIN)

Cheilanthes cancellata Mickel [Notholaena fendleri], Zigzag Cloak Fern (4A)
Cheilanthes fendleri Hooker, Fendler's Lip Fern (4A)

GYMNOSPERMS

CUPRESSACEAE - CYPRESS FAMILY (CUP)

Juniperus communis L. ssp alpina (J. E. Smith) Celak., Common Juniper (4A,B)
Sabina scopulorum (Sargent) Rydberg [Juniperus], Rocky Mountain Red Cedar (2B)

PINACEAE - PINE FAMILY (PIN)

Picea pungens Engelmann, Colorado Blue Spruce (2C, 3A)
Pinus aristata Engelmann, Bristlecone Pine (4A)
Pinus contorta Douglas ssp latifolia (Engelmann) Critchfield was reported by Ramaley without locality.
Pinus edulis Engelmann, Piñon Pine (4A)
Pinus flexilis James, Limber Pine (2A, 4A)
Pinus ponderosa Douglas ex P. & C. Lawson ssp scopulorum, Ponderosa Pine (S. Watson)
W. A. Weber (4A)
Pseudotsuga menziesii (Mirbel) Franco [P. taxifolia], Douglas-fir (2A)

ANGIOSPERMS (MONOCOTS AND DICOTS)

ACERACEAE - MAPLE FAMILY (ACE)

Acer glabrum Torrey, Mountain Maple (2C)

AGAVACEAE - AGAVE FAMILY (AGA)

Yucca glauca Nuttall, Spanish Bayonet (4A)

ALLIACEAE - ONION FAMILY (ALL)

Allium cernuum Roth, Nodding Onion (1, 2A, 4A)
Allium geyeri S. Watson (3B)

ALSINACEAE - CHICKWEED FAMILY (ASN)

Cerastium strictum L. [C. arvense], Mouse-ear (3B)
Eremogone fendleri (Gray) Ikonnikov [Arenaria], Sandwort (1, 2A, 4A, 4B)
Moehringia lateriflora (L.) Fenzl [Arenaria] (3A)
Paronychia sessiliflora Nuttall, Nailwort (4A)
Spergulastrum lanuginosum Michaux ssp saxosum (A. Gray) W. A. Weber [Arenaria] (4A,B)
Stellaria longifolia Miihl. ex Willd., Chickweed (3A, 3B)

AMARANTHACEAE - AMARANTH FAMILY (AMA)

Amaranthus retroflexus L.: ADV (5)

APIACEAE - PARSLEY FAMILY (API)

Aletes anisatus (A. Gray) Theobald & Tseng (4A)
Angelica ampla A. Nelson (3B)
Cicuta douglasii (DC.) C. & R., Water-hemlock (3C)
Conioselinum scopolorum (A. Gray) C. & R., Hemlock Parsley (3A)
Harbouria trachypleura (A. Gray) C. & R., Whisk-broom Parsley (1)
Heracleum sphondylium L. ssp. montanum (Schleicher ex Gaudin) Briquet in Schinz & Thellung, Cow Parsnip (3C)
Pseudocymopterus montanus (A. Gray) C. & R., Mountain Parsley (1, 2C)

APOCYNACEAE - DOGBANE FAMILY (APO)

Apocynum androsaemifolium L., Spreading Dogbane (4A)

ASCLEPIADACEAE - MILKWEED FAMILY (ASC)

Asclepias hallii A. Gray (5)
ASTERACEAE - SUNFLOWER FAMILY (AST)

