VASCULAR FLORA OF THE ROCKY FLATS AREA, JEFFERSON COUNTY, COLORADO, USA

Jody K. Nelson
Rocky Flats Site, JGMS Inc., Westminster, CO 80021 U.S.A.
jody.nelson@lm.doe.gov

ABSTRACT

The Rocky Flats Site (Site) is a U.S. Department of Energy (DOE) facility near Golden, Colorado that produced nuclear weapons components during the Cold War. Like many federal properties that have been off-limits to public access for decades, it has become a refugia for biodiversity as surrounding landscapes have been lost to agriculture and urbanization. A floristic study of the area was conducted on approximately 2,505 ha (6,189 ac) and includes the parcels currently managed and operated by DOE and the U.S. Fish and Wildlife Service (Rocky Flats National Wildlife Refuge). A flora of 630 species of vascular plants in 84 families and 340 genera was documented, including 12 species endemic to the southern Rocky Mountains and seven species considered rare or imperiled by the Colorado Natural Heritage Program. The flora of the Site is characterized by a predominantly Western North American floristic element, however, an Adventive floristic element contributes the greatest number of species. The vegetation is dominated by xeric tallgrass prairie and mixed grass prairie, with areas of wetland, shrubland, and riparian woodland. Phytologia 92(2): 121-150 (August 2, 2010).

KEY WORDS: Colorado, flora, phytogeography, refugia, Rocky Flats Site, Rocky Flats National Wildlife Refuge, U.S. Department of Energy, xeric tallgrass prairie

Government installations on otherwise undeveloped lands have received increased attention in recent years as refugia of biological diversity (Cohn, 1994; Gray and Rickard, 1989; Mann et al., 1996; Nickens, 1993). Many U.S. Department of Defense (DoD) and U.S. Department of Energy (DOE) lands contain protected habitat for
endangered, threatened, or sensitive plants, animals, and plant communities. Unlike national parks and forests, DoD and DOE lands have been off-limits, often serving as buffer areas separating facility operations from the general public for security reasons and protection from potential contaminant releases. As surrounding landscapes have been modified and changed by agriculture and urban development, many of these buffer areas have become large islands of relatively undisturbed biotic communities.

The DOE Rocky Flats Site (Site) between Golden and Boulder, Colorado, is one such area. Formerly known as the Rocky Flats Environmental Technology Site, the facility produced nuclear weapons components for nearly 40 years during the Cold War, from the early 1950s through 1989. From 1989 to 2005, the Site underwent environmental cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), more commonly known as Superfund. In 2001, prior to completion of cleanup activities, Congress enacted the Rocky Flats National Wildlife Refuge Act to set aside most of the Site as the Rocky Flats National Wildlife Refuge (RFNWR) once the Environmental Protection Agency certified that cleanup and closure activities were complete. Cleanup and closure of the Site concluded in October 2005. In July 2007, approximately 1597 ha (3947 ac) of the Site was transferred to the U.S. Fish and Wildlife Service (USFWS) to become the RFNWR. DOE retained the area where the former industrial complex was located, now known as the Central Operable Unit (COU), while most of the surrounding buffer area, known as the Peripheral Operable Unit (POU), was transferred to the USFWS.

For most of the last 50 years, the POU has remained largely undisturbed. During the 1970s and 1980s, a few ecological and environmental studies were conducted by researchers at the University of Colorado at Boulder and Colorado State University in Fort Collins, Colorado (Arthur and Alldredge, 1982; Clark et al., 1980; Weber et al., 1974; Little et al., 1980). Beginning in the early 1990s, ecological monitoring was conducted as part of the cleanup operations to ensure compliance with environmental laws and regulations, provide baseline ecological information, monitor resources, and provide technical support and data for ecological resource management. Over the years,
the vascular flora was inventoried to document the diversity of the plant life present at the Site. Ecological monitoring continues today for natural resource management as revegetation and habitat restoration return the area to a more natural state. This paper documents the vascular flora of the Rocky Flats area, encompassing both the COU and POU, and discusses the floristic and phytogeographic characteristics of the flora.

STUDY AREA

Located 25.7 km (16 mi) northwest of downtown Denver, the Site, approximately 2,505 ha [6,189 ac] in size, is located on the Colorado Piedmont approximately 3.2 km (2 mi) east of the mountain front between Golden and Boulder, Colorado. The Site is located at approximately 39° 53’ N latitude and 105° 12’ W longitude. Elevations range from 1,707 m (5,600 ft) on the eastern edge of the Site to 1,884 m (6,180 ft) along the western edge. The topography consists of gently east-sloping flat pediment (mesa) tops that have been dissected by intermittent and ephemeral streams, resulting in moderate to steep hillsides. The surface geologic unit of the mesa tops, the Rocky Flats Alluvium, is a glacial outwash fan originating from Coal Creek canyon to the west. The soils are classified as Nederland very cobbly sandy loams on the mesa tops interspersed with units of clay loams on hillslope and valley bottoms (SCS, 1980). According to records from the nearby National Renewable Energy Laboratory, the average annual precipitation is approximately 38 cm (15 in), most of which falls during April and May. The mean monthly temperature ranges from a low of approximately 1° C (34° F) in January to a high of approximately 22° C (71° F) during July. High winds, sometimes in excess of 145 km/hr (90 mph), frequently buffet the Site during the winter months.

METHODS

An early botanical inventory conducted by Weber et al. (1974) documented a flora of 327 vascular plants, 16 mosses, and 25 lichens at the Site. This inventory, deposited at the University of Colorado herbarium (COLO) in Boulder provided an initial species list for the Site. During the 1990s, dominant plant communities at the Site were inventoried and mapped as part of the ongoing ecological monitoring
The unpublished vegetation map and associated information was used for the Site plant community information presented in this report (K-H, 1997). Additional plant collections (through summer 2009) have provided a comprehensive inventory of the Site flora. Voucher specimens have been collected of all species documented at the Site. Specimens were collected, pressed and dried, identified, verified at COLO, and mounted using accepted herbarium techniques. The taxonomy used for this study follows GPFA (1986), Weber (1976), Weber (1990), and Weber and Wittman (2001), in that order of determination. The complete set of voucher specimens for the Site is housed at COLO.

Floristic summaries were compiled using the complete species list and included total species richness, total number of plant families, total number of genera, total number species by growth form, plant families and genera with the greatest number of species.

