MONTANA PLANT SPECIES OF CONCERN OBSERVED

Background

Table 59 lists those plant species observed in Spotted Dog WMA and identified as Montana Plant Species of Concern (Montana Natural Heritage Program 2015) during the conduct of this inventory and ecological health assessment. A total of eight Montana Species of Concern were recorded, covering approximately 24.97 acres of the WMA. Ranking category definitions are provided on the pages following the table.

Table 59. Montana Plant Species of Concern recorded in Spotted Dog WMA

Plant Species of Concern	Acres	G Rank[1]	S Rank[2]	USDI FWS ESA[3]	USDA FS[4]	USDI BLM[5]
Erigeron formosissimus (wild daisy)	16.62	G5	S1S3	—	—	—
Castilleja exilis (annual paintbrush)	6.65	G5	S2	—	—	S
Agoseris aurantiaca (orange agoseris)	1.03	G4	S3S4	—	—	—
Centunculus minimus (chaffweed)	0.53	G5	S2	—	—	—
Ranunculus orthorhynchus var. *platyphyllus* (straightbreak buttercup)	0.07	G5	S1S2	—	—	—
Amerorchis rotundifolia (small round-leaved orchis)	0.05	G5	S3	—	S	—
Juncus covillei (Coville's rush)	0.02	G5	S2S3	—	—	—
Gentianopsis macounii (Macoun's fringed gentian)	0.00	G5	S2	—	S	—
TOTAL	***24.97***					

[1]G Rank = Global (range-wide) Ranking

[2]S Rank = State Status Ranking

[3]USDI FWS ESA = USDI Fish and Wildlife Service Endangered Species Act

[4]USDA FS = USDA Forest Service Sensitive Species (S = Sensitive; T = Threatened; E = Endangered)

[5]USDI BLM = USDI Bureau of Land Management Sensitive Species (S = Sensitive Species)

Table 60 shows the crosswalk from those scientific names and common names used in this report with those used by the Montana Natural Heritage Program for their Montana Plant Species of Concern.

Table 60. Crosswalk from the scientific names and common names used in this report to the nomenclature used by the Montana Natural Heritage Program

Scientific/Common Names Used in this Report	Corresponding Scientific/Common Names Used by Montana Natural Heritage Program
Erigeron formosissimus (wild daisy)	*Erigeron formosissimus* (Beautiful Fleabane)
Castilleja exilis (annual paintbrush)	*Castilleja exilis* (Annual Indian Paintbrush)
Agoseris aurantiaca (orange agoseris)	*Agoseris lackschewitzii* (Pink Agoseris)
Centunculus minimus (chaffweed)	*Centunculus minimus* (Chaffweed)
Ranunculus orthorhynchus var. *platyphyllus* (straightbreak buttercup)	*Ranunculus orthorhynchus* (Straightbreak Buttercup)
Amerorchis rotundifolia (small round-leaved orchis)	*Amerorchis rotundifolia* (Round-leaved Orchis)
Juncus covillei (Coville's rush)	*Juncus covillei* (Coville's Rush)
Gentianopsis macounii (Macoun's fringed gentian)	*Gentianopsis macounii* (Macoun's Gentian)

Montana Plant Species of Concern Designation Information

The following information was obtained from the State of Montana website (http://fieldguide.mt.gov/statusCodes.aspx#soc). Plant Species of Concern (SOC) are native plant taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. Designation as a Montana Species of Concern or Potential Species of Concern (PSOC) is based on the Montana Status Rank, and is not a statutory or regulatory classification. Rather, these designations provide information that helps resource managers make proactive decisions regarding species conservation and data collection priorities.

Montana Species Ranking Codes—The Montana Natural Heritage Program (MTNHP) serves as the information source of Montana Plant Species of Concern. MTNHP uses a standardized international ranking system to identify global (G) and state (S) status. Species are assigned numeric ranks ranging from 1 (highest risk - greatest concern) to 5 (apparently secure - least concern) based on available information.

A number of factors are considered in assigning ranks - the number, size, and quality of known occurrences or populations, distribution, trends (if known), intrinsic vulnerability, habitat specificity, and definable threats. The process of assigning state ranks for each taxon relies heavily on the number of occurrences and Species Occurrence (OE) ranks, which is a ranking system of the quality (usually A through D) of each known occurrence based on factors such as size (number of individuals) and habitat quality. The remaining factors noted above are also incorporated into the ranking process when they are known. Table 61 shows the rankings and descriptions of the ranks used to identify Plant Species of Concern in Montana. It also describes qualifying notation relevant to plant species that may be found in both global and state ranking codes.

Table 61. Montana Plant Species of Concern ranking codes and definitions

Rank Code		Definition
Global	State	
G1	S1	At high risk because of extremely limited and/or rapidly declining population numbers, range and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.
G2	S2	At risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state.
G3	S3	Potentially at risk because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas.
G4	S4	Apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining.
G5	S5	Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.
GX	SX	Presumed Extinct or Extirpated - Species is believed to be extinct throughout its range or extirpated in Montana. Not located despite intensive searches of historical sites and other appropriate habitat, and small likelihood that it will ever be rediscovered.
GH	SH	Historical, known only from records usually 40 or more years old; may be rediscovered.
_GNR	SNR	Not Ranked as of yet.
GU	SU	Unrankable—Species currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNA	SNA	A conservation status rank is not applicable for one of the following reasons: 1) The taxa is of Hybrid Origin; is Exotic or Introduced; is Accidental or 2) is Not Confidently Present in the state. (See other codes below)

Combination or range ranks
G#G# or S#S#—Indicates a range of uncertainty about the status of the species (e.g., G1G3 = Global Rank ranges between G1 and G3).