Achillea lanulosa Nuttall, Yarrow (1, 2C)
Agoseris aurantiaca (Hooker) Greene (3B)
Agoseris glauca (Pursh) Raf. var dasycephala (T. & G.) Jepson (3B)
Antennaria microphylla Rydberg, Pussytoes (I)
Antennaria parvifolia Nuttall (1, 2C, 3B, 4A)
Antennaria pulcherrima (Hooker) Greene ssp anaphaloides (Rydberg) W. A. Weber (4B)
Artemisia biennis Willd., Biennial Wormwood: ADV (3B)
Artemisia carruthii Wood (4A)
Artemisia frigida Willd., Silver Sagebrush (1, 2A, 4A)
Artemisia ludoviciana Nuttall, Prairie Sage (1)
Artemisia ludoviciana Nuttall ssp incompta (Nuttall) Keck (4A)
Aster adscendens Lindley in DC. [A. chilensis] (1, 4A, 5)
Aster hesperius A. Gray (3B)
Aster porteri A. Gray (2A, 2C)
Bahia dissecta (A. Gray) Britton (2A, 4A, 5)
Bidens tenuisecta A. Gray, Spanish Needles (5)
Brickellia grandiflora (Hooker) Nuttall, Tasselflower (2A)
Carduus nutans L. ssp. macrolepis (Peterman) Kazmi, Musk Thistle: ADV (4A)
Centaurea dealbata Willd.: ADV (2C)
Chaenactis douglasii (Hooker) H. & A., Dusty Maiden (4A)
Chrysothamnus parryi (A. Gray) Greene, Rabbitbrush (4A, 5)
Chrysothamnus viscidiflorus (Hooker) Nuttall (1, 5)
Cirsium arvense (L.) Scopoli, Canada Thistle: ADV (3B)
Cirsium canescens Nuttall (5)
Cirsium coloradense (Rydberg) Ckll. (3B)
Cirsium incanum (S. G. Gmelin) Bieb. [C. arvense var.]: ADV (3B)
Cirsium ochrocentrum A. Gray was reported by Ramaley.
Cyclachaena xanthifolia (Nuttall) Fresen [Iva], Marsh-elder (5)
Erigeron canus A. Gray, Fleabane (1)
Erigeron compositus Pursh (4A)
Erigeron flagellaris A. Gray (1, 4A, 4B, 5)
Erigeron formosissimus Greene (2B, 3B)
Erigeron lonchophyllus Hooker (3C)
Erigeron subtrinervis Rydberg ex Porter & Britton (4B)
Erigeron vetensis Rydberg (4A, 5)
Filaginella uliginosa (L.) Opiz [Gnaphalium], Cudweed (3B, 3C)
Grindelia subalpina Greene, Gumweed (1)
Gutierrezia sarothrae (Pursh) Britton & Rusby, Snakeweed (5)
Helianthella parryi A. Gray (2A, 2C)
Helianthus annuus L., Common Sunflower (5)
Helianthus petiolaris Nuttall (5)
Heterotheca fulcrata (Greene) Shinners [Chrysopsis], Golden Aster (1A, 5)
Heterotheca horrida (Rydberg) V. Harms [Chrysopsis] (4A)
Hymenopappus newberryi (A. Gray) I. M. Johnston [Leucampyx] (2A)
Lactuca tatarica (L.) C. A. Meyer ssp pulchella (Pursh) Stebbins (1)
Lepidotheca suaveolens Nuttall [Matricaria matricarioides], Pineappleweed (5)
Ligularia bigelovii (A. Gray) W. A. Weber var hallii (A. Gray) W. A. Weber [Senecio] (3B)
Lygodesmia juncea (Pursh) Hooker, Skeletonweed (4A, 5)
Machaeranthera pattersonii (A. Gray) Greene [Aster], Tansy Aster (2A, 5)
Oligosporus campestris (L.) Cassini ssp pacificus (Nuttall) W. A. Weber [Artemisia] (1, 2C)
Oreochrysum parryi (A. Gray) Rydberg [Haplopopappus, Solidago] (2C)
Packera cana (Hooker) Weber & Løve [Senecio] (1)
Packera fendleri (A. Gray) Weber & Løve [Senecio] (2A)
Packera neomexicana (A. Gray) Weber & Løve [Senecio] (2C)
Packera pseudaurea (Rydb.) Weber & Løve [Senecio] (3B)
Packera tridenticulata (Rydb.) Weber & Løve [Senecio] (1, 2A, 3B)
Picrodendron richardsonii Hooker [Hymenoxys], Colorado Rubber Plant (1, 2A, 4A)
Psilochenia runcinata (James ex Torrey) Løve & Løve [Crepis], Hawksbeard (2B, 3B)
Ratibida columnifera (Nuttall) Wooton & Standley, Prairie Cone-flower (3B)
Rudbeckia hirta L., Black-eyed Susan (1, 2b, 3b)
Senecio eremophilus Rydberg ssp kingii (Rydberg) Douglas & Douglas, Ragwort, (3B, 4A)
Senecio spartioides T. & G., Broom Senecio (1, 2A)
Solidago canadensis L., Goldenrod (3B)
Solidago missouriensis Nuttall (3B)
Solidago nana Nuttall (2B)
Solidago spathulata DC. var neomexicana (A. Gray) Cronquist (2C)
Symphyotrichum laeve (L.) Løve & Løve [Aster] (2B, 3B)
Taraxacum officinale G. H. Weber in Wiggers, Dandelion: ADV (3B, 5)
Tetradymia canescens DC., Horsebrush (1, 4A)
Tetrateuris brevifolia Greene [Hymenoxys acaulis var. caespitosa] (4B)
Townsendia exscapa (Richardson) Porter, Easter Daisy (2A)
Tragopogon dubius Scopoli ssp major (Jacquin) Vollmann, Salsify: ADV (1)
Unania alba (Nuttall) Rydberg [Aster piarmacoides], White Upland Aster (2B)
Virgulus falcatus (Lindley) Reveal & Keener [Aster] (5)
Ximenesia encelioides Cav. [Verbesina], Crownbeard: ADV (5)

**BETULACEAE - BIRCH FAMILY (BET)**

Alnus incana (L.) Moench ssp tenuifolia (Nuttall) Breitung, Alder (3A)
Betula fontinalis Sargent [B. occidentalis], River Birch (3A)

**BORAGINACEAE - BORAGE FAMILY (BOR)**

Hackelia floribunda (Lehmann) I. M. Johnston, False Forget-me-not (2A, 3B)
Lappula redowskii (Hornemann) Greene, Stickseed (3B, 5)
Lithospermum multiflorum Torrey ex A. Gray (2A,B,C)
Mertensia ciliata (James ex Torrey) G. Don, Chiming Bells (3B)
Mertensia lanceolata (Pursh) A. DC. (1, 2C)
Oreocarya thyrsiflora Greene [Cryptantha] (1, 4A)
Oreocarya virgata (Porter) Greene [Cryptantha], Miner’s Candle (4A)