Plant geographers have long recognized that species have specific range distributions and that plant species can be grouped or classified based on their geographic distributions. When the taxa from a flora of a particular area or region are grouped based on similarities in worldwide distribution the resulting floristic classification categories are called phytogeographical elements (Peinado et al., 2009). A geographical analysis of the Rocky Flats species provided a representation of the phytogeographic elements that contribute to the flora of the Site. The geographical analysis followed the methodology used in recent regional floristic accounts by Hogan (1993), Clark (1996), and Nelson and Harmon (1997). Eleven elements were defined: Western North America (WNA), Great Plains (GP), Eastern North America (ENA), Southern Rocky Mountains (SR), Southwestern North America (SNA), North America (NA), Western Hemisphere (WH), Oroboral (O), Circumpolar (C), Cosmopolitan (COS), and Adventive (A). Western North American species are generally distributed west of the 100th Meridian. Great Plains species are distributed across the central plains of North America. Distributions of Eastern North America species are generally east of the 100th Meridian. The Southern Rocky Mountains species are found in the Rocky Mountains from southern Wyoming and into Colorado and New Mexico. The Southwestern North American (Chihuahuan) species are
evidence of a Madrean influence. North American species are those distributed throughout most of the continent. Western Hemisphere species have distributions in North, Central, and South America. Orobororeal species have distributions across southern Canada, the northern United States, and south along the Appalachian mountains, and western Cordillera. Circumpolar species are those found throughout the Holarctic in North America, Europe, and Asia. Cosmopolitan species have a worldwide distribution. Adventive species are defined as native and non-native species that tend to grow in weedy, disturbed areas. Where possible, species were assigned elements based on determinations made previously by Hogan (1993), Clark (1996), Nelson (1993), and Nelson and Harmon (1997). Various floras were used to determine distributions of species not previously assigned element status, (Fernald, 1950; Gleason and Cronquist, 1963; GPFA, 1986; Hitchcock, 1971; Rydberg, 1932; USDA, NRCS, 2009).

RESULTS AND DISCUSSION

Plant Communities

The dominant plant communities at the Site can be divided into eight types: xeric tallgrass prairie, mesic mixed grassland, needle and threadgrass prairie, Great Plains riparian woodland, willow and wild indigo shrublands, tall upland shrubland, wetlands, and reclaimed grasslands.

**Xeric tallgrass prairie.** The xeric tallgrass prairie is considered to be a relict plant community from the last glaciation. This rare and unique prairie occurs only in a narrow band on the Colorado Piedmont, east of the mountain front in Colorado. The xeric tallgrass prairie on the Site, combined with that on City of Boulder Open Space to the west, is believed to be the largest remaining tract of this plant community in North America (CNHP, 1994, 1995). It covers approximately 733 ha (1,811 ac) at the Site and contains a unique mixture of tallgrass and montane species. Many of the tallgrass species are not commonly found between the mountain front and the true tallgrass prairie of the eastern Great Plains several hundred miles east. Dominant species within this community at the Site include *Andropogon gerardii* Vitman, *Muhlenbergia montana* (Nutt.) Hitchc., *Aster porteri* Gray, and *Poa*

**Mesic mixed grassland.** The mesic mixed grassland covers the greatest area at the Site (approximately 896 ha [2,213 ac]) and is most abundant on the hillsides. It is classified by the presence of *Agropyron smithii* Rydb., *B. gracilis*, *B. curtipendula* and *B. japonicus* Thunb. ex Murr. Other common species include *Poa pratensis* L., *Stipa viridula* Trin., *Psoralea tenuiflora* Pursh, *Ratibida columnifera* (Nutt.) Woot. & Standl., and *Alyssum minus* (L.) Rothmaler var. *micranthus* (C. A. Mey.) Dudley.

**Needle and threadgrass prairie.** The needle and threadgrass prairie covers approximately 76 ha [189 ac] and is typically found on the eastern edges of the pediments. Dominant species are *Stipa comata*, and two exotic species, *Linaria dalmatica* (L.) Mill. and *B. japonicus*. Other commonly encountered species include *Stipa neomexicana* (Thur.) Scribn., *Poa pratensis*, *P. compressa*, *Yucca glauca* Nutt., *C. heliophila*, *B. gracilis*, *B. curtipendula*, and *A. minus*.

**Great Plains riparian woodland.** The Great Plains riparian woodland is found along reaches of all the streams at the Site and is classified primarily by the presence of a *Populus deltoides* Marsh. ssp. *monilifera* (Ait.) Eckenw. canopy. It only accounts for approximately 11 ha (28 ac) due to the intermittent and ephemeral nature of the the streams at the Site. Other canopy species include *Populus angustifolia* James, *Salix amygdaloides* Anderss., and *Acer negundo* L. var. *interius* (Britt.) Sarg. The understory often contains *Salix exigua* Nutt. ssp. *exigua*, *Amorpha fruticosa* L., *Juncus balticus* Willd., *Cirsium arvense* (L.) Scop., *Bromus inermis* Leyss. ssp. *inermis*, *Carex nebrascensis* Dew., and a variety of other forbs and graminoids.
**Willow and wild indigo shrublands.** These shrublands are common along the streams in the valleys at the Site and often occur adjacent to the Great Plains riparian woodland. These shrublands cover approximately 17 ha (41 ac). They are classified by the presence of *S. exigua* and *A. fruticosa*, both of which can occur singly as dominants or together as co-dominants. Other common species include *J. balticus*, *C. arvense*, *C. nebrascensis*, *Typha latifolia* L., *Geranium caespitosum* James ssp. *caespitosum*, and *Agrostis stolonifera* L.

**Tall upland shrubland.** The tall upland shrubland is classified by the presence of *Prunus virginiana* L. var. *melanocarpa* (A. Nels.) Sarg., *Crataegus erythropoda* Ashe, and *Prunus americana* Marsh. These shrublands are considered unique to the Site and region, and they are found associated with the upper edges of hillside seep wetlands (CNHP, 1994). These often narrow, linear communities are common in the Rock Creek drainage on predominantly north-facing slopes at the Site. Although representing less than 1 percent of the total area of the Site (14 ha, 34 ac), more than 50 percent of the Site’s flora is found in association with this community. Several plant species are found only associated with this community at the Site, including *Hydrophyllum fendleri* (Gray) Heller, *Osmorhiza chilensis* H. & A., *Osmorhiza longistylis* (Torr.) DC var. *longistylis*, *Smilax herbacea* L. var. *lasioneura* (Small) Rydb., *Viola rydbergii* Greene, *Viola scopulorum* (Gray) Greene, *Cystopteris fragilis* (L.) Bernh., *Physocarpus monogynus* (Torr.) Coult., *Lupinus argenteus* Pursh ssp. *ingratus* (Greene) Harmon, *Lupinus argenteus* Pursh var. *argenteus*, and *Agropyron griffithsii* Scribn. & Smith.