S#, S#—Indicates that populations in different geographic portions of the species' range in Montana have a different conservation status (e.g., S1 west of the Continental Divide and S4 east of the Continental Divide).

Sub-rank
T#—Rank of a subspecies or variety. Appended to the global rank of the full species, e.g., G4T3.

Qualifiers
Q—Questionable taxonomy that may reduce conservation priority-Distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower priority (numerically higher) conservation status rank. Appended to the global rank, e.g. G3Q.

?—Inexact Numeric Rank - Denotes uncertainty; inexactness.

HYB—Hybrid - Entity not ranked because it represents an interspecific hybrid and not a species.

C—Captive or Cultivated Only - Species at present exists only in captivity or cultivation, or as a reintroduced population not yet established.

A—Accidental - Species is accidental or casual in Montana, in other words, infrequent and outside usual range. Includes species (usually birds or butterflies) recorded once or only a few times at a location. A few of these species may have bred on the few occasions they were recorded.

SYN—Synonym - Species reported as occurring in Montana, but the Montana Natural Heritage Program does not recognize the taxon; therefore the species is not assigned a rank.

USDI Fish and Wildlife Service (Endangered Species Act) (USDI FWS ESA)—Some plant species found in Montana have designations under the Federal Endangered Species Act of 1973 (16 U.S.C.A. § 1531-1543 [Supp. 1996]). These designations and their descriptions are found in Table 62.

Table 62. Plant designations and descriptions under the Federal Endangered Species Act of 1973 (16 U.S.C.A. § 1531-1543 [Supp. 1996])

Designations	Descriptions
LE	Listed endangered: Any species in danger of extinction throughout all or a significant portion of its range (16 U.S.C. 1532(6)).
LT	Listed threatened: Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)).
PE	Proposed endangered: Any species for which a proposed rule to list the species as endangered has been published in the Federal Register.
PT	Proposed threatened: Any species for which a proposed rule to list the species as threatened has been published in the Federal Register.
E(S/A) or T(S/A)	Any species listed endangered or threatened because of similarity of appearance.
C	Candidate: Those taxa for which sufficient information on biological status and threats exists to propose to list them as threatened or endangered. We encourage their consideration in environmental planning and partnerships; however, none of the substantive or procedural provisions of the Act apply to candidate species.
PDL	Proposed for delisting - Typically combined with another designation code, where a species has one status currently, but a more recent proposal has been made to change that status with no final action yet published. For example, “LE, PDL” indicates that the species is currently listed as endangered, but has been proposed for delisting.
DM	Recovered, delisted, and being monitored - Any previously listed species that is now recovered, has been delisted, and is being monitored.
NL	Not listed - No designation.
XE	Experimental/Essential population - An experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild.
XN	Experimental/Nonessential population - An experimental population of a listed species reintroduced into a specific area that receives more flexible management under the Act.

Table 62. (cont.)

Designations	Descriptions
CH	Critical Habitat - The specific areas (i) within the geographic area occupied by a species, at the time it is listed, on which are found those physical or biological features (I) essential to conserve the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by the species at the time it is listed upon determination that such areas are essential to conserve the species.
PS	Partial status - status in only a portion of the species' range. Typically indicated in a "full" species record where an infraspecific taxon or population, that has a record in the database has USESA status, but the entire species does not.
PS:value	Partial status - status in only a portion of the species' range. The value of that status appears in parentheses because the entity with status is not recognized as a valid taxon by Central Sciences (usually a population defined by geopolitical boundaries or defined administratively, such as experimental populations.)

USDA Forest Service (USDA FS)—USDA Forest Service Manual (2670.22) defines Sensitive Plant Species on Forest Service lands as those for which population viability is a concern as evidenced by a significant downward trend in population or a significant downward trend in habitat capacity. The Regional Forester (Northern Region) designates Sensitive Plant Species on National Forests in Montana. These designations and their descriptions are found in Table 63. These designations were last updated in 2007 and they apply only on USFS-administered lands.

Table 63. UDSA Forest Service Sensitive Plant Species designations and descriptions

Designation	Description
Endangered	Listed as Endangered (LE) under the US Endangered Species Act.
Threatened	Listed as Threatened (LT) under the US Endangered Species Act.
Sensitive	Listed as a Sensitive Species by USFS Northern Region (R1).

USDI Bureau of Land Management (USDI BLM)—USDI Bureau of Land management Sensitive Plant Species are defined by the BLM 6840 Manual as those that normally occur on BLM administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. These BLM

designations and their descriptions are found in Table 64. The State Director may designate additional categories of special status species as appropriate and applicable to his or her state's needs. The sensitive species designation, for species other than federally listed, proposed, or candidate species, may include such native plant species as those that:

- Could become endangered in or extirpated from a state, or within a significant portion of its distribution in the foreseeable future;
- Are under status review by FWS and/or NMFS;
- Are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution;
- Are undergoing significant current or predicted downward trends in population or density such that federally listed, proposed, candidate, or State listed status may become necessary;
- Have typically small and widely dispersed populations;
- Are inhabiting ecological refugia, specialized or unique habitats; and/or
- Are State listed but which may be better conserved through application of BLM sensitive species status. Such species should be managed to the level of protection required by State laws or under the BLM policy for candidate species, whichever would provide better opportunity for its conservation.

Table 64. USDI Bureau of Land management Sensitive Plant Species designations and descriptions

Designation	Description
Sensitive	Denotes species listed as sensitive on BLM lands
Special Status	Denotes species that are listed as Endangered or Threatened under the Endangered Species Act

Montana Plant Species of Concern Characteristics and Photographs

The following information was obtained from Lesica (2012) and the online Montana Field Guide in conjunction with the Montana Natural Heritage Program. Online information was downloaded on January 28, 2015, available at http://fieldguide.mt.gov/displayPhyDiv.aspx?kingdom=Plantae.