**BRASSICACEAE - MUSTARD FAMILY (BRA)**

Arabis hirsuta (L.) Scopoli, Hairy Rock Cress (1)
Armoracia rusticana GMS, Horseradish: ADV (5)
Boechera drummondii (A. Gray) Løve & Løve [Arabis], Rock Cress (1, 2A, 4A)
Boechera fendleri (S. Watson) W. A. Weber [Arabis] (1, 2A)
Camelina microcarpa Andrz. ex DC., False Flax: ADV (5)
Cardaria draba (L.) Desvaux, Whiteweed. Not collected, but a dense stand seen along a trail about a mile WSW of Headquarters.
Descurainia pinnata (Walter) Britton (5)
Descurainia richardsonii (Sweet) O. E. Schulz, Tansy Mustard (5)
Descurainia sophia (L.) Webb ex Prantl: ADV (5)
Draba aurea M. Vahl ex Hornemann, Whitlow-wort (1, 2A,C)
Draba nemorosa L.: ADV (3B, 4A)
Draba rectifructa C. L. Hitchcock (5)
Draba streptocarpa A. Gray (1, 2A, 4A)
Erysimum capitatum (Douglas) Greene, Wallflower (1, 4A)
Lepidium montanun Nuttall ssp alyssoides (A. Gray) C. L. Hitchcock, Pepper-grass (1, 5)
Lepidium ramosissimum A. Nelson (5)
Lesquerella montana (A. Gray) S. Watson, Bladder-pod (1A, 4A)
Noccaea montana (L.) F. K. Meyer, Wild Candytuft [Thlaspi] (4B, 5)
Rorippa curvipes Greene var alpina (S. Watson) Stuckey, Yellow Cress (3D)
Rorippa palustris (L.) Besser ssp hispida (Desvaux) Jonsell (3C)
Rorippa teres (Michaux) Stuckey (3B,D)
Thlaspi arvense L., Fanweed: ADV (1A, 3B, 5)

CACTACEAE - CACTUS FAMILY (CAC)

Opuntia fragilis (Nuttall) Haworth, Brittle Cactus (4A)
Pediocactus simpsonii (Engelmann) Britton & Rose var minor (Engelmann) Ckll., Mount: in Ball Cactus (4A)

CALLITRICHACEAE - WATER-STARWORT FAMILY (CLL)

Callitriche hermaphroditica L. (3E)
Callitriche verna L. emend. Lönnroth (3D)

CALOCHORTACEAE - MARIPOSA FAMILY (CCT)

Calochortus gunnisonii S. Watson (1)

CAMPANULACEAE - BELLFLOWER FAMILY (CAM)

Campanula parryi A. Gray, Harebell (1, 3B)
Campanula rotundifolia L. (4A)

CANNABACEAE - HOPS FAMILY (CAN)

Humulus lupulus L. ssp americanus (Nuttall) Löve & Löve [var. neomexicanus], Wild Hops (3A)

CAPPARACEAE - CAPER FAMILY (CPP)

Cleome serrulata Pursh, Rocky Mountain Bee Plant (1)

CAPRIFOLIACEAE - HONEYSuckle FAMILY (CPR)

Distegia involucrata (Banks ex Sprengel) Ckll. [Lonicera], Bush Honeysuckle (3A)
Linnaea borealis L. ssp americana (Forbes) Hultén ex Clausen, Twinflower (2C)

CARYOPHYLLACEAE - PINK FAMILY (CRY)

Gastrolychnis drummondii (Hooker) Löve & Löve [Lychnis], Campion (1, 2A)

CHENOPODIACEAE - GOOSEFOOT FAMILY (CHN)

Amaranthus blitoides S. Watson (5)
Axyris amaranthoides L.: ADV (5)
Chenopodium album L., Pigweed: ADV (5)
Chenopodium atrovirens Rydberg (4A, 5)
Chenopodium berlandieri Moquin (1)
Chenopodium capitatum (L.) Asch., Strawberry Blite: ADV (2C)
Chenopodium desiccatum A. Nelson (5)
Chenopodium foliosum (Moench) Asch.: ADV (2A, 5)
Chenopodium leptophyllum (Moquin) S. Watson (4A)
Kochia sieversiana (Pallas) C. A. Meyer [K. scoparia]: ADV (5)
Monolepis nuttalliana (Schultes) Greene, Povertyweed (5)

CONVALLARIACEAE - MAYFLOWER FAMILY (CVL)

Maianthemum stellatum (L.) Link [Smilacina], False Solomon's Seal (2B,C, 4A, 5)

CONVOLVULACEAE - MORNING-GLORY FAMILY (CNV)

Convolvulus arvensis L., Creeping Jenny: ADV (5)

COPTACEAE - MEADOW-RUE FAMILY (COP)

Thalictrum fendleri Engelmann ex A. Gray (4A, 2C)

CORNACEAE - DOGWOOD FAMILY (COR)

