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Wetlands in eastern Colorado?! Wetlands are likely the last habitat type that comes to mind for our eastern plains. Typically, grasses are considered the most conspicuous vegetation of the shortgrass prairie. However, wetland and riparian plants, not as prevalent as grasses, are crucial to the overall functioning of this prairie ecosystem. Wetland vegetation provides food, cover, and shelter for waterfowl, shorebirds, amphibians, fish, and mammals. Wetland vegetation also stabilizes highly erodible prairie soils, while filtering sediments and toxicants from agricultural and municipal runoff. Wetland plants are key to providing quality waterfowl and wildlife habitat within an otherwise semi-arid landscape.

How do wetlands in eastern Colorado persist with an average rainfall of less than 12 inches per year and located within the rain shadow of the southern Rocky Mountains? The majority of precipitation on the plains falls during the growing season — 70 to 80 percent between April and September. The rolling plains and hills are dissected by large rivers, streams, and canyons that funnel rainwater towards the larger rivers. The South Platte and Arkansas Rivers gather rainwater and snowmelt runoff as they flow east from the Continental Divide towards the Gulf of Mexico. Their wide floodplains create warm-water sloughs and river edges fringed by marsh vegetation. Additionally the eastern plains support thousands of playas that retain water from spring and summer rains. This network of wetlands from marshes to playas creates a pathway for migrating waterfowl and shorebirds, as well as habitat for permanent residents such as wintering ducks, Canada geese, and amphibians.

The Common Wetland Plants of Colorado’s Eastern Plains: A Pocket Guide highlights the common wetland plants, both native and non-native, located within the U.S Army Corp of Engineers Great Plains ecoregion boundary (Figure 1). The pocket guide is designed to help landowners and other wetland managers correctly identify common wetland plants, manage for preferred species, and control noxious ones. Management techniques such as mowing, prescribed burning, periodic flooding and drawdown, herbicides, and grazing are discussed for applicable plants. For a comprehensive guide to all of the wetland plants, refer to the Field Guide to Colorado’s Wetland Plants: Identification, Ecology and Conservation (Culver and Lemly 2013).
The word wetland encompasses many different habitats, but they all share a suite of common characteristics. Most importantly, all wetlands are ecosystems shaped by water. In eastern Colorado, the list of wetland types include: marsh, wet meadow (natural/irrigated), playa, and riparian (slough) wetlands.

The federal regulatory definition of a wetland is used by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) to implement the dredge and fill permit system under Section 404 of the Federal Clean Water Act (CWA). According to this definition, wetlands are:

“Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstance do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

For the Section 404 permitting program, wetland boundaries are determined according to mandatory technical criteria described in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Great Plains Regional Supplements (e.g., USACE 2010a). In order for an area to be classified as a wetland, it must have all three of the following criteria: (1) predominance of wetland plants; (2) wetland hydrology; and (3) hydric soils.

The U.S. Fish and Wildlife Service (USFWS) defines wetlands from an ecological point of view. Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) states:

“Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water.”

According to this definition, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (wetland plants); (2) the substrate is predominantly un-drained hydric soil; and/or (3) the substrate is non-soil and is predominantly saturated with water or covered by shallow water at some time during the growing season of each year. This definition recognizes that some areas display many of the attributes of wetlands without exhibiting all three characteristics required to fulfill the USACE criteria. For example, riparian areas, which often do not meet all three USACE criteria, perform many of the same functions as other wetland types, including maintenance of water quality, storage of floodwaters and enhancement of biodiversity, especially in the western United States (National Research Council 1995). The USFWS definition is often used for wetland mapping and habitat management.

**Wetland Plants**

Plants are the most conspicuous component in a wetland. Because of this, wetlands are typically defined by their vegetation. A commonly used term for a wetland plant is hydrophyte; a plant that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. Hydrophytes have evolved a number of adaptations for life in wet environments, including additional pore space, dimorphic leaves and complex rooting systems. Phreatophytes are deep-rooted woody plants that obtain a significant portion of their water from groundwater (e.g., cottonwoods, alders or willows). Phreatophytes are typically found along rivers and streams where the groundwater is near the surface.
Wetland plants are at the base of the food chain and thus are a major component of energy flow within a wetland. They provide habitat and influence water chemistry, acting as both a nutrient sink through uptake, and as a nutrient pump by moving compounds from sediment into the water column, thus improving water quality (Reddy et al. 1983, Reddy and DeBusk 1987). Plants also influence the sediment and hydrologic regime by stabilizing shorelines and mitigating peak floodwaters.

To create a common classification system for hydrophytic plant species, the USFWS developed the first National Wetland Plant List (Reed 1988). This list has been used extensively for wetland delineation, wetland restoration, wetland management, and for general botanical information about wetland plants. Over the years, modifications to the list have been proposed. In 2012, the USACE produced a thoroughly revised version of the list and a process for periodic updates (Lichvar 2012). The 2012 National Wetland Plant List relies on a five-tiered wetland indicator status rating system that describes the likelihood a plant occurs in wetlands as opposed to non-wetlands (Table 1). Each species on the list is rated independently for ten geographic regions within the United States and outlying territories (Lichvar and Minkin 2008), three of which occur within Colorado: Arid West (AW), Western Mountains Valleys and Coast (WMVC), and Great Plains (GP) (Figure 2).

Table 1. Wetland indicator status categories.

<table>
<thead>
<tr>
<th>Indicator Code</th>
<th>Indicator Status</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL</td>
<td>Obligate Wetland</td>
<td>Almost always occurs in wetlands.</td>
</tr>
<tr>
<td>FACW</td>
<td>Facultative Wetland</td>
<td>Usually occurs in wetlands, but may occur in non-wetlands.</td>
</tr>
<tr>
<td>FAC</td>
<td>Facultative</td>
<td>Occurs in wetland and non-wetlands.</td>
</tr>
<tr>
<td>FACU</td>
<td>Facultative Upland</td>
<td>Usually occurs in non-wetlands, but may occur in wetlands.</td>
</tr>
<tr>
<td>UPL</td>
<td>Obligate Upland</td>
<td>Almost never occurs in wetlands.</td>
</tr>
<tr>
<td>NI</td>
<td>No Indicator</td>
<td>Insufficient information available to determine indicator status</td>
</tr>
</tbody>
</table>

Figure 2. U.S. Army Corp of Engineers Geographic Regions within Colorado.
**Eastern Plains Wetland Types**

**Marshes** form in depressions created by landscape processes such as water and wind or by human activities (e.g., gravel mining, recharge ponds). They typically contain standing water in spring and early summer, are frequently or continually inundated, and are characterized by emergent herbaceous vegetation. They form in depressions in the landscape or as fringes around lakes. Marshes typically have mineral soils, but can also accumulate organic material in the top soil horizon, but not enough to form true organic soil. Vegetation is usually classified as emergent, such as cattails and bulrushes, or submerged or floating leaf plants, such as pondweed, smartweed, and duckweed. In the eastern plains, most marshes occur around impoundments, recharge ponds, and reservoirs.

Marshes provide excellent habitat and forage for waterfowl and shorebirds. A variety of wetland obligate songbirds live in marshes, including Marsh Wren (*Cistothorus palustris*), Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) and Red-winged Blackbird (*Agelaius phoeniceus*). Marsh complexes are some of the most productive waterbird areas in eastern Colorado, especially along the South Platte floodplain. They provide food and cover for numerous mammals including beaver, muskrat and other small mammals (e.g., water shrews and water voles). This type of wetland is essential for several Colorado herpetiles for either part or all of their life cycles. The most common include: tiger salamander (*Ambystoma tigrinum*), western chorus frog (*Pseudacris triseriata*), painted turtle (*Chrysemys picta*), snapping turtle (*Chelydra serpentina*), and garter snakes (*Thamnophis* spp.).

**Wet meadows** are the most commonly encountered wetland type in the eastern plains. They are found adjacent to rivers, ditches, or within irrigated pastures. They are dominated by graminoids (sedges, rushes, grasses) and have soils saturated near the surface in early summer, but rarely have standing water and are typically dry by the end of the growing season. In general, soils for wet meadows are mineral and demonstrate typical hydric soil characters such as low chroma and reductomorphic features. Wet meadows provide habitat and food for waterfowl, Greater Sandhill Crane (*Grus canadensis tabida*), and songbirds. Seep or spring fed wet meadows are present in the eastern plains, especially in southeastern Colorado within the Arkansas River basin. Many of these ground-water fed wetlands develop organic soils and support uncommon or rare plants.

**Playas** are found throughout eastern Colorado. They are freshwater, shallow, depressional wetlands with clay-lined basins that periodically become inundated from rainfall and surface runoff, not from groundwater discharge. These wetlands are small, shallow, and generally isolated in an extremely localized watershed, although they are often a part of a larger complex of shallow water wetlands. Playas are characterized by irregular hydroperiods, many fill with water only occasionally and dry quickly. These fluctuations in water availability often promote diverse
herbaceous plant growth (Smith 2003, Haukos and Smith 2003). Playas serve many important ecological functions such as capturing surface runoff, recharging aquifers, and providing habitat for wildlife, especially migratory birds (Haukos and Smith 1997, Pezzolesi et al. 1998). Wetland plants in playas are typically annuals that frequently change during a growing season in response to precipitation. The most commonly encountered plants include: ragweeds (*Ambrosia* spp.), goosefoots (*Chenopodium* spp.), kochia (*Bassia* spp.), spikerushes (*Eleocharis* spp.), and bulrushes (*Schoenoplectus* and *Scirpus* spp.). Bird use varies throughout the year and is determined by the wet/dry rainfall cycles. Common playa birds include: Mallard (*Anas platyrhynchos*), American Blue-winged Teal (*Anas discors*), Northern Pintail (*Anas acuta*), and shorebirds such as Long-billed Curlew (*Numenius americanus*), and American Avocet (*Recurvirostra americana*). Canada Goose (*Branta canadensis*) and Snow Goose (*Chen caerulescens*) also migrate and winter in the playa lakes region in relatively large numbers (Rocky Mountain Bird Observatory 2012).

Riparian wetlands are associated with moving water and intermittent flooding. They typically have a seasonally high water table because of their proximity to subsurface water. Riparian wetlands are commonly recognized by bottomland, floodplain, and streambank vegetation dominated by trees and shrubs with a diverse herbaceous layer. Sloughs form in low areas along slow-flowing streams and rivers. Riparian and slough wetlands are characterized by a combination of high animal diversity and high biomass productivity. Riparian wetlands are particularly productive ecosystems, receiving large inputs of water and nutrients from upstream sources during flood events. Riparian wetlands and their associated aquatic habitat are extremely important for nutrient cycling, food chain support, and animal habitat. Riparian wetlands provide forage, thermal cover, and protection from predation, as well as nesting and brood-rearing habitat for numerous animals. The complex structure of woody vegetation with tall, medium and low shrubs, that include herbaceous understories, provide habitat structure for deer, beaver, and a large suite of landbird species (e.g. warblers, song sparrows, flycatchers, tanagers, and woodpeckers).
Wetland-Dependent Wildlife

Wetland ecosystems support a diverse array of wildlife species that are dependent upon varied and dynamic water regimes. The interaction of plants and animals within wetlands is a particular emphasis of the Pocket Guide and wildlife use and management comments are specified on each species profile page. A list of Colorado Parks and Wildlife (CPW) priority wetland-dependent wildlife species is provided in Table 2 (CPW 2011).

Table 2. CPW Wetland-dependent Priority Wildlife Species (excluding fish).

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Game Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mallard</td>
<td><em>Anas platyrhynchos</em></td>
<td>None</td>
</tr>
<tr>
<td>Northern Pintail</td>
<td><em>Anas acuta</em></td>
<td>None</td>
</tr>
<tr>
<td>Gadwall</td>
<td><em>Anas strepera</em></td>
<td>None</td>
</tr>
<tr>
<td>American Wigeon</td>
<td><em>Anas americana</em></td>
<td>None</td>
</tr>
<tr>
<td>American Blue-winged Teal</td>
<td><em>Anas discors</em></td>
<td>None</td>
</tr>
<tr>
<td>Cinnamon Teal</td>
<td><em>Anas cyanoptera</em></td>
<td>None</td>
</tr>
<tr>
<td>Lesser Scaup</td>
<td><em>Aythya affinis</em></td>
<td>None</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bald Eagle</td>
<td><em>Haliaeetus leucocephalus</em></td>
<td>SC</td>
</tr>
<tr>
<td>Greater Sandhill Crane</td>
<td><em>Grus canadensis tabida</em></td>
<td>SC</td>
</tr>
<tr>
<td>Least Tern</td>
<td><em>Sterna antillarum</em></td>
<td>FE, SE</td>
</tr>
<tr>
<td>Long-billed Curlew</td>
<td><em>Numenius americanus</em></td>
<td>SC</td>
</tr>
<tr>
<td>Piping Plover</td>
<td><em>Charadrius melodus circumcinctus</em></td>
<td>FT, ST</td>
</tr>
<tr>
<td>Southwestern Willow Flycatcher</td>
<td><em>Empidonax trialii extimus</em></td>
<td>FE, SE</td>
</tr>
<tr>
<td>Western Snowy Plover</td>
<td><em>Charadrius alexandrinus</em></td>
<td>SC</td>
</tr>
<tr>
<td>Western Yellow-billed Cuckoo</td>
<td><em>Coccyzus americanus</em></td>
<td>SC</td>
</tr>
<tr>
<td>American Bittern</td>
<td><em>Botaurus lentiginosus</em></td>
<td>None</td>
</tr>
<tr>
<td>Short-eared Owl</td>
<td><em>Asio flammeus</em></td>
<td>None</td>
</tr>
<tr>
<td>Red-naped Sapsucker</td>
<td><em>Sphyrapicus nuchalis</em></td>
<td>None</td>
</tr>
<tr>
<td>Lewis's Woodpecker</td>
<td><em>Melanerpes lewis</em></td>
<td>None</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Status</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Meadow Jumping Mouse</td>
<td><em>Zapus hudsonius</em></td>
<td>FT, ST</td>
</tr>
<tr>
<td>River Otter</td>
<td><em>Lontra canadensis</em></td>
<td>ST</td>
</tr>
<tr>
<td>Dwarf Shrew</td>
<td><em>Sorex nana</em></td>
<td>NA</td>
</tr>
<tr>
<td>Boreal Toad</td>
<td><em>Anaxyrus (Bufo) boreas</em></td>
<td>SE</td>
</tr>
<tr>
<td>Northern Leopard Frog</td>
<td><em>Lithobates (Rana) pipiens</em></td>
<td>SC</td>
</tr>
<tr>
<td>Plains Leopard Frog</td>
<td><em>Lithobates (Rana) blairi</em></td>
<td>SC</td>
</tr>
<tr>
<td>Common Garter Snake</td>
<td><em>Thamnophis sirtalis</em></td>
<td>SC</td>
</tr>
<tr>
<td>Yellow Mud Turtle</td>
<td><em>Kinosternon flavescens</em></td>
<td>SC</td>
</tr>
</tbody>
</table>

*Status Codes: FE = Federally Endangered; FT = Federally Threatened; SE = State Endangered; ST = State Threatened; SC = State Special Concern (not a statutory category)

**Birds**

Birds are often cited among the most visible indicators of a wetland's total productivity (Weller 1999). Eighty percent of the United States' breeding bird population and more than 50% of the 800 protected migratory bird populations rely on wetlands (Mitsch and Gooselink 2007). Wetland-dependent birds, in particular, are extremely diverse, reflecting their adaptations to these varied environments. Examples of morphological adaptations include bills that strain, peck, spear, store, and grab, as well as feet that allow swimming, diving, wading and walking on mudflats. Obligate wetland birds are species that cannot survive without water or wetland vegetation. These species forage for food, build nests and rear young in or near wetlands and spend the majority of their life cycle in the water.

