COMMON NATIVE AND INVASIVE WETLAND PLANTS IN MONTANA

May 2012

Montana Department of
Environmental Quality Wetland Program
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The Montana DEQ Wetland Program provides State leadership to conserve wetlands for their water quality, water quantity, habitat, and flood control benefits.

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Quick Key

This booklet is divided into sections based on the growth habits described by the USDA Plant Database. These are forbs, graminoids, shrubs and trees. Forbs and graminoids are vascular plants that always lack significant woody tissue above or at the ground. Graminoids are distinguished from forbs in that graminoids include true grasses and grass-like plants. For example, rushes and bulrushes can be distinguished by having leaves with undivided parallel veins and flower parts usually in the 3s or 6s. Shrubs are a perennial species with woody vegetation and have multiple stems. Trees are also a perennial species with woody vegetation but with a single stem.

Below is a quick, general key to the plants in this booklet. It does not cover all species that may be encountered in wetlands but is a reference that will help to quickly guide you to a selection of plants within this booklet. Readers unfamiliar with plant terms should first read the introduction section on plant identification. The key is divided into pairs of statements with identical numbers; e.g., 1a and 1b, that consists of two alternate, mutually exclusive statements describing characteristics of the plant in question. To identify potential species, the reader must choose the statement that best describes the plant. Start with the first statement, at the end of the statement is either a list of potential species and their page numbers or the number of another pair of statements. Continue through the statements until a list of species is obtained.

1a. Plant has a single or multiple woody stems.
Saltcedar (110), Russian-Olive (108), Willows (106)

1b. Plant does not have woody stems or tissue above the ground 2

2a. Leaves not grass-like (*Figure 7*) 5
2b. Leaf blade grass-like (*Figure 2)* 3

3a. Leaf blade or stems pithy or spongy
Arrow-grass (70), Broadleaf cattail (16), Bur-reed (18), Bulrushes (72), Creeping spikerush (74), Flowering rush (60), Rocky Mountain iris (34), Yellow flag iris (66), Rushes (84)

3b. Leaf blade thin, with parallel veins, leaves and stems not pithy or spongy 4

4a. Inflorescence is a Spike (*Figure 4*)
Foxtail barley (76), Inland saltgrass (78), Meadow foxtail (98), Quackgrass (100), Sedges (86), Short-awn foxtail (88)

4b. Inflorescence is a Panicle (*Figure 4*)
Creeping bentgrass (94), Kentucky bluegrass (96), Mannagrass (80), Reed canarygrass (102), Smooth brome (104), Tufted hairgrass (92)

4c. Inflorescence is a Raceme (*Figure 4*)
American sloughgrass (68), Prairie cordgrass (82)

5a. Stems square
Field mint (20), Hooded skullcap (24), Rough bugleweed (36)

5b. Stems not square 6

6a. Leaves compound or appear compound (*Figure 8*)
Large-leaf avens (26), Silverweed cinquefoil (40), Western water hemlock (46)

6b. Leaves simple (*Figure 8*) 7

7a. Leaves arranged alternate on stem (*Figure 9*)
Bog orchids (30), Canada thistle (50), Dock-leaf smartweed (56), Field sowthistle (58), Nuttall's sunflower (28), Willow dock (48)

7b. Leaves arranged opposite on stem (*Figure 9*)
Hairy willow-herb (22), Nuttall's sunflower (28), Speedwell (42)

7c. Leaves whorled on stem (*Figure 9*)
Purple loosestrife (62), Water horsetail (44)

7d. Leave arranged in a rosette (*Figure 9*)
Common dandelion (52)

7e. Other leaf arrangements
Curly dock (54), Red saltwort (32), Seaside buttercup (38), Tall buttercup (64)

Introduction

In the state of Montana, wetlands are under recognized aquatic resources that are of vital importance to maintain water quality, water quantity, wildlife habitat, and to provide flood control. Statewide wetlands comprise approximately 1% of the landscape; yet their benefits far outweigh their prevalence. Wetlands function as "filters" by removing pollutants and sediments before they have a chance to enter our waters. As sinks, they are areas of ground water recharge, helping to replenish aquifers. They can reduce high flood flows while slowly releasing stored water to maintain late season flows in streams and rivers. Wetlands are also vitally important as wildlife habitat and open space. Montana Fish, Wildlife and Parks identified 196 wildlife species that depend on wetland habitats for breeding and survival.[1] Sixty-Six percent of the federally listed endangered and threatened species in the state rely upon wetlands for a critical part of their life cycle.

Given their limited extent and complexity, wetlands are often misidentified, misrepresented, and misunderstood. For example, a common notion is that a wetland needs to have standing water present. This is not the case in our semi-arid climate where water is often present for only a short period of time. Therefore, the presence or absence of water is not a reliable method for determining if a site is a wetland or not. For this reason, consultants, planners, regulators, wetland scientists, and others evaluate three factors: vegetation, soils, and hydrologic indicators to determine if a site is a wetland. This booklet focuses on plants to help identify potential wetland sites. Plants are often present year round and with some tools, such as this booklet, common plants adapted to wetlands can be identified by the non-botanist.

The term "wetland" is not consistently defined in literature and regulations, and often is defined for a specific purpose. For the purpose of this booklet, an ecological definition was adapted from Keddy.[2]

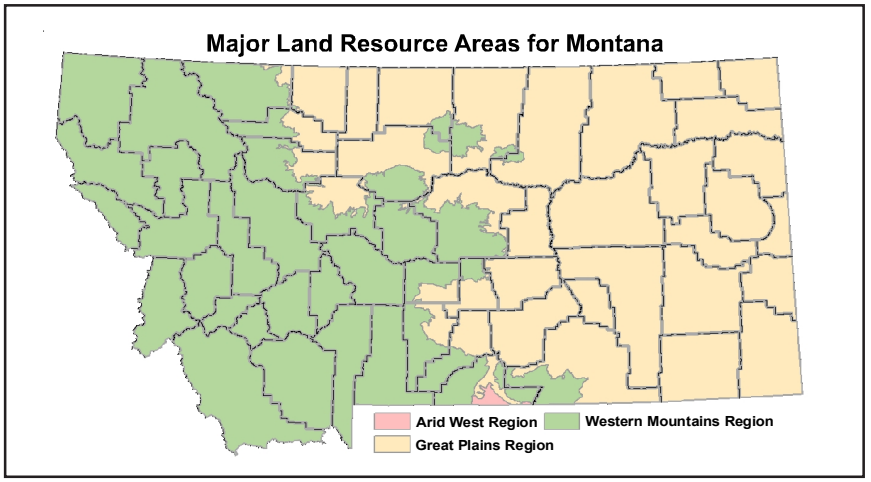
"A wetland is a transitional ecosystem between terrestrial and aquatic ecosystems that arises when inundation [or saturation] by water produces soils dominated by anaerobic processes and forces the plants and animals to exhibit adaptations to tolerate flooding. Wetlands generally include marshes, beaver ponds, potholes, wet meadows, floodplain wetlands, and other similar areas."

Scope of Common Native and Invasive Wetland Plants

The intended purpose of this booklet is to help the non-botanist identify potential wetland areas based on the plants present. This booklet is not meant to be used for identifying the jurisdictional boundaries of wetlands, but rather to identify potential wetlands that may need further evaluation by a trained wetland scientist. The

geographic designation of the booklet is statewide with the state split into the major land resource areas (MLRA) used by the U.S. Army Corps of Engineers. There are three MLRA in Montana: Western Mountains, Valleys, and Coastal Region; Arid West Region; and the Great Plains Region. The Western Mountains Region encompasses all of mountainous areas in Montana, as well as the isolated mountainous areas in Eastern Montana (*Figure 1*.). The Great Plains region encompasses everything east of the Western Mountains except for a small section in Carbon County. This booklet is intended to be used in areas that are more likely to see impacts from human activities; for example subdivisions, roads, and other human caused land-use changes. Areas less likely to experience human impacts, such as high alpine wetlands, are not the focus of this booklet and may exhibit a different set of common wetland plants.

Figure 1. Geographic designation of "Common Native and Invasive Wetland Plants in Montana."



Booklet Organization

The common wetland plant booklet is broken into two main categories; native wetland plants and invasive plants, and three sub-categories; forbs, graminoids, and shrubs/trees. Over 2500 plant species have been identified in Montana and over half of these species are found in wetland and riparian areas. This booklet describes 30 common native species or genera that are facultative wetland or obligate (*see Wetland Plant Indicator Status below*), and 19 common invasive species that may be found in wetlands. "Common" was defined as a 60% or greater chance of encountering a species in any given wetland and is subjective.

Introduction

The native species descriptions include both individual plant species and the larger grouping of plant genera. Genera are described, with common species listed, when the defining plant characteristics are similar among the individual species and all of the species listed are facultative wetland or obligate. For example, the genus *Carex* (sedges) is described because there are over 100 different *Carex* species that are present in the Rocky Mountain region,[3] six are frequently encountered in Montana's wetlands. Native species that are strictly aquatic or riparian are not described in this booklet. It is possible, over the geographic range of a species in Montana, for a species to be facultative wetland in one locale and strictly riparian in another.

Wetland Plant Indicator Status

Wetland plant indicator status categories reflect the frequency and abundance of a species in wetlands versus uplands in a Major Land Resource Area while taking into account the landscape component. For example, a facultative wetland species will usually be found in wetland habitats, but may occasionally be found in uplands.

The wetland plant indicator status category for each species was taken from the National Wetland Plant List updated in 2011. Wetland plant indicator status categories for genera in the species descriptions are reported for the species with the least likelihood of occurring in wetlands. All other listed species in the genera have a similar or greater likelihood of occurring in wetlands.

Wetland Plant Indicator Status Categories

Categories	Status
OBL	Obligate Wetland Species; Almost always a hydrophyte, rarely in uplands.
FACW	Facultative Wetland; Usually is a hydrophyte but occasionally found in uplands.
FAC	Facultative; Occasionally occurs as either a hydrophyte or non-hydrophyte.
FACU	Facultative Upland; Occasionally is a hydrophyte but usually occurs in uplands.
UPL	Obligate Upland Species: Almost always a non-hydrophyte, rarely in wetlands.

Coefficient of Conservatism

The Coefficient of Conservatism is a ranking of the relative ability of a plant to tolerate disturbance. The Coefficient of Conservatism is based on a standardized assessment tool developed by Swink and Wilhelm for natural areas, the floristic quality assessment.[6] The Coefficient of Conservatism is a number from 0 – 10 that ranks a species from tolerant of disturbance to intolerant of disturbance. The Coefficient of Conservatism can also be used as a measure of the ecological condition of a wetland site. For example, a site dominated by disturbance tolerant plants would be considered as having a low ecological condition compared to a site dominated by disturbance intolerant species. How the Coefficient of Conservatism values for Montana's wetland vascular plants were derived is described well by Lesica and Husby.[4] It is important to point out that these are based on expert knowledge and the relative difference in tolerance between species with a value of 0 and 1, or a value of 9 and 10, is slight, while the difference between a value of 0 and a value of 3 is more distinct.

It is worth noting that all of the invasive species covered in the booklet have a Coefficient of Conservatism ranking of 1 or 0 and thus are likely to occur in disturbed wetlands covered by the scope of this booklet. Many of the native plants covered in this booklet are able to tolerate only moderate levels of disturbance. The scope of common plants in this booklet involves wetland areas that are likely to experience disturbance from a variety of human activities. Thus, there are few native species described in the booklet that would be indicators of high quality, undisturbed wetland habitats; northern green orchid being the exception. A wetland in good condition, though, should have mostly native plants and will be unlikely to include introduced species.

Coefficient of conservatism scoring criteria[7]

Coefficient of Conservatism	Criteria
NR	Plants were not given a Coefficient of Conservatism rating.
0	Plants with a wide range of ecological tolerances; often opportunistic invaders of natural areas or native taxa that are typically part of disturbed communities.
1 – 2	Widespread taxa that occur in a variety of communities including disturbed sites.
3 – 5	Plants with an intermediate range of ecological tolerances that typify a stable phase of a native community, but that persist under some disturbance.
6 – 8	Plants with a narrow range of ecological tolerances that typify stable, relatively undisturbed communities.
9 – 10	Plants with a narrow range of ecological tolerances that exhibit high fidelity to narrow habitat requirements.

Montana Noxious Weed Priority Status

A weed is defined as any plant that interferes with the management objectives for a given area of land (or body of water) at a given point in time. Once a plant has been classified as a weed, it attains a "noxious" priority status by Rule as described in the Montana County Weed Control Act. Noxious weeds are defined as "plants of foreign origin that can directly or indirectly injure agriculture, navigation, fish or wildlife, or public health." Currently there are 32 species on the statewide noxious weed list infesting about 7.6 million acres in Montana.[8]

In this booklet, we describe 19 invasive species that are likely to be found in wetland habitats across the state. Not all of the invasive species described are designated as noxious weeds or even non-native. Some may be native or introduced cultivars with very aggressive vegetative characteristics; for example, Reed canarygrass, *Phalaris arundinacea*. Those species that are designated on the Montana state noxious weed list are classified under the three priority system described below.

Montana's Noxious Weed Priority Status Definitions (2012)

Priority	Definition
Priority 1A	These weeds are not present in Montana. Management criteria will require eradication if detected; education; and prevention.
Priority 1B	These weeds have limited presence in Montana. Management criteria will require eradication or containment and education.
Priority 2A	These weeds are common in isolated areas of Montana. Management criteria will require eradication or containment where less abundant. Management shall be prioritized by local weed districts.
Priority 2B	These weeds are abundant in Montana and widespread in many counties. Management criteria will require eradication or containment where less abundant. Management shall be prioritized by local weed districts.
Priority 3	Regulated Plants: (not Montana listed noxious weeds) These regulated plants have the potential to have significant negative impacts. The plant may not be intentionally spread or sold other than as a contaminant in agricultural products. The state recommends research, education and prevention to minimize the spread of the regulated plant.
	Effective: January 2010 [9]

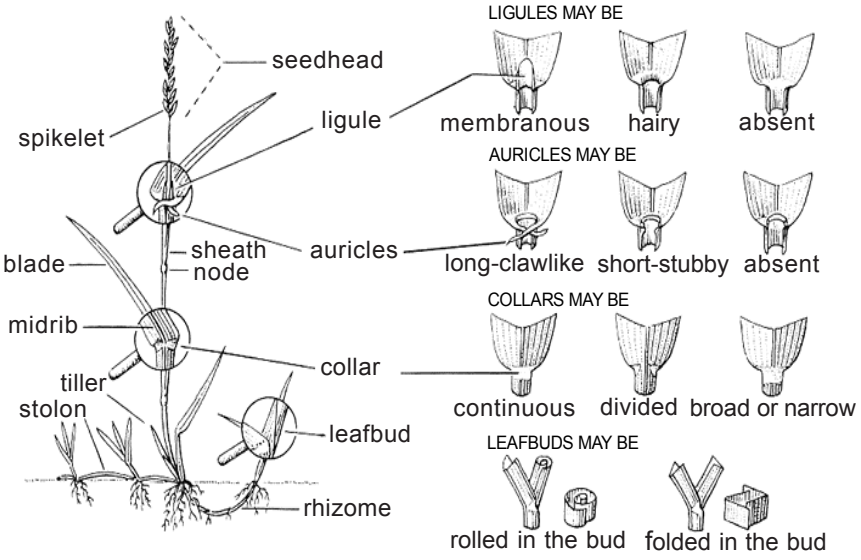
Plant Identification

In this booklet we try to describe the distinctive characteristics of forbs, graminoids, shrubs and trees in common terms whenever possible. Plant structure and terminology needs to be understood to correctly identify wetland forbs, graminoids, shrubs, and trees. Figures 2 – 13, with accompanying text above the figure, depict and explain the plant structures mentioned in the species descriptions. These are not comprehensive diagrams of plant structures and in other botanical references plant structures will be mentioned that are not covered here. Most of these terms are described in further detail in the glossary.

Grass Structure

The identification of grasses to the exact species is difficult without a detailed dichotomous key. To quickly and easily use this booklet, it is important to identify and understand common grass characteristics. For example, if the grass under evaluation has a spike inflorescence you can rule out species like Kentucky bluegrass or Tufted hairgrass. When first trying to identify a grass species, closely examine common characteristics such as growth form, inflorescence (seedhead) type, spikelet, leaf blade texture, stem sheath, ligules, and auricles. Figure 2 identifies these common characteristics of grasses that should be looked at when first identifying a species. Figures 3, 4, and 5 identify in more detail common grass structures and the names that are frequently used to narrow down species found in this booklet.