Swida sericea (L.) Holub [Cornus], Red Osier (3A)

CRASSULACEAE - STONECROP FAMILY (CRS)

Amerosedum lanceolatum (Torrey) Löve & Löve [Sedum], Stonecrop (1, 2C)

CYPERACEAE - SEDGE FAMILY (CYP)

Carex aquatilis Wahl. (3C)
Carex athrostachya Olney (3B)
Carex aurea Nuttall (3B,C)
Carex disperma Dewey (3A)
Carex douglasii F. Boott in Hooker (3B)
Carex festivella Mack. (3B,C)
Carex lanuginosa Michaux (3B,C)
Carex microptera Mack. (3B)
Carex nebrascensis Dewey (3C)
Carex obtusata Liljeblad (1)
Carex oreocharis Holm (1)
Carex pensylvanica Lamarck ssp heliophila (Mack.) W. A. Weber [C. heliophila] (1, 2A)
Carex pityophila Mack. (2A)
Carex praegracilis F. Boott (3B)
Carex simulata Mack. (2C)
Carex stenophylla Wahl. ssp eleocharis (L. H. Bailey) Hultén [C. eleocharis] (2A)
Carex utriculata F. Boott [erroneously C. rostrata] (3C)
Eleocharis palustris (L.) R. & S. [E. macrostachya], Spike-rush (3C)
Scirpus microcarpus J. & K. Presl [S. rubrotinctus] (3C)

ELAEAGNACEAE - OLEASTER FAMILY (ELE)

Elaeagnus commutata Bernh., Silverberry (4A,B)

ERICACEAE - HEATH FAMILY (ERI)

Arctostaphylos adenotricha (Fernald & Macbride) Löve et al. [A. uva-ursi], Bearberry, Kinnikinnik (2C, 4A)

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EUPHORBIACEAE - SPURGE FAMILY (EUP)

Chamaesyce glyptosperma (Engelmann) Small (5)
Chamaesyce serpyllifolia (Persoon) Small [Euphorbia], Thyme-leaved Spurge: ADV (5)
Tithymalus montanus (Engelmann) Small [Euphorbia] (1A, 4A)
Tithymalus uralensis (Fischer ex Link) Prokhanov [Euphorbia esula], Leafy Spurge: ADV (3B)

FABACEAE - PEA FAMILY (FAB)

Astragalus adsurgens Pallas var robustior Hooker, Milk Vetch (1, 2A,C)
Astragalus agrestis Douglas ex G. Don [A. dasyglottis] (1, 2A, 3B)
Astragalus alpinus L. (2B, 3B)
Astragalus crassicarpus Nuttall var paysonii (Kelso) Barneby, Ground Plum (1,4A,5)
Astragalus drummondii Douglas ex Hooker (1, 2A)
Astragalus hallii A. Gray (2A)
Astragalus miser Douglas in Hooker var oblongifolius (Rydberg) Cronquist (2A)
Astragalus parryi A. Gray (2A, 4A,B)
Astragalus sparsiflorus A. Gray (2A)
Astragalus tenellus Pursh (2A,C)
Dalea purpurea Ventenat, Prairie-clover (1)
Lupinus kingii S. Watson (4, 5)
Medicago lupulina L., Black Medic: ADV (1)
Medicago sativa L., Alfalfa: ADV (1, 5)
Melilotus officinalis (L.) Lamarck, Yellow Sweet-clover: ADV (5)
Oxytropis deflexa (Pallas) DC. var foliolosa (Hooker) Barneby (3B)
Oxytropis lamberi Pursh, Loco-weed (1)
Oxytropis multiceps Nuttall (4A)
Oxytropis sericea Nuttall (4B)
Oxytropis splendid Douglas ex Hooker (1, 2A)
Thermopsis divaricarpa A. Nelson, Golden Banner (5)
Trifolium hybridum L., Alsike Clover: ADV (1)
Trifolium repens L., White Dutch Clover: ADV (1, 3A)
Vicia americana Mühl. ex Wild., Vetch (3B, 4A)

FUMARIACEAE - FUMITORY FAMILY (FUM)

Corydalis aurea Willd., Golden Smoke (4A, 5)

GENTIANACEAE - GENTIAN FAMILY (GEN)

Chondrophylla aquatica (L.) W. A. Weber [Gentiana or Cimicinialis fremontii], Dwarf Gentian (3A,B)
Frasera speciosa Douglas ex Grisbach [Swertia], Monument Plant (1, 2A)
Gentianella acuta (Michaux) Hiitonen [Gentiana amarella] (2A,B, 4B)
Pneumonantho affinis (Grisbach) Greene [Gentiana], Bottle Gentian (1, 2A,3B)
Swertia perennis L., Star Gentian (3A)

GERANIACEAE - GERANIUM FAMILY (GER)

Erodium cicutarium (L.) L’Heritier, Alfarilair: ADV (5)
Geranium caespitosum James ex Torrey spp atropurpureum (Heller) W. A. Weber (1)
Geranium richardsonii Fischer & Trautv. (3A)
GROSSULARIACEAE - GOOSEBERRY FAMILY (GRS)