**Wetlands.** Wetlands at the Site are found along the streams and the hillside seep-fed wetlands on the north-facing slopes in the Rock Creek and Woman Creek drainages. The seeps emerge on the hillsides and form the wetlands at the juncture where the Rocky Flats Alluvium meets the bedrock. The wetlands cover approximately 165 ha (407 ac) at the Site. These wetlands are dominated by *J. balticus*, *C. arvense*, *Carex lanuginosa* Michx., and *T. latifolia*. Other common species include *Geum macrophyllum* Willd., *Barbarea vulgaris* R. Br., *C. nebrascensis*, *Asclepias incarnata* L., *Mentha arvensis* L., *Juncus longistylis* Torr., *Spartina pectinata* Link, and *Nasturtium officinale* R. Br.
Reclaimed grasslands. Two types of reclaimed grasslands occur at the Site. They are distinguished by the seed mixes that were used for reclamation. Areas seeded prior to the 1990s were seeded predominantly with exotic graminoid species and are dominated by *B. inermis* and *Agropyron intermedium* (Host) Beauv., with a few locations of *Agropyron cristatum* (L.) Gaertn. Little native vegetation is present at many of these reclaimed grasslands, even after more than a quarter-century (Nelson, 1999). These reclaimed areas account for approximately 261 ha (645 ac). Newly seeded reclamation grasslands have been seeded with native species, common to the native prairie communities at the Site. These areas are dominated by *Agropyron smithii*, *A. caninum* (L.) Beauv. ssp. *majus* (Vasey) C.L. Hitchc., *B. gracilis*, *B. curtipendula*, *Buchloe dactyloides* (Nutt.) Engelm., *A. gerardii*, *S. nutans*, and *Panicum virgatum* L. These areas cover approximately 263 ha (650 ac).

Floristics

The vascular flora of the Site consists of 630 species distributed across 84 families and 340 genera, including 5 pteridophytes, 5 gymnosperms, and 620 angiosperms. The checklist of the vascular flora of the Site is provided below. Seventy-six percent of the flora is composed of native species. The growth habits of the flora include 145 graminoids, 421 forbs, 32 shrubs, 24 trees, 6 cacti, and 2 vines. The plant families that contribute the greatest number of species to the flora are the Asteraceae (108 species), Poaceae (101 species), Fabaceae (34 species), Cyperaceae (31 species), Rosaceae (28 species), Brassicaceae (28 species), and Scrophulariaceae (24 species). Twelve species endemic to Colorado and the southern Rocky Mountains occur at the Site (Maley, 1994; Weber, 1976; Weber and Wittman, 1992): *A. porteri*, *Cryptantha virgata* (Porter) Payson, *Erigeron vetensis* Rydb., *Harbouria trachypleura* (Gray) C. & R., *Lithospermum multiflorum* Torr., *Penstemon secundiflorus* Benth., *Penstemon virens* Penn., *Penstemon virgatus* Gray ssp. *asa-grayi* Crosswhite, *Physaria vitulifera* Rydb., *Potentilla fissa* Nutt., *Scutellaria brittonii* Porter, and *Senecio fendleri* Gray.

No federally listed threatened or endangered plant species have been found at the Site; however, seven species of special concern
as listed by the CNHP are present (CNHP, 2009): *C. oreocharis*, *Aristida basiramea* Engelm. ex Vasey var. *basiramea*, *S. herbacea*, *Triodanis leptocarpa* (Nutt.) Nieuw., *Equisetum variegatum* Schleich., *Asclepias stenophylla* A. Gray, and *Amorpha nana* Nutt.

**Phytogeography**

The Site flora is predominantly Western North American in distribution (145 sp./23.0%; Table 1); however, the North American (89 sp./14.1%) and Great Plains (82 sp./13.8%) elements also contribute substantially to the flora. The high representation of Western North American and Great Plains elements is not unexpected given the ecotonal position of the Site at the juncture of the western prairie edge and foothills of the Rocky Mountains. One of the more interesting components of the Site flora is the Eastern North American element (31 sp./4.9%). It has been suggested that this element, comprising eastern woodland/prairie species, spread westward and contacted the Rocky Mountain region during the last glacial period (Weber 1965, 1976). These relict species remained in isolated refugia after the last ice age, in the cooler ravines and montane environments found in a narrow band along the eastern mountain front of Colorado. Many of the tallgrass prairie species found at the Site belong to this group, including *A. gerardii*, *A. scoparius*, *S. heterolepis*, *S. spartea*, and *S. nutans*. Other species at the Site that belong to this element include *Lobelia siphilitica* L. var. *ludoviciana* A. DC., *Ceanothus herbaceus* Raf. var. *pubescens* (T. & G.), *Agrimonia striata* Michx., *Helianthus rigidus* (Cass.) Desf. ssp. *subrhomboideus* (Rydb.) Heiser, and *Lysimachia ciliata* L. (Hogan, 1993; Maley, 1994; Weber, 1976).

One of the most striking discoveries of this study was that the Adventive element—both native and non-native species that prefer disturbed, weedy areas—contributed the highest number of species to the flora of the Site (166 sp./26.4%). The relatively high contribution of the Adventive element has also been documented in other recent regional floristic surveys. In the city of Boulder Mountain Parks, Hogan (1993) found that the Adventive element contributed 21.1% of the flora. Maley (1994) found that 17.3% of the flora of the Black Forest area between Denver and Colorado Springs came from the the Adventive element, while Clark found only a 12.9% contribution in the
Mesa de Maya region of southeastern Colorado. At higher elevations, the contribution of the Adventive element has been less than at lower elevations. In the Gore Range of central Colorado, Hogan (1992) reported the Adventive element contributed only 4% of the flora. In general, this would suggest that the percentage of Adventive element species in a local flora seems to be lower where there has been less impact from humans.

The significance of the Adventive element may be somewhat exaggerated, however, because species lists note only presence or absence, and do not provide any measure of abundance. Most of the Adventive element species at the Site do not occur in great numbers, and many are based on single collections. Several of these species have been found in recent years in the reclaimed grassland areas, most likely as seed mix contaminants. In most cases it is rare that they persist beyond one or two years. Some of the Adventive element species, however, present one of the greatest threats to, and challenges for management of the plant communities at the Site—noxious weeds. The noxious weeds that are currently problematic include *Centaurea diffusa* Lam., *C. arvense*, *L. dalmatica* (L.) Mill., *Carduus nutans* L. ssp. *macrolepis* (Peterm.) Kazmi, *Euphorbia uralensis* Fisch. ex Link, *Onopordum acanthium* L., and *Verbascum thapsus* L.

**CONCLUSIONS**

The floristic richness at the Site is very high and diverse considering the relatively small size of the area. Much of this can be attributed to the ecotonal position of the Site at the juncture of the Great Plains and the foothills of the Rocky Mountains. The high representation of Western North American and Great Plains species supports this. The xeric tallgrass prairie, Great Plains riparian woodland, tall upland shrubland, and wetland communities and their respective floras found at the Site represent a rich heritage of what much of the Colorado Piedmont east of the mountain front in Colorado must have looked like in the past. This study documents the known vascular flora present at the Site and provides a baseline for future comparisons. As development and urbanization continue to transform the native landscape, areas like Rocky Flats continue to serve as refugia for plants and animals that were once much more common.
ACKNOWLEDGEMENTS

The information presented here reflects the cooperative efforts of numerous individuals who have been part of the ecology staff at Rocky Flats over the years and who have added to the floristic knowledge of the Site. Funding for the ecology program at the Site has been provided by the U.S. Department of Energy. Special thanks also go to Jody Waugh, David Foster, Linda Sheader, and Karin McShea for their review of this manuscript.

LITERATURE CITED


Table 1. Phytogeographical element summary of the flora of the Rocky Flats area.