**Amphibians**

Colorado's eastern plains are considered the most species-diverse region in Colorado for amphibians and reptiles (Rondeau et al. 2011). Nearly 80% of Colorado's native amphibians and reptiles occur in the eastern plains (Hammerson 1999), as do 45% of our native fish (Rondeau et al. 2011). The wetland and riparian plants are crucial to the survival of these wetland-dependent animals. The Northern leopard frog (*Lithobates [=Rana] pipiens*) and the
plains leopard frog (Lithobates [=Rana] blairi) are classified by CPW as Species of Concern and by the Forest Service as Sensitive Species. Additional common amphibians that occur in Colorado's wetlands are the chorus frog (Pseudacris maculata), tiger salamander (Ambystoma mavortium) and the exotic bullfrog (Lithobates [Rana] catesbiana).

Reptiles
Only a few reptiles ranked as Species of Concern utilize wetlands, including the common garter snake (Thamnophis sirtalis) and the yellow mud turtle (Kinosternon flavescens). The common garter snake inhabits marshes, ponds, and stream edges within the lower South Platte basin (Hammerson 1999). The yellow mud turtle habitat includes permanent and intermittent streams, permanent ponds and isolated temporary ponds on the eastern plains. Aquatic habitats with sandy or muddy bottoms and areas with aquatic vegetation are preferred. The yellow mud turtle is fairly common in localized areas along the eastern margin of Colorado, especially along the Republic River (Hammerson 1999). The more commonly encountered painted turtle (Chrysemys picta) is mainly found in eastern Colorado with scattered occurrences in southwestern Colorado. Painted turtles require permanent water, such as ponds, reservoirs, marshes and slow-moving streams with soft, muddy beds and abundant aquatic plants and submerged logs for basking. Snapping turtles (Chelydra serpentina) are a common species occurring throughout eastern Colorado. They are found in permanent streams, lakes, reservoirs, and ponds, especially in waters with submerged vegetation or woody debris (Hammerson 1999). The spiny softshell turtle (Trionyx spiniferus) is found in streams and permanent ponds, usually with a great deal of woody plant material. They are common along South Platte and Arkansas River sloughs, as well as in disturbed sites within urban areas, such as Denver.
Historically, wetlands were areas that were intentionally drained and destroyed as part of population growth and agriculture. The severe reduction of waterfowl brought about a whole new concept for wetlands — as essential habitat for birds and animals. Wetland wildlife management philosophy has evolved to first obtain existing data, identify the limiting factor(s), plan, implement, and then evaluate effectiveness. Experts do agree that one should work with or enhance the natural system and simulate natural processes and landscapes (Ringleman 1991). Since most of Colorado’s eastern plains wetlands are in private ownership, a major key to long-term management is incentive. There are several federal, state, and non-profit programs that will provide expertise and funding to assist in wetland restoration and protection (e.g., CPW Wetlands Program, NRCS Wetlands Reserve Program and Wildlife Habitat Incentive Program, USFWS Partners for Fish and Wildlife, Ducks Unlimited, and land trusts).

Currently, waterfowl management of wetlands, especially marsh wetlands, means setting objectives depending on the priorities of land managers. For waterfowl, habitat management is directly related to the annual cycle of breeding, nesting and migrating. For ducks, seasonal habitat requirements (breeding and nesting) is of utmost importance. Habitat management objectives consist of shallow water interspersed with hummocks of rushes and sedges for nest cover. A desirable wetland complex for waterfowl in the eastern plains would range from ephemeral wet meadows to semi-permanent cattail and/or bulrush ponds. A diverse wetland with diverse vegetation will result in a higher density and diversity of waterfowl (Ringleman 1991). Shallow water is needed to provide food, especially protein for egg production. A wetland complex should encompass numerous small ponds where ducks can isolate themselves in heavy vegetation. A common rule of thumb for maximizing dabbling ducks is a complex with a 50:50 ratio of open water to patches of emergent vegetation (Ringleman 1991). Patches of emergent plants, sparse enough to allow a duck to swim through, are more attractive than large thick blocks of vegetation. Nest sites range from emergent vegetation (cattail, bulrush), used by most diving ducks to tall, dense grasses, used by dabbling ducks (Martin et al. 1951, Weller 1999).

Active marsh management commonly includes the control of wetland succession through water manipulation, regular soil disturbance, and control of undesirable plants to meet management objectives. The most commonly used technique is moist soil management (MSM). MSM is recommended for shallow water impoundments to simulate natural seasonal wetlands and to maximize food production for waterfowl and shorebirds. The main objective is to maintain early successional plants, typically annuals. Preferred plants for waterfowl and shorebirds

Moist soil management. Ducks Unlimited Commons.

Marsh wetland. Kirk Navo.
include protein-rich seeds and tubers. Wading birds also take advantage of larvae or small fish present in moist-soil wetlands. Managers usually flood in fall and winter and disk, till, mow, or apply herbicides to reduce woody vegetation and perennial plants (e.g., cattails and willows). The use of herbicides within a wetland should be considered only after other control means have been exhausted. Moist-soil plants (e.g., pondweed, smartweed, millet), thrive after a slow natural or managed drawdown of water to expose mudflats with seed banks. The water drawdowns are planned to coincide with migratory patterns to provide staging areas with abundant foods such as sedges, bulrushes, rushes, grasses, and agricultural grains (Cross 1988, Ringelman 1991, Baldassarre and Bolen 1994, McKinstry et al. 2004).

Riparian areas and associated floodplains are among the most impacted ecosystems in eastern Colorado. Since the time of westward expansion, human activities have focused in or near streams and floodplains. Riparian habitat losses have been severe, up to 95% in most western states (Krueper 1993). The main stressors for eastern Colorado include: water development, livestock grazing, gravel mining, and recreation. Water development is by far the most severe impact to wetlands. Habitat alteration, irreversible in many cases, has been caused by dam building, channelization, groundwater pumping, road building, irrigation diversions and urban development. All these impacts lead to loss of habitat, introduction of exotic plants, loss of biodiversity, and decrease of wetland functions. Dismantling dams can be an option, but is difficult to implement. Management of instream flows to maintain or enhance groundwater levels and associated wetland vegetation is also an option, but does not consider long-term needs of plant communities, structural diversity for birds, channel meandering and floodplain building (McKinstry et al. 2004). Improper grazing practices have caused widespread deterioration of riparian areas, streambank erosion, and introduction of noxious plants. Management practices to reverse or restore riparian health include: appropriate grazing rotation, fencing, installing stock ponds, designating stream crossings, and developing buffers that will allow stream connectivity to the floodplain. Gravel mining directly destroys riparian areas and floodplains. Restoration practices for wetlands that have been mined include: replanting of native vegetation and contouring pond banks for wildlife and fish habitat. Recreation is another impact that is often overlooked. Riparian areas are popular for recreation in the eastern plains, especially in urban areas. Many bicycle/pedestrian paths follow the rivers, essentially channelizing the stream and restricting the floodplain.

The majority of playa wetlands are located within working landscapes. on the eastern plains. Playas have been impacted extensively by human disturbances e.g., sedimentation, excavation, road construction, agriculture, urban development, overgrazing, and deliberate filling (Haukos and Smith 2003). If the management goal is for waterfowl, moist-soil management is a common technique with planned water drawdowns to promote annual plant growth (Haukos and Smith 1992). If restoration of excavated playas is a goal, then management would focus on re-filling the pit and terracing the sides of the excavated playa to produce a littoral zone for vegetation and seed production.
Non-Native Plants
Numerous non-native species occur within Colorado wetlands. Some are nearly ubiquitous, like the common dandelion (*Taraxacum officinale*). However, some aggressive, non-native species, referred to as noxious weeds, pose a significant threat to Colorado wetlands because they can replace or outcompete native species. The Colorado Department of Agriculture Noxious Weed Program lists species according to their degree of invasiveness. List A species are designated by the State Commissioner for eradication. List B weed species are species for which the State develops and implements state noxious weed management plans designed to stop the continued spread of these species. List C weed species are species for which the State develops and implements state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands (Table 3).

Table 3. List A, B, C, or Watch Listed noxious weeds that are known or expected to occur in eastern Colorado’s wetlands.

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Class</th>
<th>Present in CO?</th>
<th>Great Plains</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Lythrum salicaria</em></td>
<td>Purple loosestrife</td>
<td>List A</td>
<td>Yes</td>
<td>OBL</td>
</tr>
<tr>
<td><em>Arundo donax</em></td>
<td>Giant reed</td>
<td>List A</td>
<td>No</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Hydrilla verticillata</em></td>
<td>Hydrilla</td>
<td>List A</td>
<td>No</td>
<td>OBL</td>
</tr>
<tr>
<td><em>Salvinia molesta</em></td>
<td>Giant salvinia</td>
<td>List A</td>
<td>No</td>
<td>OBL</td>
</tr>
<tr>
<td><em>Cyperus esculentus</em></td>
<td>Yellow nutsedge</td>
<td>List B</td>
<td>Yes</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Lepidium latifolium</em></td>
<td>Broadleaved pepperweed</td>
<td>List B</td>
<td>Yes</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Myriophyllum spicatum</em></td>
<td>Eurasian watermilfoil</td>
<td>List B</td>
<td>Yes</td>
<td>OBL</td>
</tr>
<tr>
<td><em>Elaeagnus angustifolia</em></td>
<td>Russian olive</td>
<td>List B</td>
<td>Yes</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Tamarix chinensis</em></td>
<td>Saltcedar</td>
<td>List B</td>
<td>Yes</td>
<td>FAC</td>
</tr>
<tr>
<td><em>Tamarix parviflora</em></td>
<td>Smallflower tamarisk</td>
<td>List B</td>
<td>Yes</td>
<td>FACW</td>
</tr>
<tr>
<td><em>Conium maculatum</em></td>
<td>Poison hemlock</td>
<td>List C</td>
<td>Yes</td>
<td>FACW</td>
</tr>
<tr>
<td><em>Butomus umbellatus</em></td>
<td>Flowering rush</td>
<td>Watch List</td>
<td>No</td>
<td>FACW</td>
</tr>
<tr>
<td><em>Eichhornia crassipes</em></td>
<td>Water hyacinth</td>
<td>Watch List</td>
<td>Yes</td>
<td>OBL</td>
</tr>
<tr>
<td><em>Epilobium hirsutum</em></td>
<td>Hairy willowherb</td>
<td>Watch List</td>
<td>Yes</td>
<td>FACW</td>
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<tr>
<td><em>Phragmites australis</em></td>
<td>Common reed</td>
<td>Watch List</td>
<td>Yes</td>
<td>FACW</td>
</tr>
<tr>
<td><em>Typha angustifolia</em></td>
<td>Narrowleaf cattail</td>
<td>Watch List</td>
<td>Yes</td>
<td>OBL</td>
</tr>
</tbody>
</table>
How to Use the Pocket Guide

Species Included in the Book
Unlike the Field Guide to Colorado’s Wetland Plants (Culver and Lemly 2013), which focused only on FACW and OBL species, the Pocket Guide includes many FAC and FACU species that are common in eastern plains wetlands. The 2012 National Wetland Plant List (Lichvar 2012), filtered for the state of Colorado formed the basis for the list of species covered in the Field Guide to Colorado’s Wetland Plants. The associated database was queried for species that occur in the 22 counties in the eastern plains at elevations below 5,000 ft. That list was compared to records in SEINet (www.swbiodiversity.org) with at least 10 records or more in the database. The CPW list of plants beneficial to waterfowl was also consulted. Plants documented from the Lower South Platte River Basin Wetland Profile and Condition Assessment (Lemly et al. 2014) with a maximum cover of 30% or a frequency of 5% or more were also reviewed for inclusion. Based on this research, 119 plant species were selected for the Pocket Guide.

Basic Organization
The book contains detailed descriptions, photos and illustrations, but no dichotomous keys. Users should pair this field guide with dichotomous keys, such as Weber and Wittmann (2012) or Ackerfield (2012), to ensure that species not represented in this book are also considered.

Species descriptions are broken down into seven sections according to habitat and external appearance (physiognomy) (Table 4). Each section is noted with a different color along the margins of the page for easy reference. Within each section, plant descriptions are sorted alphabetically by family first, followed by genus, and species.

Table 4. List of physiognomic sections and number of species in the Pocket Guide.