Ribes aureum Pursh, Golden Currant (3B)
Ribes cereum Douglas, Wax Currant (2C, 4A)
Ribes inerme Rydberg, Mountain Gooseberry (3A,B)

HALORAGACEAE - WATER MILfoil FAMILY (HAL)

Myriophyllum sibiricum Komarov [M. exalbescens] (3E)

HELLEBORACEAE - HELLEBORE FAMILY (HEL)

Aconitum columbianum Nuttall ex T. & G., Monkshood (3A)
Aquilegia coerulea James ex Torrey, Colorado Columbine (2B, 3A)
Delphinium ramosum Rydberg, Larkspur (2C)

HYDRANGEACEAE - HYDRANGEA FAMILY (HDR)

Jamesia americana T. & G., Waxflower (4A)

HYDROPHYLLACEAE - WATERLEAF FAMILY (HYD)

Phacelia alba Rydberg, Scorpion-weed (5)
Phacelia denticulata Osterhout (4A)
Phacelia heterophylla Pursh (4A)

HYPERICACEAE - ST. JOHNSWORT FAMILY (HYP)

Hypericum formosum HBK (3B)

IRIDACEAE - IRIS FAMILY (IRI)

Iris missouriensis Nuttall (3B,C)
Sisyrinchium montanum Greene, Blue-eyed-grass (3B)

JUNCACEAE - RUSH FAMILY (JUN)

Juncus arcticus Willd. ssp ater (Rydberg) Hultén [J. balticus] (3B,C)
Juncus bufonius L., Toad rush: ADV (3D)
Juncus longistyliis Torrey (3C)
Luzula parviflora (Ehrhart ex Hoffmann) Lejeune, Wood Rush (3A)

JUNCAGINACEAE - ARROW-GRASS FAMILY (JCG)

Triglochin palustre L. (3C)

LAMIACEAE - MINT FAMILY (LAM)

Dracocephalum parviflorum Nuttall [Moldavica], Dragonhead (3B, 5)
Mentha arvensis L., Field Mint (3C)
Scutellaria brtitonii Porter, Skullcap (1)
Scutellaria galericulata L. var epilobiifolia (Hamilton) Jordal (3B)
Stachys palustris L. ssp pilosa (Nuttall) Epling (3B)
LEMNACEAE - DUCKWEED FAMILY (LMN)

Lemna minor L. (3C)

LINACEAE - FLAX FAMILY (LIN)

Adenolinum lewisii (Pursh) Löve & Löve [Linum], Wild Blue Flax (4A)

LOASACEAE - LOASA FAMILY (LOA)

Nuttallia ruserby (Wooton) Rydberg [Mentzelia], Evening Star (5)
Nuttallia speciosa (Osterhout) Greene [Mentzelia] (5)

MALVACEAE - MALLOW FAMILY (MLV)

Sidalcea neomexicana A. Gray, Checker Mallow (3B)

MELANTHIACEAE - DEATH CAMAS FAMILY (MLN)

Anticlea elegans (Pursh) Rydberg [Zygadenus], Death Camas (3B)

NYCTAGINACEAE - FOUR-O'CLOCK FAMILY (NYC)

Oxybaphus linearis (Pursh) B. L. Rob. [Mirabilis], Umbrella-wort (4A)

ONAGRACEAE - EVENING-PRIMROSE FAMILY (ONA)

Chamerion danielsii D. Löve [Epilobium angustifolium], Fireweed (3A)
Epilobium brachycarpum K. Presl [E. paniculatum], Willow-herb (5)
Epilobium ciliatum Raf. ssp glandulosum (Lehmann) Hoch & Raven [E. adenocauleon, E. glandulosum] (3B,C)
Epilobium saximontanum Haussknecht (3B, 4B)
Gaura coccinea Nuttall ex Pursh (1, 5)
Oenothera caespitosa Nutt. ssp macroglottis (Ryderberg) Wagner et al. (5)
Oenothera coronopifolia T. & G., Evening-primrose (1, 5)
Oenothera flava (A. Nelson) Garrett (1, 3B)
Oenothera villosa Thunberg ssp strigosa (Ryderberg) Dietrich & Raven [O. strigosa] (1, 3A)

ORCHIDACEAE - ORCHID FAMILY (ORC)

Calypso bulbosa (L.) Reichenbach f., Fairy Slipper (2C)
Limnorchis saccata (Greene) Löve & Simon [Habenaria], Bog Orchid (3A)

OROBANCHACEAE - BROOM-RAPE FAMILY (ORO)

Orobanche fasciculata Nuttall, Broom-rape (1)

OXALIDACEAE - WOOD-SORREL FAMILY (OXL)

Oxalis dillenii Jacquin [O. stricta] (3B, 4A)
Oxalis violacea L. (4B)

PARNASSIACEAE - GRASS-OF-PARNASSUS FAMILY (PAR)

Parnassia parviflora DC. (3B)
PLANTAGINACEAE - PLANTAIN FAMILY (PTG)

Plantago eriopoda Torrey; Redwool Plantain (3C)
Plantago lanceolata L., English Plantain: ADV (5)
Plantago major L., Common Plantain: ADV (3B)

POACEAE - GRASS FAMILY (POA)