Figure 2. Typical characteristics of grasses and grass-like species



There are many different growth forms of grasses that may be encountered. In this booklet, there are three common growth forms; stoloniferous, rhizomatous, and tufted (Figure 3 left, center, and right respectively). Stoloniferous grasses have above ground shoots that forms roots and new plantlets at their nodes. Rhizomatous plants are similar to stoloniferous plants except that the rhizome is below ground. Rhizomatous grasses typically are considered to be sod forming, such as Kentucky bluegrass. Tufted grasses grow as the name implies, with several stems growing from clumps or tufts. Both stoloniferous and rhizomatous growth forms apply to the forbs described in this booklet.

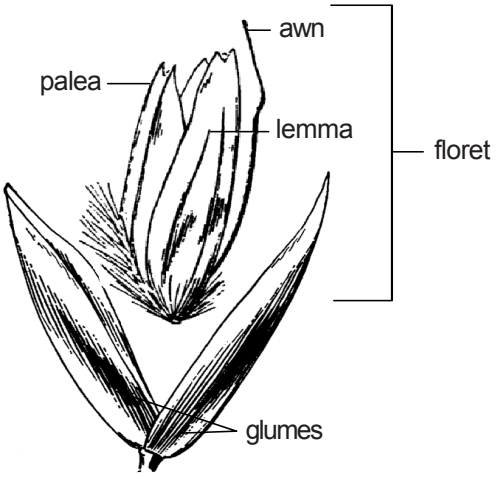
Figure 3. Common growth forms of grasses and grass-like plants. From left; Stoloniferous, Rhizomatous, Tufted

Grass species have three general types of inflorescences, or seedheads, which can help in identification. In a spike inflorescence, Figure 4 left, spikelets have no stalks and are directly attached to the rachis, or main axis of the inflorescence. In a panicle type inflorescence, Figure 4 center, the rachis branches into secondary branches that support the spikelets. In a raceme Figure 4 right, the stalk supporting the spikelets is attached to the central axis (rachis). In panicles and racemes, individual spikelets can be stalked or unstalked.

Figure 4. Grass and grass-like inflorescences. From left to right; Spike, Panicle, Raceme

Grass flowers are generally inconspicuous and of little use in identification. For this reason grass spikelets and florets are more commonly used. Figure 5 identifies the typical structures of a grass spikelet and floret that are used in this booklet. Spikelets may consist of one floret as shown in Figure 5 or many florets; see Quackgrass as an example.

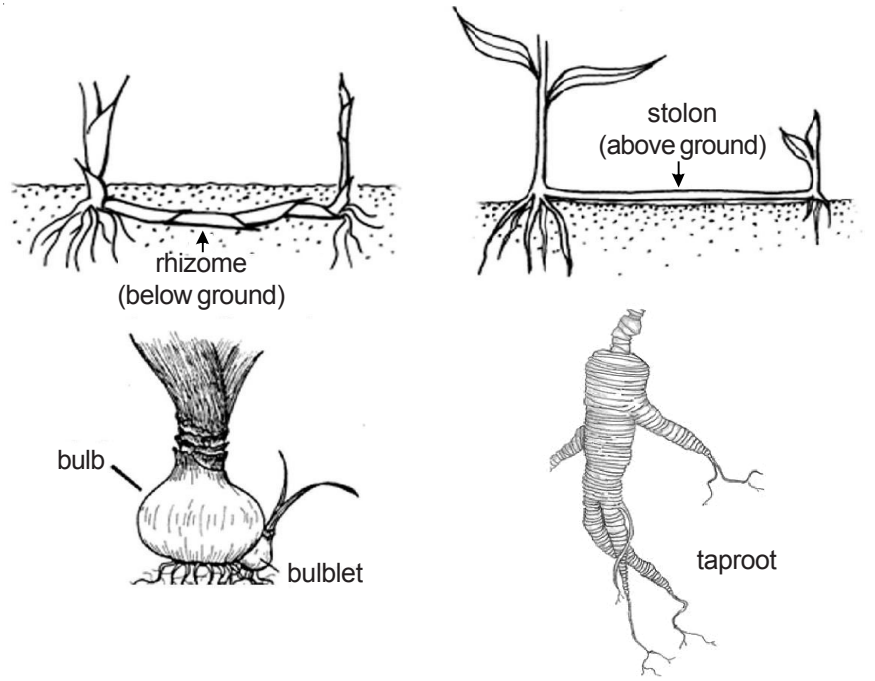
Figure 5. Typical structure of a graminoid spikelet. Spikelets may have one too many florets



Root Structures

The root structures of plants often aid in the identification of species when their above ground characteristics appear similar. The root structures identified in Figure 6 apply to both the graminoids and forbs described in this booklet. Rhizomes and stolons are described in the previous section for grass growth forms. Taproots are the primary root of the plant that continues in the same axis as the above ground stem, like a carrot. A bulb is a modified underground stem with overlapping leaf scales and a root system growing from the underside, like an onion.

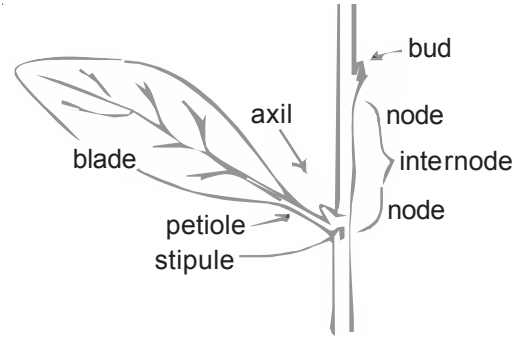
Figure 6. Common root structures and growth habits



Forb, Shrub, and Tree Structures and Leaf Arrangements

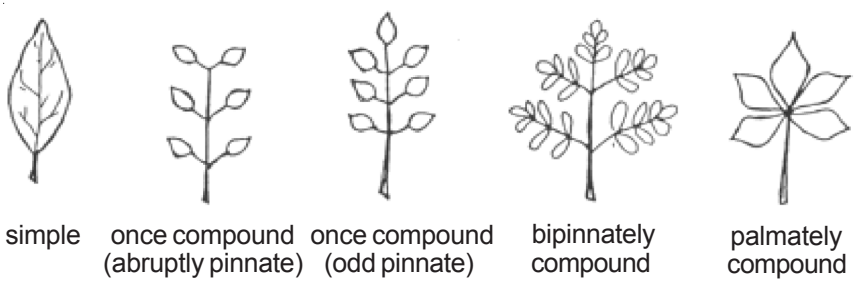
The identification of forbs, shrubs, and trees is much the same as identifying grasses. The key is to first note the common characteristics of the species of interest. The common characteristics we focus on in this booklet include: leaf type, leaf arrangement, leaf margins or edges, stem structure, and the color and structure of the flower. In this booklet, leaves are often described in more detail to aid in identification of plants that are not flowering. Leaf arrangements are described based on their placement on the stem. Figure 7 shows common plant parts and their relative location on the stem.

Figure 7. Common structures of forbs and shrubs/trees



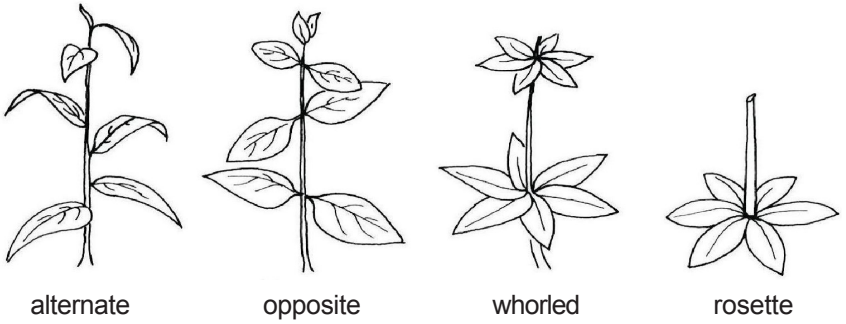
One of the first identifying features of forbs, shrubs, and trees are the types of leaves present. In general, there are two main leaf types: simple and compound (Figure 8). A simple leaf type signifies one leaf per petiole or leaf stalk, while compound leaves have multiple leaflets on a petiole.

Figure 8. Common leaf types



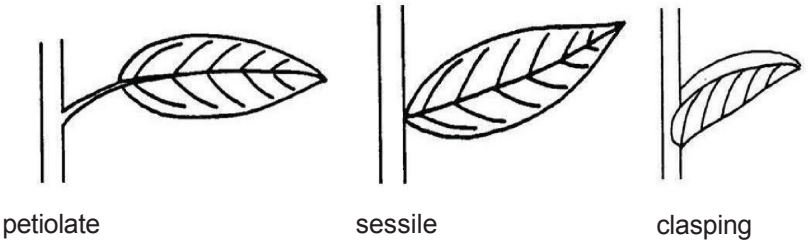
Leaf arrangement is generally consistent for a species and allows us to broadly group species for quicker identification. The arrangements in Figure 9 are for simple and compound leaf types used to describe species in this booklet. Alternate arrangements have a single leaf type originating at the nodes on the stem and generally alternate the side of the stem from which they originate. Opposite leaf arrangements have a pair of leaf types originating opposite of each other at the nodes on the stem. Whorled arrangements describe a radial arrangement of three or more leaves originating at a single node on the stem. For example, Water horsetail has whorled stem branches. A rosette arrangement is a cluster of leaves arranged around the stem, usually close to the ground or base of the stem. Whorled and rosette arrangements are generally found only in species with simple leaf types.

Figure 9. Common types of leaf arrangements on a stem



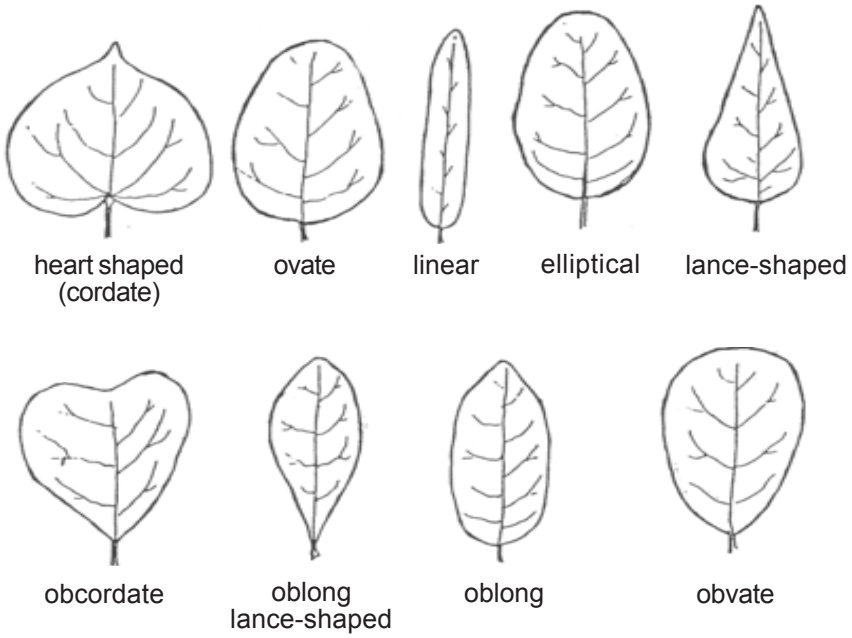
How the leaves attach to the stem can also be a good distinguishing feature. In this booklet, the most common leaf attachments are: petiolate- attached to the stem by a petiole or leaf stalk, sessile- attached directly to the stem or stalk-less, and clasping the stem (Figure 10).

Figure 10. Common types of leaf attachment to a stem



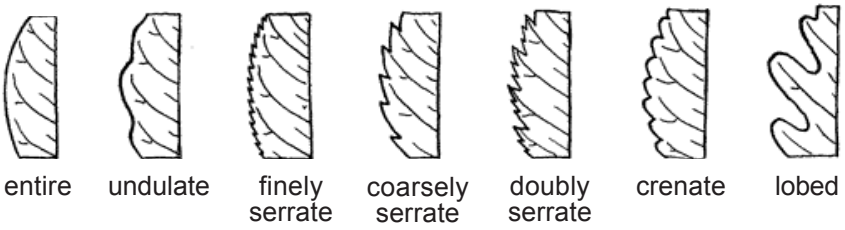
The shape of the leaf is also used to help describe the plant species of interest. Figure 11 shows the most common leaf shapes mentioned in this booklet. It does not cover all leaf shapes and in cases where a leaf shape is not illustrated we use every day terms for its description; for example, circular leaves in Seaside buttercup. There may also be times where the leaf shape is a combination of those shown below; for example, the ovate-lance shaped leaves of Hairy willow-herb.

Figure 11. Common leaf shapes



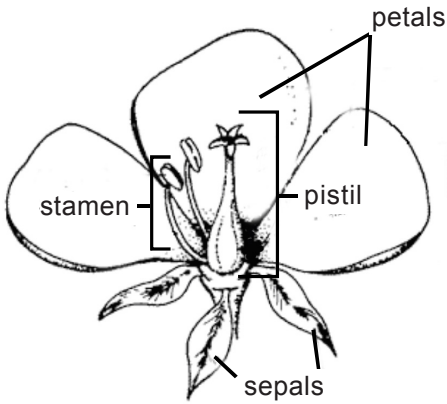
The final description used for leaves in this booklet is leaf margins or edges. In general, leaf margins are described in common terms whenever possible. Figure 12 shows the most commonly encountered leaf margins. An entire leaf margin has no teeth or lobes on the edge. Undulate leaf margins are somewhat wavy. Serrate leaf margins have sharp teeth directed toward the tip of the leaf. Serrate leaf margins are often referred to as fine or coarsely toothed. In crenate leaf margins, the teeth are rounded at their tips. In lobed leaf margins, the cut, or lobe, is less than halfway in to the main vein from the edge. Lobed leaves can be either pinnate, as an oak leaf, or palmate, see Tall buttercup for an example.

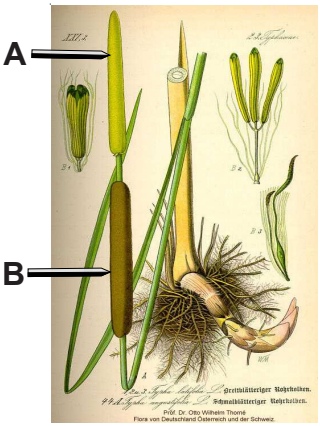
Figure 12. Common leaf margins (leaf edges)



When present, flowers are usually the easiest way to identify forbs and flowering shrubs or trees. The most commonly used flower characteristics for plant identification are petal and sepal color, petal number and arrangement, petal and sepal structure, presence or absence of pistils and stamens, and pistil and stamen arrangement and position. Most of the species described in this booklet have perfect flowers meaning that they have petals, sepals, stamen and pistils. An imperfect flower is missing at least one of these flower structures; such as bur-reed species, where individual flowers have either pistils or stamens, but never both. Petals may be either free, not joined to the other petals, or fused, as in Hooded skullcap. The same terms used for leaf arrangements in Figure 9 are also used to describe the location and arrangement of flowers on the stalk. A common flower arrangement not shown is an umbel in which the flower stalks originate at a single point and fan out like an umbrella, see Flowering rush as an example.

Figure 13. General flowering structures in forbs and flowering shrubs/trees




A
B
Prof. Dr. Otto Wilhelm Thomé
Flora von Deutschland Österreich und der Schweiz.

Distinctive Characteristics:

- Long, slender green stalks topped with brown, fluffy, cylindrical flowering heads.
- Long, upright stems and leaves that are spongy.

Growth Form: Broadleaf cattail is a stout, tall, herbaceous perennial plant that rapidly spreads by rhizomes and seeds. It can grow aggressively in nutrient enriched wetlands, forming dense, monotypic stands. They usually grow taller (up to 10 feet) in perennial standing water and shorter (up to 3 feet) in intermittent wetlands.

Leaves – Simple leaves are long, flat, with parallel linear veins, $^{3}/_{16}$ – 1 inch wide, and sprouting from the base of the plant. The base of the leaf blade is spongy to touch.