<table>
<thead>
<tr>
<th>Section</th>
<th>Number of Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatics</td>
<td>16</td>
</tr>
<tr>
<td>Grasses</td>
<td>22</td>
</tr>
<tr>
<td>Rushes</td>
<td>7</td>
</tr>
<tr>
<td>Sedges</td>
<td>17</td>
</tr>
<tr>
<td>Monocot Herbs</td>
<td>4</td>
</tr>
<tr>
<td>Dicot Herbs</td>
<td>43</td>
</tr>
<tr>
<td>Woody Plants</td>
<td>10</td>
</tr>
<tr>
<td>Total Species</td>
<td>119</td>
</tr>
</tbody>
</table>

Aquatics include plants that have adapted to living in water. They lack the cuticles that terrestrial plants need to prevent dehydration, thus absorbing nutrients over their entire surfaces. Water provides physical support, so aquatic plants do not have structural cells needed for growing upright. Some aquatics do need to stay afloat for sunlight to reach them and have developed large air spaces that link together to provide buoyancy. Aquatic plants are often slimy, covered with a layer of mucilage to avoid becoming supersaturated. Aquatic herbs are further classified according to the following growth forms:
Submerged plants live in shallow waters, often rooted at some point to obtain maximum sunlight. Common examples include: smartweeds (Polygonum or Persicaria spp.), water milfoils (Myriophyllum spp.), pondweeds (Potamogeton spp.), watercresses (Rorippa spp.), aquatic buttercups (Ranunculus aquatilis, R. circinatus), and mare’s tail (Hippuris vulgaris).

Floating plants float on the water surface or occasionally within the water column and take their nutrients directly from the water via suspended roots or osmotic processes. Examples include: duckweeds (Lemma spp.), common duckmeat (Spirodela polyrrhiza), watermeals (Wolffia spp.), and water fern (Azolla mexicana).

Floating-leaf plants flourish in fluctuating or turbid water because they send up long stalks from often large, buried tubers. Examples include: Rocky Mountain pond-lily (Nuphar lutea ssp. polysepala), pondweeds (Potamogeton spp.), water-starworts (Callitriche spp.), and waterweeds (Elodea spp.).

Grasses are herbaceous monocots with narrow leaves and specific floral parts (Figure 2). A defining feature for grass identification is the number of florets per spikelet and the arrangement of the spikelets on the rachis or stem. Each spikelet has 2 glumes and 1 or more florets. Each floret is surrounded by 2 floral bracts—the outer lemma and the inner palea. The evolution of grasses has led to reduced floral parts and size, mainly due to the fact that they are wind-pollinated and do not need to attract pollinators with showy flowers, for example the palea and lemma represent much-reduced sepals. Grass stems or culms are hollow, have ligules, leaf sheaths, and swollen nodes or knees. Common wetland grasses include: cordgrasses (Spartina spp.), brookgrass (Catabrosa aquatica), saltgrass (Distichlis stricta), bluegrasses (Poa spp.), bentgrasses (Agrostis spp.), foxtails (Alopecurus spp.), and reed canarygrass (Phalaris arundinacea).

Rushes are grass-like plants but with lily-like flowers with 3 sepals, 3 petals, 3 or 6 stamens and a pistil with a 3-parted stigma (Figure 3). The ovary is superior, eventually maturing into the capsule. For identification of rushes, the bracts, capsules and seeds are important diagnostic characters, often requiring a 10-20x hand lens to see. Most Colorado wetlands will have at least one if not several species of rushes.
Sedges are likely the most commonly encountered wetland plants. They have a grass-like appearance, but can be distinguished from rushes and grasses by their 3-angled, solid pith stems (except some bulrushes that have round stems); non-jointed stems (no “knees”); closed leaf sheaths; absent or reduced ligule; florets that are subtended by 1 bract (=pistillate scale); and achenes that are enclosed by a bract or perigynia (sac-like structure that surrounds the seed) (Figure 4). The main identifying features for sedges are perigynia and scales. Major genera include: sedges (*Carex* spp.), bulrushes (*Scirpus* or *Schoenoplectus* spp.), spike-rushes (*Eleocharis* spp.), and flat sedges (*Cyperus* spp.).

Monocot herbs are flowering plants that have one-seed leaf (cotyledons), parallel leaf veins, floral parts in 3’s and usually simple branching. Major wetland species include: Rocky Mountain iris (*Iris missouriensis*), arrowgrasses (*Triglochin* spp.), and cattails (*Typha* spp.).

Dicot herbs include flowering plants that have two-seed leaved (cotyledons), netted leaf veins, floral parts in 4’s and 5’s and usually complex branching. The major eastern plains wetland plant families include: Asteraceae (sunflower), Brassicaceae (mustard), Polygonaceae (buckwheat) and Ranunculaceae (buttercup).

Woody plants are defined by woody stems and buds that survive above ground in winter. Trees are woody plants that have a single, well-defined trunk and shrubs typically have branched trunks. Woody plants often grow by emerging from shallow water or damp soil much like emergent plants, but are separated from herbaceous plants due to the difference in physical structure. Examples include willows: (*Salix* spp.) and cottonwoods (*Populus* spp.). The most helpful characters for identification are the leaf and branch arrangements (opposite, alternate or whorled), leaf types (dissected, simple, serrate), and fruits.
1. **Scientific Name:** USDA-NRCS PLANTS National Database (2012) is the primary nomenclature for scientific names, as it is widely used and readily available (http://plants.usda.gov/). This nomenclature differs in some instances from state-based floras (e.g., Weber and Wittmann 2012, Ackerfield 2012), but is best for comparing across state borders and between various national datasets.
2. **Common Name:** Common names are generally derived from USDA-NRCS PLANTS National Database. In cases where there is more than one common name, both are listed.

3. **Family Name:** The primary family name is derived from PLANTS National Database. If a species is treated in a different family in one of the state floras or in the Flora of North America (1993 +), the alternate family name is listed in parenthesis.

4. **Photos and Illustrations:** Each species includes three photos or illustrations that highlight the most diagnostic characteristics of the plant. Photos and illustrations were compiled from numerous sources, which include many talented Colorado photographers, several internet-based photo databases, genera-specific photo collections of herbaria specimens, and botanical illustrators from around the country.

5a. **Wetland Status:** The wetland indicator status reflects the likelihood that a particular plant occurs in a wetland or upland (see Table 1 on page 3). This information is both of general interest and specifically needed for wetland delineation. The wetland indicator rating status used in this guide are from the 2012 National Wetland Plant List published by the U.S. Army Corps of Engineers (http://rsgisias.crrel.usace.army.mil/NWPL/) and are specific to the the Great Plains Region (GP) within Colorado.

5b. **Native Status:** Native status denotes whether a plant is considered native, non-native, or, in limited cases, both native and non-native. Native status used in this guide is derived from PLANTS National Database, which largely considers whether a plant is native to the contiguous United States. There is considerable debate among taxonomic experts on the origin of certain plant species. Where there is debate about whether a species is native to Colorado, we have included that information in the comments section.

5c. **Conservation Status:** Conservation status refers to the Natural Heritage Network ranking system of global and state rarity. Every species is ranked on a Global (G) and Subnational/State (S) level. The basic ranks used to classify species and ecosystems are shown in Table 5. Additional ranks and associated criteria used by the Natural Heritage Network are available at: http://www.natureserve.org/.

### Table 5. Natural Heritage Network ranking system.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/S1</td>
<td>Critically Imperiled (typically 5 or fewer occurrences or less than 1,000 individuals)</td>
</tr>
<tr>
<td>G2/S2</td>
<td>Imperiled (typically 6 to 20 occurrences or between 1,000 and 3,000 individuals)</td>
</tr>
<tr>
<td>G3/S3</td>
<td>Vulnerable to Extirpation (typically 21 to 100 occurrences or between 3,000 and 10,000 individuals)</td>
</tr>
<tr>
<td>G4/S4</td>
<td>Apparently Secure (usually more than 100 occurrences and more than 10,000 individuals)</td>
</tr>
<tr>
<td>G5/S5</td>
<td>Demonstrably Widespread, Abundant, and Secure (typically with considerably more than 100 occurrences and more than 10,000 individuals)</td>
</tr>
<tr>
<td>GNR/SNR</td>
<td>Not Ranked (not enough information is available on which to base a rank)</td>
</tr>
<tr>
<td>GNA/SNA</td>
<td>Not Applicable (rarity ranking is not applicable because the species is not native to the state)</td>
</tr>
</tbody>
</table>
5d. Duck Food Value: The palatability of a plant coupled with its nutritional content, focusing on migrating waterfowl.

5e. Duration: Duration indicates if a species is typically annual, biennial, perennial, or some combination of the three. This information is derived from PLANTS National Database.

5f. Synonyms: Major synonyms are listed for each species. A special effort was made to include all names used by Weber and Wittmann (2012), Ackerfield (2012), and the most recent Flora of North America treatments (Flora of North America 1993+).

5g. USDA PLANTS Symbol: The USDA PLANTS Symbol is the unique alpha-numeric symbol for each species used within PLANTS National Database. The symbols begin with the first two letters of the genus name and the first two letters of the species name, followed by the first letter of the subspecies or varieties, if applicable. If the letters in any code are the same for more than one taxon, a number is included at the end of the code to make each code unique.

6. Key Characteristics: The key characteristics include up to five bullets that detail the most important and distinguishing characteristics of the species and is perhaps the most useful section of the guide. In general, the first bullet describes overall plant size, plant habit, stem characteristics, and rooting structure. The second bullet describes the most important features of the leaves, including the size, shape, position on the plant, presence of hairs, etc. If there is more than one type of leaf, both are described in detail. Remaining bullets describe important features of the inflorescence, flowers and flower parts, and seeds. The key characteristics vary by family and genus, as each has particular characteristics of importance. The bolded characters are diagnostic.

7. Similar Species: Species that could be easily mistaken for the main species are described in this section along with their distinguishing characteristics.

8. Habitat and Ecology: This section describes the general habitat and ecology of the species.

9. Comments: Additional information in this section can include: management recommendation (e.g., if the plant is a preferred species for moist soil management or revegetation), important noteworthy facts that could include information on wildlife use, ethnobotanical use, origins of the plant name, and evolutionary strategies of the plant or plant family, and comments about nativity or nomenclature.
**Alisma triviale** Pursh  
**Northern water plantain**  
Alismataceae

**Key Characteristics:**
- Emergent, 2–6 (12) cm tall arising from short, crowded, fleshy rhizomes
- Leaves basal, shorter than the inflorescence; **blades** 2–20 cm wide, **ovate**; petioles sheathing, 3–15 (20) cm long
- Flowers 1-few whorls forming a diffuse panicle; **scape** 10–50 cm long excluding inflorescence

**Similar Species:** *A. gramineum* leaves are linear, less than 3 cm wide, and achenes have 2 distinct grooves. 
**Sagittaria** spp. have flowers in whorls of 3s with sagittate leaves.

**Habitat and Ecology:** Common in wet places such as along pond shores, in ditches and marshes and on mud flats, rarely in deep water.

**Comments:** *Alisma triviale* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or herbicides to reduce woody and perennial plants.
**Sagittaria cuneata Sheldon**

**Arumleaf arrowhead**

**Key Characteristics:**
- Emergent, 1–11 dm tall; rhizomes absent, stolons and corms present
- Submerged leaf blades sagittate to 45 cm long, floating to 100 cm long; emergent petioles recurved
- Inflorescence equaling leaves, sparsely flowered, lower whorls female, upper whorls male

**Similar Species:** *S. brevirostra* also has erect achene beaks, but they are recurved, not straight and prominent (up to 1.7 mm long). *S. latifolia* achene beaks are horizontal, not erect.

**Habitat and Ecology:** Common along shorelines and slow-moving streams and in swampy places, especially in sandy soils. *S. cuneata* is extremely variable. On emergent plants, the leaf petioles are often bent toward the ground. Submerged plants often grow from a basal rosette with a long, flexuous petiole and a floating sagittate leaf.

**Comments:** *Sagittaria cuneata* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskng, tilling, mowing, or using herbicides to reduce woody and perennial plants.

**Wetland Status:** OBL

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** High

**Duration:** Perennial

**Synonyms:** None

**USDA PLANTS Symbol:** SACU

**Key Characteristics:**
- Sepals recurved, ovate, 4–9 mm long; petals white, 7–19 mm long; anthers longer than filaments
- Fruiting heads globose, 5–13 mm across; achene beaks straight, minute, 0.1–0.4 mm long
Nasturtium officinale W.T. Aiton
Watercress

Brassicaceae

Key Characteristics:

- Aquatic or sub-aquatic herbs from fibrous rooted rhizomes, forming dense colonies in streams
- Stems 1–6 dm long, hollow, arising from rhizome nodes, rooting when in contact with wet ground
- Leaves 2–6 cm wide, pinnately compound with 1–9 pairs; petioles auriculate at the bases
- Flowers white, sometimes tinged with purple
- Siliques 10–18 mm long x 1.8–2.6 mm wide, broadly linear, styles 0.7–1.1 mm long

Similar Species: Rorippa spp. occur in similar habitats, but have siliques that are ovate or globose.

Habitat and Ecology: Common in slow-moving streams, ditches and along lake margins.

Comments: Eaten by ducks, muskrats and deer. Widely used as a salad herb for the spicy, peppery flavor, it is grown commercially in the United States. It also contains high concentrations of vitamins and minerals. Watercress has a long history of medicinal use for a variety of ailments. N. officinale is native to Eurasia, imported to United States as a cooking herb. It is a widespread aquatic plant that has become naturalized in wetlands.
**Callitriche hermaphroditica L.**  
Northern water-starwort  

**Synonyms:** 
Callitriche autumnalis

**Key Characteristics:**

- **Completely submerged**, stems to 40 cm long, rooting from lower nodes
- **Leaves uniformly linear-lanceolate, narrowed to clasping bases, 1-nerved, 5–20 mm long**
- **Flowers solitary in leaf axis, not subtended by bracts**
- **Staminate flowers inconspicuous; pistillate flowers minute**
- **Fruits small, 1–2.5 mm wide, orbicular, deep groove across fruits, wings present on margins**

**Similar Species:** Other *Callitriche* spp. have both floating and submerged leaves. *C. palustris* leaves can be different shapes with oblong floating leaves and linear submerged leaves, usually longer than 13 mm and bases are connected by a ridge.