X Agrohordeum macounii (Vasey) Lepage (3B)
Agropyron cristatum (L.) Gaertner ssp cristatum, Crested Wheatgrass: ADV (1)
Agrostis gigantea Roth [A. alba], Redtop: ADV (3B)
Agrostis scabra Willd., Ticklegrass (3B)
Alopecurus aequalis Sobol, Meadow Foxtail (3B)
Anisantha tectorum (L.) Nevski [Bromus], Cheatgrass: ADV (5)
Avena fatua L. var sativa (L.) Haussknecht, Oats: ADV (5)
Beckmannia syzigachne (Steudel) Fernald ssp baicalensis (Kuznetzow) Koyama & Kuwano, Sloughgrass (3B,C)
Blepharoneuron tricholepis (Torrey) Nash, Pine Dropseed (1, 2A)
Bouteloua gracilis (HBK) Lagasca ex Griffiths, Blue Grama (1, 2A)
Bouteloua hirsuta Lagasca, Black Grama (1)
Bouteloua simplex Lagasca: ADV (5)
Bromopsis inermis (Leysser) Holub [Bromus], Smooth Brome: ADV (1, 5)
Bromopsis porteri (Coulter) Holub [Bromus] (1, 5)
Bromopsis pumpelliana (Scribner) Holub [Bromus] (1, introduced in a reseeded area)
Calamagrostis canadensis (Michaux) P. Beauvois, Reedgrass (3B)
Calamagrostis purpurascens R. Brown in Richardson (4A)
Calamagrostis stricta (Timm) Koeler (3B)
Catabrosa aquatica (L.) P. Beauvois, Brookgrass (3E)
Ceratochloa carinata (H. & A.) Tutin [Bromus marginatus], Mountain Brome: ADV (5)
Critesion brachyantherum (Nevski) W. A. Weber [Hordeum], Meadow Barley: ADV (3B, 5)
Critesion jubatum (L.) Nevski [Hordeum], Foxtail Barley (5)
Danthonia parryi Scribner, Oatgrass (1, 4A)
Deschampsia cespitosa (L.) P. Beauvois, Tufted Hairgrass (3C)
Elymus elymoides (Raf.) Swezey [Sitanion hystrix], Squirreltail (3B)
Elymus longifolius (J. G. Smith) Gould [Sitanion] (1, 4A, 5)
Elymus trachycaulus (Link) Gould ex Shinners [Agropyron], Slender Wheatgrass (1, 5)
Elytrigia intermedius (Host) Nevski [Agropyron], Intermediate Wheatgrass: ADV (5)
Elytrigia repens (L.) Nevski [Agropyron], Quackgrass: ADV (3B)
Festuca arizonica Vasey, Fescue (1)
Festuca ovina L. was reported by Ramaley. This does not occur in Colorado. The specimen has not been found, but is either F. idahoensis or F. saximontana.
Glyceria grandis S. Watson in Gray [G. maxima], Mannagrass (3C)
Glyceria striata (Lamarck) Hitchcock var stricta (Scribner) Fernald (3C)
Hierochloë hirta (Schrank) Borbas ssp arctica (J. Presl in K. Presl) G. Weimarck [H. odorata], Sweetgrass (3B)
Koeleria macrantha (Ledebour) Schultes [K. gracilis], Junegrass (2A)
Lolium perenne L. ssp italicum (A. Braun) Syne, Ryegrass: ADV (3B, 5)
Muhlenbergia andina (Nuttall) Hitchcock, Muhly (4A)
Muhlenbergia filiculmis Vasey (1, 3B, 4A)
Muhlenbergia montana (Nuttall) Hitchcock (1, 3A)
Muhlenbergia richardsonis (Trinianus) Rydberg (1, 4A, 5)
Pascopyrum smithii (Rydberg) Löve [Agropyron], Western Wheatgrass (2A, 3B)
Phalaroides arundinacea (L.) Rauschert [Phalaris], Reed Canarygrass: ADV (3B)
Phleum pratense L., Timothy: ADV (3B)
Poa agassizensis Boivin & D. Löve, Bluegrass (1)
Poa compressa L., Canada Bluegrass: ADV (3B)
Poa fendleriana (Steudel) Vasey, Muttongrass (1, 2A)
Poa glauca M. Vahl ssp rupicola (Nash) W. A. Weber [P. rupicola] (1)
Poa glaucifolia Scribner & Williams (2A)
Poa nervosa (Hooker) Vasey (1)
Poa palustris L. (3B)
Poa pratensis L., Kentucky Bluegrass: ADV (3B)
Psathyrostachys juncea (Fischer) Nevski [Elymus] Russian Wild Rye: ADV (5)
Puccinellia airoides Watson & Coulter, Alkaligrass (3B)
Schedonorus paniculatus (Nuttall) Trelease, Tumblegrass (1, 5)
Schizachyrium scoparium (Michaux) Nash [Agropyron], Little Bluestem (1, 2A)
Sporobolus cryptandrus (Torrey) A. Gray, Sand Dropseed (5)
Stipa comata Trin. & Ruprecht, Needle-and-thread (1)
Stipa robusta (Vasey) Scribner, Sleepygrass (1)
Stipa viridula Trinius (5)
Triticum aestivum L., Wheat: ADV (5)