Flowers – Male (staminate) and female (pistillate) flowers are borne on the same stalk. Male spikes are terminal on the stems and light brown. Female spikes occur directly below the male spikes on the same stem. Female spikes are dark brown, cylindrical and are up to 4 inches long.

Fruit – At maturity, female spikes break apart to reveal fluffy, wind-dispersed seeds. The tiny seeds are oval shaped and are attached to dense, cotton-like hairs.

General Habitat: Broadleaf cattail is found throughout the state in most wetlands, ponds and backwaters of rivers and streams, in water up to 3 feet. Broad-leaf cattail is not commonly found growing in more saline wetlands.

Similar Species: Narrowleaf cattail (*Typha angustifolia*) has narrower leaves that are $^{1}/_{16}$ – $^{5}/_{16}$ inches wide. In broadleaf cattail the staminate (A) and pistillate (B) spikes are contiguous or nearly so, whereas in narrowleaf cattail, the staminate and pistillate heads are separated by approximately 1 inch, see drawing on previous page.[10]

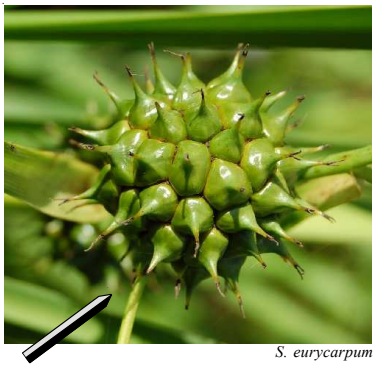
Note: Broadleaf cattail can hybridize with narrowleaf cattail where distributions of the two species overlap. Hybrids exhibit a separation between staminate and pistillate heads, but have leaves than are wider than narrowleaf cattail.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	3

S. eurycarpum

S. emersum

S. emersum



S. eurycarpum

S. eurycarpum

Species: Giant bur-reed*, S. eurycarpum;* Small bur-reed*, S. minimum, S. nutans;* Narrow-leaf bur-reed*, S. emersum, S. angustifolium*

Distinctive Characteristics:

- Individual flowers occur in separate male (staminate) and female (pistillate) globular heads on the same plant.
- Leaves have enlarged sheathing leaf bases.

Growth Form: Bur-reed species are erect, emergent perennials. They are a colonizing species that reproduces by spreading rhizomes and seeds.

Leaves – Leaves are simple, alternate, stiff and erect, or limp and floating, linear, and internally spongy. Leaves have enlarged sheathing leaf bases. Leaves on the inflorescence are simple, linear, alternately arranged on the stem,[3] and shorter than other leaves, see bottom picture on previous page. Leaves can be sharply keeled on the back. The margins are thin, dry, membranous, and non-green toward the base.

Flowers and Seedhead – Individual flowers occur in separate male (staminate) or female (pistillate) globular heads on the same plant. Male heads occur above the female heads on a simple or branched inflorescence. The fruit is a hard achene with a beak.

General Habitat: Bur-reed species are typically emergent plants, often occurring with cattails, in the shallow water of marshes, streams, ditches, ponds and lakes. Most bur-reed species are shade intolerant.

Similar Species: When inflorescences are not present, Giant bur-reed may be confused with sedges.

Note: Seeds persist in the seed bank.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	7

Distinctive Characteristics:

- Stems are square, with short hairs.
- Crushed leaves have a strong, distinctive mint odor.
- Light purple to pink flowers in whorls around the stem where the leaves attach.

Growth Form: A perennial herbaceous plant, 15¾ – 31½ inches tall, with a distinctive finely haired single square stem that reproduces by seed and established roots.

Leaves – Leaves are opposite, sharply toothed, ovate to elliptic-lance-shaped, hairy, and glandular. Leaves are ¾ – 3 inches long with short leaf stalks, and become smaller towards the top of the plant. Dense glands give the plant its distinctive odor when leaves and stems are crushed.

Flowers – Field mint flowers in spring and early summer. Flowers are borne in dense, whorled clusters at the axils of the paired leaves. Flowers are light purple to pink. Flowers are tubular with four free petal lobes. Stamens extend beyond the petals.

General Habitat: Field mint is common at lower elevations in wet soils along streams, ditches, floodplains, wet meadows, and other wetlands.

Similar Species: Other wetland plants in the mint family, such as Hooded skullcap (*Scutellaria galericulata),* and Rough bugleweed (*Lycopus asper*) are similar but lack the distinctive mint odor when crushed.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	3

3.1.4 HAIRY WILLOW-HERB *Epilobium ciliatum*

Synonym(s): Fringed willow-herb

Distinctive Characteristics:

- Several pink or white flowers each with 4 deeply notched petals borne on the end of long individual stalks.
- Long narrow pods containing small seeds with tufts of silky hairs.[11],[3]

Growth Form: Hairy willow-herb is an erect perennial forb, 6 – 35 inches in height, growing from underground bulb-like turions. Stems are often multi-branched and reddish in color. Hairy willow-herb reproduces by seeds that are wind-dispersed.

Leaves – Leaves are ovate-lance shaped with finely toothed margins, ¾ – 4¾ inches in length, and are mostly opposite along the stalk.

Flowers – Flowers have 4 petals that are pink to white. Each petal is deeply lobed at the tip. Flowers are arranged in a branched inflorescence originating in the leaf axils.[11]

Fruits – Long narrow capsules containing small seeds with tufts of silky hairs that develop below the flower.[11],[3]

General Habitat: Moist to wet open, or wooded sites from the valley to montane zones. Hairy willow-herb is sometimes found on alluvial or finer textured soils in floodplains or wet areas.[11]

Note: In Montana, there are many other native willow herb species occurring in wetland and riparian habitats.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	3

3.1.5 HOODED SKULLCAP *Scutellaria galericulata*

Synonym(s): Marsh skullcap, Common skullcap

Distinctive Characteristics:

- Pairs of blue flowers with a hooded upper petal and a flaring lower lip petal, borne on square stems.

Growth Form: Hooded skullcap is a perennial herb that reproduces by slender rhizomes and seeds. Stems are square, slender, can be simple or branched, and reach ¾ - 2 feet in height.

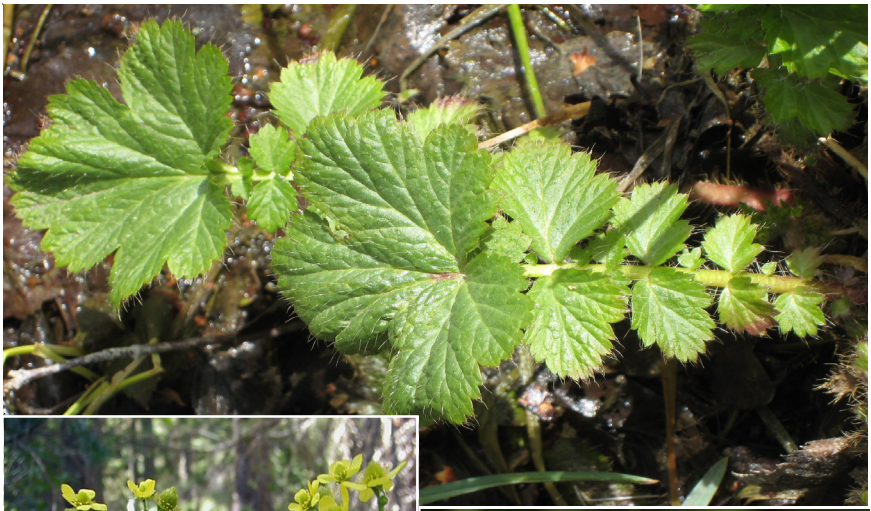
Leaves – Simple leaves are opposite, ovate to lance shaped with toothed leaf margins. Lower leaves are borne on a leaf stalk, while upper leaves are stalk-less. Leaves have a subtle mint-like odor when crushed.

Flowers – Pairs of blue flowers are borne in the axils of leaves in the upper portion of the stem. Flowers have a hooded upper petal and a flaring lower lip petal, giving this plant its name.

General Habitat: Hooded skullcap occurs on saturated soils around lakes, ponds, wetlands, and on ditch banks at mid to lower elevations.

Similar Species: Hooded skullcap and field mint (*Mentha arvensis*), are both members of the mint family with square stems. Hooded skullcap is taller with only two blue flowers where leaves join the stem and leaves without a very strong mint odor, while field mint has multiple pinkish flowers whorled around the stem and leaves have the strong, distinctive mint smell. See *Mentha arvensis* in the native forbs section.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	6



Distinctive Characteristics:

- Large, coarsely toothed, pinnately divided leaves. Terminal leaflet is much larger than adjacent leaflets.
- Round burr-like seed heads, $^{3}/_{8}$ – $^{5}/_{8}$ inches wide.
- Yellow flowers with 5 petals and 5 sepals that are reflexed.

Growth Form: An erect perennial forb with hairy stems and leaves. The inflorescence is branched, 1 – 2¼ feet tall, containing numerous yellow flowers. Large-leaf avens reproduces by rhizomes and seeds.

Leaves – Large-leaf avens leaves range from 4 – 8 inches long. Leaves are pinnately divided into coarsely toothed leaflets. The terminal leaflet is much larger than adjacent ones. Most of the leaves occur in a basal rosette. Leaves on the upper stems and inflorescences are alternate.[11]

Flowers – Multiple bright yellow flowers with 5 petals and 5 leaf-like sepals that bend backward away from the petals. Flowers are borne on stalks in a terminal, branched inflorescence. Large-leaf avens flowers from May to August.

Fruits – Round fruits tipped with stiff, long hooks forming round burr-like heads, $^{3}/_{8}$ – $^{5}/_{8}$ inches wide.[11]

General Habitat: Large-leaf avens grows in moist to wet meadows, along rivers and smaller streams, or in partial shade of thickets and open forests.[11]

Similar Species: Yellow avens (*Geum aleppicum*) is very similar to large-leaf avens and fairly common in Montana. Yellow avens can be distinguished by the terminal leaflet being only slightly larger than the lateral leaflets. In contrast, the terminal leaflet of large-leaf avens is much larger than the lateral leaflets. *Ranunculus acris*, tall buttercup, a noxious weed in Montana is also similar. Leaves of large-leaf avens are, pinnately divided, while tall buttercup has palmately divided leaves; see *Ranunculus acris* in the invasive section.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FAC **Great Plains:** FACW **Arid West:** FACW	5

Distinctive Characteristics:

- Tall, erect perennial with one to many sunflower like heads per stem.
- Coarse opposite or alternate leaves, that are long and somewhat lance shaped.

Growth Form: Nuttall's sunflower has a moderate growth rate and reproduces by both rhizomes and seeds. It is an erect plant that can reach heights up to 10 feet, but more commonly 2 – 5 feet in Montana.[5]

Leaves – Coarse leaves are opposite or alternate, generally rough-hairy, often 3-veined from near base, ½ - ¾ inches wide, and 4 – 8 inches long. Leaves are generally narrowly lance or egg-shaped.

Flowers – Nuttall's sunflower produces a head like inflorescence that is 3½ inches in diameter. There are 10 – 20 yellow, ray florets and a center of dark yellow, disk florets. Nuttall's sunflower blooms in mid-summer. There may be one to several heads per flowering stem originating from a terminal inflorescence.

General Habitat: Nuttall's sunflower grows in wet meadows, along streambanks and other ephemerally wet locations. It is a colonizing species that is shade intolerant and requires open areas for growth.

Similar Species: Maximillian sunflower (*H. maximiliani*) is similar to Nuttall's sunflower but is intolerant of moist conditions. Jerusalem artichoke (*H. tuberosus*) is also similar but not tolerant of moist conditions and often has reddish stems.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	7

P. dilatata

P. dilatata

P. aquilonis

P. stricta

Species: Leafy white orchid or White bog orchid, *P. dilatata;* Slender bog orchid, *P. stricta*; and Northern green orchid, *P. aquilonis*

Distinctive Characteristics:

- Thick, hairless, erect leafy stems with many showy flowers in a terminal spike-like inflorescence.

Growth Form: Bog orchids are perennial forbs with thick erect hairless stems, 4 – 35½ inches tall, with many showy flowers in a terminal spike-like inflorescence. The roots of bog orchids are fleshy and strongly mycorrhizal.[12]

Leaves – Leaves are simple, alternate or mostly basal, sessile, parallel veined, and usually sheathing the stem. Basal leaves are lance-shaped to elliptic-lance shaped, 2 – 10 inches long, and $^{3}/_{8}$ – $2^{3}/_{8}$ inches wide. Leaves are gradually reduced in size and become linear-lance shaped on the inflorescence.[13]

Flowers and Seedhead – Inflorescence consists of one terminal spike with few to many (10 – 70) showy white or greenish-yellow flowers. Flowers are perfect, strongly irregular, and can be fragrant. The uppermost petals and sepals are fused to form a hood over the lip. The lip petal is longer with the base forming a downward pointing spur.

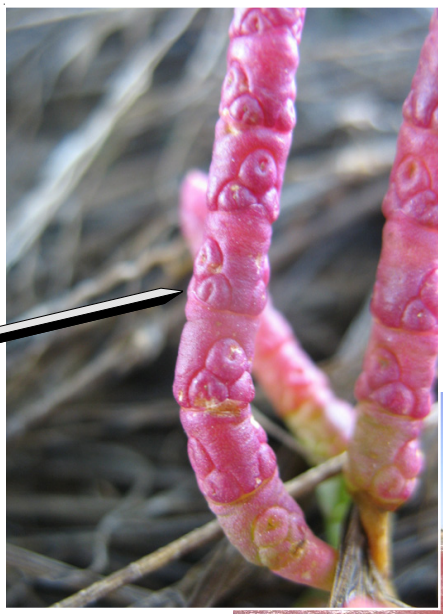
General Habitat: Bog orchids are often found in fens, wet meadows, along streams, drainage ditches, and moist to wet forests.

Note: Northern green orchid has a Coefficient of Conservatism of 8.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	5

3.1.9 RED SALTWORT *Salicornia rubra*

Synonym(s): Western saltwort, Western glasswort



Distinctive Characteristics:

- Cylindrical segmented stems that turn red during fruiting.
- A leafless plant found on the margins of saline and highly alkaline wetlands.

Growth Form: Red saltwort is a rapid, low growing, annual forb that reproduces exclusively by seeds. Stems are branched and usually erect. During spring and early summer, stem segments are green and tinged red or purple at the base. Red saltwort turns bright red during late summer and fall months.

Leaves – Leaves are reduced to small scale-like leaves that are closely appressed to the stems.

Flowers – Spikes are weakly cylindrical with contractions at intervals, $^{3}/_{16}$ – 2 inches in length. Spikes have 4 – 10 fertile segments with bracts covering only the base of the cymes.

General Habitat: Common throughout central and eastern Montana, except for the southeastern portion of the state. Red saltwort is highly tolerant of saline conditions and is often found on the margins of alkaline and saline wetlands and ponds, or in other seasonally wet, alkaline areas.

Note: Red saltwort is one of a very few species that can persist in hyper-saline wetlands when the water table drops below the soil surface.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	7


½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Distinctive Characteristics:

- Large distinctive flowers with three whitish to pale purple, drooping sepals with darker purple veins and a yellowish spot at the base, and three erect, blue to purple petals that are shorter than the sepals and six stamens.
- The fruit is an elongated, three-sided capsule.
- Long, straight, sword shaped leaves that range in length from 7¾ – 15¾ inches.

Growth Form: Rocky Mountain iris is a rapid growing perennial forb that reproduces from rhizomes and seeds. Rhizomes are large and thick ranging from ¾ – 1¼ inch in diameter, and spread out to form dense colonies of plants. This species may reach heights from ½ – 1¾ feet tall.

Leaves – Leaves are alternate on the stem, pithy, simple, sword shaped, with entire leaf margins, and parallel veins. Leaves originate at the base of the plant. The leaves range from 7¾ – 15¾ inches long and are usually less than ½ inch wide.

Flowers – Large distinctive flowers with three showy drooping sepals and three shorter, erect petals. Sepals are whitish with purple veins and a yellow spot at the base. The erect petals are blue to purple. There are 2 – 4 flowers per inflorescence. Rocky Mountain iris flowers in May and June

Fruit – The fruit is a three-sided capsule containing numerous round, reddish brown seeds.

General Habitat: Rocky Mountain iris is common in moist grasslands, wet meadows and pastures throughout Montana. It does not tend to grow on peat soils.