**Habitat and Ecology:** Found in ditches and slow-moving streams and along shallow pond and lake margins, often in calcareous waters.

**Comments:** Provides forage and cover for young fish and aquatic insects. Ducks eat seeds and foliage.

---

**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Unassigned  
**Duration:** Perennial  
**USDA PLANTS Symbol:** CAHE2

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**Callitrichaceae**
Ceratophyllum demersum L.
Hornwort or coon’s tail

**Key Characteristics:**

- Emergent, light green to brown, heavily branched stems, to 2 (3) m long; tips appear bushy
- **Leaves whorled, dichotomously branched with narrow, linear divisions, margins serrate**
- Flowers, if present, small, sessile, located in leaf axils, involucre of 8–15 linear bracts
- Fruits rarely produced, dark green, round with 3 narrow spines, 2 cm long including spines

**Similar Species:** *Ranunculus aquatilis* looks similar, but has alternate leaves and white, 5-parted flowers. *Myriophyllum spicatum* has roots and pinnate leaves, appearing more feathery and limp when held out of the water. The aquatic algae *Chara* spp. has jointed stems.

**Habitat and Ecology:** Common in lakes, ponds, irrigation ditches and slow-moving streams. Can be a dominant species in warm, nutrient-rich waters. Stores energy as oils and may cause natural oil slicks when it decays.

**Comments:** *C. demersum* provides fall forage for waterfowl and can occur as dense mats, providing cover for aquatic insects. Hornwort is theorized to be one of the oldest living angiosperms, with fossil evidence dating back to the Cretaceous Period.
**Myriophyllum sibiricum** Kom.
Shortspike watermilfoil

**Haloragaceae**

**Key Characteristics:**
- Emergent, stems stout, whitish or tan; **forms turions, that appear as condensed areas of leaves**
- Leaves whorled, stiff, 4–14 leaflet pairs, lower leaflet pairs longer than those at the tip
- Inflorescence a terminal spike; **floral bracts entire to serrate, shorter than flowers**
- Staminate flowers 4, pink petals; pistillate flowers without sepals or less than 0.5 mm long
- Fruits to 3 mm across, 4-parted, smooth or slightly rough

**Similar Species:** *M. verticillatum* has strongly dissected floral bracts that are feather-like and the staminate flowers have yellowish-green petals. *M. sibiricum* can be confused with the noxious weed, *M. spicatum*. *M. spicatum* is stouter with 14–24 leaflet pairs that are of more uniform size, producing a square leaf tip rather than a pointed leaf tip.

**Habitat and Ecology:** Common in ponds, lakes, muddy shores and still-moving waters. Excessive growth can be indicative of excess nutrients. Turions appear as withered, rounded bud-scales at the base of the stem. The new turions will be produced in the axils of the old bud-scales.

**Comments:** *Myriophyllum sibiricum* is recommended as a beneficial plant for waterfowl, especially Mallards who are largely vegetarian, due to its palatability and nutritional value.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** High
**Duration:** Perennial

**Synonyms:** *Myriophyllum exalbescens*, *Myriophyllum spicatum* ssp. *exalbescens*

**USDA PLANTS Symbol:** MYSI

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**Louis M. Landry CalPhotos**

**George W. Hartwell CalPhotos**
**Elodea canadensis** Michx.
**Canadian waterweed**

*Hydrocharitaceae*

**Key Characteristics:**
- Emergent, stems terete, slender, freely branched; winter buds may be present
- **Leaves in 3s at nodes, to 13 mm long, tips taper to blunt points**, appear crowded near tips
- Flowers, if present, small, 8 mm across, white, produced on thread-like stalks
- Staminate and pistillate spathes to 13.5 mm long
- Fruits berry-like, 4–5.7 mm long, seeds not covered with long hairs

**Similar Species:** *E. bifoliata* has leaves in 2s at the nodes and seeds that are densely covered with hairs. *E. nuttallii* has narrower leaves (less than 1.7 mm wide) and shorter spathes (2.2–4 mm long). *Hippuris vulgaris* has whorled leaves as well, but leaves are more robust, thicker and the flowers and/or fruits are clustered in leaf bases not on stalks. *Hydrilla verticillata*, non-native, invasive plant, is not yet known in Colorado. It differs from *Elodea* with sharply toothed leaves with a red midrib and leaves in whorls of 4–8.

**Habitat and Ecology:** Found in ponds, sloughs and lakes; tolerant of polluted and eutrophic waters.

**Comments:** *E. canadensis* is an important part of freshwater ecosystems. It provides good habitat for many aquatic invertebrates and cover for young fish and amphibians.

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**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Unassigned
**Duration:** Perennial
**Synonyms:** *Anacharis canadensis, Elodea brandegeae*
**USDA PLANTS Symbol:** ELCA7

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**Kristian Peters Flickr Creative Commons**

**Louis M. Landry CalPhotos**

**Jeanne R. Janish Vascular Plants of the Pacific Northwest**

**Hydrocharitaceae**

Kristian Peters Flickr Creative Commons
**Lemna minor** L.
Common duckweed

**Key Characteristics:**
- Free-floating, green, round leaves or fronds, 2–5 or more in coherent groups
- Roots solitary on each frond, up to 15 cm long, tip mostly rounded
- Fronds obovate, 3–6 mm long x 1.5–4 mm wide, essentially symmetrical
- Fronds green above, tinged with red below, 3-nerved
- Fronds rarely forming turions (winter buds)

**Similar Species:** *L. minuta* fronds are 1-nerved and do not turn red. *L. gibba*, reported for Colorado, differs in having 4–5 veins on the fronds, which are often gibbous (swollen on one side).

**Habitat and Ecology:** Commonly found in slow-moving streams, ponds and lakes. The most common duckweed in Colorado.

**Comments:** *Lemna minor* is recommended as a beneficial plant for waterfowl, especially Mallards who are largely vegetarian, due to its palatability and nutritional value. Duckweeds provide food for fish, snapping turtles and waterfowl and habitat for aquatic invertebrates. Because of the high nutritive value, duckweeds have been cultivated for livestock feed. Duckweed morphology is unique because they are vascular plants that are described with non-vascular descriptors (e.g., frond, stipe, thallii).
**Polygonum amphibium L. var. emersum Michx**  
Longroot smartweed

*Polygonaceae*

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**Key Characteristics:**
- Emergent or terrestrial; rhizomes or stolons present
- Stems prostrate to ascending or erect, simple or branched, ribbed, glabrous or hairy
- Leaf blades widest near the middle, not glandular-punctate below
- Inflorescence a single, terminal raceme
- Perianth bright pink to red

**Similar Species:** Water smartweeds without flowering stems can look like pondweeds (*Potamogeton* spp.). Pondweeds are monocots with parallel leaf veins, flowers are green and inconspicuous, not showy and pink as in smartweeds.

**Habitat and Ecology:** Found in shallow waters, margins of lakes and ponds and inundated meadows. *P. amphibium var. emersum* has two growth forms. The aquatic adapted plants have glabrous leaf blades with acute to rounded apices. Terrestrial forms produce hairy, lanceolate leaf blades with pointed tips.

**Comments:** *Polygonum amphibium var. emersum* is recommended as a beneficial plant for waterfowl, especially Mallards who are largely vegetarian, due to its palatability and nutritional value.

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**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5T5 SNR  
**Duck Food Value:** Medium  
**Duration:** Perennial  
**Synonyms:** *Persicaria amphibia* var. *emersa*, *Persicaria coccinea*  
**USDA PLANTS Symbol:** POAME

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**At Schneider Southwestern Colorado Wildflowers**

**Matt Below CalPhotos**
**Potamogeton foliosus** Raf.

**Leafy pondweed**

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**Key Characteristics:**
- Plants emergent, stems compressed, 0.5–1 mm wide, freely branched, to 8 dm long
- Submerged leaves only, linear, 1.3–8.2 cm long x 0.3–2.3 mm wide, 1- to 5-nerved, basal glands absent; **stipules free**
- Spikes short-cylindric, 1.5–7 mm long; peduncles usually clavate, recurved, 3–10 mm long
- Fruits olive, 1.4–2.7 mm long, produced in a blocky cluster on a short stalk
- Fruits with wavy dorsal keels; **beak short**

**Similar Species:** *P. pusillus* has smooth, rounded fruits and glands that are usually present at the base of the stipules. *Stuckenia* spp. resemble *P. foliosus*. *Stuckenia* spp. leaves are channeled and the stipules are fused to the leaf blades 2/3 or more the length of the stipules and the peduncles do not project above water surface.

**Habitat and Ecology:** Found in ditches, shallow warm water ponds, lakes, springs and slow-moving streams.

**Comments:** *Potamogeton foliosus* is recommended as a beneficial plant for waterfowl, especially Mallards who are largely vegetarian, due to its palatability and nutritional value. Pondweed seeds, tubers and vegetation provide important food and cover for aquatic animals and waterfowl. *P. foliosus* is common throughout the contiguous United States.

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**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Medium  
**Duration:** Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** POFO3  

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Neal Kramer CalPhotos  
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Potamogetonaceae
**Stuckenia pectinata** (L.) Börner  
Sago pondweed  

**Key Characteristics:**
- Plants wholly submerged, stems emerging from tubers at end of white rhizomes
- Leaves all submerged, branching, filiform to narrowly linear, 3–12 cm long x 0.2–1 mm wide
- Stipules adnate to the base of the leaf blades for 2–3 cm, forming a short ligule, 1 mm long
- Spikes elongate, 1–3 cm long, with 2–6 floral whorls; peduncles lax, filiform, to 15 cm long
- Fruits yellowish to tawny, 2.7–4 mm long, egg-shaped, beaks short

**Similar Species:** *S. filiformis* (=Potamogeton filiformis) occurs in similar habitats but has a longer ligule, up to 7 mm long and the leaves have blunt tips. *Potamogeton foliosus* has linear leaves, but the peduncles are stouter and spikes are shorter (0.1–0.5 cm long) with 3–5 whorls of paired flowers. *P. pusillus* has smooth, rounded fruits and glands that are usually present at the base of the stipules. *Zannichellia palustris* leaves are opposite or whorled, thread-like, tendril-like rhizomes and achenes that are curved with stout, horn-shaped beaks.

**Habitat and Ecology:** Commonly found in shallow mountain lakes and slow-moving streams. Leaves branch profusely like a wide fan, often spreading out along water surface.

**Comments:** *Stuckenia pectinata* is recommended as a beneficial plant for waterfowl, especially Mallards who are largely vegetarian, due to its palatability and nutritional value.
**Ranunculus aquatilis** L.
White water crowfoot

**Similar Species:** The leaves of *R. aquatilis* look like those of *Ceratophyllum demersum*, but if flowering, the white buttercup flowers are distinctive and diagnostic.

**Habitat and Ecology:** Common in ponds, streams and creeks. The Ranunculaceae, a primitive family, is one of the few plant families that is characterized by protogyny, where the female parts mature before the male flower parts as a strategy to avoid self-pollination.

**Comments:** Fruits and foliage of water crowfoot are a source of food for some waterfowl and provide food and shelter for fish and invertebrates. Common throughout southern Canada, south to California, east to Colorado.
**Veronica americana** Schwein. Ex Benth

**American speedwell**

**Scrophulariaceae (Plantaginaceae)**

**Key Characteristics:**
- Emergent, 0.5–3.5 (6) dm tall, glabrous, widely branched; rhizomatous
- Stems erect, ascending, usually decumbent at the base and rooting at the lower nodes
- Leaves opposite, blades 1.5–3 (5) cm long x 7–20 (30) mm wide, lanceolate to ovate, petiolate
- Flowers in axillary racemes, 10- to 25-flowered, corolla blue; pedicels 5–10 mm long
- Capsules 2.5–3.8 mm long x 3–4 mm wide, entire or scarcely notched; styles 1.7–3 (4) mm long

**Similar Species:** *V. americana* is distinguished from the other speedwells that grow in shallow waters by its petiolate leaves. *V. anagallis-aquatica* and *V. scutellata* leaves are sessile and clasping.

**Habitat and Ecology:** Common in shallow water, inundated meadows and along streams.

**Comments:** American speedwell is edible, tasting similar to *Nasturtium officinale* (= *Rorippa nasturtium-aquaticum*), but with a distinctly bitter taste. Common from Alaska to New Mexico to eastern United States. *Veronica americana* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.
**Veronica anagallis-aquatica** L.  
*Water speedwell*

**Veronica anagallis-aquatica** L.  *Water speedwell*

**Key Characteristics:**
- Emergent, 1–6 (10) dm tall, stems erect, branched at base, glabrous; rhizomatous
- **Leaves opposite, clasping, lanceolate to ovate,** 2–6.5 cm long x 5–25 mm wide, sessile
- Flowers in axillary racemes, glabrous to glandular-puberulent, more than 30-flowered
- Calyx 3–5.5 mm long, segments broadly lanceolate
- Corolla 5–10 mm across, blue or pale violet with purplish lines; **capsules not notched or slightly**

**Similar Species:** *V. scutellata* has a strongly 2-lobed capsule with a conspicuous notch and the leaves are linear, 4–20 times longer than wide. Vegetatively, *Potamogeton richardsonii* can look like *V. scutellata*, but has clasping leaves and fruits in dense spikes.

**Habitat and Ecology:** Common in shallow water, streams, ditches and seeps.

**Comments:** *V. anagallis-aquatica* is widely established in North and South America, as well as Europe, Africa and Asia. USDA-NRCS PLANTS Database designates it as native, but Colorado, Wyoming, and Montana consider it adventive. It is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskng, tilling, mowing, or herbicides to reduce woody and perennial plants.
Similar Species: *S. emersum* has at least some staminate heads that do not appear contiguous and the fruits are reddish to brown with longer beaks (2–4.5 mm long).