Agoseris aurantiaca (orange agoseris)

Montana Natural Heritage Program Plant Name: *Agoseris lackschewitzii* (Pink Agoseris)
Plant Family: Asteraceae
Duration: Perennial

Characteristics

State Rank Reason—*Agoseris aurantiaca* (orange agoseris) is not currently a Montana Species of Concern. As of January 28, 2015, it is on the Montana Potential Species of Concern list. Additional data are needed for this species to more precisely determine its conservation status and need.

General Description—*Agoseris aurantiaca* (orange agoseris) (Photos 190 and 191) is a herbaceous perennial 6–60 cm. Leaves oblanceolate, 5–35 cm long, entire, dentate, or with pinnate, linear lobes. Herbage glabrous to sparsely villous. Involucre 1–3 cm high; phyllaries lanceolate, in 2 to 4 indistinct series, green or purple-spotted, glabrate to villous. Rays orange to pink; ligules 6–12 mm long. Pappus 6–15 mm long. Achene body 5–9 mm long; beak 3–7 mm long.

Agoseris aurantiaca (orange agoseris) is considered to be synonymous with *Agoseris lackschewitzii* (Mill Creek agoseris) (as per Lesica, 2012), with the preferred name *Agoseris aurantiaca* (orange agoseris). However, the Montana Natural Heritage Program regards *Agoseris aurantiaca* var. *aurantiaca* (orange agoseris) to be synonymous with *Agoseris lackschewitzii* (Mill Creek agoseris).

Habitat—Meadows and rocky slopes at moderate to high elevations.

Range—Regionally endemic in southwest Montana, east-central Idaho, and northern Wyoming though it ranges from British Columbia to Quebec and south to California, Arizona, and New Mexico.

Photo 190. *Agoseris aurantiaca* (orange agoseris) in flower

Photo 191. Closeup view of *Agoseris aurantiaca* (orange agoseris) flowers

Amerorchis rotundifolia (small round-leaved orchis)

Montana Natural Heritage Program Plant Name: *Amerorchis rotundifolia* (Round-leaved Orchis)
Plant Family: Orchidaceae
Duration: Perennial

Characteristics

State Rank Reason—In Montana, *Amerorchis rotundifolia* (small round-leaved orchis) is restricted to the Rocky Mountain Front, Bob Marshall Wilderness Complex, Swan Valley, and the northwest corner of the state. Several dozen occurrences are known in Montana with many being large, healthy populations. However, information on threats faced by the species, as well as trend data are lacking.

General Description—*Amerorchis rotundifolia* (small round-leaved orchis) (Photos 192 and 193) is a glabrous, rhizomatous perennial with a single sub-basal leaf and a stem 8-25 cm tall. Leaf is elliptic to orbicular with a rounded tip, and is up to 10 cm long. The few to several flowers terminate the stem in a narrow inflorescence. There are 3 white to pale pink sepals. The upper is hood-shaped, 6-9 mm long, and slightly larger than the lateral ones; the 2 upper petals are narrowly lance-shaped. The large, lower petal (lip) is up to 9 mm long, white, spotted with purple, and deeply 3-lobed with a pair of lateral lobes and a notched lower one. The capsule is elliptic 10-14 mm long and contains thousands of tiny seeds.

This species is easy to recognize by the single leaf and distinctive flower. *Calypso bulbosa* (fairy slipper) also has a single leaf but the pink flowers are solitary and much larger.

Habitat—Spruce forest around seeps or along streams, often in soil derived from limestone.

Range—Alaska to Greenland, south to Wyoming, Michigan, and New York.

Photo 192. *Amerorchis rotundifolia* (small round-leaved orchis) in flower in moist, shaded habitat

Photo 193. Closeup view of *Amerorchis rotundifolia* (small round-leaved orchis) flowers

Castilleja exilis (annual paintbrush)

Montana Natural Heritage Program Plant Name: *Castilleja exilis* (Annual Indian Paintbrush)
Plant Family: Orobanchaceae
Duration: Annual

Characteristics

State Rank Reason—*Castilleja exilis* (annual paintbrush) is known to be in a half dozen counties in southwest Montana with the majority of documented locations on private lands. Many areas of suitable habitat have been converted to agricultural uses and/or are used for livestock grazing. Additionally, populations are susceptible to hydrologic changes and may negatively impacted by invasive weeds.

General Description—*Castilleja exilis* (annual paintbrush) (Photos 194 and 195) is an annual with erect, unbranched stems that are 15-50 cm high. The alternate, narrowly lance-shaped leaves, 3-8 cm long, have entire margins. Foliage is glandular-hairy. The stalkless flowers arise from the axils of the reduced upper leaves (bracts) in a spike-like inflorescence at the top of the stem. The upper bracts have red tips that are longer than the leaves and flowers. The yellowish, tubular corolla, 15-20 mm long, tapers to a galea above that surpasses the 3 small lobes below. The tubular calyx, 15-20 mm long, almost completely contains the corolla and is cleft into 4 pointed lobes. The fruit is a capsule with many tiny seeds.

This is our only annual *Castilleja*, also distinguished in the lack of lobes on the leaves and bracts. It can be distinguished from annual *Orthocarpus* and *Cordylanthus* by the galea that is appreciably longer than the lower corolla lip.

Habitat—Moist alkaline meadows in the valley zone.

Range—Washington to Montana, south to California, Arizona, and New Mexico.

Photo 194. *Castilleja exilis* (annual paintbrush) in flower

Photo 195. Closeup view of *Castilleja exilis* (annual paintbrush) flowers

Centunculus minimus (chaffweed)

Montana Natural Heritage Program Plant Name: *Centunculus minimus* (Chaffweed)
Plant Family: Myrsinaceae
Duration: Annual

Characteristics

State Rank Reason—*Centunculus minimus* (chaffweed) is known from scattered locations across the state, though it is rare to uncommon in Montana. May be susceptible to some adverse impacts from human-caused disturbance due to its preference for vernally moist habitats in valley locations.