Similar Species: Without flowers or before flowering, Rocky Mountain iris can be confused with Yellow flag iris, a noxious weed in Montana. See *Iris pseudacorus* in the invasive section.

Note: Rocky Mountain iris is not palatable to grazing animals. It increases in cover in heavily overgrazed pastures and meadows.[3]

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	2


Photo by:
Richard Old
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UGA5238090

Distinctive Characteristics:

- Sharp toothed, stalkless leaves that are mildly aromatic when crushed.
- Hairy, square stems.
- Irregular stalkless white flowers with 2 lipped corollas, up to $^{1}/_{6}$ inch long blooming in clusters in the axils of the leaves.

Growth Form: Rough bugleweed is an erect species, up to 2 feet in height, whose hairy square stem is usually unbranched. This species reproduces by seeds and short rhizomes.

Leaves – Rough bugleweed's leaves are up to 3 inches long, opposite on the stem, simple, lanceolate to oblong, hairy, pointed at the tip, and tapering to the base. The leaf margins are sharply toothed. Leaves are sessile, without leaf stalks.

Flowers – Rough bugleweed's flowers are borne in dense clusters in the upper leaf axils. Flowers are white, cup shaped, 2 lipped, and up to $^{1}/_{6}$ inch long. Rough bugleweed flowers in July to August.

Fruits – The inconspicuous fruits are 4 nutlets that are warty at the tip.

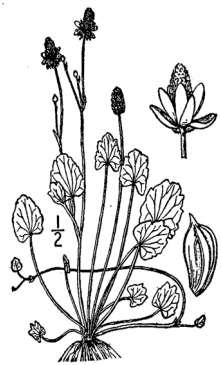
General Habitat: Rough bugleweed grows around ponds and lakes, wet roadside ditches, along streams, in floodplain wetlands, and wet meadows. Rough bugleweed is moderately tolerant of saline environments.

Similar Species: *Mentha arvensis*, field mint, and *Scutellaria galericulata*, hooded skullcap, are in the same family as rough bugleweed. Field mint flowers are larger and light purple to pink. Hooded skullcap produces only two flowers originating in the axils of the leaves. See *Mentha arvensis* and *Scutellaria galericulata* in the native forbs section.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	6

3.1.12 SEASIDE BUTTERCUP *Ranunculus cymbalaria*

Synonym(s): Alkali buttercup



Distinctive Characteristics:

- Low-growing, with multiple, shiny yellow flowers with 5 petals that are slightly longer than the 5 sepals.(A)
- Smooth, rounded leaves with rounded teeth and heart shaped bases that are almost as wide as they are long.

Growth Form: Seaside buttercup is a low growing, perennial forb that reproduces by stolons and seeds. Seaside buttercup is usually less than 4 inches tall.

Leaves – Leaves are basal, simple, and undivided. Leaf blades are oblong to circular, almost as wide as they are long. The leaf base is rounded to heart shaped with scalloped leaf margins. Leaves are ¼ – ¾ inch long with a rounded leaf tip.

Flowers and Seedheads – Seaside buttercup flowers in late spring or early summer. Flowers are borne in a semi-erect, open branched inflorescence. Flowers have 5 shiny yellow petals that are slightly longer than the 5 green sepals (A) which can be seen in-between the petals. Flowers are usually less than ½ an inch across. The fruits are beaked achenes borne in a tightly clustered head.

General Habitat: Seaside buttercup occurs in fens, marshes, wet meadows, ditches, and stream banks. Seaside buttercup is tolerant of alkaline environments and is moderately tolerant of saline environments.

Similar Species: There are many native (*Ranunculus*) buttercup species that are wetland indicators; however, Seaside buttercup can be distinguished by its heart shaped to rounded leaves with scalloped leaf margins, its small size, and preference for alkaline habitats.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	3

3.1.13 SILVERWEED CINQUEFOIL *Argentina anserina*

Synonym(s): *Potentilla anserina*

Distinctive Characteristics:

- Compound leaves with many oblong, toothed leaflets interspersed with smaller ones. Leaflets are densely covered with fine white hairs on the undersurface giving the plants a silvery appearance.
- Silverweed cinquefoil spreads by stolons, producing plantlets at the nodes.
- Yellow, 5 petaled flowers are produced on a solitary slender leafless flower stalk.

Growth Form: Silverweed cinquefoil is a rapidly spreading, low growing, short lived perennial.[5] Its stems are prostrate or creeping, rooting at nodes or stolons, forming colonies of plantlets.[14] Plants are rarely more than 4 inches tall. Reproduction is by both stolons and seeds. Older plants form a taproot which tapers at the top as well as the bottom.

Leaves – Leaves are compound, up to 7¾ inches in length, with many (5 – 11) oblong, toothed leaflets ($^{3}/_{8}$ – 1 inch long by $^{1}/_{8}$ – $^{3}/_{8}$ cm wide) interspersed with smaller ones. The undersurface of the leaves are silvery due to fine, silky white hairs. Young leaf stalks are covered with hair but become hairless with age.

Flowers and Seedhead – Each plant produces one yellow flower on a solitary slender leafless flower stalk. Flowers are ½ – 1 inch across with 5 yellow petals (A). The petals are subtended by 5 sepals (B).

General Habitat: Silverweed cinquefoil grows in wet meadows, mudflats, beaches, and other moist habitats. Silverweed cinquefoil generally grows in full sun but is tolerant of shade. It prefers soils that are moist to wet. It is tolerant of moderately alkaline soils.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** FACW **Arid West:** OBL	NR

V. americana *V. americana*

V. peregrina

V. peregrina

Species: American speedwell*, V. americana;* Purslane speedwell*, V. peregrina*

Distinctive Characteristics:

- Numerous, blue or white, saucer shaped flowers borne on a terminal or axillary inflorescence.
- Leaves are mostly opposite.
- Small, many stemmed plant with small glandular leaves opposite on the stalk (Purslane speedwell).
- Flattened, heart shaped seed capsules.

Growth Form: Speedwells can be either annual (Purslane) or perennial (American). American speedwell spreads rapidly by shallow rhizomes.[5] Both species are short lived, with short erect to decumbent stems (up to 12 inches tall). American speedwell is hairless while Purslane speedwell has short glandular hairs.

Leaves – Leaves are opposite, oblong, ovate or lance shaped, with margins entire to serrate. Leaves become alternate in the inflorescence. Purslane's leaves are shorter ($^1/_5$ – 1 inch), narrower (up to ½ inch wide), and rounded at the tip while American speedwell's are longer (½ – 3 inches long), wider (up to 1¼ inches wide), bluntly acute, and borne on short leaf stalks.[15]

Flowers and Seedhead – Speedwell flowers are usually numerous in axillary or terminal racemes. Flowers have 4 slightly unequal petals and are saucer shaped, blue in American speedwell or small inconspicuous white flowers in Purslane speedwell.

General Habitat: Speedwells occur in mud flats, along shores, ditches, temporary ponds, springs, swales, and streams. American speedwell can grow in sun or shaded environments. It is intolerant of saline environments.

Similar Species: American speedwell is similar to the introduced water speedwell (*Veronica anagallis-aquatica*). American speedwell leaves have short stalks while water speedwell leaves are sessile.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** FACW **Arid West:** OBL	4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Distinctive Characteristics:

- Rough, hollow, and jointed stems.
- Whorled branches originating at the nodes on the stem.

Growth Form: Water horsetail is a rapid spreading perennial forb that reproduces by spores and rhizomes. Water horsetail produces erect, round, hollow, rough stems, 4 – 15¾ inches in height. A cone-like, spore-bearing structure is borne at the tip of fertile stems. Both fertile and non-fertile stems have whorled, slender, green-jointed branches.

Stems – Stems usually have 4 – 6 hollow, whorled branches that originate at the nodes on the main stem. The main stems are hollow, shallowly grooved with 9 – 25 ridges, and banded with sheaths and black teeth. Stems can grow up to 4 feet tall.

Sporangium – The cone-like sporangium is blunt-tipped and forms during summer months.

General Habitat: Water horsetail grows in standing water. It can be found in marshes, ponds, ditches, lake margins, along slow moving streams, and sloughs. It is shade intolerant.

Similar Species: There are several horsetail (*Equisetum*) species. However, water horsetail can usually be distinguished by the whorled branches on both fertile and non-fertile stems and its preference for standing water habitat.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	6

3.1.16 WESTERN WATER HEMLOCK *Cicuta douglasii*

Synonym(s): Water Hemlock, *Cicuta maculata L. var. californica*

Distinctive Characteristics:

- Leaf blade veins run to the notches between the leaf teeth.
- Numerous, small, white flowers arranged in one to several umbrella shaped inflorescences.

Growth Form: Western water-hemlock is an erect perennial forb, growing 3 – 7 feet tall. Branched stems are swollen and chambered at the base. Roots also have chambers inside, and a musky odor. Western water-hemlock begins growth in the spring and flowers in late spring and early summer. Reproduction is by seeds and short, tuberous-like rhizomes.[16]

Leaves – Alternate, compound leaves. Leaflets are narrow to broadly lance-shaped, with toothed margins. Veins in the leaf run to the notches between the teeth.[16]

Flowers – Flowers are numerous, small, white, and arranged in one to several umbrella shaped inflorescences.

Fruits – Fruits are somewhat kidney-shaped, light brown, with corky ridges.

General Habitat: Water hemlock is especially common in pastures and untilled areas. It is found in wetlands, along mountain streams, and valley ditch banks. It occurs on wet, fertile soils at the water's edge.

Similar Species: Hemlock water-parsnip (*Sium suave*), which is also a common obligate wetland species, can be distinguished from western water hemlock by having leaf blade veins that run to the tips of the leaflets.

Note: This species is extremely toxic. It is not recommended to touch this plant or cut open the roots to see the chambers. The roots are the most toxic portion of this plant.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	4

3.1.17 WILLOW DOCK *Rumex salicifolius*

Synonym(s): *R. triangulivalvis, R. utahensis*

Distinctive Characteristics:

- Stem leaves nearly as large as the basal leaves; all with entire margins.
- Triangular shaped seeds that are dark reddish brown at maturity.
- Base of leaf tapers to the leaf stem.

Growth Form: Willow dock is an erect perennial forb, reaching heights of 2½ feet. Willow dock usually produces axillary stems below the terminal inflorescence or at proximal nodes. It produces a deep taproot and reproduces by seeds.

Leaves – Leaves are thin, linear-lanceolate, or occasionally almost linear, and taper to the leaf stem. Leaves are 1½ – 5 inches in length, usually 7 or more times as long as wide, and widest near the middle. Leaf edges are entire or rarely with slightly rounded teeth. Stem leaves are nearly as large as the basal leaves. Leaves are alternate on the stem.

Fruits – Triangular dark reddish brown seeds encased in a papery, heart shaped capsule.

General Habitat: Shores of streams, rivers, ponds, and wet meadows.

Similar Species: *Rumex crispus*, Curly dock, is a common non-native species in Montana. Leaves of curly dock have curly or wavy margins and blunt leaf bases.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** – **Arid West:** FACW	7

Synonym(s): California thistle, Creeping thistle, Field thistle

Distinctive Characteristics:

- Yellowish spines on the tips of irregularly lobed leaves.
- Purplish-pink (occasionally white) flower heads that resemble spotted knapweed.
- Plants are unisexual, either male (A) or female (B).
- Is mostly clonal; spreads by rhizomes.

Growth Form: Canada thistle is a tall, erect, spiny, perennial, herbaceous plant that grows 1 – 4 ft. tall. It has extensive, creeping rhizomes capable of forming dense stands. Stems are branched, often slightly hairy, and ridged. This species reproduces by both seeds and rhizomes, but spreads aggressively from rhizomes to form dense patches. Plants are male or female and grow in patches that often are one clone and sex.

Leaves – Canada thistle has irregularly shaped, deeply lobed leaves with distinctive yellowish spines on the tips. Leaves are sessile, alternate, lance-shaped, 2¾ – 7¾ inches in length, and $^{5}/_{8}$ – 1¾ inches wide.

Flowers and Seedhead – Each branched flowering stem bears numerous all male or all female flowers. Numerous female flowers are borne in a composite, head-like inflorescence that is ½ – ¾ inch diameter. Female flower heads are showy, purplish-red to pink (occasionally white), and are subtended by numerous, spineless, leafy bracts at the base of the flower head. Each female flower produces a single, curved, tan-colored seed which has a papery covering. Canada thistle blooms from June through October.[22]

General Habitat: Canada thistle is invasive in wet to mesic meadows, wetland margins, streambanks, riparian forests, river sloughs, and wet ditches. It is shade intolerant but it can be found in clearings in mesic, open canopy forests and woodlands.

Similar Species: Nodding plumeless thistle (*Carduus nutans*) does not produce rhizomes and has outer floral bracts that are covered with sharp spines. Flower heads are solitary and larger than Canadian thistle. Wavyleaf thistle (*Cirsium undulatum*) is most common in grasslands and dry forests.

Notes: Canada thistle has been found in all counties in Montana. Canada thistle forms deep and extensive rhizomes making it difficult to control. Creeping horizontal rhizomes produce numerous shoots and can reach more than 19 feet in one season. Rhizomes can reach depths of 22 ft in the soil profile. One plant is capable of producing over 3,000 seeds annually,[23] that are easily dispersed by wind.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
Yes Priority 2B	**Western Mountains:** FAC **Great Plains:** FACU **Arid West:** FACU	NR


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Distinctive Characteristics:

- Bright yellow composite flower about 1¼ – 2 inches across.
- Puff-ball seed head.
- Rosette growth habit- all leaves radiate from the base of the plant.

Growth Form: Dandelion is a common, herbaceous perennial that grows from a basal rosette with a deep taproot that is up to ½ inch in diameter.[24]

Leaves – Leaf margins are noticeably wavy, especially on older leaves. All leaves are basal, ranging from 2 – 16 inches in length. Leaves are oblong in outline, sometimes sparsely hairy, deeply indented with lobes that point toward the center of the rosette. The terminal leaf lobe is always larger than those below it.

Flowers and Seedhead – The inflorescence is approximately 1¼ – 2 inches in diameter, borne on a leafless, hollow stem that is 1 – 6 inches tall. Flowers are bright yellow. Flowers mature into "puff-ball" seed heads, consisting of numerous seeds with parachutes. Seeds are dispersed by wind.

General Habitat: Dandelions tolerates a wide range of site and soil conditions, but it most commonly occurs in disturbed areas such as cut-over or burned forests, open canopy mesic forests, avalanche chutes, overgrazed or disturbed upland and wetland meadows, and marshy floodplains. It also occurs on railroad rights-of-way, waste places, old fields, pastures, and lawns.[25]

Similar Species: Native species of Taraxacum generally occur in undisturbed, stony soils in alpine habitats. Redseed dandelion (*Taraxacum laevigatum*) is another introduced species, but has leaves that are lobed nearly to the tip. The terminal leaf lobe is no larger than those below it. It generally occurs in drier habitats.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FACU **Great Plains:** FACU **Arid West:** FACU	NR

3.2.3 CURLY DOCK *Rumex crispus*

Synonym(s): Narrowleaf dock, Sour dock, Yellow dock

Distinctive Characteristics:

- Leaves are long and narrow with curly or wavy margins and blunt leaf bases.
- Seed are produced in large clusters on the branched stems, the largest cluster at the top.
- At full maturity, the plant turns a reddish brown color during autumn.

Growth Form: Curly dock is a tall, erect taprooted perennial, developing a basal rosette of wavy-margined leaves and an unbranched stem that may reach 5 feet in height. The mature plant turns a reddish brown during autumn.

Leaves – Leaves of curly dock are long, lance shaped, and relatively narrow. Leaf margins are curly or wavy, resembling crisped bacon. The leaf base is blunt or slightly heart shaped where it joins the leaf stalk. Curly dock seedlings vary in color, from entirely green to red-tinged during cooler months.

Flowers and Seedhead – Curly dock's flowers and seeds are produced in clusters on branched stems, with the largest cluster being found at the top of the stalk. The seeds are shiny, brown and encased in a papery, heart-shaped sheath, which enables the seeds to float on water and spread to new locations.

General Habitat: Usually grows in wet areas and is frequently associated with standing water in low areas. It occurs in ditches, roadsides, wetlands, wet meadows, disturbed shallow depressional wetlands, and other disturbed moist places. It tolerates poor drainage but favors nutrient rich soils.