**Habitat and Ecology:** Common in shallow waters of mountain ponds and lakes.

**Comments:** Common throughout Canada and western United States. Excellent food and habitat for waterfowl. Muskrats and deer eat the entire plant.

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**Wetland Status:** OBL

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** *Sparganium emersum* var. *multipedunculatum*

**USDA PLANTS Symbol:** SPAN2

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**Key Characteristics:**

- Submerged, stems slender, 3–10 dm long when floating, shorter and stouter in shallow waters
- **Leaves limp,** unkeeled, rounded at back, flat to plano-convex, 3–10 dm long x (1) 2–6 (8) mm wide
- Pistillate heads 2–5, sessile or short-stalked, 1–3 cm in fruit; stigmas 1

- Staminate heads (1) 2–4, usually contiguous and appearing as one elongate head
- Fruits 3–5 mm long, greenish, dull, beaks (including stigmas) 1.5–2 mm long
Zannichellia palustris L.
Horned pondweed

Key Characteristics:
- Submerged, monoecious, with tendril-like roots and slender, delicate rhizomes
- Leaves opposite or whorled, 3–10 cm long with 1–3 veins, smooth margins, filiform, thread-like
- Stipules forming a sheath that is adnate to leaf bases
- Flowers highly reduced, 1 staminate and 4 (1–5) pistillate flowers at each node; perianth none
- Fruits are achenes, forms in leaf axils, flattened, slightly curved with stout, horn-shaped beaks

Similar Species: Stuckenia pectinata is similar in appearance, but leaves are slightly wider and the fruits are distinctly different. Najas guadalupensis has similar leaves, but with toothed margins and a shoulder at junction with stem. Z. palustris fruits are very distinct with the horned projections.

Habitat and Ecology: Found in slow-moving streams, ditches and along pond margins.

Comments: Zannichellia palustris is recommended as a beneficial plant for waterfowl, especially Mallards who are largely vegetarian, due to its palatability and nutritional value.
**Agrostis stolonifera L.**
Creeping bentgrass

**Similar Species:** *A. gigantea* is also a large stature bentgrass. It has rhizomes, not stolons, and is erect from the bases with a narrow panicle.

**Habitat and Ecology:** Grows in mesic areas along streams, stock tanks and ponds from low elevations to subalpine.

**Comments:** Native to Eurasia. *A. stolonifera* is often the dominant graminoid, forming monocultures, especially on disturbed sites. It is a non-native that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication. The foliage is browsed by ungulates.

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**Key Characteristics:**

- **Stoloniferous, spreading from a decumbent bases, rooting at lower nodes:** culms 2–10 dm tall
- **Leaf sheaths occasionally purplish or reddish; ligules membranous, 2–8 mm long; blades up to 1 cm wide**
- **Inflorescence a narrow panicle at maturity, 5–30 cm long; branches spreading, densely-flowered, whorled**
- **Spikelets 1-flowered:** glumes unequal, 1.6–3 mm long, nerves scabrous to ciliate, purplish
- **Lemmas 1.4–2 mm long, 5-nerved, membranous, unawned; paleas well-developed, 0.7 –1.4 mm long**

**Wetland Status:** FACW  
**Native Status:** Non-native  
**Conservation Status:** G5 SNA  
**Duck Food Value:** Low  
**Duration:** Perennial  
**Synonyms:** *Agrostis alba* var. *palustris*, *Agrostis alba* var. *stolonifera*, *Agrostis palustris*  
**USDA PLANTS Symbol:** AGST2  

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**Poaceae**
Similar Species: *A. arundinaceus* can occur with *A. pratensis*, but the lemma apices are truncate, not acute, and the glume apices are divergent, not parallel. *Phleum pratense* also has a spike-like inflorescence, but the glumes are awned or horned, not the lemmas.

**Habitat and Ecology:** Frequently planted in hay meadows or road revegetation, then escaping to wet meadows adjacent to streams and ponds.

**Comments:** It is a non-native that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.
Bouteloua dactyloides (Nutt.) J. T. Columbus
Buffalograss

Key Characteristics:
- Dioecious, strongly stoloniferous, forming extensive mats; staminate culms erect, 1–30 cm tall, nodes glabrous
- Sheaths open, rounded, sparsely hairy near collar; ligules 0.5–1 mm long, ciliate membrane; blades flat, curling when dry, 1–15 cm long x 1–2.5 mm wide
- Staminate inflorescence a panicle of 1–4 racemously arranged spicate branches, one-sided; pistillate with panicle of burr-like clusters partially hidden within leaf sheaths; disarticulation at bse of panicle branches
- Staminate spikelets 2-flowered, 4–6 mm long, in 2 rows on each branch; pistillate spikelets enclosed in burs, 1-flowered, not spiny
- Staminate glumes unequal, glabrous; pistillate enclosing lemma, bearing 3 awn-tipped lobes; lemmas glabrous, 3-nerved, awn-tipped

Similar Species: Cenchrus longispinus has a similar growth habit, but the burs are very spiny and it is not as strongly stoloniferous.


Comments: Forage value is good, will increase under extreme grazing by livestock and wildlife.
**Bromus arvensis** L.  
**Japanese brome**  
Poaceae

**Key Characteristics:**  
- Solitary to tufted; culms erect to geniculate at base, 2–7 dm tall  
- Sheaths with soft, pilose hairs, closed to near summit; ligules erose-ciliate, 0.5–2 mm long, pilose; blades flat, 10–20 cm long, softly pilose both sides  
- Inflorescence a dense panicle branches usually with more than 1 spikelet, often drooping

- Spikelets 5- to 10-flowered, soft pubescent, florets imbricate  
- Glumes 5–7.5 mm long, 3- to 5-nerved; **lemmas lanceolate, over 1.5 mm wide**, with hyaline margins 0.3–0.6 mm wide, **bifid lemma apex shorter than 1 mm**, **awns 8–13 mm long**, **often flattened and twisted at base**

**Similar Species:** *B. tectorum* lemmas are linear to narrowly lanceolate, to 1.5 mm wide, teeth of the bifid lemma apex 1–5 mm long and awns are much longer, 10–65 mm long.

**Habitat and Ecology:** Common on dry slopes, along roadsides, in shortgrass prairie and in disturbed areas. Seed germination usually occurs in the fall, then young plants overwinter and grow rapidly in the spring.

**Comments:** Only palatable to livestock in early summer.

**Wetland Status:** FACU  
**Native Status:** Non-native  
**Conservation Status:** GNR SNA  
**Duck Food Value:** Unassigned  
**Duration:** Annual  
**Synonyms:** *Bromus japonicus*  
**USDA PLANTS Symbol:** BRAR5

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**Biopix**  
Matt Lavin
**Key Characteristics:**
- Solitary or loosely tufted with extensive creeping rhizomes; culms erect to spreading, 5–13 dm tall, glabrous
- **Sheaths closed**, glabrous, rarely pubescent; auricles small, if present; ligules erose to ciliolate membrane, truncate; blades flat, 15–40 cm long, "W" or "M" imprint noticeable on fresh specimens
- Inflorescence narrow to open panicle, 5–20 cm long, branches appressed to ascending or spreading
- Spikelets terete, 15–40 mm long, 5- to 13-flowered
- Glumes glabrous; lemmas glabrous to scabrous, rounded back, prominently 3-nerved

**Similar Species:** *Schedonorus pratensis* looks similar, but it has prominent auricles and open leaf sheaths.

**Habitat and Ecology:** Common in disturbed areas, meadows and grasslands, and along roadsides. It has been used extensively for reseeding projects along roadsides and as pasture grass.

**Comments:** It is a non-native that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.
**Bromus tectorum L.**  
*Cheatgrass*

**Poaceae**

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**Key Characteristics:**

- Solitary to tufted; culms decumbent at base to erect, 0.5–9 dm tall, softly pubescent throughout
- Sheaths closed, retrose softly pubescent, round, margins connate; ligules 1–3.5 mm long; blades 4–16 cm long x 2–7 mm wide, usually pubescent
- Inflorescence an open panicle, 5–20 cm long, initially erect but drooping, densely branched, generally 1-sided
- Spikelets 1–24 mm long, purplish to greenish, 4- to 8-flowered
- Glumes narrowly lanceolate; lemmas lanceolate, margins hyaline, 9–12 mm long, apex bidentate, 13 mm long; awns straight, 10–18 mm long

**Similar Species:** *B. arvensis* lemmas are broad and rounded at apices, abruptly awned, not tapering.

**Habitat and Ecology:** Common in fields, grasslands, meadows, shrublands, forests, disturbed areas and on dry slopes.

**Comments:** *Bromus tectorum* is designated as a List C species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manager to verify identification. Once confirmed, eradication methods will be discussed. The name cheatgrass is a collective term for several annual brome species known for early spring emergence and cheating other vegetation out of moisture. Livestock will graze on new growth. Presence of cheatgrass in large quantities increases fire frequency.

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**Wetland Status:** NI  
**Native Status:** Non-native, CO Noxious Weed List C  
**Conservation Status:** GNR SNA  
**Duck Food Value:** Low  
**Duration:** Annual  
**Synonyms:** Anisantha tectorum  
**USDA PLANTS Symbol:** BRTE
**Distichlis spicata** (L.) Greene

**Saltgrass**

**Poaceae**

**Key Characteristics:**
- Cespitose; culms erect to ascending, strongly rhizomatous, 1–5 dm tall, strongly compressed, dioecious
- Leaf sheaths open, margins and throats with tuft of hairs at collar; blades stiff, involute, white midveins

**Similar Species:** *D. spicata* is very distinctive with its rhizomatous growth habit, compressed spikelets and hairy collar.

**Habitat and Ecology:** Commonly found along roadsides, playas, seeps, springs and mineral soil flats on both Eastern and Western Slopes.

**Comments:** Saltgrass is a warm season grass that is very tolerant of saline and sodium soils. It is an important forage for large animals. Saltgrass is a larval host plant for many skipper butterflies, including the San Luis Valley sandhills skipper (*Polites sublet ministigma*). It is also an important food for waterfowl and small mammals. The genus name refers to the Latin *distichus* or *distichous* meaning arranged in two opposite rows.
**Echinochloa crus-galli** (L.) P. Beauv.  
Barnyardgrass or barnyard millet

**Key Characteristics:**
- Cespite; culms decumbent to erect, 0.3–2 m tall, usually reddish at bases
- Leaf sheaths open; ligules absent; blades 6–65 cm long x 5–35 mm wide, generally glabrous
- Inflorescence an erect to nodding, one-sided panicle of 5–12 spike-like branches, spreading

**Similar Species:** *E. muricata* closely resembles *E. crus-galli*. The upper lemmas are acute, not rounded, and the leathery apices extend into membranous tips without hairs. However, these characters are difficult to discern and many taxonomists believe that the two species are not distinct.

**Habitat and Ecology:** Commonly found along roadsides, disturbed sites, ditches, pastures and barnyards.

**Comments:** *Echinochloa crus-galli* has a high value for waterfowl. It is a preferred plant for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.

**Wetland Status:** FAC  
**Native Status:** Non-native  
**Conservation Status:** GNR SNA  
**Duck Food Value:** High  
**Duration:** Annual  
**Synonyms:** None  
**USDA PLANTS Symbol:** ECCR
**Elymus repens** (L.) Gould  
**Quackgrass**

**Poaceae**

**Key Characteristics:**
- **Strongly rhizomatous;** culms decumbent to erect, 5–10 dm tall, green, occasionally glaucous
- Sheaths glabrous to pilose below; auricles often over 1 mm long; ligules erose-ciliate membrane, to 1 mm long; blades flat, 10–30 cm long x 4–10 mm wide, smooth below, upper scabrous, margins scabrid; leaves often constricted at tips
- Inflorescence is an erect spike, 10–15 cm long
- Spikelets usually solitary, 1–27 mm long, 3- to 7-flowered, appressed or ascending
- Glumes keeled distally, scabrous and conspicuous, apices awn-tipped to awned; **lemmas glabrous to scabrous, acute to awned**

**Similar Species:** *E. trachycaulus* rhizomes are absent, culms are upright, sometimes geniculate, lemmas are awned, straight, 1–40 mm long and the glumes are 1.8–2.3 mm wide.

**Habitat and Ecology:** Common in meadows, grasslands, forests, riparian habitats and along roadsides.

**Comments:** *Elymus repens* is a non-native, List B Weed, that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. Managers should consider eradication. Common weed in flower beds and urban lawns. Difficult to eradicate due to the extensive rhizomes.
**Hordeum jubatum L.**

*Foxtail barley*

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**Key Characteristics:**
- Cespitose; culms erect to decumbent, 2–8 dm tall, slender, soft-pubescent to glabrous
- Sheaths open; ligules ciliate membranes; blades 5–15 cm long x 2–5 mm wide, scabrous to hirsute
- Inflorescence a nodding, broad spike at maturity, 4–15 cm long (excluding awns) x 4–6 cm wide

**Similar Species:** *H. pusillum* is also an annual, but glumes are straight, not divergent at maturity, and awns are 7–18 mm long.

**Habitat and Ecology:** Common in wet areas from plains to subalpine.

**Comments:** Used as a forage by large animals, but after flowering awns can cause sores in mouth and often work into skin of sheep and paws of dogs. It is salt tolerant and prevails in disturbed meadows. Shaw (2008) recognizes *H. jubatum ssp. intermedium*.