General Description—*Centunculus minimus* (chaffweed) (Photos 196 and 197) is a low, annual herb with erect to ascending stems, 2-12 cm long, that root at the nodes. The alternate leaves, 2-10 mm long, are egg to spoon-shaped with entire margins. Foliage is glabrous. Solitary, inconspicuous flowers on short stalks occur in the leaf axils. Each flower has a deeply 4-lobed calyx, 2-3 mm long, and a small, pink, 4-lobed, tubular corolla, ca. 1 mm long, that withers on the maturing ovary. There are 4-5 stamens, and the fruit is a globose capsule that is ca. 2 mm long.

Habitat—Vernally wet, sparsely vegetated soil around ponds and along rivers and streams in the valleys and on plains and valleys.

Range—Europe, South America, and in North America irregularly from Nova Scotia to British Columbia and south to Florida, California, and Mexico (except for much of the Rocky Mountains and Great Basin).

Photo 196. *Centunculus minimus* (chaffweed)

Photo 197. Closeup view of *Centunculus minimus* (chaffweed)

Erigeron formosissimus (wild daisy)

Montana Natural Heritage Program Plant Name: *Erigeron formosissimus* (Beautiful Fleabane)
Plant Family: Asteraceae
Duration: Perennial

Characteristics

State Rank Reason—*Erigeron formosissimus* (wild daisy) has been documented for southern Montana from a few collections. Additional data are needed for this species to more precisely determine its conservation status and need.

General Description—*Erigeron formosissimus* (wild daisy) (Photos 198 and 199) is a fibrous-rooted perennial from a short rhizome. Stems ascending, 10–40 cm. Herbage glabrate to sparsely villous-hirsute, glandular above. Leaves basal and cauline; blades oblanceolate to oblong, 2–8 cm long, entire, sessile, lanceolate above. Heads 1 or few, radiate. Involucres hemispheric, 5–8 mm high; phyllaries in 2 to 3 series, minutely stipitate-glandular. Rays 75 to 150, pink to purple; ligules 8–15 mm long. Disk corollas 3–5 mm long. Achenes ca. 2 mm long (Lesica, 2012).

Habitat—Meadows and forest openings in montane and subalpine zones.

Range—Carbon County, Montana; South Dakota south to Arizona and New Mexico.

Photo 198. *Erigeron formosissimus* (wild daisy) in flower

Photo 199. Closeup view of *Erigeron formosissimus* (wild daisy) flowers

Gentianopsis macounii (Macoun's fringed gentian)

Montana Natural Heritage Program Plant Name: *Gentianopsis macounii* (Macoun's gentian)
Plant Family: Gentianaceae
Duration: Annual

Characteristics

State Rank Reason—*Gentianopsis macounii* (Macoun's fringed gentian) is rare in Montana, currently it is known from several sites just east of the Continental Divide.

General Description—*Gentianopsis macounii* (Macoun's fringed gentian) (Photos 200 and 201) is a glabrous annual with erect, simple to few-branched stems that are 5-50 cm high. The basal leaves are 5-15 cm long and lance-shaped with blunt tips. The opposite stem leaves are narrower with pointed tips and 1-3 cm long. A solitary, long-stalked flower occurs at the stem tip, while others may arise from the upper leaf axils. The calyx is 10-25 mm long and has 4 pointed lobes and small, white bumps at the base. The deep blue, tubular corolla is 2-5 cm long and has 4 broad, spreading, fringed lobes. The 4 stamens have hairs at mid-length. The fruit is a stalked, narrowly elliptic, many-seeded capsule that is 15-30 mm long.

Habitat—Wet, organic soil of calcareous fens in the valley and foothill zones.

Range—Alberta to Quebec, south to Montana and South Dakota.

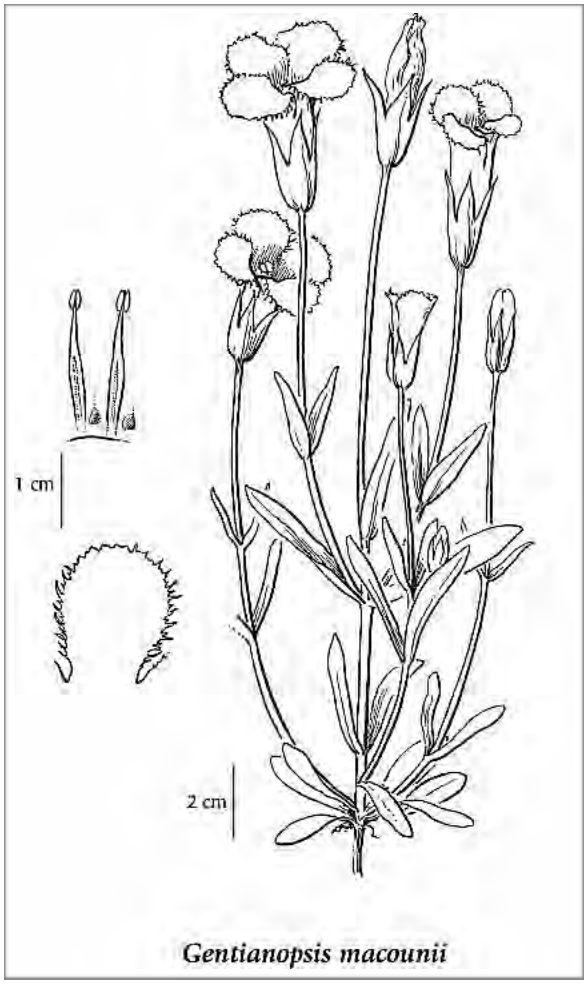

Photo 200. Line drawing of *Gentianopsis macounii* (Macoun's fringed gentian)

Photo 201. Closeup view of *Gentianopsis macounii* (Macoun's fringed gentian) flower

Juncus covillei (Coville's rush)

Montana Natural Heritage Program Plant Name: *Juncus covillei* (Coville's rush)
Plant Family: Juncaceae
Duration: Perennial

Characteristics

State Rank Reason—*Juncus covillei* (Coville's rush) is rare and peripheral in Montana. Currently it is known from approximately a half-dozen widely scattered wetland/riparian sites in the mountainous portion of the state.