<table>
<thead>
<tr>
<th>Phytogeographical Elements</th>
<th>Number of Species</th>
<th>Percent of Flora</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western North America (WNA)</td>
<td>145</td>
<td>23.0</td>
</tr>
<tr>
<td>North America (NA)</td>
<td>89</td>
<td>14.1</td>
</tr>
<tr>
<td>Great Plains (GP)</td>
<td>87</td>
<td>13.8</td>
</tr>
<tr>
<td>Eastern North America (ENA)</td>
<td>31</td>
<td>4.9</td>
</tr>
<tr>
<td>Southern Rocky Mountains (SR)</td>
<td>24</td>
<td>3.8</td>
</tr>
<tr>
<td>Circumpolar (C)</td>
<td>24</td>
<td>3.8</td>
</tr>
<tr>
<td>Southwestern North America (SNA)</td>
<td>23</td>
<td>3.7</td>
</tr>
<tr>
<td>Oroboreal (O)</td>
<td>17</td>
<td>2.7</td>
</tr>
<tr>
<td>Cosmopolitan (COS)</td>
<td>16</td>
<td>2.5</td>
</tr>
<tr>
<td>Western Hemisphere (WH)</td>
<td>8</td>
<td>1.3</td>
</tr>
<tr>
<td>Adventive (A)</td>
<td>166</td>
<td>26.4</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>630</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
CHECKLIST OF THE VASCULAR FLORA OF THE ROCKY FLATS AREA

Nomenclature follows GPFA (1986), Weber (1976), Weber (1990), Weber and Wittmann (2001), in that order of determination. The letters behind each species denote the phytogeographic element classification and follow the acronyms as defined in the text.

ACERACEAE
Acer glabrum Torr., WNA; Acer negundo L. var. interius (Britt.) Sarg., NA; Acer platanoides L., A

AGAVACEAE
Yucca glauca Nutt., GP

ALISMATACEAE
Alisma triviale Pursh, NA; Sagittaria latifolia Willd., NA

AMARANTHACEAE
Amaranthus albus L., NA; Amaranthus graecizans L., WNA; Amaranthus retroflexus L., A

ANACARDIACEAE
Rhus aromatica Ait. var. trilobata (Nutt.) A. Gray, WNA; Toxicodendron rydbergii (Small) Greene, NA

APIACEAE
Berula erecta (Huds.) Cov. var. incisum, NA; Cicuta maculata L. var. angustifolia Hook., NA; Conium maculatum L., A; Daucus carota L., A; Harbouria trachyleura (Gray) C. & R., SR; Heracleum sphondylium L. ssp. montanum (Schleich.) Briq., NA; Ligusticum porteri C. & R., SR; Lomatium orientale Coult. & Rose, GP; Musineon divaricatum (Pursh.) Nutt. var. hookeri T. & G., GP; Osmorhiza chilensis H. & A., O; Osmorhiza longistylis (Torr.) DC var. longistylis, O

APOCYNACEAE
Apocynum androsaemifolium L., NA; Apocynum cannabinum L., A
ASCLEPIADACEAE
Asclepias incarnata L., ENA; Asclepias pumila (Gray) Vail, GP; Asclepias speciosa Torr., WNA; Asclepias stenophylla A. Gray, GP; Asclepias viridiflora Raf., ENA

ASTERACEAE
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper, WNA; Agoseris glauca (Pursh.) Dietr., WNA; Ambrosia artemisiifolia L., A; Ambrosia psilostachya DC., GP; Ambrosia trifida L., A; Antennaria microphylla Rydb., WNA; Antennaria parvifolia Nutt., WNA; Anthemis cotula L., A; Arctium minus Bernh., A; Arnica fulgens Pursh., WNA; Artemisia campestris L. ssp. caudata (Michx.) Hall & Clem., NA; Artemisia dracunculus L., WNA; Artemisia frigida Willd., NA; Artemisia ludoviciana Nutt. var. ludoviciana, NA; Aster campestris Nutt., WNA; Aster falcatus Lindl., WNA; Aster fendleri A. Gray, GP; Aster hesperius A. Gray var. hesperius, SNA; Aster laevis L. var. geyeri A. Gray, NA; Aster porteri Gray, SR; Bidens cernua L., A; Bidens frondosa L., A; Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi, A; Centaurea cyanus L., A; Centaurea diffusa Lam., A; Centaurea repens L., A; Centaurea solstitialis L., A; Chrysanthemum leucanthemum L., A; Chrysopsis fulcrata Greene, WNA; Chrysopsis villosa Pursh., WNA; Chrysanthemnus nauseosus (Pall.) Britt. ssp. graveolens (Nutt.) Piper, WNA; Chrysanthemnus nauseosus (Pall.) Britt. ssp. nauseosus, WNA; Cichorium intybus L., A; Cirsium arvense (L.) Scop., A; Cirsium flodmannii (Rydb.) Arthur, GP; Cirsium ochrocentrum A. Gray, GP; Cirsium undulatum (Nutt.) Spreng., GP; Cirsium vulgare (Savi) Ten., A; Conyza canadensis (L.) Cronq., A; Coreopsis tinctoria Nutt., A; Cosmos bipinnatus Cav., A; Crepis occidentalis Nutt., WNA; Crepis runcinata (James) T. & G., WNA; Dimorphotheca aurantiaca D.C., A; Dyssodia papposa (Vent) Hitchc., NA; Erigeron canus A. Gray, GP; Erigeron compositus Pursh var. dicoideus A. Gray, WNA; Erigeron divergens T. & G., WNA; Erigeron flagellaris A. Gray, GP; Erigeron pumilus Nutt., WNA; Erigeron speciosa (Lindl.) DC. var. macranthus (Nutt.) Cronq., WNA; Erigeron strigosus Muhl. ex Willd., A; Erigeron vetensis Rydb., SR; Gaillardia aristata Pursh., WNA; Gnaphalium chilense Spreng., A; Grindelia squarrosa (Pursh.) Dun., GP; Gutierrezia sarothrae (Pursh.) Britt. & Rusby, WNA; Haplopappus spinulosus (Pursh) DC., GP; Helianthus annuus L., NA; Helianthus ciliaris DC., SNA; Helianthus maximilianii Schrad., GP;
Helianthus nuttallii T. & G., WNA; Helianthus petiolaris Nutt., GP; Helianthus pumilus Nutt., SR; Helianthus rigidus (Cass.) Desf. ssp. subrhomboideus (Ryd.) Heiser, GP; Heliomeris multiflora Nuttall, WNA; Hymenopappus filifolius Hook. var. cinereus (Ryd.) I. M. Johnst., GP; Iva axillaris Pursh., WNA; Iva xanthifolia Nutt., GP; Kuhnia chlorolepis Woot. & Standl., SNA; Kuhnia eupatorioides L., ENA; Lactuca oblongifolia Nutt., WNA; Lactuca serriola L., A; Leucelene ericoides (Torr.) Greene, WNA; Liatris punctata Hook., GP; Lygodesmia juncea (Pursh.) Hook., GP; Machaeranthera bigelowii (Gray) Greene, SNA; Machaeranthera canescens (Pursh) A. Gray, WNA; Madia glomerata Hook., O; Microseris cuspidata (Pursh.) Sch. Bip., GP; Onopordum acanthium L., A; Picradeniopsis oppositifolia (Nutt.) Rydb., GP; Ratibida columnifera (Nutt.) Woot. & Standl., GP; Rudbeckia ampla Nelson, ENA; Scorzonera laciniata L., A; Senecio fendleri Gray, SR; Senecio integerrimus Nutt., WNA; Senecio Plattensis Nutt., GP; Senecio spartioides T. & G., WNA; Senecio tridenticulatus Rydb., WNA; Solidago canadensis L., NA; Solidago gigantea Ait., NA; Solidago missouriensis Nutt., WNA; Solidago mollis Bart., GP; Solidago nana Nutt., WNA; Solidago rigida L., ENA; Sonchus arvensis L. ssp. uliginosus (Bieb.) Nyman, A; Sonchus asper (L.) Hill, A; Stephanomeria pauciflora (Torr.) A. Nels., GP; Taraxacum laevigatum (Willd.) DC., A; Taraxacum officinale Weber, A; Thelesperma megapotanicum (Spreng.) O. Ktze., WH; Townsendia grandiflora (Nutt.), GP; Townsendia hookeri Beaman, GP; Tragopogon dubius Scop., A; Tragopogon porrifolius L., A; Verbesina encelioides (Cau) Benth. & Hook. ssp. exauriculata (Robins & Greenm.) Coleman, A; Xanthium strumarium L., A