Similar Species: There are many species of dock (*Rumex*) that can be confused with curly dock. Curly dock can be distinguished from native species by the wavy or curly leaf margins and blunt leaf base. Introduced sheep sorrel (*R. acetosella*), has slender arrow shaped leaves and slender red stems, whereas mature curly dock has stout stems and longer lance shaped leaves.[26]

Notes: A single plant can produce 60,000 seeds; some germinate readily, while others can remain viable in the soil for over 80 years.[27]

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FAC **Great Plains:** FAC **Arid West:** FAC	0

3.2.4 DOCK-LEAF SMARTWEED *Polygonum lapathifolium*

Synonym(s): Curly-top knotweed, Willow-weed

Distinctive Characteristics:

- Multiple nodding flower heads 1 – 3 inches long with white to deep pink flowers.
- Coarse reddish stems with swollen nodes and long sheaths where flower heads and leaves originate.

Growth Form: Dock-leaf smartweed is an erect to decumbent, annual species that reproduces only by seeds. It can grow 8 inches to 3½ feet tall. Stems are simple to widely branching, coarse, often reddish, and swollen at the joints. A distinctive characteristic is a long sheath extending vertically around the stem at the nodes.

Leaves – Leaves are alternate, 2 – 7 inches long and ¼ – 1½ inches wide, narrowly lance shaped, and tapering to the tip.

Flowers and Seedhead – Dock-leaf smartweed has densely clustered flowers on cylindrical, erect or nodding racemes. The white to deep pink flower heads are 1 – 3 inches long. The multiple racemes generally originate at the swollen nodes, just above the leaf bases.

General Habitat: Marshes, wet meadows, ditches, shores, streambanks, and other places where water stands temporarily. A common non-native annual that can be abundant in some locations.[28]

Similar Species: Spotted ladysthumb (*P. persicaria*) and Dooryard knotweed (*P. aviculare*) are common annual, introduced species. Dooryard knotweed can be distinguished from Dock-leaf smartweed by having prostrate stems, linear leaves, and only 1 – 3 flower heads per leaf axil. It usually occurs in drier, disturbed areas.

Notes: Stands of Dock-leaf smartweed can reduce the flow of water in irrigation ditches, canals, and drainage areas.[26]

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FACW **Great Plains:** OBL **Arid West:** FACW	1


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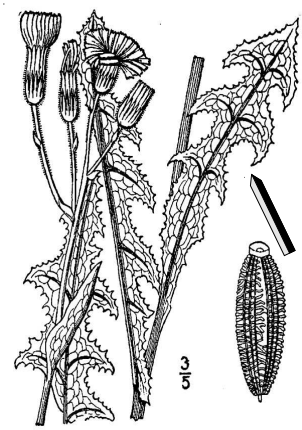
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Distinctive Characteristics:

- Composite yellow flowers, with bracts having glandular yellow hairs, and are borne on a branched inflorescence.
- Leaves are similar to dandelion leaves except with teeth ending in small weak prickles.

Growth Form: Marsh sowthistle is an herbaceous perennial that grows 2 – 4 feet tall. It produces a single, erect, branched inflorescence. The entire plant is filled with a sticky milky latex.[29] Field sowthistle spreads by seeds, rhizomes, and creeping stems.

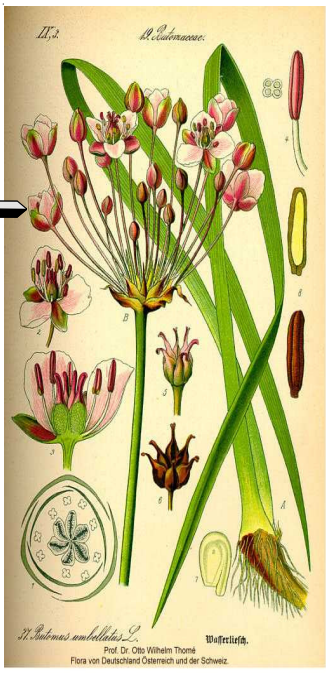
Leaves – Lower leaves are alternate, lobed, 4 – 20 inches long, and 1 – 1½ inches wide. Upper leaves clasp the stem and become progressively fewer and smaller with entire leaf margins. Leaves closely resemble dandelion leaves, except with teeth ending in small weak prickles.

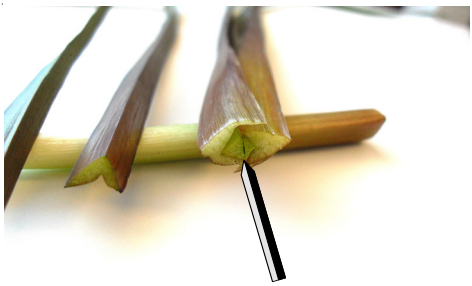
Flowers and Seedhead – Bright yellow rays are borne in heads that are up to 2 inches wide on a branched inflorescence. Flowers closely resemble dandelion, however, field sowthistle flower heads have numerous fine bracts with glandular, yellow hairs. Field sowthistle flowers from June through August. Seeds possess feathery parachutes and are dispersed by wind.

General Habitat: Field sowthistle grows in cultivated fields, disturbed wet meadows, meadows, sloughs, woods, lawns, along roadsides, beaches, ditches, and river and lake shores.[29] It is adapted to many habitats but is often found on disturbed sites in saline or highly alkaline habitats. Field sowthistle grows well in wet, saturated soils, so it may occur in riparian areas or wetlands.

Similar Species: The leaf shape resembles dandelion or chicory but has spines along the margin of the leaf.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FACU **Great Plains:** FAC **Arid West:** FACU	0


Prof. Dr. Otto Wilhelm Thomé
Flora von Deutschland Österreich und der Schweiz.



Distinctive Characteristics:

- Umbrella shaped inflorescence bearing up to 30 flowers with three whitish pink petals and three similar sepals.
- Green leaves are triangular in cross section.

Growth Form: Flowering rush is an aquatic perennial with erect and triangular[23] stems that can reach heights of five feet. It grows as an emergent plant along shorelines and as a non-flowering, submergent plant occurring at depths up to 20 feet. This plant spreads aggressively from a loose, friable network of rhizomes that fragment and disperse under water. Rhizomes also form bulblet structures, capable of forming new plants.[23]

Leaves – Leaves are linear, up to 3 ft. long, triangular in cross-section often with spiraling or twisted leaf tips. Leaves arise in 2 rows from base.

Flowers and Seedhead – Flowers are arranged in an umbrella-shaped inflorescence, bearing numerous pink to whitish-pink flowers that are ¾ – 1 inch wide. Sepals and petals are similar in color. Sepals are persistent after flowering. Flowering rush blooms from June to August. Numerous seeds are borne in a rounded fruit. At maturity, seeds are dispersed by water, but must land on suitably moist, warm soil for germination.

General Habitat: Flowering rush is found in riparian areas including water courses and wetlands such as muddy shores of shallow water, ditches, marshes, lakes, or streams.[23] Flowering rush requires wet soil and full sun. It is shade intolerant.

Similar Species: Emergent forms of flowering rush appear similar to bulrush species (*Schoenoplectus*) but can be distinguished by its triangular shaped leaves, the umbrella shaped inflorescence, and showy flowers.

Notes: Flowering rush is native to Eurasia and was first found in the United States in 1918. It is an aggressive invasive aquatic macrophyte with emerged and fully submerged growth forms. Flowering rush can dominate irrigation systems, wetlands, littoral zone of lakes, river edges, and sloughs.[30] Flowering rush has been documented in the following counties: Flathead, Lake, Missoula, and Sanders.[23] Boats can disturb flowering rush and transport rhizomes and bulblets. In established populations, lake currents can distribute flowering rush seeds, bulblets, and fragmented rhizomes. Boats can easily transport these plant parts into new lakes.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
Yes Priority 1B	**Western Mountains:** OBL **Great Plains:** OBL **Arid West:** OBL	NR

Synonym(s): Purple lythrum, Bouquet-viole, Spiked loosestrife

Distinctive Characteristics:

- Showy purple to magenta colored flowers are clustered on a long spike.
- Leaves are whorled or opposite on the stem and lance shaped.

Growth Form: Purple loosestrife is a robust invasive, perennial that forms multiple stems (up to 50 stems) from a well developed taproot and short, spreading root stalks. It can grow to 6 – 8 feet tall. Stems are somewhat woody and are usually square.[31] The extensive root system and the prolific seed production results in rapid spread. Broken stems can form roots and develop new, intact plants.

Leaves – Leaves are lance shaped, have smooth margins, and are 1 – 4 inches long. Leaf bases clasp the stem, and are heart-shaped or rounded at the base. Leaves can be whorled or opposite on the stem. Leaves and stems are covered with fine downy hairs. During autumn, leaves of purple loosestrife turn red in color.

Flowers and Seedhead – Showy purple to magenta colored flowers are densely clustered on a long, upright spike inflorescence. The main spike can be up to 3 feet long, axillary spikes can be 2 inches to 1 foot long. Flowers have 5 – 7 petals. Purple loosestrife flowers from June to September. The fruit is a small capsule containing numerous tiny seeds. During late July to early August, capsules burst open, dispersing the seeds by force.

General Habitat: Purple loosestrife is well suited to seasonal wetlands, and is capable of invading wet meadows, river and stream banks, pond edges, reservoirs, ditches, irrigation canals, and marshes. As a general rule, moisture is required for growth and reproduction, however, well-established plants can persist on dry sites.[23]

Similar Species: Purple loosestrife is sometimes confused with fireweed (*Epilobium angustifolium*). Fireweed leaves are alternate and have short leaf stalks. Purple loosestrife can be distinguished from the native winged loosestrife (*Lythrum alatum*, reported from Carbon County in eastern Montana), by the size of the plant, leaves, and flowers.[31]

Notes: Purple loosestrife is currently found in the following counties: Dawson, Flathead, Lake, Lewis & Clark, Meagher, Missoula, Ravalli, Rosebud, Toole, and Yellowstone.[23]

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
Yes Priority 1B	**Western Mountains:** OBL **Great Plains:** OBL **Arid West:** OBL	0

3.2.8 TALL BUTTERCUP *Ranunculus acris*

Synonym(s): Meadow buttercup, Common buttercup, Tall field buttercup

Distinctive Characteristics:

- One inch wide, bright yellow flowers with 5 petals.
- Long erect hairy stems; tall plant.
- Palmately divided hairy leaves.

Growth Form: Tall buttercup is a tall, erect plant with hollow and hairy stems from 1 – 3 feet in height. Stems emerge from short, thick rootstocks. Stems are often branched near the top of the plant.[23]

Leaves – Leaves are soft, hairy, and palmately divided. Lower leaves have long hairy leaf stalks. Leaves are deeply divided into 3 – 7 lobes. Upper leaves are smaller, widely spaced, and are usually 3-lobed.

Flowers and Seedhead – Tall buttercup produces a branched inflorescence bearing numerous bright yellow flowers. Flowers have 5 rounded, glossy petals. Each flower produces numerous small (~1mm) yellowish, egg-shaped, flat seeds. Each seed has a short, tipped hook on the tip.

General Habitat: Tall buttercup can be found in a variety of habitats, but prefers heavy, moist soils including wet lowlands and rich, mesic woodlands. If there is adequate moisture, it will grow in sandy or gravelly soils. It is a common weed in pastures, meadows, open areas, and along roadsides. Wet to mesic meadows at all elevations are vulnerable to invasion.

Similar Species: Tall buttercup is a perennial whose flowers closely resemble the native buttercups. A taxonomic key for the genus *Ranunculus* should be consulted for positive identification.

Notes: Tall buttercup has been documented in: Carbon, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lewis & Clark, Lincoln, Madison, Mineral, Missoula, Musselshell, Powell, Ravalli, Sanders, Silver bow, Stillwater, Teton, and Wheatland counties.[23]

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
Yes Priority 2A	**Western Mountains:** FACW **Great Plains:** FACW **Arid West:** FACW	0

3.2.9 YELLOW FLAG IRIS *Iris pseudacorus*

Synonym(s): Yellow iris, Water flag, Pale yellow iris, European yellow iris

Distinctive Characteristics:

- Large, bright yellow, showy iris flower.
- Seed pods are triangular shaped with 3 seed compartments, green at first, brown when mature.

Growth Form: Yellow flag iris is a perennial forb that grows up to 4 feet high on a robust stalk. Yellow flag iris spreads by both seed and a dense, extensive root system.[23]

Leaves – The leaves resemble cattails; they are sword-shaped, long (20 to 40 inches), broad (up to 1 inch), flat, and dark green in color. The leaves originate at the base of the stem and are usually longer than the stem.[32]

Flowers and Seedhead – The flower is the most distinguishing characteristic. Flowers are large (3 – 4 inches across), bright yellow, and showy. The inflorescence may have multiple flower heads. Yellow flag iris flowers from June to August.[32] The fruit is a green, three-parted capsule that is 1 – 3 inches long.[23] At maturity, the capsule becomes brown and woody and splits open to release numerous round, brown seeds.[23]

General Habitat: Yellow flag iris thrives under full sun and in moist to permanently saturated soils. It grows in fresh or brackish water and often occupies anoxic wetland soils. It is tolerant of submersion and can also survive prolonged periods of dry conditions. It can be found along shorelines, ditches, streambanks, floodplain forests, areas of shallow water, low-lying wetlands, wet meadows, and lake shorelines.

Similar Species: When it is not flowering, it may be confused with cattails or native iris.[32] The rhizome sap is black in yellow flag iris and not in Rocky Mountain iris. Refer to Rocky Mountain iris and broadleaf cattail in native plant section.

Notes: Yellow flag iris is currently found in the following counties: Carbon, Flathead, Gallatin, Granite, Lake, Missoula, Sanders, and Wheatland.[23] Seeds fall into the water, remain buoyant and can spread over long distances by waterways.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
Yes Priority 2A	**Western Mountains:** OBL **Great Plains:** OBL **Arid West:** OBL	0

Distinctive Characteristics:

- Strongly flattened spikelets that are round in side view and tightly packed in two rows along one side of rachis.
- Narrowly branched closed panicle inflorescence with numerous laterally compressed spikelets that are borne on very short stalks.

Growth Form: American sloughgrass is a cool season annual or, rarely, short lived perennial grass. It has a shallow root system supporting leafy stems which may be as tall as 3½ feet. American sloughgrass reproduces mainly by seeds but can spread from stolons.

Leaves – Leaf blades are 2 – 7¾ inches long, $^{1}/_{8}$ – $^{3}/_{8}$ inches wide, grayish green, and minutely rough due to the presence of small hooks or prickles. An unfringed, hairless, ligule is present. Basal leaves contain cross veins that intersect longitudinal veins at right angles forming small rectangles over the leaf surface.

Flowers and Seedhead – The inflorescence is a narrowly branched closed panicle. The panicle inflorescence contains numerous tightly packed spikelets that are borne on very short branches. Spikelets are arranged on one side of the panicle stem. Spikelets are ½ – ¾ inches long, flattened to slightly inflated, and circular to ovate in shape with prominent veins.

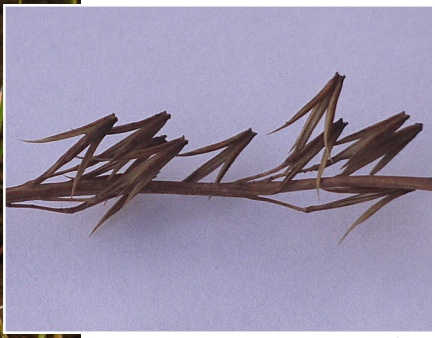
General Habitat: American sloughgrass is common at low elevations in shallow marshes, floodplain wetlands, along slow moving streams and ditches, and on pond edges.[3]

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	4

T. palustre

T. maritimum

T. maritimum



T. palustre

Species: Seaside arrow-grass, *T. maritimum*; Marsh arrow-grass, *T. palustre*

Distinctive Characteristics:

- Tall grass-like plant with basal leaves and a terminal spike-like inflorescence that is either loosely or densely flowered, forming egg-shaped or club-shaped fruits.
- At maturity seedheads split and resemble arrowheads.
- Occurs in alkaline or saline wetlands.

Growth Form: Arrow-grasses are grass-like herbaceous perennials that grow in tufts from rhizomes. Arrow-grasses have one simple stem up to 31 inches in height that end in a spike-like raceme.