General Description—*Juncus covillei* (Coville's rush) (Photos 202 and 203) is a rhizomatous perennial. Stems erect, compressed, 6–20 cm, sometimes clumped. Leaves basal and cauline; blades flat, 1–2 mm wide; auricles acute or absent. Inflorescence congested with 3 to 7 sessile flowers in each of 1 to 3 clusters; main bract shorter or longer than the inflorescence. Flowers: prophylls absent; tepals brown to purplish with a green midstripe, 3–4 mm long, acute; stamens 6. Capsules 3–5 mm long, truncate on top; seeds without appendages.

Juncus is a large and difficult genus to distinguish, so a technical key should be consulted. Mature fruit is necessary for positive determination. The combination of flowers subtended by a single bract, flattened leaves, and 7-flowered heads separate *Juncus covillei* (Coville's rush) from most other rhizomatous rushes. The tepals of variety *obtusatus* are pale brown, and the inner ones have pointed tips. In contrast, the tepals of variety *covillei* are dark brown, and the inner tepals have rounded tips.

Habitat—Variety *covillei* is typically found in moist, gravelly or sandy soil along major water courses in the valley zone. In contrast, variety *obtusatus* is found in moist to wet, often seepy soil of slopes and meadows in the montane and subalpine zones.

Range—British Columbia to California, Idaho, and Montana.

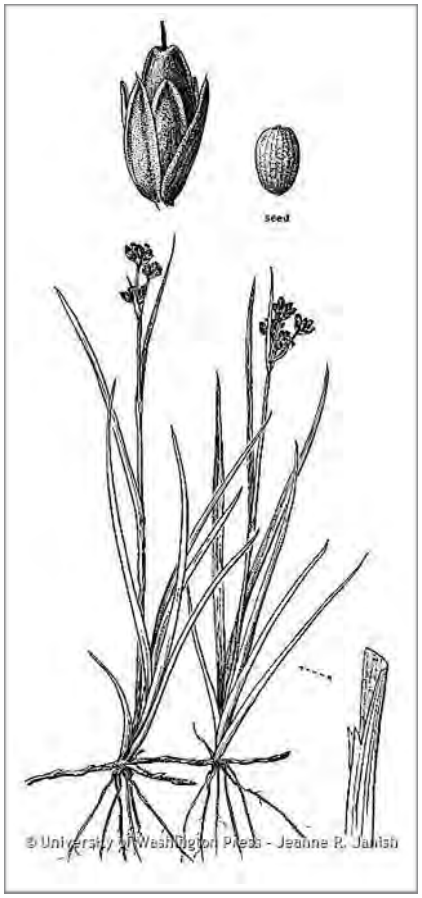

Photo 202. Line drawing of *Juncus covillei* (Coville's rush)

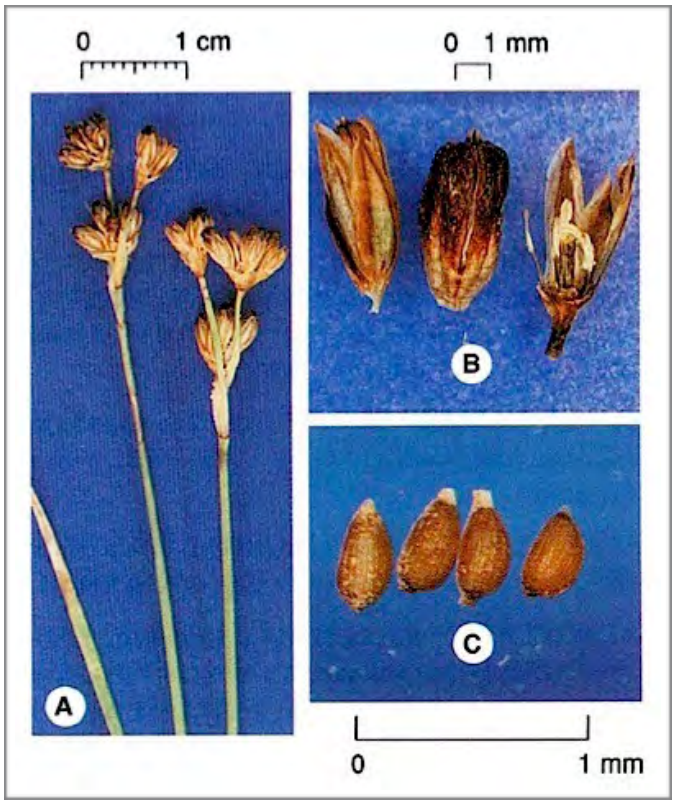

Photo 203. Inflorescences, capsules and seeds of *Juncus covillei* (Coville's rush)

Ranunculus orthorhynchus var. *platyphyllus* (straightbeak buttercup)

MTNHP Name: *Ranunculus orthorhynchus* (Straightbeak Buttercup)
Plant Family: Ranunculaceae
Duration: Perennial

Characteristics

State Rank Reason—*Ranunculus orthorhynchus* var. *platyphyllus* (straightbeak buttercup) is rare in Montana. It is known to be in the western portion of the state based upon several specimen collections. However, only one collection has been made in the past two decades. Additional data are need to determine this species' status.