BERBERIDACEAE
Berberis repens Lindl., WNA

BETULACEAE
Alnus incana (L.) Moench ssp. tenuifolia (Nuttall) Breitung, WNA; Betula occidentalis Hook., WNA

BORAGINACEAE
Asperugo procumbens L., A; Cryptantha virgata (Porter) Payson, SR; Cynoglossum officinale L., A; Hackelia floribunda (Lehm.) I. M. Johnst., WNA; Lappula redowskii (Hornem.) Greene, COS;
Lithospermum incisum Lehm., O; Lithospermum multiflorum Torr., SR; Mertensia lanceolata (Pursh.) A. DC., WNA; Onosmodium molle Michx. var. occidentale (Mack.) Johnst., GP; Plagiobothrys scouleri (H. & A.) I. M. Johnst., WNA

BRASSICACEAE
Alyssum alyssoides (L.) L., A; Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley, A; Arabis fendleri (S. Wats.) Greene var. fendleri, SNA; Arabis glabra (L.) Bernh., A; Arabis hirsuta (L.) Scop. var. pycnocarpa (Hopkins) Rollins, NA; Barbarea vulgaris R. Br., A; Camelina microcarpa Andrz. ex DC., A; Capsella bursa-pastoris (L.) Medic., A; Cardaria chalepensis (L.) Hand-Mazz, A; Cardaria draba (L.) Desv., A; Chorispora tenella (Pall.) DC., A; Conringia orientalis (L.) Dum., A; Descurainia pinnata (Walt.) Britt., ENA; Descurainia richardsonii (Sweet) Schultz, O; Descurainia sophia (L.) Webb ex Prantl., A; Draba nemorosa L., A; Draba reptans (Lam.) Fern., NA; Erysimum capitatum (Nutt.) DC., WNA; Erysimum repandum L., A; Hesperis matronalis L., A; Lepidium campestrum (L.) R. Br., A; Lepidium densiflorum Schrad., A; Lesquerella montana (A. Gray) Wats., GP; Nasturtium officinale R. Br., COS; Physaria vitulifera Rydb., SR; Rorippa palustris (L.) Bess. ssp. hispida (Desv.) Jonsell, WNA; Sisymbrium altissimum L., A; Thlaspi arvense L., A

CACTACEAE
Coryphantha missouriensis (Sweet) Britt. & Rose, GP; Echinocereus viridiflorus Engelm., GP; Opuntia fragilis (Nutt.) Haw., WNA; Opuntia macrorhiza Engelm., GP; Opuntia polyacantha Haw., GP; Pediocactus simpsonii (Engelm.) Brit. & Rose, WNA

CALLITRICHEACEAE
Callitriche verna L., C

CAMPANULACEAE
Campanula rotundifolia L., C; Lobelia siphilitica L. var. ludoviciana A. DC., NA; Triodanis leptocarpa (Nutt.) Nieuw., GP; Triodanis perfoliata (L.) Nieuw., A

CANNABACEAE
Humulus lupulus L. var. lupuloides E. Small, SNA
CAPPARACEAE
Cleome serrulata Pursh., WNA; Polansia dodecandra (L.) DC. ssp. trachysperma (T. & G.) Iltis, WNA

CAPRIFOLIACEAE
Symphoricarpos occidentalis Hook., WNA; Symphoricarpos oreophilus Gray, WNA; Viburnum opulus L. var. americanum Ait, O

CARYOPHYLLACEAE
Arenaria fendleri A. Gray, SNA; Cerastium arvense L., C; Cerastium brachypodum (Engelm. ex A. Gray) Robins., NA; Cerastium vulgatum L., A; Conosilene conica (L.) Fourreau ssp. conoidea (L.) Love & Kjellqvist, A; Gypsophila elegans Bieb., A; Paronychia jamesii T. & G., GP; Saponaria officinalis L., A; Silene antirrhina L., A; Silene drummondii Hook., WNA; Silene pratensis (Raf.) Godr. & Gren, A; Spergularia media (L.) Presl., A; Spergularia rubra (L.) K. Presl., NA; Stellaria longifolia Muhl. ex Willd., C; Vaccaria pyramidata Medic., A

CERATOPHYLLACEAE
Ceratophyllum demersum L., C

CHENOPODIACEAE
Atriplex canescens (Pursh.) Nutt., WNA; Chenopodium album L., A; Chenopodium atrovirens Nutt., WNA; Chenopodium berlandieri Moq., NA; Chenopodium botrys L., A; Chenopodium dessicatum A. Nels., WNA; Chenopodium fremontii S. Wats., WNA; Chenopodium glaucum L., GP; Chenopodium leptophyllum Nutt. ex Moq., WNA; Chenopodium overi Aellen, WNA; Kochia scoparia (L.) Schrad., A; Salsola iberica Senn. & Pau., A

CLUSIACEAE
Hypericum majus (A. Gray) Britt., NA; Hypericum perforatum L., A

COMMELINACEAE
Tradescantia occidentalis (Britt.) Smyth, GP
CONVOLVULACEAE
Calystegia macounii (Greene) Brummitt, C; Calystegia sepium (L.) R. Br. ssp. angulata Brummitt, NA; Convolvulus arvensis L., A; Evolvulus nuttallianus R. & S., GP