Leaves – Leaves are ½ – ¾ the length of the plant, all basal, slender, circular or somewhat flattened, sheathing at the base, with ligules.

Flowers and Seedhead – Arrow-grasses have a terminal inflorescence that lack bracts, ending in a spike-like raceme that is either loosely flowered, 4 – 10 inches long (Marsh arrow-grass), or densely flowered, 4 – 15¾ inches long (Seaside arrow-grass).[12] Flowers are greenish-white and inconspicuous.

Fruit – Fruits are small, about $^1/_8$ inch long, less than $^1/_8$ inch thick, club or egg-shaped, and eventually splitting into linear segments that resemble arrowheads.[12]

General Habitat: Arrow-grasses occur in wet meadows, fens, springs, seepage areas, alkaline or saline marshes, ditches and flats, streambanks, and other wet places. Both species are tolerant of saline environments.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	7 Average

S. acutus

S. pungens

S. tabernaemontani

S. acutus

S. acutus

S. pungens

Species: Three-square bulrush, *S. pungens;* Saltmarsh bulrush, *S. maritimus;* Hard-stem bulrush, *S. acutus,* Soft-stem bulrush, *S. tabernaemontani*

Distinctive Characteristics:

- Most *Schoenoplectus* species have round or triangular stems that are either solid or pithy.
- Panicles emerge from upper portion of stem with the leaf blade extending beyond the panicle.

Growth Form: Bulrushes are stout, mostly rhizomatous, reed like, or rush like perennials that can be medium to tall in stature. The stems are simple, erect, round or three-angled, and are either solid or pithy.[12]

Leaves – In most *Schoenoplectus* species, the leaf blades are poorly developed. Leaves are reduced mainly to sheaths at the base of the stems. Saltmarsh bulrush has well developed leaves that can be ½ inch wide that arise from the lower two thirds of the plant.

Flowers and Seedhead – The inflorescence contains numerous drooping spikelets that can either appear to emerge laterally from the side of the stem or are densely clustered in a terminal inflorescence.

Fruit – Fruits are a single, dry, lentil shaped achene with a short beak, and persistent bristles at the base.

General Habitat: A diverse group of species which occupy a broad range of wetland habitats, including wetlands with more permanent water regimes, such as lake and pond margins, and floodplain wetlands.

Similar Species: Small-fruit bulrush is similar to *Schoenoplectus* species. See *Scirpus microcarpus* in the native plant section. There are other *Schoenoplectus* species in Montana aside from those listed but they are less common.

Note: All four species can occur in wetlands with moderate to high levels of alkalinity; saltmarsh and three-square bulrush are very tolerant of saline environments. Species of *Schoenoplectus* were formerly placed in the *Scirpus* genus.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	4/5

3.3.4 CREEPING SPIKERUSH *Eleocharis palustris*

Synonym(s): Common spikerush, Marsh spikerush

Distinctive Characteristics:

- Round, slender, leaf-less stem topped with a terminal spikelet.

Growth Form: Creeping spikerush is a perennial, strongly rhizomatous grass-like wetland plant that often forms dense mats. Stems are round, upright, and are typically 4 – 27 inches tall. Stems are leaf-less and topped with a terminal spikelet.

Leaves – Small leaf sheaths cluster at the base of the stem. Lower portion of the leaf is dark red to brownish purple.[11]

Flowers – Creeping spikerush blooms from May to September and has many flowers arranged in a single spikelet at the end of the stem. Spikelets are lance shaped to narrowly egg-shaped and $^{1}/_{8}$ – 1 inch long.[11]

Fruit – The small fruit is a 2 or 3 sided, brown, achene.

General Habitat: Creeping spikerush occurs in wet meadows, seeps, springs, and lake and depressional wetland margins. Creeping spikerush grows on sites that are either permanently or seasonally flooded. It can tolerate saline and highly alkaline environments. It is shade intolerant.

Similar Species: Lesica and Husby (2001) lists nine different *Eleocharis* species present in Montana, however, *E. palustris* is the most common. All of these species appear at least somewhat similar. Regardless, all *Eleocharis* species in Montana are FACW or wetter.[4]

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	4


© Elaine Haug


Norman Criddle 1909

Distinctive Characteristics:

- Distinctive ¾ – 2 inch long awns that give this species its name.
- Small tuft forming habit without rhizomes.
- Short, flat leaf blades with raised veins.

Growth Form: A short-lived, perennial grass that grows in small tufts. Foxtail barley reproduces by seeds.[16] It may reach heights of 1 – 2 feet tall. It starts growth in late spring, and matures during late July to August.

Leaves – Leaf sheaths are smooth or sometimes sparsely hairy. Leaf blades are flat, less than ½ inch wide, with raised veins on the upper surface. Leaves are rolled in the bud. Ligules are short, membranous, and collar-shaped. Auricles are absent.

Flowers and Seedhead – The inflorescence is a nodding, bristly spike up to 4 inches long. During flowering spikes are green and soft. At maturation the inflorescence readily breaks apart when touched. Each seed has a distinctive ¾ – 2 inch long awn that give the inflorescence a bristly appearance.

General Habitat: Foxtail barley is common in low to mid-elevation in wet meadows, pasture fields, roadsides, or other disturbed areas that are temporarily or ephemerally flooded. Foxtail barley is often found in dense patches in zones where water accumulates in the spring and dries by mid-summer in disturbed areas and around ponds or basins. This species is somewhat tolerant of higher saline conditions.

Similar Species: Meadow barley (*Hordeum brachyantherum*) is less common, but occurs in vernally wet soil near ponds and depressions. The inflorescence and awns are shorter than foxtail barley.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FAC **Great Plains:** FACW **Arid West:** FAC	2

Synonym(s): *D. stricta*, Alkali grass, Spike grass

Distinctive Characteristics:

- Low-growing grass in saline environments with stiff hairy leaves that are spaced perpendicular along the entire length of a solid erect stem.
- Female spikelets are flat, 7 – 9 flowered, large, and conspicuous.[3]

Growth Form: Inland Salt grass is a warm season, sod forming, low-growing perennial grass. Inland saltgrass grows to a height of 6 – 8 inches when in dense colonies. Generally does not grow taller than 12 inches. Saltgrass's stems are decumbent to erect, solid, and wiry. Saltgrass slowly spreads almost exclusively by strong scaly rhizomes, reproducing by seeds only in areas where stands are dense and "vigorous".[3] Plants are either female or male.

Leaves – Leaves are distributed fairly equally up the entire length of the stem. The stiff leaf blades are hairy, spreading, crowded, flat at the base, sharp-pointed, usually ¾ – 4¾ inches long, up to a $^{1}/_{8}$ inch wide, and alternate along the entire length of the stem. Salt crystals may be found on the leaves and stems.

Flowers and Seedhead – The female panicles are $^{3}/_{8}$ – 3 inches long and produce 2 – 20 flat, 7 – 9 flowered, large spikelets.[17],[3] The male inflorescence of Inland saltgrass is larger, more dense, and on longer stems than the inflorescence of female plants.[17]

General Habitat: Inland saltgrass occupies primarily extremely saline and alkaline soils that are poorly drained and have a high water table.[16] Inland saltgrass generally occurs in pure stands with scattered patches of Nuttall's alkaligrass.[17] In eastern Montana, saltgrass may occur with Nuttall's alkaligrass, western wheatgrass, blue grama, and green needle grass in alkaline soils. Saltgrass is common in brackish wetland margins and on subsaline soils throughout the prairie pothole region.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FAC	NR

G. striata

G. striata

G. grandis

G. grandis

Species: American mannagrass, *G. grandis*; Fowl mannagrass, *G. striata;* Northern mannagrass, *G. borealis*

Distinctive Characteristics:

- Multi-flowered egg-shaped spikelets with broadly rounded lemmas without awns.
- Margins of the leaves forming the sheath are united for most of their length.

Growth Form: Mannagrasses are tall (up to 4½ feet), short-lived, rhizomatous perennial grasses with simple, semi-erect stems. Some species have decumbent stems.[3] They form large, robust colonies.[11]

Leaves – Leaves are flat, rough, narrow, and 5¾ – 10 inches long. The margins of the leaves form closed sheaths that are united for most of their length.[18]

Flowers and Seedhead – Inflorescences are usually open panicles but may be compacted, with few to many flowered spikelets arranged on ascending or spreading branches. The spikelets are egg-shaped with broadly rounded or truncate lemmas that are awnless.

General Habitat: Mannagrass is abundant in wet meadows and marshes. It also occurs in fens, seeps, wet woods, thickets, shaded ditches, and along streams.[11] They are best adapted to habitats that are irregularly or seasonally flooded. Mannagrass is shade tolerant. It is intolerant of saline or alkaline environments.

Note: Northern mannagrass is found mainly in Western Montana.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	6

3.3.8 PRAIRIE CORDGRASS *Spartina pectinata*

Synonym(s): Tall marsh grass or Slough grass, *Spartina michauxiana*

Distinctive Characteristics:

- Long distinctively curved leaf blades with roughened edges.[3]
- Spikelets are flattened and densely appressed, in two rows, along one side of the raceme.

Growth Form: Prairie cordgrass is a tall, 3 – 8 feet, robust grass that reproduces by rhizomes and seeds. Prairie cordgrass's tough scaly rhizomes allow this species to form dense colonies.[5]

Leaves – Leaf blades are $^{1}/_{8}$ – ½ inch wide, up to 30 inches long, coarse, very tough, thick, with a prominent mid rib. The edges of the leaf blade are roughened and sharp. Leaf blades alternate on the stem. The ligule has a fringe of hair.

Flowers and Seedhead – The inflorescence is an erect raceme that is up to 1½ feet long. Racemes have up to 40 spikelets that are appressed, ascending, and widely spaced along the central stalk. Floral spikes are 3½ – 5 inches long. Spikelets are flattened and are closely appressed to one side of the rachis. Seeds are flat, paper-like, with barbed awns that attach firmly to fur or fabric.

General Habitat: Prairie cordgrass is typically found on lower, poorly drained soils along roadsides, ditches, streams, marshes, and potholes. It also occurs in floodplains, wet meadows, and back dune areas. Prairie cordgrass grows well on seasonally dry sites, tolerates alkaline conditions and high water tables, but is intolerant of prolonged flooding. Seedlings are not shade tolerant.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** FACW **Arid West:** OBL	6

J. torreyi

J. ensifolius

J. balticus

J. nodosus

J. balticus

Species: Baltic rush, *J. balticus*; Knotted rush, *J. nodosus*; Torrey's rush, *J. torreyi*; Three-stamen rush, *J. ensifolius*

Distinctive Characteristics:

- Inflorescence terminal on the stem or appearing lateral.
- Wire-like, rounded stems.

Growth Form: The most common rushes are perennial, tufted, or rhizomatous grass-like plants. The rhizomes are generally well developed, long, and thick.[19] The stems are round, wire-like, simple, erect, and 12 – 20 inches tall.

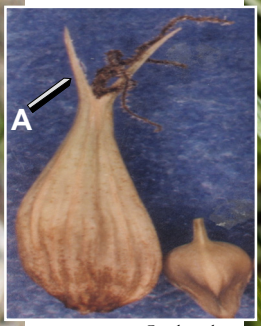
Leaves – Leaves are round, sometimes flattened, sometimes reduced, or lacking. Leaf sheaths are open at the base. Leaves can be ¾ – 6 inches long depending on the species.

Flowers and Seedhead – Depending on the species, the inflorescence is a terminal, compact or loose cyme bearing few to numerous flowers. Flowers are tiny, greenish to brownish and can be borne on stalks or stalkless. Each flower is subtended by a tiny pair of bracts. The lowest bract on Baltic rush is round and ¾ – 6 long and appears to be a continuation of the stem. The fruit is a dry capsule containing tiny seeds.

General Habitat: Rushes are common throughout Montana in habitats such as wet meadows and streambanks. They are shade and flood tolerant, yet they are most often found in the drier margins of wetlands.[11] Rushes rarely occur in standing water.[3]

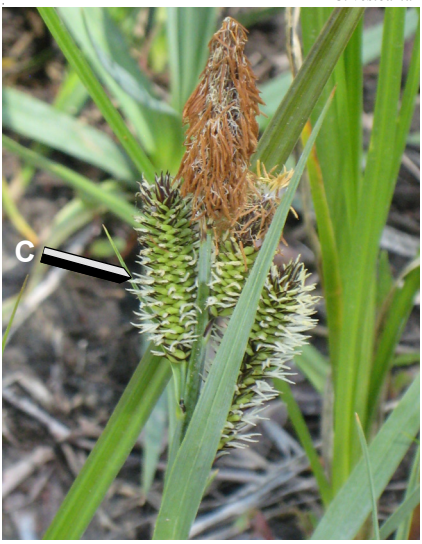
Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	4 Average

C. vesicaria



C. atherodes

C. vesicaria



Species: Slough sedge or Awned sedge, *C. atherodes*; Wooly sedge, *C. pellita*; Woollyfruit sedge, *Carex lasiocarpa;* Water sedge, *C. aquatilis*; Nebraska sedge, *C. nebrascensis*; Beaked sedge, *C. utriculata*; Inflated sedge, *C. vesicaria*

Distinctive Characteristics:

- Simple, acutely to obtusely three-sided stems that are not jointed or hollow.
- Cylindrical spikelets on the end of the flowering stalk with many 1-seeded fruits.
- Seeds are enclosed in a sac-like structure (perigynium).

Growth Form: Sedges are perennial, rhizomatous or mat forming, herbaceous grass-like plants. Stems are erect, simple, acutely to obtusely three sided,[12] and not jointed or hollow.[3]

Leaves – Leaves of sedges are grass-like, flat, and usually three-ranked. Leaf sheaths are thin and translucent, or laterally wrinkled. Leaves have large veins running parallel with the margins and cross veins that give the leaves a "netted" appearance on the underside.[12]

Flowers and Seedhead – Dense to open inflorescences are terminal, borne on a slender stalk, and usually consisting of few to many spikelets. Flowers are arranged in spikelets consisting of male (B) or female (C) parts and subtended by scales. Spikelets can contain all male parts, all female parts, or both. Leaf-like bracts occur among the spikelets and can be bristle-like or leafy. Usually, the best developed bract occurs at the base of the lowermost spikelet.

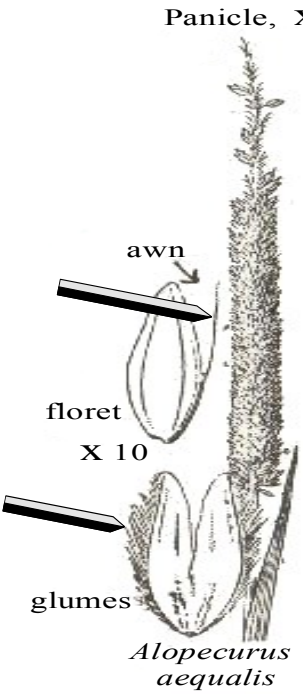
Fruit – Seeds develop within a membranous but firm casing (perigynium)[11] that is convex on both sides or 3-sided. Seeds may or may not have a prominent beak (A).

General Habitat: Sedges are found in all wetland and riparian areas and are frequently the dominant plant species in these environments. However, most species have little to no tolerance for saline environments.

Similar Species: Rushes (*Juncus*) are similar but have round stems. Bulrushes (*Schoenoplectus*) and clubrushes (*Scirpus*) are similar but do not have seeds enclosed in a perigynium.

Note: Slough sedge and Inflated sedge are not common species in Eastern Montana's wetlands. Sedges are among the most abundant wetland plant species. Over 100 species of *Carex* occur in the Rocky Mountain region.[3]

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	4 Average


Panicle, X 1
awn
floret
X 10
glumes
Alopecurus
aequalis

Distinctive Characteristics:

- Florets with one short awn, lower glume surface has short hairs.
- Spikelets are flattened, one-flowered, and compacted into a dense cylindrical spike inflorescence $^{3}/_{8}$ – 2 inches in length.
- Long, up to ¼ inch, hairless ligule.

Growth Form: An erect, cool season perennial grass that grows and spreads from small tufts. It reproduces mainly by seeds. Plants can attain heights up to 2½ feet.

Leaves – Leaf-blades are narrow (less than $^{3}/_{16}$ inch) and ¾ – 4 inches long. The under-surface of the leaf blade is slightly rough, while the upper surface is rough.[20] Ligules are long, up to ¼ inch in length and hairless.