General Description—*Ranunculus orthorhynchus* var. *platyphyllus* (straightbeak buttercup) (Photos 204 and 205) is a herbaceous perennial. Stems 20–75 cm, somewhat hollow, erect or decumbent with hirsute to nearly glabrous foliage. Basal leaf blades narrowly ovate, 3–15 cm long, pinnate, the 3 to 5 leaflets deeply 1 to 2 times lobed. Flowers with petals 9–14 mm long, almost twice as long as the pilose sepals. Achenes flattened, 2–4 mm long, glabrous with straight beak ca. 3 mm long; head ovoid, 8–12 mm high.

Habitat—Streambanks and moist meadows in the montane zone.

Range—Alaska south to California, Utah, and Wyoming.

Photo 204. Line drawing of *Ranunculus orthorhynchus* var. *platyphyllus* (straightbeak buttercup)

Photo 205. *Ranunculus orthorhynchus* var. *platyphyllus* (straightbeak buttercup) in flower

GLOSSARY

Abandoned Meander Channel. A former stream channel meander section that was cut off from the rest of the river and typically lacks year-long surface water.

Abundance. The total number of individuals of a species in an area, population, or community.

Accelerated erosion. Erosion in excess of natural rates, usually as a result of anthropogenic activities.

Age Classes. Groups of individuals of a species or kind of organism within specified ranges of age.

Alluvial Terrace. Deposits of alluvial soil that mark former floodplains. Typically, a floodplain may have several sets of alluvial terraces at different elevations and of different ages (the higher the elevation, the older the age).

Alluvium. An accumulation of sediments deposited by streams or rivers.

Annual Plant. A plant that completes its life cycle and dies in one year or less.

Average Canopy Cover. The "average" canopy cover of a particular species on stands in which it occurred. For example, the number of stands sampled for a habitat type may be 20. However, a particular species may only occur in 7 of the 20 stands. The average canopy cover therefore represents the "average" canopy cover of that particular species in the 7 stands.

Bare Ground. Exposed soil surfaces not protected from erosional forces by plants, litter or duff, downed woody materials, rocks of cobble size or larger (> 6.25 cm [2.5 in]), or hardened impervious surfaces.

Beaver Dams. Dams built by beavers that span the stream channel, forming a beaver pond. In general, water still flows through the riparian system.

Browse. Woody forage consumed by ungulate animals.

Bunch Grass. A grass having the characteristic growth habit of forming a bunch; lacking stolons or rhizomes.

Canopy Cover. The amount of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants. Small openings within the canopy are included. (Daubenmire 1959).

Climax Community. The final or steady state plant community that is self-perpetuating in dynamic equilibrium with its environment.

Community (Plant Community). An assembly of plants living together, reflecting no particular ecological status.

Community Type. An aggregation of all plant communities distinguished by floristic and structural similarities in both overstory and undergrowth layers. A unit of vegetation within a classification. ***For the purposes of this document, a community type represents seral vegetation, and is never considered to be climax.***

Constancy. The percentage of sampled stands in which a species occurs.

Dead Plant. Refers to those plants where 100 percent of the canopy is dead (see ***decadent plant***).

Diameter Breast Height (DBH). The outside bark diameter of a tree at breast height. Breast height is defined as 1.37m (4.5 ft) above the forest floor on the uphill side of the tree.

Decadent Plant. A plant with at least 30 percent of its canopy dead.

Disclimax. Where recurring disturbances, such as grazing (e.g., zootic disclimax) or periodic burning (e.g., fire disclimax), exert the predominant influence in maintaining the structure and composition of the steady-state vegetation. Disclimaxes, such as the zootic climax or fire climax, are not the basis for recognizing habitat types.

Diversity. The kind and amount of species in a community per unit area.

Dominance Type (Equivalent to Cover Type). An aggregation of all stands (individual plant communities), grouped and named simply by the species with the greatest canopy coverage in the overstory or upper layer. In this classification, canopy cover of dominant species is greater than 25 percent.

Emergent Plant. A rooted herbaceous plant species that has parts extending above a water surface (i.e., sedges, cattails, bulrushes, etc.).

Emergent Wetland (Cowardin and others 1979). A ***class*** of wetland habitat characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

Ephemeral Stream. A stream or stretch of a stream that flows only in direct response to precipitation. It receives no water from springs and no long-continued supply from melting snow or other surface source. Its stream channel is at all times above the water table. These streams do not normally flow for 30 consecutive days.

Existing Vegetation. Refers to the plant cover, or floristic composition and vegetation structure, occurring at a given location at the current time.

Fen (Mitsch and Gosselink 1986). A non-acidic peat-forming wetland that receives nutrients form sources other than precipitation, usually through groundwater movement.

Flooded. A condition in which the soil surface is temporarily covered with flowing water from any source, such as streams overflowing their banks and runoff from adjacent or surrounding slopes, or any combination of sources.

Floodplain. An alluvial plain caused by the overbank deposition of alluvial material. Typically appearing as flat expanses of land bordering a stream or river. Most floodplains are accompanied by a series of alluvial terraces of varying levels.

Fluvial. Pertaining to or produced by the action of moving water.

Foliar Cover. The percentage of ground covered by the vertical projection of the aerial portion of plants. Small openings in the canopy and intraspecific overlap are excluded. Foliar cover is the vertical projection of stems and leaves.

Forb. A herbaceous plant, usually broadleaved, that is not a graminoid.

Forested Wetland (Cowardin and others 1979). A ***class*** of wetland habitat characterized by woody vegetation that is 6 m (20 ft) tall or taller.

Forested Wetlands. Occur near springs and seeps and in areas with naturally high water tables, such as river floodplains. Two general types of forested wetlands occur: 1) those dominated by coniferous tree species, and 2) those dominated by deciduous angiosperm tree species.