CRASSULACEAE
Sedum lanceolatum Torr., WNA

CUPRESSACEAE
Juniperus communis L., C; Juniperus scopulorum Sarg., WNA

CUSCUTACEAE
Cuscuta approximata Bab., A

CYPERACEAE
Carex athrostachya Olney, WNA; Carex aurea Nutt., O; Carex bebbii (Bailey) Fern, O; Carex brevior (Dew.) Mack. ex Lunell., O; Carex douglasii F. Boott., WNA; Carex eleocharis Bailey, C; Carex emoryi Dew., ENA; Carex filifolia Nutt., WNA; Carex heliophila Mack., ENA; Carex hystericina Muhl. ex Willd., NA; Carex interior Bailey, NA; Carex lanuginosa Michx., NA; Carex nebrascensis Dew., WNA; Carex oreocharis Holm., SR; Carex praegracilis W. Boott., NA; Carex rostrata Stokes ex Willd., C; Carex scoparia Schkuhr. ex Willd., NA; Carex simulata Mack., WNA; Carex stipata Muhl., NA; Carex vulpinoida Michx., NA; Cyperus acuminatus Torr. & Hook., NA; Eleocharis acicularis (L.) R. & S., C; Eleocharis compressa Sulliv., ENA; Eleocharis macrostachya Brit., COS; Eleocharis obtusa (Willd.) J.A. Schult., NA; Eleocharis parvula Link ex Boff. & Fingerbr. var. anacheta (Torr.) Svens., WH; Scirpus acutus Muhl., NA; Scirpus maritimus L. var. paludosus (A. Nels.) Kukenth., COS; Scirpus pallidus (Britt.) Fern, NA; Scirpus pungens Vahl, NA; Scirpus validus Vahl., NA

ELAEAGNACEAE
Elaeagnus angustifolia L., A

EQUISETACEAE
Equisetum arvense L., COS; Equisetum laevigatum A. Br., NA; Equisetum variegatum Schleich., NA
EUPHORBIACEAE
Euphorbia dentata Michx., NA; Euphorbia fendleri T. & G., WNA; Euphorbia marginata Pursh., GP; Euphorbia robusta (Engelm.) Small, GP; Euphorbia serpyllifolia Pers., A; Euphorbia spathulata Lam., WNA; Euphorbia uralensis Fisch. ex Link, A; Tragia ramosa Nutt., WNA

FABACEAE
Amorpha fruticosa L., NA; Amorpha nana Nutt., GP; Astragalus adsurgens Pall. var. robustior Hook., WNA; Astragalus agrestis Dougl. ex G. Don, WNA; Astragalus bisulcatus (Hook.) A. Gray, GP; Astragalus canadensis L., NA; Astragalus crassicarpus Nutt., GP; Astragalus drumondii Dougl. ex Hook., NA; Astragalus flexuosus (Hook.) G. Don, GP; Astragalus lotiflorus Hook., GP; Astragalus parryi Gray, SR; Astragalus shortianus Nutt. ex T. & G., SR; Astragalus spathulatus Sheld., GP; Astragalus tridactylicus Gray, GP; Coronilla varia L., A; Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners., GP; Dalea purpurea Vent, GP; Glycyrrhiza lepidota Pursh., WNA; Lathyrus eucosmus Butters and St. John, SNA; Lotus corniculatus L., A; Lupinus argenteus Pursh ssp. ingratus (Greene) Harmon, SR; Lupinus argenteus Pursh var. argenteus, WNA; Medicago lupulina L., A; Medicago sativa L. ssp. sativa, A; Melilotus alba Medic., A; Melilotus officinalis (L.) Pall., A; Oxytropis lambertii Pursh., GP; Psoralea tenuiflora Pursh., GP; Robinia pseudoacacia L., ENA; Thermopsis rhombifolia var. divaricarpa (Nels.) Isely, SR; Trifolium hybridum L., A; Trifolium pratense L., A; Trifolium repens L., A; Vicia americana Muhl. ex Willd., NA

FUMARIACEAE
Fumaria vaillantii Lois, A

GENTIANACEAE
Gentiana affinis Griseb., WNA; Swertia radiata (Kell.) O. Ktze., WNA

GERANIACEAE
Erodium cicutarium (L.) L'Her., A; Geranium caespitosum James ssp. caespitosum, SNA
GROSSULARIACEAE
Ribes aureum Pursh, WNA; Ribes cereum Dougl., WNA; Ribes inerme Rydb., WNA

HALORAGACEAE
Myriophyllum exalbescens Fern., NA

HYDROPHYLLACEAE
Hydrophyllum fendleri (Gray) Heller, WNA; Phacelia heterophylla Pursh., WNA

IRIDACEAE
Iris missouriensis Nutt., WNA; Sisyrinchium montanum Greene, O

JUNCACEAE
Juncus articulatus L., C; Juncus balticus Willd., WNA; Juncus bufonius L., COS; Juncus dudleyi Wieg., NA; Juncus ensifolius Wikst. var. montanus (Englm.) C. L. Hitchc., WNA; Juncus interior Wieg., GP; Juncus longistylis Torr., WNA; Juncus nodosus L., GP; Juncus torreyi Cov., NA; Juncus tracyi Rydb., WNA

JUNCAGINACEAE
Triglochin maritima L., NA

LAMIACEAE
Dracocephalum parviflorum Nutt., NA; Hedeoma hispidum Pursh., ENA; Lycopus americanus Muhl. ex Barton, NA; Lycopus asper Greene, GP; Marrubium vulgare L., A; Mentha arvensis L., COS; Monarda fistulosa L. var. menthifolia (Grah.) Fern., GP; Monarda pectinata Nutt., SNA; Nepeta cataria L., A; Prunella vulgaris L., COS; Salvia reflexa Hornem., GP; Scutellaria brittonii Porter, SR; Stachys palustris L. ssp. pilosa (Nutt.) Epling, O

LEMNACEAE
Lemna minor L., COS

LILIACEAE
Allium cernuum Roth, NA; Allium geyeri S. Wats., WNA; Allium textile A. Nels. & Macbr., GP; Asparagus officinalis L., A; Calochortus
gunnisonii S. Wats., WNA; Leucocrinum montanum Nutt., WNA; Smilacina stellata (L.) Desf., NA; Zigadenus venenosus Wats. var. gramineus (Rydb.) Walsh ex Peck, WNA

LINACEAE
Linum perenne L. var. lewissii (Pursh.) Eat. & Wright, WNA; Linum pratense (Nort.) Small, WNA; Linum puberulum (Englem.) Heller, SNA

LYTHRACEAE
Ammannia robusta Herr & Regel., NA; Lythrum alatum Pursh., ENA

MALVACEAE
Malva neglecta Wallr., A; Sidalcea candida Gray, WNA; Sidalcea neomexicana Gray, WNA; Sphaeralcea coccinea (Pursh.) Rydb., GP; Sphaeralcea parvifolia A. Nelson, A

NYCTAGINACEAE
Mirabilis hirsuta (Pursh.) MacM., GP; Mirabilis linearis (Pursh.) Heimerl, GP; Mirabilis nyctaginea (Michx.) MacM., GP