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**Wetland Status:** FACW

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** *Critesion jubatum*, *H. jubatum ssp. intermedium*

**USDA PLANTS Symbol:** HOJU

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**Poaceae**
**Hordeum pusillum** Nutt.
Little barley

**Key Characteristics:**

- Solitary to cespitose; culms erect, sometimes with a geniculate base, 1–6 dm tall, glabrous
- Sheaths inflated, glabrous to pilose; ligules erose to short ciliate membrane, 0.2–0.8 mm long; blades flat, glabrous to scabrous, 1–12 cm long x 2–5 mm wide
- Inflorescence an erect spike, 2–9 cm long excluding awns, 3–8 mm wide

- Spikelets 3 per node, central spikelet sessile, fertile, lateral spikelets pedicellate on curved pedicels, 0.3–0.7 mm long
- Glumes dissimilar, outer glumes are awn-like and central glumes broadened above the base and narrowed to slender awns, 7–18 mm long, straight, not divergent; lemmas of central spikelet tapering into a small awn

**Similar Species:** *H. brachyantherum*, a tuft-forming perennial, has glumes that are all similar and awn-like.

**Habitat and Ecology:** Found in disturbed areas, grasslands, and on dry slopes.

**Comments:** Native grass that grows in disturbed areas of irrigated pastures and crop lands. Often found on roadsides and other disturbed rural areas. Not significant forage.
**Leersia oryzoides** (L.) Sw.  
*Poaceae*

**Key Characteristics:**
- Rhizomatous; culms weakly decumbent, 5–15 dm tall, simple to branched above, **nodes pubescent**
- Sheaths open, glabrous to scabrous; ligules firm, minutely erose-ciliolate; **blade surfaces abrasive**
- Inflorescence an open panicle, 10–20 cm long, nodding to erect, cleistogamous (self-fertilizing)
- Spikelets 1-flowered, 1.5–2 mm long, on axillary panicles often enclosed in sheaths
- Glumes lacking; lemmas strongly compressed, keels and marginal nerves stiffly-ciliate, 4–5 mm long

**Similar Species:** None.

**Habitat and Ecology:** Grows in wet areas along irrigation ditches, streams and in standing water. Considered non-native in Colorado by Weber and Wittmann (2012) and Wingate (1994).

**Comments:** *Leersia oryzoides* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants. Caution is advised when handling this grass, the sharp leaves can cut skin and tear clothing.

**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** High  
**Duration:** Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** LEOR
**Leptochloa fusca** (L.) Kunth ssp. *fascicularis* (Lam.) N. Snow

**Bearded sprangletop**

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**Key Characteristics:**
1. **Cespitose**
2. Culms 1–4 (7) dm tall; compressed, erect to prostrate, often branching above bases
3. **Sheaths strongly keeled**; ligules membranous; blades involute, 3–50 cm long x 2–7 mm wide
4. Inflorescence an open panicle, partially enclosed in upper sheath, 3–35 branches, spreading
5. **Spikelets** 5–12 mm long, 5- to 9-flowered; glumes 1-nerved, lower 2–3 mm long; upper 2.5–5 mm long
6. **Lemma bases hairy, lanceolate to elliptic, 3-nerved, central nerves protruding as short awns**

**Similar Species:** *L. dubia* is the other sprangletop that occurs in Colorado. Its lemma apices are obtuse, notched, often awwless and it is found in much drier areas.

**Habitat and Ecology:** Grows at low elevations along muddy and sandy shores of ponds and oxbows.

**Comments:** *Leptochloa fusca* ssp. *fascicularis* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.
**Pascopyrum smithii** (Rydberg) Love

**Western wheatgrass**

**Poaceae**

**Key Characteristics:**
- Strongly rhizomatous; culms erect, 2–10 dm tall, glabrous to glaucous
- Sheaths open; auricles absent, or when present 0.2–1 mm long, purple; ligules membranous to 0.1 mm, truncate; blades rigid, 2–26 cm long x 1–4.5 mm wide, upper surface strongly nerved, glaucous
- Inflorescence is an erect spike, 5–17 cm long, spikelets closely imbricate
- Spikelets solitary or sometimes 2 per node, glaucous, 12–26 mm long, 2–12-flowered
- Glumes asymmetrical, slightly curving to one side toward the tip, tending to taper from below mid-length to a pointed tip; lemmas lanceolate, acute, 6–14 mm long; awn-tipped

**Similar Species:** *E. lanceolatus* glumes are widest at or above the middle, symmetrical.

**Habitat and Ecology:** Common along roadsides, in grasslands and on dry slopes. Often found in drier areas of riparian zones.

**Comments:** Provides valuable forage for large animals. Appears to increase under extreme grazing. Western wheatgrass is Wyoming’s state grass.

**Wetland Status:** FACU

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** *Agropyron smithii*, *Elymus smithii*

**USDA PLANTS Symbol:** PASM

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Max Licher University of Arizona Herbarium
Phalaris arundinacea L.
Reed canarygrass

**Key Characteristics:**
- Creeping rhizomes; culms 5–10 dm tall, stout, erect, glabrous
- Sheaths glabrous; open; ligules 2–8 mm long, obtuse; blades flat, 6–16 mm wide x 10–30 cm long
- Inflorescence a narrow panicle, 7–40 cm long; spikelets 3-flowered (1 fertile, 2 sterile), reduced
- Glumes 4–6 mm long, laterally compressed, 3-nerved, keels scabrous
- Fertile lemma shiny, appressed pubescent; sterile lemmas up to 2 mm long, subulate, pubescent

**Similar Species:** Calamagrostis canadensis can look like a small, immature *P. arundinacea*, but is easily differentiated by the awn from the back of the lemma and the hairy callus. An immature Phragmites australis can look like *P. arundinacea*, but it has a ligule with a ciliate membrane and several florets per spikelet with short glumes.

**Habitat and Ecology:** Common along irrigation ditches and rivers. Considered adventive in Colorado.

**Comments:** *P. arundinacea* is native to temperate regions of Europe, Asia and North America. An Eurasian ecotype has been planted throughout the U.S. since the 1800s. It has become naturalized in much of the northern half of the U.S. and is still being planted. It is thought that most Colorado populations are the Eurasian ecotype. Regardless of its origin, it provides excellent nesting and escape cover and seeds for upland birds and waterfowl.
**Phleum pratense L.**

**Timothy**

**Poaceae**

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**Key Characteristics:**

- Tufted; culms 4–10 dm tall, erect, swollen and bulbous at base
- Sheaths glabrous, not inflated; auricles absent or very small; ligules 2–4 mm long, obtuse; blades 4–8 mm wide x 5–20 cm long, flat, scabrous
- Inflorescence a panicle, dense, cylindrical, spike-like, 5–15 cm long
- Spikelets 1-flowered, flattened, 2.5–3.5 mm long excluding awns
- Glumes equal, 2.5–3.5 mm long, strongly ciliate along the margins, much longer than the lemmas, with horn-like awns; lemmas 1.2–2 mm long, truncate, minutely awned

**Similar Species:** *A. pratensis*, as is with all *Alopecurus* spp, lemmas are awned, not the glumes.

**Habitat and Ecology:** Common in meadows, grasslands disturbed areas and along roadsides. Cultivated as a hay grass. Prevalent in riparian areas.

**Comments:** *Phleum pratense* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.

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**Wetland Status:** FACU

**Native Status:** Non-native

**Conservation Status:** GNR SNA

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** None

**USDA PLANTS Symbol:** PHPR3

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Keir Morse CalPhotos
**Phragmites australis** (Cav.) Trin. ex Steud.
**Common reed**

**Poaceae**

**Key Characteristics:**
- Rhizomatous with stout, creeping rhizomes; **culms erect, 2–6 m tall**, glabrous
- Sheaths open, **margins hyaline; ligules ciliate to 1 mm long**; blades flat, 15–40 cm long x 2–4 cm wide
- Inflorescence a dense panicle, 15–35 cm long, often purplish, straw-colored with age; **rachilla hairy**
- Spikelets 3- to 10-flowered; glumes thin, lanceolate, lower 3–7 mm long, upper 5–10 mm long
- Lemma tips long-acuminate and appearing like awns, margins slightly in rolled

**Similar Species:** *Phalaris arundinacea* has one well-developed floret per spikelet in a narrow panicle.

**Habitat and Ecology:** Grows in moist or wet areas along irrigation ditches and rivers.

**Comments:** Recent data indicate that there are 2 subspecies of *P. australis*: *P. australis* ssp. *americanus* (native) and *P. australis* ssp. *australis* (non-native). The native subspecies has a shiny red stem color, leaves that fall off easily, leaf color is green and lower glumes are 4–7 mm long. The non-native subspecies has a dull tan stem color, leaves that persist, leaf color that is bluish-green and lower glumes that are 2.6–4.2 mm long.
**Poa compressa** L.  
**Canada bluegrass**

**Key Characteristics:**
- Strongly rhizomatous, usually with solitary shoots or sometimes loosely tufted; **culms strongly flattened, 2-edged**, 1.5–5 dm tall, often geniculate at nodes.
- **Sheaths strongly compressed-keeled, glabrous; ligules 0.5–1.5 mm long, ciliolate**, obtuse; blades 1–4 mm wide x 2–10 cm long, tips prow-shaped, bluish green, somewhat scabrous.
- Inflorescence a panicle, 2–10 cm long, usually compact, dense, occasionally spreading.
- Spikelets 3–7 mm long, 3- to 8-flowered, crowded on short branches, laterally compressed.
- Glumes keeled, 3-nerved; calluses with scant or absent cobwebby hairs; lemmas 2–4 mm long, usually purplish near tip, **marginal nerves pubescent, glabrous between nerves**.

**Similar Species:** The strongly compressed stems and nodes distinguish *P. compressa* from other bluegrasses.

**Habitat and Ecology:** Found in grasslands, forests, meadows, and along streams. Has been used in seed mixtures for road and soil stabilization projects.

**Comments:** *WWWpressa* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.
**Poa pratensis**
Kentucky bluegrass

**Poaceae**

**Key Characteristics:**
- **Sod-forming from extensive, creeping rhizomes;** culms 2–10 dm tall, erect, glabrous
- **Sheaths closed from 1/4 to 1/2 their length;** ligules 0.2–3 mm long, truncate, entire; blades 2–3 mm wide x 5–25 cm long, tips strongly prow-shaped
- **Inflorescence a panicle, 2–15 cm long, open, pyramidal, branches spreading in whorls of 2–7**

**Similar Species:** *Poa compressa* culms are strongly flattened, its culms are decumbent from a purplish base, leaf blades do not diverge from culm, and lemma tips are often bronze.

**Habitat and Ecology:** Common in lawns, moist places, grasslands, meadows and forests.

**Comments:** Provides significant forage for large animals. However, it is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.

**Wetland Status:** FACU
**Native Status:** Non-native
**Conservation Status:** G5 SNR
**Duck Food Value:** Low
**Duration:** Perennial
**Synonyms:** Poa agassizesis
**USDA PLANTS Symbol:** POPR

**USDA-NRCS PLANTS Database Britton & Brown 1913**

**Keir Morse CalPhotos**

**Key Characteristics:**
- Spikelets 3–7 mm long, 2- to 5-flowered, strongly laterally compressed, green or purplish
- Glumes distinctly shorter than lemmas, scabrous on keel; **calluses with abundant cobwebby hairs at base and at least half the length of lemma;** lemmas 2.5–6 mm long, villous on keel and nerves; awns none

**USDA PLANTS Symbol:** POPR

**Keir Morse CalPhotos**

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**USDA-NRCS PLANTS Database Britton & Brown 1913**

**Keir Morse CalPhotos**

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**USDA PLANTS Symbol:** POPR

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**Keir Morse CalPhotos**

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**Polypogon monspeliensis** (L.) Desf.
Annual rabbitsfoot grass

**Poaceae**

**Key Characteristics:**
- Tufted; culms erect to ascending, 0.5–6.5 dm tall, rooting at lower nodes
- Sheaths inflated; ligules prominent, 2.5–16 mm long; blades flat, 1–20 cm long x 1–7 mm wide
- Inflorescence a compact to open panicle, appears furry, branches appressed ascending

**Similar Species:** *P. interruptus* is a perennial and the glume awns are shorter, 1.5–3.2 mm long.

**Habitat and Ecology:** Common in wet, often alkaline swales and ditches, and disturbed areas such as irrigated pastures.

**Comments:** Not competitive with other wetland vegetation and is often replaced by tall sedges and other grasses. Often used as an ornamental in floral arrangements.

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**Wetland Status:** FACW
**Native Status:** Non-native
**Conservation Status:** GNR SNA
**Duck Food Value:** Low
**Duration:** Annual
**Synonyms:** None
**USDA PLANTS Symbol:** POM05

- Spikelets 1-flowered; disarticulation at base of stipes; stipes 0.1–0.2 mm long
- **Glumes 1–2.7 mm long, awns 4–10 mm long, apices bi-lobed:** lemmas glabrous, shiny
**Schedonorus pratensis** (Huds.) P. Beauv.

**Meadow fescue**

*Poaceae*

**Key Characteristics:**

- Tufted, short rhizomes; culms ascending to erect, stout, glabrous, 6–12 dm tall
- Sheaths smooth to glabrous; **auricles prominent**, glabrous, appearing sickle-shaped; ligules 0.3–0.5 mm long; blades 5–20 cm long x 2–5 mm wide, generally scabrous
- Inflorescence a narrow panicle, slightly nodding, 1–25 cm long
- Spikelets 10–15 mm long, 4- to 10-flowered, disarticulation above the glumes
- Glumes unequal, lanceolate, margins hyaline; lemmas 5–8 mm long, apices hyaline, acute, **unawned to short awned to 0.2 mm long**

**Similar Species:** *S. arundinaceus* occurs in similar habitats, but has distinctive ciliate auricles and a longer lemma awn, up to 4 mm long. *Festuca* spp. differ primarily by lack of auricles and presence of awned lemmas.

**Habitat and Ecology:** Found in grasslands, meadows, shrublands, and along streams and roadsides.

**Comments:** *Schedonorus pratensis* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.

**Wetland Status:** FACU

**Native Status:** Non-native

**Conservation Status:** G5 SNA

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** *Festuca pratensis*, *Lolium pratense*

**USDA PLANTS Symbol:** SCPR4

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Matt Lavin

Matt Lavin

Matt Lavin
**Spartina pectinata** Bosc ex Link
Prairie cordgrass

**Poaceae**

**Key Characteristics:**
- **Strongly rhizomatous**, rhizomes elongated, 4–10 mm thick; culms erect up to 2.5 m tall
- Sheaths open, glabrous; **ligules ciliate membranes**, 2–4 mm long, truncate; blades 6–15 mm wide

**Similar Species:** *S. gracilis* culms are shorter, the leaf blades are less than 5 mm wide and the glumes are not awned.