Graminoid. Grass or grass-like plant, such as species of the Poaceae (grasses), Cyperaceae (sedges), and Juncaceae (rushes).

Ground Water. Water occupying the interconnected pore spaces in the soil or geologic material below the water table, this water has a positive pressure.

Growing Season. The portion of the year when soil temperatures are above biologic zero (5° C [41° F]) as defined by *Soil Taxonomy*; the following growing season months are assumed for each of the soil temperature regimes: 1) thermic (February-October), 2) mesic (March-October), 3) frigid (May-September), 4) cryic (June-August), and 5) pergelic (July-August).

Habitat Type. The land area that supports, or has the potential of supporting, the same primary climax vegetation. A habitat type classification is a vegetation based ecological site classification. It is based on the potential of the site to produce a specific plant community (plant association). It has been used to classify grasslands, shrublands, woodlands, and forests throughout the United States and portions of western Canada.

Headcut. An abrupt elevation drop in the channel bed (a waterfall) indicating accelerated erosion as it downcuts the channel bed while migrating upstream.

Heliophyte. A plant that grows best in direct sunlight.

Herbaceous. Nonwoody vegetation, such as graminoids and forbs.

Hydrology. The science dealing with the properties, distribution, and circulation of water.

Hydrophyte. Any macrophytic plant that grows in water or on a substrate that is at least potentially deficient in oxygen as a result of excess water; plants typically found in wetland and other aquatic habitats.

Hydrophytic Vegetation. Plant life growing in water or on a substrate that is at least potentially deficient in oxygen as a result of excess water.

Increaser. For a given plant community, those species that increase in abundance as a result of a specific abiotic/ biotic influence or management practice.

Intermittent Stream. A stream or reach of stream which flows only at certain times of the year when it receives water from springs or from some surface source (e.g., melting snow). They are usually divided with respect to the source of their water into spring-fed or surface-fed intermittent streams. These streams generally flow continuously during periods of at least one month during the year.

Invader. A plant species absent in undisturbed portions of the original vegetation of a specific plant community, but that will invade or increase following disturbance or continued heavy grazing.

Leave Tree. A tree that was not selected for logging and remains alive post-harvest.

Lentic Wetland. See still water wetland.

Lotic Wetland. See riparian wetland.

Major Type. A habitat type or community type that occupies an extensive area within a specified region.

Marsh. A frequently or continually inundated wetland on often developing in shallow ponds, depressions, and river margins. Marshes are dominated by herbaceous plants, such as grasses (e.g., *Phragmites*), sedges (e.g., *Carex*), cattails (e.g., *Typha*), and bulrushes (e.g., *Scirpus*). Waters are usually neutral to basic.

Mature Tree. A tree that is greater than 22.86 cm (9 inches) in dbh.

Mineral Soil. Soils composed of predominantly mineral materials (sands, silts, and clays) instead of organic materials. The soil contains less than 20 percent organic matter.

Minor Type. A habitat type or community type that seldom occupies large areas but may be common in a specified region.

Monotypic Stands. Stands composed primarily of a single species.

Montane. The region between the subalpine and grassland zones, or more broadly: mountain slopes below the subalpine zone.

Obligate Wetland Plant. Refers to a plant species that occurs almost always (estimated probability greater than 99 percent) under natural conditions in wetlands.

Organic Soil. Soils composed of primarily organic rather than mineral material. Equivalent to **Histosols** and includes peats and mucks.

Parent Material. The unconsolidated and undeveloped mineral or organic matter from which the solum (soil) is developed.

Perennial Plant. A plant that has a life span of three or more years.

Perennial Stream. A stream or reach of a stream that flows continuously and is generally fed in part by springs. Surface water elevations are commonly lower than water table elevations in adjacent soils, so that water is discharged into the stream.

Phase. A subdivision of a habitat type or representing a characteristic variation in climax vegetation and environmental conditions.

Phenotype. The visible characteristics of a plant. The phenotype is determined by how the plant's genes (genotype) interact with its environment.

Pioneer Species. Species that colonize bare areas (e.g., gravel bars) where there is little or no competition from other species.

Pole. A tree age class that is greater than 12.7 cm (5 inches) and less than 22.86 cm (9 inches) in dbh.

Pond. A body of water smaller than 8 ha (20 acres), encircled by wetland vegetation. Wave action is minimal, allowing emergent vegetation to establish.

Ponded. A condition in which free standing water covers the soil surface, for example, in a closed depression. The water is removed only by percolation, evaporation, or transpiration.

Pooled Channel Stream. An intermittent stream with significant surface pool area and without flowing surface water. The water sources for the pools are springs within the channel.

Poorly Drained. Water is removed from the soil so slowly that the soil is saturated periodically during the growing season or remains wet for long periods (greater than 7 days).

Potential Natural Vegetation (PNV). The vegetation that would become established if all successional sequences were completed without major natural disturbances or direct human activities under present climatic, edaphic, and topographic conditions (adapted from Tuxen [1956], as translated by Mueller-Dombois and Ellenberg [1974], and from Kuchler [1964]. A major disturbance is an event (such as fire) or an ongoing process (such as heavy grazing) that results in stand replacement or selectively reduces the abundance of some plant

species. Direct human activities are those that alter or manipulate the vegetation itself rather than the environment. In the event of significant changes in climate, soils, or topography, a change in PNV type would be the logical outcome.

Primary Succession. Occurs on a bare surface not previously occupied by plants, such as a recently deposited alluvial bar.

Prominence Index. Refers to the importance of a species in a type or a series of stands. It is the product of average canopy cover and constancy (frequency) values.

Range of Canopy Cover. Refers to the "range" (e.g., low and high values) of canopy cover of a particular species for all the stands sampled for a habitat type or community type.