Flowers and Seedhead – Flowers are green and inconspicuous. During flowering, the orange anthers extend outside of flowers giving it one of its common names, orange foxtail. Spikelets are flattened, one flowered, and compacted into a dense cylindrical spike inflorescence $^{3}/_{8}$ – 2 inches in length. Spikelets are comprised of one fertile floret with one short awn. Lower glume surface has short hairs.[20]

General Habitat: Short-awn foxtail is found in wet meadows, wetland margins, and along slow moving streams. This species has low tolerance to drought conditions. It is moderately tolerant of saline environments.

Similar Species: Short-awn foxtail can easily be confused with the invasive Meadow foxtail, *A. pratensis*. Short-awn foxtail can be distinguished from meadow foxtail by its densely tufted growth habit and the awn that barely extends beyond the lemma. Meadow foxtail spreads by rhizomes and the awn extends ¼ inch beyond lemma.[21] See invasive section for description.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	4


© Keir Mc

Distinctive Characteristics:

- Tall perennial with 3 angled stems and flat, grass-like leaves.
- Spikelets borne in dense clusters in an open, hemispheric inflorescence subtended by 2 – 4 long, leafy bracts.

Growth Form: Small-fruit bulrush is a rhizomatous perennial that can be 1 – 2½ feet tall. The stems are 3-angled and are solid or pithy.

Leaves – Leaves are flat, grass-like, arising mostly from the base of the plant. Leaves are ¼ – ½ inch wide and up to 1 foot long.

Flowers and Seedhead – Numerous, dense clusters of spikelets are borne in an open, hemispheric inflorescence that is subtended by 2 – 4 long, leafy bracts.

Fruit – Fruits are a single, dry, 2 sided achene with a short beak and persistent white bristles at the base.

General Habitat: Small-fruit bulrush occurs in marshes, streams, wet meadows, and ditches.

Similar Species: See Bulrush (*Schoenoplectus*) in the native plant section.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: OBL **Great Plains:** OBL **Arid West:** OBL	5


© Maximilian Dehling


1 mm

Distinctive Characteristics:

- Growing in dense tufts.
- Open and loosely scattered panicles with few flowered spikelets, usually tinged with purple.

Growth Form: A densely tufted, short-lived perennial grass, growing 2 – 4 feet tall. Tufted hairgrass starts growing in early spring and flowers from July to September. Seeds mature August to September. It reproduces from seeds and segmented stems at the base of the plant.[16]

Leaves – Numerous stiff, smooth, leaves that are mostly basal. Leaf blades are narrow, 5 – 8 inches long, flat or rolled. Leaves are folded in bud.

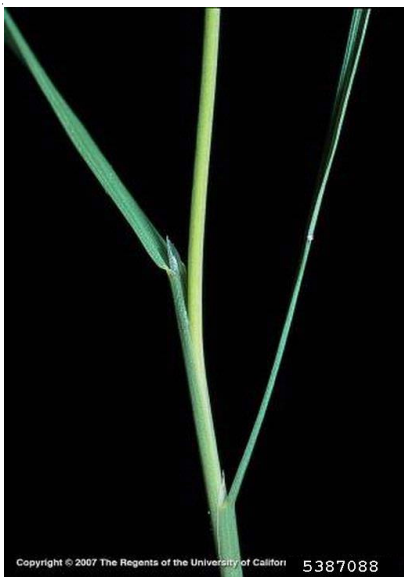
Flowers and Seedhead – Tufted hairgrass produces numerous spikelets in an open, erect to nodding inflorescence that is typically 4 – 8 inches long. Spikelets are about $^{1}/_{8}$ inch long with an awn borne near the base of the lemma.[16]

General Habitat: Tufted hairgrass is common in wet meadows, springs, fens, other wetland areas, as well as along streambanks at all elevations. Tufted hairgrass can grow in deep, saturated, poorly drained soils, or well-drained well-developed soils. It is somewhat tolerant of saline and alkaline environments.

Similar Species: Many grasses with inflorescences in open panicles look like this species, but few are as densely tufted and have stiff leaves.[3]

Note: Tufted hairgrass is resistant to fire, rarely being damaged by even intense fires. Tufted hairgrass is tolerant of heavy metals and is therefore often used in the reclamation of mining sites.[16]

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	7


Copyright © 2007 The Regents of the University of Californi
5387088


Plant, × ½
Agrostis gigantea
floret, × 5
glumes
palea
lemma
2 spikelets
Rhizome

Distinctive Characteristics:

- Leaf blades greater than ¾ inches wide with fine ligules that are hairless, blunt, and long.
- Florets are borne on erect or spreading panicles of the inflorescence.
- Plants spread primarily by stolons and shallow rhizomes to form dense patches.

Growth Form: Creeping bentgrass is a low-growing perennial grass that grows up to 20 inches tall. Stems are generally prostrate, growing along the ground, and range from 1¼ – 3¼ feet long. It reproduces by seeds and some shallow rhizomes, but spreads vegetatively primarily by stolons. Creeping bentgrass grows in thick mats to form a short dense turf in disturbed areas.

Leaves – Leaf blades are flat to folded, generally wider than ¼ inch, and ¾ – 4 inches in length.[36] The leaf blades have a fine texture. Leaves mostly basal or below middle of stem. Ligules are hairless, blunt, and up to ¼ inch long.

Flowers and Seedhead – The inflorescence is a panicle that remains closed during most of the growing season and opens during flowering in mid to late summer. Inconspicuous purple flowers are borne in upright or spreading florets arranged in a branched panicle that is up to 16 inches long. Lemmas are awnless and at least one glume is as long or longer then the lemma.[4] Glumes are persistent and generally remain after the seeds have dropped.

General Habitat: Creeping bentgrass occurs in disturbed areas within a wide variety of habitats. It can occupy a range of dry to moist soil conditions and is tolerant of saline to alkaline soils. In riparian and wetland communities, it frequently occupies drawdown zones on wetland margins and adjacent wet to moist meadows. It frequently occurs in the understory of willow and cottonwood dominated riparian and floodplain forests.

Similar Species: There are several native bentgrass (*Agrostis*) species. However, these are mostly tufted and do not spread by stolons or rhizomes to form a dense patches. Redtop (*Agrostis gigantea*), another exotic, is mostly rhizomatous while creeping bentgrass (*Agrostis stolonifera*) is mostly stoloniferous. Hybrids exist between these two exotic species making positive identification difficult.[36]

Notes: Pure stands of creeping bentgrass tend to indicate areas that have had extreme grazing pressure. Creeping bentgrass tends to colonize in between grass clumps and thus compete with native species for these microclimates. This species can tolerate higher levels of exposure to saline environments.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FAC **Great Plains:** FACW **Arid West:** FACW	1


UGA5242039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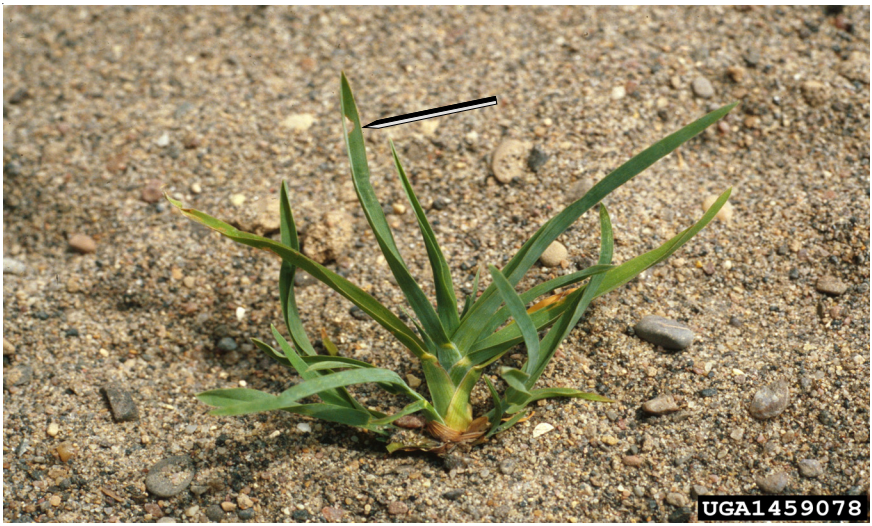

UGA1459078

Distinctive Characteristics:

- Leaves have boat shaped tips.
- Dense, shallow sod forming root system.
- Carefully pulled florets reveal cottony fibers attached to lemma.

Growth Form: Kentucky bluegrass is a cool season, rhizomatous perennial grass. Stems are erect,[28] round, usually hollow with swollen, solid nodes. The multiple stems and leaf blades grow up to 28 inches tall. Kentucky bluegrass forms a dense sod due to its dense network of roots and rhizomes. The root system is generally found within 3 inches of the soil surface.[33]

Leaves – Leaves have boat shaped tips. Leaves are linear, parallel veined, up to $^{5}/_{16}$ inches wide, and 8 inches long. Leaves are rough to slightly roughened on the margins. Leaves are arranged alternately in 2 vertical ranks. Sheaths are hairless, rounded to slightly keeled, and closed near their base or lower half.

Flowers and Seedhead – The inflorescence is an open, pyramidal shaped panicle, 3 – 8 inches long, with branches spreading or ascending. Spikelets are compressed, green or purplish, 2 – 6 flowered, and are ~$^{1}/_{8}$ inch long and less than and $^{1}/_{8}$ wide. Kentucky bluegrass typically flowers from May to July.

General Habitat: Kentucky bluegrass is found in a wide range of moist to dry habitats; including wet to mesic meadows, marshes, shorelines, streambanks, low prairie, and moist woodlands. It is ubiquitous and often abundant in disturbed habitats. It is a popular lawn grass and is frequently found on roadsides, cultivated fields, pastures, ditches, and other waste areas.[28] Kentucky bluegrass is intolerant of drought.

Similar Species: Canada bluegrass (*Poa compressa*) is another very similar introduced species. It can be distinguished by having flattened stems. It flowers later than Kentucky bluegrass, during July and August. Fowl bluegrass (*Poa palustris*), considered by some to be invasive, grows in tufts from stolons and has flattened stems that are curved or decumbent. There are many native bluegrass species but these are mostly found in higher elevation environments.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FAC **Great Plains:** FACU **Arid West:** FAC	1

Creeping foxtail (*A. arundinaceus*)

Distinctive Characteristics:

- Seed parts have a single bristle.
- Seedhead tapers slightly at both ends.
- Many small flowers arranged in a cylindrical spike inflorescence; inflorescence appears whitish during flowering and matures to brown when seeds are ripe.

Growth Form: Meadow foxtail is a long-lived perennial grass with short, weak rhizomes that forms loose tufts. The growth habit begins as a bunch type, but it eventually forms a dense sod. Stems are erect and usually 8 – 24 inches tall.[11]

Leaves – Numerous dark green leaves are flat, $^1/_8$ – $^1/_4$ inch wide and rough to the touch.[11] Upper leaf blades are smaller and ascending.

Flowers and Seedhead – Flowers are borne in a cylinder shaped spike inflorescence. The inflorescence is 2 – 3 inches long and slightly tapered at both ends. Spikelets are $^1/_8$ – $^1/_4$ long. During flowering, the inconspicuous flowers give the inflorescence a whitish to yellowish white appearance. Small seeds form during the summer[11] and are dark gray or greenish-gray at maturity.[34] Seeds have sharply keeled glumes with silky hairs and a single awn that extends beyond the lemma.

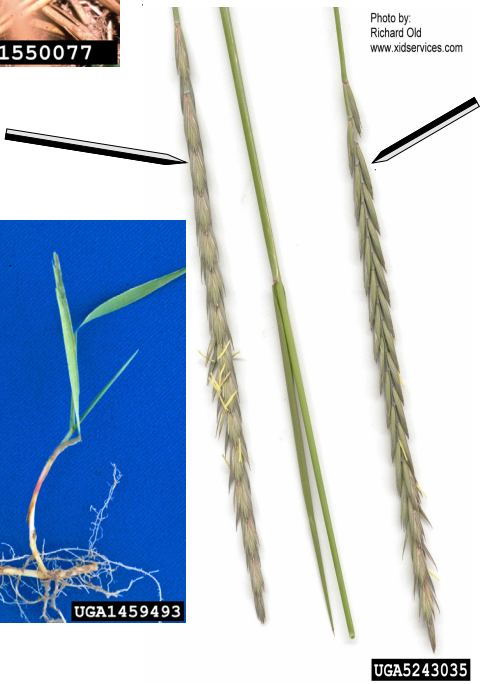
General Habitat: Meadow Foxtail prefers moist to wet meadows, irrigated fields, and roadside ditches. It frequently invades the draw-down zone of wetland edges and can occur in semi-permanent to permanently saturated soils. This species may be planted as part of hay seed mixes with timothy or other species used for forage.

Similar Species: Timothy (*Phleum pratense*) is similar in appearance but grows in dry to wet areas. Timothy has two distinctive awns on the outside edges of the individual flowers in the flower heads.[11] Creeping foxtail (*A. arundinaceus*) is another introduced grass that is aggressively invasive in wetland areas. It is closely related to meadow foxtail, but can be distinguished by having broader leaves ($^3/_8$ – ½ inches) and a dark purplish inflorescence during flowering. It can also occupy wetter zones of permanent to semi-permanent saturation compared to meadow foxtail.

Notes: In Montana, both native and invasive *Alopecurus* species occur in wetlands.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FAC **Great Plains:** FACW **Arid West:** FACW	0

Synonym(s): *Elymus repens; Elytrigia repens var. repens*



Distinctive Characteristics:

- Erect spike inflorescence, 3½ – 7 inches long, with alternating spikelets.
- Spikelets have more than one floret.[4]
- Prominent pale yellow or straw colored rhizomes with a tough brownish sheath at each joint.[22]

Growth Form: A perennial, rhizomatous, rapid growing grass species with medium coarse leaves. Stems are erect, or trailing on the ground, and may reach heights of 1 – 3 feet. It produces long, shallow rhizomes capable of forming dense stands. Quackgrass is aggressively rhizomatous, out-competing other species and forming dense monocultures on newly exposed or disturbed wet to moist soils.

Leaves – Leaf blades are ¼ – ½ inch wide, flat, pointed. Underside usually smooth and hairless, topside surfaces rough or with hairs, particularly over the veins. Leaf blades have small, ear-like appendages at the junction of the leaf blade and sheath. The leaf sheath is hairy.

Flowers and Seedhead – The slender spike inflorescence is 3½ – 7 inches long, consisting of numerous, alternating spikelets that are borne lying close and flat to the stem. Spikelets contain more than one floret and can possess short awns or be awnless. Quackgrass flowers from June through August.

General Habitat: Quackgrass is an early successional species found in all areas and invades gardens, yards, crop fields, roadsides, ditches, wet or mesic meadows or just about any disturbed, moist area. It has been found to be tolerant of forested areas in other parts of the US. In some areas, it can also tolerate saline soil conditions.

Similar Species: Several native wheatgrasses (*Elymus* or *Agropyron* species) can somewhat resemble quackgrass however, most of these species are bunch-forming grasses (non-rhizomatous or bear short rhizomes) and occur in slightly drier habitats.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FAC **Great Plains:** FACU **Arid West:** FAC	0

Distinctive Characteristics:

- Seedheads are panicles, 3 – 16 inches long, green to purple early in the season and mature to beige in late summer.
- Leaf blades are flat, hairless, rough textured, up to ¾ inch wide, with ear-like appendages at the leaf base.

Growth Form: Reed canarygrass is a tall, 2 – 9 feet, spreading cool-season perennial grass. It possesses a thick, rhizomatous root system capable of forming dense stands that out-compete all other species. The dense network of rhizomes and leaf litter can form a sod layer that is up to 2 feet thick. Established stands can appear as large, distinct tussocks or as tall, uniform sod mats.

Leaves – Leaf blades are flat, rough-textured, ¼ – ¾ inch wide, and 3½ – 10 inches long. Leaf blades are erect or slightly spreading.[22] Leaf bases have ear-like appendages that clasp the round, hollow stem.

Flowers and Seedhead – The spreading panicle inflorescence arises from hairless stems and can be 3 – 16 inches long. The inflorescence is compact when immature, but later becomes open and slightly spreading during flowering. During flowering, the inflorescence changes from green to purplish and eventually becomes straw colored when seeds have matured. Flowering occurs from June to July. Seeds ripen during August and are dispersed by wind, animals, and water.