OLEACEAE
Fraxinus pennsylvanica Marsh, A

ONAGRACEAE
Calylophus serrulatus (Nutt.) Raven, GP; Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven, NA; Epilobium paniculatum Nutt., WNA; Gaura coccinea Pursh., WNA; Gaura parviflora Dougl., WNA; Oenothera albicaulis Pursh, GP; Oenothera flava (A. Nels.) Garrett, WNA; Oenothera howardii (A. Nels.) W. L. Wagner, GP; Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven, WNA

ORCHIDACEAE
Habenaria hyperborea (L.) R. Br., O

OROBANCHACEAE
Orobanche fasciculata Nutt., WNA
OXALIDACEAE
Oxalis dillenii Jacq., COS

PAPAVERACEAE
Argemone polyanthemos (Fedde) G. Ownbey, GP; Eschscholzia californica Chamisso, A; Papaver rhoeas L., A

PINACEAE
Picea pungens Engelm., SR; Pinus ponderosa Laws, WNA; Pseudotsuga menziesii (Mirb.) Franco, WNA

PLANTAGINACE
Plantago lanceolata L., A; Plantago major L., A; Plantago patagonica Jacq., A

POACEAE
Aegilops cylindrica Host, A; Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc., NA; Agropyron cristatum (L.) Gaertn., A; Agropyron dasystachyum (Hook.) Scribn., GP; Agropyron desertorum (Fisch.) Schult., A; Agropyron elongatum (Host) Beauv., A; Agropyron griffithsii Scribn. & Smith, WNA; Agropyron intermedium (Host) Beauv., A; Agropyron repens (L.) Beauv., A; Agropyron smithii Rydb., NA; Agropyron spicatum (Pursh) Scribn. and Sm., WNA; Agrostis scabra Willd., NA; Agrostis stolonifera L., A; Alopecurus geniculatus L., C; Andropogon gerardii Vitman, ENA; Andropogon saccharoides Sw. var. torreyanus (Steud.) Hack., A; Andropogon scoparius Michx., ENA; Apera interrupta (L.) Beauvois, A; Aristida basiramea Engelm. ex Vasey var. basiramea, GP; Aristida purpurea Nutt. var. longiseta (Steud.) Vasey, WNA; Aristida purpurea Nutt. var. robusta (Merrill) A. Holmgren & N. Holmgren, WNA; Avena fatua var. sativa (L.) Hausskn., A; Bouteloua curtipendula (Michx.) Torr., NA; Bouteloua gracilis (H. B. K.) Lag ex Griffiths, WNA; Bouteloua hirsuta Lag, GP; Bromus briziformis F. & M., A; Bromus inermis Leyss. ssp. inermis, A; Bromus japonicus Thunb. ex Murr., A; Bromus tectorum L., A; Buchloe dactyloides (Nutt.) Engelm., GP; Calamagrostis stricta (Timm.) Koel, C; Cenchrus longispinus (Hack.) Fern, WH; Ceratochloa marginata (Nees ex Stued.) Jackson, WNA; Chloris virgata Sw., GP; Cynodon dactylon (L.) Pers., A; Dactylis glomerata L., A; Danthonia spicata (L.) Beauv. ex R. & S., NA; Dichanthelium...
linearifolium (Scribn.) Gould, ENA; Dichanthelium oligosanthes (Schultz) Gould var. scribnerianum (Nash) G, NA; Digitaria sanguinalis (L.) Scop., A; Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle, WH; Echinochloa crus-galli (L.) Beauv., A; Elymus canadensis L., NA; Elymus junceus Fisch., A; Eragrostis cilianensis (All.) E. Mosher, A; Eragrostis curvula (Schrad.) Nees, A; Eragrostis minor Host, A; Eragrostis pilosa (L.) Beauv., A; Eragrostis trichodes (Nutt.) Wood, GP; Festuca octoflora Walt., NA; Festuca ovina L. var. rydbergii St. Yves, C; Festuca pratensis Huds., A; Glyceria grandis S. Wats. ex A. Gray, C; Glyceria striata (Lam.) Hitchc., NA; Hordeum brachyantherum Nevski, O; Hordeum jubatum L., COS; Hordeum pusillum Nutt., NA; Koeleria pyramidata (Lam.) Beauv., NA; Leersia oryzoides (L.) Sw., A; Leptochloa fasicularis (Lam.) A. Gray, WH; Lolium perenne L. var. aristatum Willd., A; Lolium perenne L. var. perenne, A; Lycurus phleoides H.B.K., SNA; Muhlenbergia asperifolia (Nees. & Mey.) Parodi, WNA; Muhlenbergia filiformis (Thurb.) Rydb., GP; Muhlenbergia montana (Nutt.) Hitchc., WNA; Muhlenbergia racemosa (Michx.) B. S. P., GP; Muhlenbergia wrightii Vasey, SNA; Oryzopsis hymenoides (R. & S.) Ricker, WNA; Panicum capillare L., A; Panicum dichotomiflorum Michx., NA; Panicum virgatum L., ENA; Phalaris arundinacea L., C; Phleum pratense L., A; Phragmites australis (Cav.) Trin. ex Steud., COS; Poa bulbosa L., A; Poa canbyi (Scribn.) Piper, O; Poa compressa L., A; Poa fendleriana (Stud.) Vasey, WNA; Poa junctifolia Scribn., WNA; Poa palustris L., C; Poa pratensis L., A; Polypogon monspeliensis (L.) Desf., A; Schedonnardus paniculatus (Nutt.) Trel., WH; Secale cereale L., A; Setaria viridis (L.) Beauv., A; Sitanion hystrix (Nutt.) Sm. var. brevifolium (Sm.) Hitchc., WNA; Sorghastrum nutans (L.) Nash, ENA; Spartina pectinata Link, NA; Sphenopholis obtusata (Michx.) Scribn., NA; Sporobolus asper (Michx.) Kunth, ENA; Sporobolus cryptandrus (Torr.) A. Gray, NA; Sporobolus heterolepis (A. Gray) A. Gray, ENA; Sporobolus neglectus Nash, ENA; Stipa comata Trin. & Rupr., WNA; Stipa neomexicana (Thur.) Scribn., SNA; Stipa robusta (Vasey) Scribn., SR; Stipa spartea Trinius, ENA; Stipa viridula Trin., GP; Triticum aestivum L., A; X Agrohordeum macounii (Vasey) Lepage, A

POLEMONIACEAE
Collomia linearis Nutt., WNA; Gilia ophthalmoides Brand. ssp. clokeyi (Mason) A. & V. Grant, WNA; Ipomopsis spicata (Nutt.) V. Grant ssp.
spicata, WNA; Microsteris gracilis (Hook.) Greene, WNA; Navarretia minima Nutt., WNA