POLEMONIACEAE - PHLOX FAMILY (PLM)

Collomia linearis Nuttall (1, 3B, 5)
Gilia pinnatifida Nuttall [G. calcarea] (1, 4A)
Ipomopsis aggregata (Pursh) V. Grant ssp candida (Rydberg) V. & A. Grant [Gilia], White Gilia (1)
Ipomopsis aggregata (Pursh) V. Grant ssp collina (Greene) Wilken & Allard [Gilia], Scarlet Gilia (1, 4a)
Polemonium foliosissimum (A. Gray) A. Gray, Jacob’s Ladder (3b)

POLYGONACEAE - KNOTWEED FAMILY (PLG)

Acetosella vulgaris (K. Koch) Fourreau [Rumex], Sheep-sorrel: ADV (1)
Bistorta bistortoides (Pursh) Small [Polygonum], Bistort (3b)
Bistorta vivipara (L.) S. Gray [Polygonum], Alpine Bistort (3a)
Eriogonum cernuum Nuttall (5)
Fallopia convolvulus (L.) Löve [Polygonum], Black Bindweed: ADV (5)
Persicaria lapathifolia (L.) S. Gray [Polygonum]; ADV (3d)
Polygonum arenastrum Boreau [P. aviculare], Knotweed: ADV (5)
Pterogonum alatum (Torrey) Gross [Eriogonum], Winged Buckwheat (1)
Rumex aquaticus L. ssp occidentalis (S. Watson) Hultén [R. occidentalis], Dock (3c)
Rumex densiflorus Osterhout (3b)
Rumex triangulivalvis (Danser) Rech.f. (3b,c)

PORTULACACEAE - PURSLANE FAMILY (POR)

Crunocaliis chainissoi (Ledebour ex Sprengel) Rydberg [Claytonia], Water Spring Beauty (3a,c)
Talinum parviflorum Nuttall ex T. & G. (4a)

POTAMOGETONACEAE - PONDWEED FAMILY (POT)

Potamogeton berchtoldii Fieber in Berchtold & Fieber (3e)

PRIMULACEAE - PRIMROSE FAMILY (PRM)

Androsace septentrionalis L., Rock Primrose (2c, 4a, 5)
Dodecatheon pulchellum (Raf.) Merrill, Shooting Star (3a,b)
Glaux maritima L. var angustifolia Boivin, Sea Milkwort (3d)
PYROLACEAE - WINTERGREEN FAMILY (PYR)

Orthilia secunda (L.) House [Pyrola, Ramischia], One-sided Wintergreen (2c)
Pyrola rotundifolia L. ssp asarifolia (Michaux) Löve [P. asarifolia], Swamp Wintergreen (2C)

RANUNCULACEAE - BUTTERCUP FAMILY (RAN)

Anemone multifida Poiret var globosa (Nuttall) T. & G., Windflower (2A,B, 3B)
Batrachium trichophyllum (Chaix) v. d. Bosch [Ranunculus], Water Crowfoot (3E)
Clematis ligusticifolia Nutt., Virgin’s Bower (3B)
Corifflora hirsutissima (Pursh) W. A. Weber [Clematis], Sugarbowls (1)
Halerpestes cymbalaria (Pursh) Greene ssp saximontana (Fernald) Moldenke [Ranunculus], Shore Buttercup (3B,D)
Hecatonia scelerata (L.) Fourreau [Ranunculus], Blister Buttercup: ADV (3B,D)
Pulsatilla patens (L.) Miller ssp multifida (Pritzel) Zamels [Anemone], Pasque Flower (1, 2A)
Ranunculus abortivus L. ssp acrolasius (Fernald) Kapoor & Löve, Small-flowered Crowfoot (3A)
Ranunculus cardiophyllus Hooker (3A,B)
Ranunculus hyperboreus Rottboel ssp intertextus (Greene) Kapoor & Löve; Floating Buttercup (3A,B)
Ranunculus inamoenus Greene (3B)
Ranunculus macounii Britton (3A,B)

ROSACEAE - ROSE FAMILY (ROS)

Argentina anserina (L.) Rydberg [Potentilla], Silverweed (3B)
Cercocarpus montanus Raf., Mountain-mahogany (4A)
Chamaerhodos erecta (L.) Bunge ssp nuttallii (Pickering ex Rydberg) Hultén (1, 2A, 5)
Drymocallis fissa (Nuttall) Rydberg [Potentilla] (1, 2A, 4A)
Erythrocoma triflora (Pursh) Greene [Geum] (2A, 3B)
Fragaria vesca L. ssp bracteata (Heller) Staudt [F. americana], Wild Strawberry (2C)
Fragaria virginiana P. Miller ssp glauca (S. Watson) Staudt [F. ovalis] (2C, 3B)
Geum macrophyllum Willd. var perincisum Raup, Avens (3A,B)
Oeobatus deliciosus (James ex Torrey) Rydberg [Rubus], Boulder Raspberry (1, 4A)
Padus virginiana (L.) P. Miller ssp melanocarpa (A. Nelson) W. A. Weber [Prunus], Choke-cherry (3A)
Pentaphylloides floribunda (Pursh) Löve [Potentilla fruticosa], Shrubby Cinquefoil (1, 2B)
Physocarpus monogynus (Torrey) Coulter (4B)
Potentilla concinna Richardson, Cinquefoil (1, 2A)
Potentilla effusa Douglas ex Lehmann (4A)
Potentilla hippocana Lehmann (1, 4B)
Potentilla pensylvanica L. (1, 4A,B)
Potentilla plattensis Nuttall ex T. & G. (3A,B)
Potentilla pulcherrima Lehmann (3C)
Potentilla subjuga Rydberg (3B)
Rosa arkansana Porter, Arkansas Rose (2C, 4A,)
Rosa woodsii Lindley, Wild Rose (4A, 5)
Rubus idaeus L. ssp melanolasius (Dieck) Focke, Wild Raspberry (4A)