**Habitat and Ecology:** Occurs in moist to wet areas in warm water sloughs, irrigation ditches and along lake shores, especially on the Eastern Slope.

**Comments:** *S. pectinatus* is not a preferred forage, but does provide habitat for songbirds and waterfowl. This is an excellent grass for stabilizing streambanks and pond margins.

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**Wetland Status:** FACW
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Low
**Duration:** Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** SPPE
**Juncus arcticus** Willd. ssp. *littoralis* (Engelm.) Hultén

*Arctic rush*

**Juncaceae**

Key Characteristics:

- Rhizomatous, producing dense clumps; stems 2–10 dm tall, **wiry, often with a zigzag pattern**
- Leaves are clustered at stem bases, light to dark brown
- **Inflorescence a compact to loose panicle,** appearing laterally and halfway up stem; bract 4–23 cm long, appears as a continuation of the stem

**Similar Species:** *J. effusus* exhibits the same combination of robust rhizomes and leaves reduced to bladeless sheaths. However, *J. effusus* stems are tufted while *J. arcticus* var. *littoralis* are usually more dispersed. *J. filiformis* also has a lateral inflorescence, but it is located only a few cm from the ground.

**Habitat and Ecology:** Very common. Grows in wet meadows, irrigation ditches, swales, lakes and rivers from plains to moderate elevation.


**Wetland Status:** FACW

**Native Status:** Native

**Conservation Status:** GST5 SNR

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** *Juncus arcticus* ssp. *ater*, *Juncus arcticus* var. *balticus*, *Juncus balticus*

**USDA PLANTS Symbol:** JUARL
**Juncus bufonius L.**
Toad rush

**Key Characteristics:**
- Tufted; stems 2–30 cm tall, slender, **diffuse branching nearly to base**
- Leaves much shorter than the stems; auricles absent; blades flat or involute
- Inflorescence a panicle, flowers 1–20; bract filiform or reduced, **node bractlets bearing an awn**

**Similar Species:** Weber and Wittmann (2012) recognize *J. bufonius var. occidentalis*. Taxonomic treatment in FNA (2000) subsumes this variety within *J. bufonius*.

**Habitat and Ecology:** Commonly found in disturbed wet meadows, roadsides, muddy or drying ponds, lake shores and streams.

**Comments:** The seeds and/or capsules are eaten to a minor extent by vertebrate animals, mostly small rodents, some dabbling ducks, rails and insects.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 S4
**Duck Food Value:** Low
**Duration:** Annual
**Synonyms:** *Juncus bufonius var. occidentalis*
**USDA PLANTS Symbol:** JUBU

- Tepals acute, lanceolate with narrow, membranous margins, 3–8 mm long; stamens usually 6
- Capsules oblong, 3–4.5 mm long; seeds ovoid to ellipsoid, golden brown, 0.3–0.5 mm long
**Juncus dudleyi** Wiegand

*Dudley’s rush*

**Juncaceae**

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**Key Characteristics:**

- Rhizomatous; stems 1–20, 2–10 dm tall, densely branching
- Leaves basal; **auricles yellowish, waxy, 0.2–0.4 mm**, hard, leathery, tips rounded; blades flat, 5–30 cm long
- Inflorescence compact, 20–80 flowers; **bract usually exceeding inflorescence**
- Tepals greenish, lanceolate, 4–5 mm, tips acute, inner series nearly equal, spreading
- Capsules tan, 2.9–3.6 mm long x 1.5–1.9 mm wide; seeds tan to amber, 0.4–0.7 mm, not tailed

**Similar Species:** *J. tenuis* has longer auricles (2–5 mm) with pointed tips. *J. interior* has purplish auricles and sheaths. *J. confusus* has a retuse or notched capsule.

**Habitat and Ecology:** Commonly found along stream banks, wet meadows and marshes.

**Comments:** The seeds and/or capsules are eaten by small rodents, some dabbling ducks, rails and insects.

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**Wetland Status:** FACW  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Low  
**Duration:** Perennial  
**Synonyms:** *Juncus tenuis* var. *dudleyi*  
**USDA PLANTS Symbol:** JUDU2
**Juncus gerardii** Loisel.
Saltmeadow rush

**Key Characteristics:**
- Rhizomatous from long-creeping rhizomes, creating large colonies; stems 2–9 dm tall
- Leaves basal, 2–4; auricles 0.4–0.6 mm, scarious; blades flat or channeled, 10–40 cm long
- Inflorescence 10- to 30-flowered, loose, 2–16 cm; bract rarely surpassing inflorescence
- Tepals dark brown, lanceolate-ovate to oblong, 2.6–3.2 mm long; anthers 1.1–1.8 mm; stamens 6
- Capsules chestnut brown, 2.5–3.2 mm long x 1.3–1.9 mm wide; equal or slightly exceeds tepals

**Similar Species:** *J. compressus* capsules are globose-ovoid versus ellipsoid-ovoid as in *J. gerardii*, but usually are distinctly longer than the tepals. *J. gerardii* and *J. compressus* are very difficult to distinguish. In general, *J. compressus* has a more widely spreading inflorescence and *J. gerardii* inflorescence is more elongated.

**Habitat and Ecology:** Forms extensive colonies in salt marshes, warm water sloughs and floodplains within the South Platte River watershed.

**Comments:** The seeds and/or capsules are eaten to a minor extent by vertebrate animals, mostly small rodents, some dabbling ducks, rails and insects.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:**
**Duration:** Perennial
**Synonyms:** None

**USDA PLANTS Symbol:** JUGE
**Juncus interior** Wiegand

**Inland rush**

**Juncaceae**

**Key Characteristics:**
- Tufted from densely branching rhizomes; culms 1–10, 2–6 dm tall
- Leaves basal, 1–2; **auricles whitish-purplish tinged**; blades flat, 5–15 cm long x 0.5–0.1 mm wide
- Inflorescence usually somewhat compact, 1.5–7 cm; bract usually shorter than inflorescence

**Similar Species:** *J. dichotomus* (= *J. platyphyllus*) is not as common and has smaller capsules, (2.5) 2.8–3.5 (4.5) mm long.

**Habitat and Ecology:** Common. Grows in wet meadows, along streams and pond margins.

**Comments:** The seeds and/or capsules are eaten by vertebrate animals, mostly small rodents, some dabbling ducks, rails and insects.

**Wetland Status:** FACW

**Native Status:** Native

**Conservation Status:** G4G5 SNR

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** None

**USDA PLANTS Symbol:** JUIN2

- Tepals greenish, lanceolate, 3.3–4.4 mm, apices acuminate; stamens 6
- Capsules (3.3) 3.8–4.7 mm long, equal to or longer than tepals; seeds tan, 0.4–0.7 mm, not tailed

**USDA-NRCS PLANTS Database Britton & Brown 1913**

**USDA-NRCS PLANTS Database**

**Patrick Alexander USDA-NRCS PLANTS Database**

**Patrick Alexander USDA-NRCS PLANTS Database**

**James M. Andre CalPhotos**

**USDA PLANTS Symbol:** JUIN2
**Juncus longistylis** Torr.

### Habitat and Ecology
Common in wet meadows, seeps, springs and fens. Known from the high plains (i.e. Palmer Divide) to the montane and subalpine zones.

### Wetland Status
FACW

### Native Status
Native

### Conservation Status
G5 SNR

### Duck Food Value
Low

### Duration
Perennial

### Synonyms
None

### USDA PLANTS Symbol
JULO

### Key Characteristics:
- Rhizomes, long creeping; stems slightly compressed, 2–6 dm tall
- Leaves basal, 2–5, cauline 1–3; auricles 1–2.5 mm; blades flat, 4–15 cm long x 1.5–3 mm wide
- Inflorescence 1–4 (8), each with 3–12 flowers; bract shorter than inflorescence
- Tepals brown, green midstripe, 5–6 mm, margins scarious, sometimes papillose; stamens 6
- Capsules tan, 3–5 mm, shorter than perianth; seeds ovoid, 0.4–0.6 mm, not tailed

### Similar Species:
*J. marginatus* has 3 stamens and shorter tepals (1.8–3.2 mm long). *J. drummondii* can also be confused with *J. longistylis*, look for the bristle-tipped leaf sheath to distinguish *J. drummondii*.

### Comments:
The seeds and/or capsules are eaten to a minor extent by vertebrate animals, mostly small rodents, some dabbling ducks and rails.
Similar Species: *J. nodosus* is a much smaller plant (1–4 dm high), leaf blades are erect and the capsule narrows to a long beak. *J. acuminatus* is cespitose, not rhizomatous, with 3 stamens.

Habitat and Ecology: Common in wet meadows and along streams, ditches and pond margins. *J. torreyi* often produces galls in which the floral parts are enlarged, creating a mass of telescoping sheaths (lower left photo). The gall is the work of the sedge psyllid (*Livia maculipennis*).

Comments: The seeds and/or capsules are eaten to a minor extent by vertebrate animals, mostly small rodents, some dabbling ducks, rails and insects.

Key Characteristics:
- Rhizomatous with swollen nodes; culms erect, terete, (3) 4–10 dm tall
- Leaves basal, 1–3, cauline 2–5; auricles 1–4 mm; blades, terete, 13–30 cm long x 1–5 mm wide
- Inflorescence consists of terminal clusters of 1–23 heads; bract equals or exceeds inflorescence

Similar Species: *J. nodosus*

Habitat and Ecology: Common in wet meadows and along streams, ditches and pond margins. *J. torreyi* often produces galls in which the floral parts are enlarged, creating a mass of telescoping sheaths (lower left photo). The gall is the work of the sedge psyllid (*Livia maculipennis*).

Comments: The seeds and/or capsules are eaten to a minor extent by vertebrate animals, mostly small rodents, some dabbling ducks, rails and insects.
**Carex duriuscula** C. A. Mey.

Needleleaf sedge

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**Key Characteristics:**
- Culms arising singly or few together from slender, well-developed rhizomes; culms slender, smooth, obtusely angled, 0.5–2 dm tall
- Leaves closely clustered at base; blades slender involute, 0.3–1.5 mm wide, tapering to long tips
- Spikes indistinguishable, androgyneous or rarely unisexual, small, sessile, aggregated into an ovoid head, 8–17 mm long
- Perigynia broadly ovate to nearly orbicular, 1.5–2.1 mm wide; beaks abruptly contracted into a beak
- Pistillate scales straw-colored, broadly ovate with a firm, exserted midrib, equalling or surpassing the perigynia and concealing them; stigmas 2

**Similar Species:** *C. douglasii* can be found in similar habitats. The perigynia are longer, 3.5–7 mm long with a prominent beak, 1–2 mm long.

**Habitat and Ecology:** Common in grasslands and forests, and on dry hillsides, to moist meadows.

**Comments:** *Carex duriuscula* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskig, tilling, mowing, or herbicides to reduce woody and perennial plants.

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**Wetland Status:** NI

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** Medium

**Duration:** Perennial

**Synonyms:** *Carex eleocharis*, *Carex stenophylla*

**USDA PLANTS Symbol:** CADU6
**Carex emoryi Dewey**  
**Emory’s sedge**  
*Cyperaceae*

**Key Characteristics:**
- Rhizomatous; culms obtusely angled, scabrous, 3–12 dm tall
- Lower leaf sheaths red-brown; **bract below lowest spikes leaf-like, equal or shorter than inflorescence**
- Terminal spikes staminate, 2–5, erect, lower spikes pistillate, 3–5, bases attenuate
- Perigynia green, nerveless, flattened; beaks short 0.1–0.3 mm, early deciduous
- Pistillate scales equal to perigynia, apices acute, awnless; stigmas 2

**Similar Species:** *C. nebrascensis* retains its perigynia, the leaves are blue-green, glaucous and the scales often exhibit a midrib extending to a serrulate awn.

**Habitat and Ecology:** Grows along ditches, wet meadows, floodplains and along lake shores. *C. emoryi* is an early-flowering species, shedding perigynia by mid-June in Colorado.

**Comments:** *Carex emoryi* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskimg, tilling, mowing, or using herbicides to reduce woody and perennial plants.

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**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Medium  
**Duration:** Perennial  
**Synonyms:** *Carex stricta* var. *elongata*

**USDA PLANTS Symbol:** CAEM2
**Carex hystericina** Muhr. ex Willd.  
**Bottlebrush or porcupine sedge**  

**Key Characteristics:**
- **Cespitose from short, stout rhizomes, can form dense patches;** culms up to 1 m tall
- **Leaf blades flaccid, slightly revolute margins;** sheaths with few cross walls
- **Terminal spike staminate, ascending; pistillate spikes densely flowered, nodding, porcupine-like**
- **Perigynia inflated, papery,** light green, 5–7 mm long; nerves 12–20; **beaks 2–2.5 mm, deeply bidentate**
- **Pistillate scales with long awns, 2–6 mm long, narrower than perigynia; stigmas 3**

**Similar Species:** *C. utriculata* is strongly rhizomatous, perigynia are slightly inflated and abruptly contracted at the apices.

**Habitat and Ecology:** Occasional to common near streams, meadows, ditches and marshes from short grass prairie to montane zones. Can become weedy in wetlands with calcareous substrates. Known to hybridize with *C. utriculata* and *C. vesicaria*.

**Comments:** *Carex hystericina* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.
Carex nebrascensis Dewey
Nebraska sedge

Key Characteristics:
- Culms 2–9 dm tall, arising singly from stout, scaly rhizomes, forming dense stands; culm bases reddish; rosette of leaves are present
- Leaf blades blue-green to glaucous, 3–12 mm wide; bracts leaf-like, exceeds inflorescence
- Terminal spikes, 1–2, staminate, 1.5–4 cm long; lateral spikes pistillate, pedunculate, 1.5–7 cm long
- Perigynia strongly veined, straw-colored, becoming red-dotted at maturity, 2.7–4.1 mm long; beak is bidentate, cylindrical, 0.3–0.5 mm
- Pistillate scales lanceolate, acute to awned, usually serrulate, reddish-brown; stigmas 2

Similar Species: C. emoryi leaves are green, not glaucous, scales are awnless, and perigynia, if present, are nerveless.