Relict Area. A remnant fragment of a climax plant community remaining from a former period when that community was more widely distributed.

Reservoir. An artificial (dammed) water body with at least 8 ha (20 acres) covered by surface water.

Rhizomatous Plant. A plant that develops clonal shoots by producing rhizomes. Rhizomes are horizontal underground stems that usually produce roots and shoots from nodes.

Rill. A small, intermittent water course with steep sides, usually only several centimeters deep. Rills are usually linear erosion features.

Riparian. *adj*. Of, on, or relating to the banks of a natural course of water (Latin *riparius*, from *ripa*, bank); associated with the stream, as *riparian* vegetation.

Riparian Wetlands (Lotic Wetlands). Riparian wetlands are wetlands associated with running water systems found along rivers, streams, and drainageways. Such wetlands contain a defined channel and floodplain. The channel is an open conduit which periodically, or continuously, carries flowing water, dissolved and suspended material. Beaver ponds, seeps, springs, and wet meadows on the floodplain of, or associated with, a river or stream are part of the riparian wetland.

Riparian or Wetland Ecosystem. The ecosystem located between aquatic and terrestrial environments. Identified by hydric soil characteristics and riparian or wetland plant species that requires or tolerates free water conditions of varying duration.

Riparian or Wetland Species. Plant species occurring within the riparian or wetland zone. Obligate riparian or wetland species require the environmental conditions associated with the riparian or wetland zone. Facultative riparian or wetland species are tolerant of these environmental conditions, but also occur in uplands.

Riparian Zone. A geographically delineated portion of the riparian ecosystem based on management concerns.

Sapling. A young tree that is greater than 2.54 cm (1 inches) and less than 12.7 cm (5 inches) in dbh.

Secondary Succession. The process of changing biotic communities that occurs following disturbances to a site that has previously been occupied by living organisms.

Seedling. A young tree that is shorter than 1.37 m (4.5 ft) or has a less than 2.54 cm (1 in) dbh—smaller than a sapling.

Seep. Groundwater discharge areas. In general, seeps have less flow than a spring.

Seral. Refers to vegetation that has not theoretically attained a steady state with its environment, and current populations of some species are being replaced by other species; a community or species that is replaced by another community or species as succession progresses.

Series. Refers to a group of habitat types having the same climax overstory species.

Shrub. A woody plant generally shorter than 4.8 m (16 ft)—usually, but not necessarily, multi-stemmed.

Site Index. A species-specific measure of actual or potential forest productivity or site quality, expressed in terms of the average height of dominant or co-dominant trees at specific key ages, usually 50 or 100 years..

Site Tree. A tree that representative of the average dominant or co-dominant tree in the stand. Site trees are used to calculate site indices.

Spring. Groundwater discharge areas. In general, a spring is considered to have greater flow than a seep.

Stable Community. The condition of little or no perceived change in plant communities that are in relative equilibrium with existing environmental conditions. It describes persistent but not necessarily climax stages in plant succession.

Stand. A plant community that is relatively uniform in composition, structure and habitat conditions.

Stocking Rate. The tree density or stocking rate of a forest is described as the number of trees per unit area (hectare or acre).

Streambank. That portion of the channel bank cross-section that controls or controls the lateral movement of water.

Stream Order. A classification of streams according to the number of tributaries. Order 1 streams have no tributaries; a stream of order 2 or higher has 2 or more tributaries of the next lower order.

Still Water Wetlands (Lentic Wetlands). These wetlands occur in basins and lack a defined channel and floodplain. Included are permanent (e.g., perennial) or intermittent bodies of water such as lakes, reservoirs,

potholes, marshes, ponds, and stockponds. Other examples include fens, bogs, wet meadows, and seeps not associated with a defined channel.

Stockpond. An artificial (dammed) body of water with less than 8 ha (20 acres) covered by surface water.

Structure (Vegetation). The height and area occupied by different plants or life forms in a community.

Succession. The change or sequence of plant, animal, and microbial communities that successively occupy an area over a period of time. ***Primary succession*** begins on a bare surface not previously occupied by living organisms, such as a recently deposited gravel bar. ***Secondary succession*** occurs following disturbances on sites that previously supported living organisms.

Succulent. A plant adapted with thick, fleshy tissue to store water (i.e., a cactus).

Swale. A depression or topographical low area.

Tree. A single-stemmed woody plant generally taller than 4.8 m (16 ft).

Uplands. Any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. Such areas occurring in riverine situations (i.e., floodplains) are more appropriately termed nonwetlands.

Water Table. The upper surface of the zone of saturation within the soil or geologic material.

Wet Meadow. An herbaceous wetland on mineral soil. Generally, wet meadows occur in seasonally flooded basins and flats. Soils are usually dry for part of the growing season.

Wetlands. Areas that under normal circumstances have hydrophytic vegetation, hydric soils, and wetland hydrology. It includes landscape units such as bogs, fens, carrs, marshes, and lowlands covered with shallow, and sometimes ephemeral or intermittent waters. Wetlands are also potholes, sloughs, wet meadows, riparian zones, overflow areas, and shallow lakes and ponds having submerged and emergent vegetation. Permanent waters of streams and water deeper than 3 m (approximately 10 ft) in lakes and reservoirs are not considered wetlands.

Wetland Hydrology. Permanent or periodic inundation or prolonged soil saturation sufficient to create anaerobic conditions in the soil. Primary wetland hydrology indicators are: inundated, saturated in upper 4.7 cm (12 in), water marks, drift lines, sediment deposits, drainage patterns in wetlands. Secondary wetland hydrology indicators are: oxidized root channels in upper 4.7 cm (12 in), water-stained leaves, local soil survey data, FAC-neutral test (Environmental Laboratory, 1987).

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