RUBIACEAE - MADDER FAMILY (RUB)

Galium septentrionale R. & S. [G. boreale], Northern Bedstraw (1, 4A)
Galium trifidum L. ssp subbiflorum (Wiegand) Puff, Bedstraw (3A,B)
Galium triflorum Michaux, Fragrant Bedstraw (3A)
SALICACEAE - WILLOW FAMILY (SAL)

Populus balsamifera L., Balsam Poplar (3A)
Populus tremuloides Michaux, Quaking Aspen (3A)
Salix brachycarpa Nuttall, Willow (3A)
Salix exigua Nuttall, Sandbar Willow (3A)
Salix lutea Nuttall (3A)
Salix monticola Bebb in Coulter (3A)

SAXIFRAGACEAE - SAXIFRAGE FAMILY (SAX)

Ciliaria austromontana (Wiegand) W. A. Weber [Saxifraga], Spotted Saxifrage (2C, 4B)
Heuchera parvifolia Nuttall ex T. & G., Alum-root (1, 2C, 4A,B)
Micranthes rhomboidea (Greene) Small [Saxifraga], Snowball Saxifrage (3B, 4A)

SCROPHULARIACEAE - FIGWORT FAMILY (SCR)

Besseya plantaginea (Bentham in DC.) Rydberg, Kittentails (1, 2A, 4B)
Castilleja integra A. Gray in Torrey, Orange Paintbrush (1, 4A)
Castilleja miniata Douglas ex Hooker, Scarlet Paintbrush (2C)
Limosella aquatica L., Mudwort (3D)
Linaria vulgaris P. Miller, Butter-and-eggs: ADV (5)
Orthocarpus luteus Nuttall, Owl-clover (1)
Pedicularis canadensis L. ssp fluviatilis (Heller) W. A. Weber, Canada Lousewort (2B,C)
Pedicularis procera A. Gray [P. grayi], Tall Lousewort (2C)
Penstemon barbatus Torrey ssp torreyi (Bentham) Keck, Scarlet Penstemon (2A)
Penstemon crandallii A. Nelson (2C, 4A, 5)
Penstemon glaber Pursh [P. alpinus] (5)
Penstemon secundiflorus Bentham in DC. (5)
Penstemon virgatus A. Gray ssp asa-grayi Crosswhite [P. unilateralis] (1, 4A)
Rhinanthis minor L., Yellow Rattle (3B)
Scrophularia lanceolata Pursh, Figwort (3B)
Veronica americana Schweinitz ex Bentham, Speedwell (3A,C)
Veronica catenata Pennell [V. salina] (3A)
Veronica peregrina L. ssp xalapensis (HBK) Pennell, Purslane Speedwell (3B)

SOLANACEAE - NIGHTSHADE FAMILY (SOL)

Solanum triflorum Nuttall, Cut-leaved Nightshade (5)

TYPHACEAE - CAT-TAIL FAMILY (TYP)

Typha latifolia L., Broad-leaved Cattail (3C)

URTICACEAE - NETTLE FAMILY (URT)

Parietaria pensylvanica Mühl. ex Willd., Pellitory (4)
Urtica gracilis Aiton, Nettle (3B)

UVULARIACEAE - BELLWORT FAMILY (UVU)

Streptopus fassettii Löve & Löve [S. amplexifolius var. chalazatus], Twisted Stalk (3A)
VALERIANACEAE - VALERIAN FAMILY (VAL)

Valeriana capitata Pallas ex Link ssp acutiloba (Rydberg) F. G. Meyer (2A,C, 3B)
Valeriana edulis Nuttall (1, 2B,C)

VIOLACEAE - VIOLET FAMILY (VIO)

Viola biflora L., Twin-flower Violet (3A)
Viola epipsiloides Löve & Löve [V. epipsila var. repens], Swamp Violet (3A)

VISCACEAE - MISTLETOE FAMILY (VIS)

Arceuthobium vaginatum (Willd.) K. Presl ssp cryptopodum (Engelmann) Hawks-worth & Wiens, Dwarf Mistletoe (2A)

WOODSIACEAE - WOODSIA FAMILY (WDS)

Woodsia mexicana Fée (4A)
Woodsia oregana D. C. Eaton (4A)
REFERENCES


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