POLYGONACEAE
Eriogonum alatum Torr., WNA; Eriogonum effusum Nutt., GP;
Eriogonum jamaicensis Benth., SNA; Eriogonum umbellatum Torr., WNA;
Polygonum arenastrum Jord. ex Bor., A; Polygonum convolvulus L., A;
Polygonum douglasii Greene, WNA; Polygonum hydropiper L., A;
Polygonum lapathifolium L., A; Polygonum pensylvanicum L., A;
 Polygonum persicaria L., A; Polygonum ramosissimum Michx., A;
 Polygonum sawatense Small, WNA; Rumex acetosella L., A; Rumex crispus L., A; Rumex maritimus L., WH; Rumex obtusifolius L., A;
Rumex salicifolius Weinm. ssp. triangulivalvis Danser, NA

POLYPODIACEAE
Cystopteris fragilis (L.) Bernh., COS

PORTULACACEAE
Claytonia rosea Rydb., WNA; Portulaca oleracea L., A; Talinum parviflorum Nutt., GP

POTAMOGETONACEAE
Potamogeton foliosus Raf., NA; Potamogeton natans L., C

PRIMULACEAE
Androsace occidentalis Pursh., WNA; Dodecatheon pulchellum (Raf.) Merrill, WNA; Lysimachia ciliata L., NA

RANUNCULACEAE
Anemone cylindrica A. Gray, O; Anemone patens L., C; Clematis hirsutissima Pursh, WNA; Clematis ligusticifolia Nutt., WNA;
 Delphinium nuttallianum Pritz. ex Walpers, WNA; Delphinium virescens Nutt. ssp. penardii (Huth) Ewan, GP; Myosurus minimus L., COS; Ranunculus macounii Britt., NA; Ranunculus scleratus L., A;
Ranunculus trichophyllus Chaix, C; Thalictrum dasycarpum Fisch. & Ave-Lall, NA
RHAMNACEAE
_Ceanothus fendleri_ A. Gray, SNA; _Ceanothus herbaceus_ Raf. var. _pubescens_ (T. & G.), ENA

ROSACEAE
_Agrimonia striata_ Michx., ENA; _Amelanchier alnifolia_ Nutt., WNA; _Crataegus erythropoda_ Ashe, SR; _Crataegus succulenta_ Link var. _occidentalis_ (Britton) E. J. Palm., GP; _Geum aleppicum_ Jacq., NA; _Geum macrophyllum_ Willd., NA; _Physocarpus monogynus_ (Torr.) Coult., SR; _Physocarpus opulifolius_ (L.) Raf., ENA; _Potentilla arguta_ Pursh, NA; _Potentilla fissa_ Nutt., SR; _Potentilla gracilis_ Dougl. ex Hook. var. _glabrata_ (Lehm.) C. L. Hitchc., WNA; _Potentilla hippiana_ Lehm., WNA; _Potentilla norvegica_ L., C; _Potentilla paradoxa_ Nutt., NA; _Potentilla pensylvanica_ L., WNA; _Potentilla pulcherrima x hippiana_, WNA; _Potentilla rivalis_ Nutt., WNA; _Prunus americana_ Marsh., ENA; _Prunus pumila_ L. var. _besseyi_ (Bailey) Gl., GP; _Prunus virginiana_ L. var. _melanocarpa_ (A. Nels.) Sarg., NA; _Pyrus malus_ L., A; _Rosa acicularis_ Lindl., C; _Rosa arkansana_ Porter, ENA; _Rosa woodsii_ Lindl., WNA; _Rubus deliciosus_ Torr., SNA; _Rubus idaeus_ L. ssp. _sachalinensis_ (Levl.) Focke var. _sachalinensis_, C; _Sanguisorba minor_ Scop., A; _Sorbus scopulina_ Greene, WNA

RUBIACEAE
_Galium aparine_ L., A; _Galium septentrionale_ Roemer & Schultes, C

SALICACEAE
_Populus alba_ L., A; _Populus angustifolia_ James, WNA; _Populus deltoides_ Marsh. ssp. _monilifera_ (Ait.) Eckenw., ENA; _Populus x acuminata_ Rydb., GP; _Salix amygdaloides_ Anderss., NA; _Salix exigua_ Nutt. ssp. _exigua_, NA; _Salix exigua_ Nutt. ssp. _interior_ (Rowlee) Cronq., NA; _Salix fragilis_ L., A; _Salix irrorata_ Andersson, SNA; _Salix lutea_ Nutt., WNA

SANTALACEAE
_Comandra umbellata_ (L.) Nutt., WNA

SAXIFRAGACEAE
_Heuchera parvifolia_ Nutt. ex T. & G., WNA; _Saxifraga rhomboidea_ Greene, WNA
SCROPHULARIACEAE
Castilleja integra A. Gray, SNA; Castilleja sessiliflora Pursh., GP; Collinsia parviflora Doug. ex Lindl., WNA; Gratiola neglecta Torr., NA; Limosella aquatica L., O; Linaria canadensis (L.) Dum. var. texana (Scheele) Penn., NA; Linaria dalmatica (L.) Mill., A; Linaria vulgaris Hill, A; Mimulus floribundus Doug. ex Lindl., WNA; Mimulus glabratus H. B. K. var. fremontii (Benth.) A. L. Grant, WH; Penstemon albidus Nutt., GP; Penstemon eatonii A. Gray var. eatonii, A; Penstemon palmeri A. Gray, A; Penstemon secundiflorus Benth., SR; Penstemon strictus Bentham in De Candolle, SR; Penstemon virens Penn., SR; Penstemon virgatus Gray ssp. asa-grayi Crosswhite, SR; Scrophularia lanceolata Pursh., O; Verbascum blattaria L., A; Verbascum thapsus L., A; Veronica americana (Raf.) Schwein. ex Benth., NA; Veronica anagallis-aquatica L., A; Veronica catenata Penn., A; Veronica peregrina L. var. xalapensis (H. B. K.) St. John & Warren, A

SELAGINELLACEAE
Selaginella densa Rydb., WNA

SMILACACEAE
Smilax herbacea L. var. lasioneura (Small) Rydb., ENA

SOLANACEAE
Physalis heterophylla Nees, ENA; Physalis pumila Nutt. ssp. hispida (Waterfall) Hinton, GP; Physalis virginiana P. Mill., ENA; Quincula lobata (Torr.) Raf., SNA; Solanum rostratum Dun., A; Solanum triflorum Nutt., SNA

TAMARICACEAE
Tamarix ramosissima Ledeb., A

TYPHACEAE
Typha angustifolia L., COS; Typha latifolia L., COS

ULMACEAE
Ulmus pumila L., A
URTICACEAE
Parietaria pensylvanica Muhl. ex Willd., NA; Urtica dioica L. ssp. gracilis (Ait.) Seland., NA

VERBENACEAE
Lippia cuneifolia (Torr.) Steud., WNA; Verbena bipinnatifida Nutt., SNA; Verbena bracteata Lag. & Rodr., A; Verbena hastata L., NA

VIOLACEAE
Hybanthus verticillatus (Ort.) Baill., GP; Viola nuttallii Pursh., WNA; Viola rydbergii Greene, WNA; Viola scopulorum (Gray) Greene, SNA; Viola sororia Willd., GP

VITACEAE
Vitis riparia Michx., ENA

ZYGOPHYLLACEAE
Tribulus terrestris L., A;