General Habitat: Reed canarygrass is found in riparian wetlands, stream and river floodplain wetlands, roadside ditches, marshes, vernal pools, wet meadows, prairie potholes, and other depressional wetlands. Established populations can survive prolonged drought periods and can survive over 1 year of flooding.

Similar Species: Orchard grass (*Dactylis glomerata*) typically has smaller leaf blades and compressed or flattened leaf stalks, while reed canarygrass has rounded leaf stalks. Bluejoint reed grass (*Calamagrostis canadensis*) typically is smaller with smoother leaves; its inflorescence is smaller than those of reed canarygrass.[11]

Notes: Reed canarygrass has been documented as native to the Western parts of the United States. Aggressive spread exhibited by many populations in the central and western United States may be a result of escaped cultivars that were bred for vigor and quick growth.[35]

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FACW **Great Plains:** FACW **Arid West:** FACW	0


Photo by:
Richard Old
www.xidservices.com
UGA5228063


1550012

Distinctive Characteristics:

- Ascending or stiff branches of the open panicle.
- Awnless lemmas distinguish Smooth brome from other *Bromus* species.[10]
- Leaf blades have an M or W pattern crossing the leaf blade at about mid length.

Growth Form: Smooth brome is an exotic cool-season grass. Smooth brome is a rapid-growing, long-lived, sod-forming grass. Stems are stiff, erect, growing to a height of 1 – 3½ feet. It spreads rapidly by rhizomes and also reproduces by seeds.

Leaves – Leaves are flat, ¼ – ¾ inches wide, 6 – 15 inches long, hairless, and alternate on the stem. Smooth brome seedlings may be identified by their long, narrow, hairy leaves, which usually are gently twisted in a clockwise direction. As the plant becomes older, the first of lower leaf sheaths wither and die; new leaves are broader and less hairy. Older leaves are usually hairless. Smooth brome leaves have an M or W pattern crossing the leaf blade at about mid length.

Flowers and Seedhead – Flowers are borne in drooping, upright panicles from a 2½ – 6¾ inch long inflorescence that appears in early to mid-summer.[37] Each ascending or stiff branch of the inflorescence has several purplish spikelets, each containing 7 – 10 flowers. Lemmas have short (<2mm) awns or are awnless. Spikelets are smooth (without hairs) and round in cross section.

General Habitat: Smooth brome is widely adapted to a variety of habitats and to a wide range of soil and moisture conditions.[38] It has been widely planted as a pasture grass, for farmland reclamation, and wildlife habitat improvement in the past. It is a long lived, persistent species that is invasive after disturbance. It is common in riparian areas, meadows, prairies, valley bottoms, and dry land sites. It is common along roadsides, drainage ditches, fields, and pastures. It can be highly invasive in the drawdown margins of depressional wetlands and often forms pure stands.

Similar Species: There are a number of native perennial *Bromus* species; however, these usually possess fewer spikelets per inflorescence. Pumpelly's brome (*B. pumpellianus*) is very similar to smooth brome, but it is distinguished by having spikelets that are somewhat hairy. Older leaves of this native species are usually somewhat hairy.

Notes: One of the characteristics of this grass is how rapidly it becomes a dense sod,[34] making it especially problematic to eliminate in natural areas.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
No	**Western Mountains:** FAC **Great Plains:** UPL **Arid West:** FACU	NR

S. boothii

S. bebbiana

S. geyeriana

S. geyeriana

S. boothii

Species: Bebb willow, *S. bebbiana*; Booth's willow, *S. boothii*; Drummond willow, *S. drummondiana*; Geyer willow, *S. geyeriana;* Coyote willow, *Salix exigua*

Distinctive Characteristics:

- Leaf buds have only one non-sticky scale.[3]
- Inflorescences are dense catkins that are either male or female on separate plants.
- Shrub or small tree growth form.

Growth Form: Willows are a diverse group of shrubs or small trees that are present in a variety of shapes, sizes, colors, and textures. They can grow either as multi-stem shrubs or as single trunk trees. Stems and twigs of willows can vary in color from reddish in booth's willow to yellow in white willow (*Salix alba,* an invasive species).

Leaves – All leaves are simple and arranged alternately along twigs. Leaves can be entire or finely toothed and can be hairy or smooth. Generally, willow leaves are oval to narrowly lance-shaped that are darker on top than the underside. Leaf tips can be pointed or rounded, depending on the species.

Bark – Willow bark is generally thin but can become furrowed with age. Stems and twigs may be waxy, resinous, or smooth.

Flowers and Seedhead – The inflorescence is a dense, erect, catkin containing unisexual flowers on separate trees. Catkins can emerge before or after leaf emergence, or after leaves are fully expanded.[11]

General Habitat: Willows are frequently found along the borders of wetlands, streams and rivers, ponds, and seasonally wet areas of open woods and forests.

Similar Species: During winter, willows can be distinguished from *Populus* species by having only one bud scale. *Populus* have numerous bud scales that are sticky.

Notes: There are several non-native willow species that have invaded riparian areas and wetland margins throughout the state including: crack willow (*Salix fragilis*), hybrid crack willow (*Salix* x *rubens*), laurel willow (*Salix pentandra*), and white willow (*Salix alba*). These willows are difficult to distinguish from native willows. If in doubt, collect samples of entire branches with leaves, leaf buds, catkins, or seed capsules before replanting for restoration projects. Samples should be identified by a trained botanist.

Wetland Indicator Status	Coefficient of Conservatism
Western Mountains: FACW **Great Plains:** FACW **Arid West:** FACW	5 Average


5345057


UGA2307050

Distinctive Characteristics: [37]

- Deciduous tree or shrub growing to 15 – 30 ft. in height.
- Easily recognized by silvery, scaly underside of the leaves and slightly thorny stems.
- "Shaggy" darker brown bark with a reddish tint.

Growth Form: This rapid-growing, medium-sized tree has young stems and branches that are light gray color, usually armed with ¾ inch long thorns. Stems and branches become a darker glossy brown as they mature. Russian-olive usually forms a main trunk with numerous, widely-spreading branches to form a rounded tree crown.

Leaves – Leaves are alternate, lance-shaped, silvery-gray, ½ inch wide, and 1– 3 inches long. The distinctive silver color is apparent on both leaf surfaces.

Bark – Bark is vertically "shaggy" with a reddish tint.

Flowers and Seedheads – In early summer, Russian-olive bears many small, yellow, highly-fragrant flowers that develop into whitish or silvery fruits about ¼ – ½ inches in diameter. Fruits are borne in clusters near the stem tips. Seeds mature in July and can be dispersed by birds, small mammals, or by water. A portion of the fruit remains on the branches into the winter.

General Habitat: Russian-olive thrives under a wide range of moisture and soil conditions but does best at elevations below 4000 feet. It grows in stream bottoms where the water table is seldom more than 2 feet below the surface and is highly tolerant of alkaline soil conditions. It colonizes bare, nutrient poor soils along rivers and streams and outcompetes native shrubs and trees. In contrast, it is also cited as being the most drought-tolerant medium sized tree available. Russian-olive is considered to be tolerant of partial shade, but grows best in full sun.[34]

Similar Species: Silver buffaloberry (*Shepherdia argentea*) and Silverberry (*Elaeagnus commutata*) are native, multi-stemmed, rhizomatous shrubs that occur in riparian and floodplain areas in sandy or gravelly soils. Silverberry has silver fruits but these are larger than Russian olive fruits. Silver buffaloberry has red fruits.

Notes: Russian-olive is native to southern Europe, western Asia, and the western Himalayas. This invasive woody species can interfere with natural plant succession, nutrient cycling, and tax water reserves. In 2010, Montana Dept of Agriculture declared Russian olive as a Priority 3 regulated plant.

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
Yes Priority 3	**Western Mountains:** FAC **Great Plains:** FACU **Arid West:** FAC	0

3.6.2 SALTCEDAR

Tamarix ramosissima

Synonym(s): Tamarisk, Tamarix

Distinctive Characteristics:

- Deciduous shrub or small tree with numerous slender branches covered with small, scale-like gray-green leaves.
- Showy white to pink flowers that bloom in clusters along tips of stems.

Growth Form: Saltcedar is an invasive deciduous shrub or a small tree that can form dense thickets once established. Saltcedar can grow 20 feet tall and has smooth, reddish-brown bark which becomes furrowed and ridged with age.

Leaves – Numerous slender branches covered with small scale-like gray-green leaves. Scale-like leaves are short, 1 – 2 mm long, and overlap each other along the stem.

Flowers and Seedhead – Saltcedar produces a dense inflorescence containing numerous tiny white to pink flowers in 2 inch spikes at branch tips. Flowering occurs throughout the spring and summer. Hundreds of seed capsules, each containing many seeds, are produced throughout the growing season. A mature saltcedar plant can produce up to 500,000 tiny seeds each year.[39]

General Habitat: Saltcedar can be found along streams, waterways, bottom lands, banks and drainage washes of natural or artificial water bodies, moist rangelands and pastures, wetland margins, and other areas where sparsely vegetated soils are saturated during a portion of the growing season.[23] Saltcedar can form dense thickets of vegetation, especially along floodplains, rivers, streams, and washes. It is highly tolerant of alkaline and saline soils and a wide range of flooding and drought conditions. The wide range of adaptability makes it an especially noxious species, capable of compromising water tables and out-competing native species in a relatively short period of time.

Similar Species: Other deciduous Tamarix species, such as five stamen saltcedar (*Tamarix chinensis*), smallflower saltcedar (*Tamarix parviflora*), and hybrid forms have been reported for Montana. These additional species are also classified as noxious in western states where they occur.

Notes: Saltcedar is currently documented in the following counties: Big Horn, Carbon, Chouteau, Custer, Dawson, Garfield, Lake, Lewis & Clark, McCone, Mineral, Missoula, Musselshell, Powder River, Prairie, Richland, Rosebud, Sweet Grass, Teton, Treasure, Valley, Yellowstone.[23] Saltcedar is classified as a phreatophyte, meaning that the plant uses very large amounts of groundwater. A single plant is capable of transpiring over 200 gallons of water per day.[40]

Montana Noxious Weed List	Wetland Indicator Status	Coefficient of Conservatism
Yes Priority 2B	**Western Mountains:** FAC **Great Plains:** FACW **Arid West:** FAC	NR

4. Glossary

Achene	A small, hard, one seeded dry fruit.
Alternate	A leaf arrangement in which there is one leaf at each node.
Annual	Living for a single growing season.
Anther	The pollen bearing part of a stamen.
Appressed	Lying close and flat.
Auricles	An ear shaped appendage where leaf blades join the stalk.
Awn	Slender bristle-like organ usually at the apex of a flowering structure.
Axillary	In, or related to the axis.
Axis	The elongated central supporting structure of an inflorescence or a compound leaf, often called a rachis.
Basal	Leaves are crowded at the base of the stem.
Bract	Modified leaf situated below an inflorescence or flower.
Bristle	Stiff hair-like structure on leaves or stems.
Bulb	A round, underground stem of fleshy, overlapping scales attached to a stem, as in onions.
Bulblet	A small bulb or bulb-shaped body, especially one borne upon the stem and usually produced for asexual reproduction.
Catkins	A scale spike of inconspicuous flowers, as in willows.
Coefficient of conservatism	A numerical ranking (0-10) of a plant species tolerance to disturbance to intolerance to disturbance, respectively.
Composite	A leaf composed of two or more leaflets.
Corollas	A collective name for the petals. Commonly used when petals are united.
Cultivar	Any variety or strain produced by horticultural or agricultural techniques and not normally found in natural populations.
Cyme	A flat or convex flower cluster with the central or terminal flowers in the cluster opening first.
Emergent	A plant rooted in shallow water with the upper leaves and stems above the water surface.
Floret	Small flower, especially one in a dense cluster. Also used for a grass flower with lemma and palea included.
Forb	Vascular plant without significant woody tissue above or at the ground.
Glandular	Bearing glands. A glandular hair has an enlargement like at the top like a pin.
Glume	One of the typically two empty bracts at the base of a spikelet.
Graminoid	Grass or grass-like plant, including grasses (*Poaceae*), sedges (*Cyperaceae*), rushes (*Juncaceae*), arrow-grasses (*Juncaginaceae*).
Herbaceous	Having the characteristic of an herb.
Hydrophyte	A plant adapted to grow in water; an aquatic plant.

4. Glossary

Inflorescence	The flowering part of a plant. In grasses, a spikelet-bearing branch or system of branches.
Keeled	The ridge that forms when a structure is folded lengthwise.
Leaf axils	The angle between a stem and an attached leaf.
Leaflet	Any of the divisions of a compound leaf.
Lemma	The lower of the two bracts that enclose a grass flower.
Ligule	An extension of the foliage leaf sheath on the inner side (the side facing the stem) beyond the junction with the blade.
Margin	Edges of a leaf.
Nodes	The place on the stem where leaves or branches normally originate; any swollen or knob-like structure on the stem.
Noxious weed	Plants of foreign origin that can directly or indirectly injure agriculture, navigation, fish or wildlife, or public health.
Opposite	A leaf arrangement in which the leaves arise in pairs at each node.
Palmately	Lobed, cleft, parted, divided, or compounded so that the leaflets point to the apex of the petiole. Palmately veined, with 2 or more large veins arising at, or near, the base of the leaf. Palmately divided- leaf margin similar to lobed except cut extends to near the base of leaf separating the multiple large veins.
Panicle	In grasses, a compound inflorescence in which the main axis branches and the spikelets are borne on pedicels.
Perennial	A plant which lives for 3 or more years, often flowering and fruiting repeatedly.
Perfect	Describes a flower having both pistil (female) and stamens (male).
Perianth	The calyx and corolla collectively.
Petal	A division of the corolla; one of a circle of modified leaves immediately outside the reproductive organs, often brightly colored.
Petaloid	Resembling a flower petal in some way, as in certain bright colored sepals.
Pinnate	Compound leaf with the leaflets on 2 opposite sides of an elongated axis. Pinnately veined- one larger midvein and smaller veins coming off along its length. Pinnately divided-leaf margin similar to lobed except cut extends almost to the main vein giving the leaf a compound appearance.
Pistil	The seed-producing organ (female).
Pistillate	A flower which contains a functioning pistil yet lacks stamens.
Raceme	An elongated inflorescence in which the stalked flowers are arranged singly along a central axis.
Reflexed	A structure that is bent sharply backwards, such as the sepals in *Geum macrophyllum*.
Rhizome	An underground stem, usually rooting at the nodes.

4. Glossary

Riparian	Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies. Riparian areas have one or both of the following characteristics: 1) distinctively different vegetative species than adjacent areas, and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms. Riparian areas are usually transitional between wetland and upland.
Sepals	One of the separate parts of the calyx, usually green but may be petaloid.
Sessile	Without any stalk.
Sheath	A tubular envelope, usually used for that part of the leaf of a sedge or grass that envelopes the stem.
Shrub	Perennial, multi-stemmed woody plant that is usually less than 13 – 16 feet in height.
Simple	A leaf that is not compound or divided into leaflets.
Spike	An inflorescence in which the flowers are sessile on a more or less elongated, common axis.
Spikelet	The basic unit of the grass inflorescence, commonly consisting of a pair of glumes and one too many florets.
Sporangium	A structure in which spores are produced.
Stamen	The pollen bearing organ, made up of the filament and the anther (male).
Staminate	Having stamens but no pistil. Male.
Stolon	A shoot that grows along the ground and forms new plants and roots from its nodes.
Stoloniferous	Reproducing by stolons.
Taproot	The primary descending root along the main axis of the plant, larger than the others of the root system.
Tufted	Having a cluster of hairs or other slender outgrowths, stems in a very close cluster.
Turion	A type of bud that is shed from the plant and lies dormant until spring.
Umbel	An inflorescence in which all the flower stalks originate at the same point, umbrella-like.
Wetland	A wetland is a transitional ecosystem between terrestrial and aquatic ecosystems that arises when inundation [or saturation] by water produces soils dominated by anaerobic processes and forces the plants and animals to exhibit adaptations to tolerate flooding. Wetlands generally include marshes, beaver ponds, potholes, wet meadows, floodplain wetlands, and other similar areas.
Whorled	With 3 or more leaves or other structures arranged in a circle around a stem or some common axis.

Glossary References: 41,42,43,44,45,46

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