Habitat and Ecology: Common in wet meadows, streamsides, springs, lakesides and alkaline meadows

Comments: Carex nebrascensis is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskng, tilling, mowing, or using herbicides to reduce woody and perennial plants.
**Carex pellita** Muhl. ex Willd.
Woolly sedge

**Key Characteristics:**
- Stems arising singly from well-developed, creeping rhizomes, colonial; culm bases dark red, 3–12 dm tall
- Leaves 2–5, borne above bases; blades flat, margins revolute; sheaths wine-red tinged
- Terminal spike staminate, 2–5 cm long, sessile; lateral spikes pistillate, 1–6 cm long, cylindrical
- Perigynia hairy, broadly ovoid, spongy bases, 1.5–2 mm wide; **beaks deeply bidentate or forked**
- Pistillate scales lanceolate with long acuminate tips and hairy awns, ciliate; stigmas 2

**Similar Species:** None in the eastern plains. *C. lasiocarpa* occurs at higher elevations and is much less common. It has narrower leaf blades that have a V shape in cross section.

**Habitat and Ecology:** Common and widespread along streambanks, fens and wet meadows, often alkaline.

**Comments:** *Carex pellita* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskig, tilling, mowing, or using herbicides to reduce woody and perennial plants.

**Weetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Medium
**Duration:** Perennial
**Synonyms:** *Carex lanuginosa*
**USDA PLANTS Symbol:** CAPE42
Carex praegracilis W. Boott
Clustered field sedge

Key Characteristics:
- Culms arising singly or few together from creeping rhizomes; **bases dark, purple-black**
- Leaves basal; blades flattened, 1–3 mm wide; sheaths with white-hyaline inner band
- Spikes androgynous, 5–15, sometimes usually appearing unisexual, sessile, straw-colored, 1–5 cm long

Similar Species: *C. simulata* which typically occurs at higher elevations looks similar. The perigynia are broadly ovate, shiny brown (when mature) and are abruptly short beaked versus the long, tapering beaks as in *C. praegracilis*.

Habitat and Ecology: Common in open, moist, wet, to drying swales, prairies, irrigation ditches and hay meadows, often in alkaline soils. *C. praegracilis* is sometimes dioecious, it is possible to find clumps that lack any perigynia.

Comments: *Carex praegracilis* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds.
**Carex utriculata** Boott
Northwest Territory sedge or Beaked Sedge

**Cyperaceae**

**Key Characteristics:**
- Culms 3–12 dm tall, arising singly from deep-seated rhizomes forming monospecific stands
- **Leaf blades, septate-nodulose; sheaths spongy, crosswalls between veins;** bracts sheathless
- Terminal spike staminate, linear, pistillate, erect with corn-cob appearance
- **Perigynia strongly inflated, abruptly contracted at apices, nerves prominent; beaks bidentate**
- Pistillate scales ovate, tips acute, smaller than perigynia; stigmas 3

**Similar Species:** *C. exsiccata* perigynia taper from the base into indistinct beaks.

**Habitat and Ecology:** One of the most common and robust species in the west and Colorado. Occurs in wet meadows, swamps, marshes and shallow water at margins of ponds, lakes, and streams, from prairies to subalpine.

**Comments:** *Carex utriculata* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskng, tilling, mowing, or using herbicides to reduce woody and perennial plants.

**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Medium  
**Duration:** Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** CAUT
**Cyperus acuminatus** Torr. & Hook. ex Torr.
Tapertip flatsedge

*Cyperaceae*

**Key Characteristics:**
- Tufted; culms slender, 0.5–4 dm tall, roundly 3-angled, thickened at bases
- Leaves few, all from near bases, slender, 1–2 mm wide
- Involucral bracts unequal, most surpassing the inflorescence

**Similar Species:** *C. squarrosus* (= *C. aristatus*) scales are (5) 7- to 9-nerved with a slender, recurved, short but distinct awn tips, and it is more common in Colorado than *C. acuminatus*.

**Habitat and Ecology:** Locally common occurring along streambanks and other wet places in valleys and lowlands, tolerant of alkali soils.

**Comments:** *Cyperus acuminatus* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Medium
**Duration:** Annual, Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** CYAC2

- Spikelets 3–7 mm long, borne in dense, globose clusters, strongly flattened; stigmas 3
- Floral scales 1.5–2 (2.5) mm long, strongly 3-nerved, acuminate-recurred at tips

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*Hurd et al. in prep. U.S. Forest Service*
**Cyperus esculentus** L.
Yellow nutsedge or Chufa

**Key Characteristics:**
- Culms stout, 1–7 dm tall, sharply 3-edged; rhizomes slender, terminating in small tubers
- Leaves clustered at bases; blades 3–8 mm wide
- Involucral bracts elongate, unequal, slightly wider than leaves

**Similar Species:** *C. erythrorhizos* has scales that are 1.2–1.6 mm long and achenes that are 0.6–1.2 mm long. *C. esculentus* is distinct with the presence of tubers.

**Habitat and Ecology:** Uncommon along drying pond margins, often in sandy soils. Adventive in Colorado.

**Comments:** *Cyperus esculentus* has a high duck food value. However, it is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manager to verify identification and to discuss management.
**Cyperus odoratus L.**
Fragrant flatsedge

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**Similar Species:** *C. odoratus* is easily identified by the cylindric spikelets in which the corky rachilla of the mature spikelet disarticulates at the base of each scale. The mature spikelet breaks into segments each consisting of a scale and an internode of the rachilla clasping the achene with the corky wings.

**Habitat and Ecology:** Locally common on wet sand and mud along riverbanks, ponds, sloughs and marshes. Weber and Wittmann (2012) consider *C. odoratus* adventive.

**Comments:** *Cyperus odoratus* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskng, tilling, mowing, or using herbicides to reduce woody and perennial plants.

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**Key Characteristics:**
- Tufted with fibrous roots; culms up to 1 m tall, 3-angled, bases not swollen or corm-like
- **Leaves shorter than culm**, up to 10 mm wide
- Spikes with several, spreading spikelets up to 25 mm long

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**Wetland Status:** FACW
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Medium
**Duration:** Annual, Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** CYOD

**Notes:**
- **Spikelets breaking easily into sections comprised of a scale, internode, wings and the achene**
- **Floral scales ovate, 1–2.8 mm long, imbricate; stigmas 3**
**Cyperus squarrosus L.**  
Bearded flatsedge  

Key Characteristics:
- **Tufted;** culms slender, 0.3–1.5 dm tall, 3-angled
- **Leaves few,** all borne near bases, 0.5–2 (2.5) mm wide, as long or longer than inflorescence
- **Spikelets borne in dense clusters,** 4–10 mm long, flattened
- **Floral scales evident,** 7- to 9-nerved, 1–1.7 mm long, slender, outward-curved awn-tips
- **Achenes** 3-ranked, 0.6–1.0 mm long; stigmas 3

Similar Species: *C. squarrosus* is distinct with the slender, recurved tips on the floral scales that terminate in slender, short, sharp awns.

Habitat and Ecology: Common on drying pond borders and wet places in valleys.

Comments: *Cyperus squarrosus* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskimg, tilling, mowing, or using herbicides to reduce woody and perennial plants.

Wetland Status: OBL  
Native Status: Native  
Conservation Status: G5 SNR  
Duck Food Value: Medium  
Duration: Annual  
Synonyms: *Cyperus aristatus, Cyperus inflexus*  
USDA PLANTS Symbol: CYSQ
**Eleocharis acicularis** (L.) Roem. & Schult.  
**Needle spikerush**  
**Cyperaceae**

**Key Characteristics:**
- **Diminutive**, from slender, branching rhizomes, often forming dense clumps
- Culms filiform, not compressed, 3–12 cm tall
- Floral scales 1.5–2.5 mm long, with greenish midribs; styles 2

**Similar Species:** *Trichophorum pumilum* has a terminal, solitary spikelet that resembles *E. acicularis*. *T. pumilum* has true leaves, not just sheaths and the achenes are black. *E. wolfii* looks similar, but is rare, known only from northeastern Colorado. It is distinguished by the compressed culms with minutely serrulate margins.

**Habitat and Ecology:** Very common along marshes, muddy shores and fens, from plains to high elevations in mountains.

**Comments:** *Eleocharis acicularis* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Medium
**Duration:** Annual, Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** ELAC

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**Steve Matson CalPhotos**

**Hurd et al. in prep. U.S. Forest Service**
Eleocharis palustris (L.) Roem. & Schult.
Common spikerush

Key Characteristics:
- Rhizomatous, **mat-forming**; culms in small clusters along rhizomes, 1-10 dm tall
- Culms terete to slightly compressed, 8-30 blunt ridges, firm to soft, internally spongy
- Leaf sheaths persistent, not inflated, papery, prominent V-shaped sinuses
- Bristles 4 (5), retroely barbed, much shorter than achene to equaling tubercle; **styles 2**
- Achenes biconvex to lenticular, yellow to brown, tubercles pyramidal, twice as high as wide

Similar Species: *E. palustris* is distinguished from other spikerushes by its rhizomatous habit creating monospecific stands. It also has 2 stigmas, 2 styles and lenticular achenes with distinct tubercles.

Habitat and Ecology: Common along ditches, streams, pond margins and in moist meadows.

Comments: *Eleocharis palustris* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include diskng, tilling, mowing, or using herbicides to reduce woody and perennial plants.
Schoenoplectus maritimus (L.) Lye
Cosmopolitan bulrush

**Key Characteristics:**
- Stout, rhizomatous, bearing firm tubers; culms 2–15 dm tall
- Involucral bracts 1–4, surpassing inflorescence, bracts 1–6 mm wide
- Spikelets over 1 cm long, mainly sessile or on short peduncles

**Similar Species:** *S. fluviatilis* spikelets are pedunculate and perianth bristles are equal to or longer than achenes.

**Habitat and Ecology:** Common in marshes, wet meadows and margins of ponds, especially in alkaline or saline wetlands. *S. maritimus* is very tolerant of alkali conditions and is common with other halophytes in roadside ditches where road salts accumulate.

**Comments:** *Schoenoplectus maritimus* can be considered an aggressive plant, becoming dominant in shallow water wetlands. Eradication techniques can include mowing, fire, or using wetland-approved herbicides.

**USDA PLANTS Symbol:** SCMA8

**Synonyms:** Bolboschoenus maritimus ssp. paludosus, Scirpus maritimus, Scirpus paludosus

**Cyperaceae**

**Wetland Status:** OBL

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** Medium

**Duration:** Perennial
Similar Species: *Scirpus nevadensis*, superficially resembles *S. pungens*, but has round stems, scales without awns and beakless achenes.

Habitat and Ecology: Very common along marshes, lakes, fens and perennial and intermittent streams, tolerant of alkali conditions.

Comments: *Schoenoplectus pungens* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.
Schoenoplectus tabernaemontani (C.C. Gmel.) Palla
Softstem bulrush

**Key Characteristics:**
- Rhizomatous; culms 1–3 dm tall, **round**, 2–10 mm thick, **easily crushed between fingers**
- Inflorescence of oval, pedunculate, subterminal spikes
- Spikelets solitary, 15–200, overall reddish-brown appearance

**Similar Species:** *S. acutus* has spikelet scales that are 3.5–4 mm long with mostly strongly contorted awns 0.5–2 mm long. Spikelets are never solitary and the stems are not easily crushed between fingers.

**Habitat and Ecology:** Common along marshes and muddy shores of lakes and streams in water as deep as 1 m and tolerant of alkali waters.

**Comments:** *Schoenoplectus tabernaemontani* can be considered an aggressive plant, becoming dominant in shallow water wetlands. Eradication techniques can include mowing, fire, or using wetland-approved herbicides.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Medium
**Duration:** Perennial
**Synonyms:** *Scirpus lacustris* ssp. *creber*, *Scirpus lacustris* ssp. *validus*, *Scirpus tabernaemontani*
**USDA PLANTS Symbol:** SCTA2

**Key Characteristics:**
- Scales 2–3.5 mm long, **ciliate**, awns straight or bent, 0.2–0.8 mm long, midribs pale
- Perianth bristles 6, brown, equaling achenes, dense with downward spines
**Scirpus microcarpus** J. Presl & C. Presl

**Panicled bulrush**

**Cyperaceae**

**Key Characteristics:**
- Rhizomatous, **rhizomes reddish, long with conspicuous nodes**; culms 6–15 dm tall; **leaf sheaths red**
- Inflorescence terminal, spikelets sessile, aggregated into dense heads

**Similar Species:** *S. pallidus* has green, not reddish leaf sheaths and the scales have conspicuous midribs that are exserted as short awns to 0.5 mm long.

**Habitat and Ecology:** Found along muddy shores of marshes, moist meadows and ditches.

**Comments:** *Scirpus microcarpus* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disk ing, tilling, mowing, or using herbicides to reduce woody and perennial plants.

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**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Medium
**Duration:** Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** SCMI2
Iris missouriensis Nutt.
Rocky Mountain iris

Key Characteristics:
- Stems 2–6 dm tall; spreading by thick rhizomes
- Leaves equitant, linear, 2.5–8 mm; flowering stems terminating in a (1) 2—3 (4) flowered spathes
- Outer tepals 4.5–6 cm long, obovate, recurved, lavender background with yellow center
- Inner tepals (valves) as long as outer, notched, erect, pale blue to white
- Capsules 3–5 cm long, short-cylindrical, 6-ridged

Similar Species: I. pseudacorus, which has bright, yellow flowers, has recently been documented along streams in the Front Range, especially Boulder Creek. It is an aggressive weed that should be eliminated immediately upon discovery; consult with the County Extension Agency or State Weed Coordinator for removal options.

Habitat and Ecology: Common in moist meadows, along streams and in aspen forests, often in soils that dry out by end of summer.

Comments: Iris roots can cause gastrointestinal poisoning (colic, diarrhea) in humans and other animals.
Triglochin maritima L.
Seaside arrowgrass

Key Characteristics:
- Coarse to slender, erect, 3−10 dm tall; arising from stout rhizomes; old leaf strands at bases
- Leaves linear, 10−80 cm long x 1.5−2.5 mm wide, strongly compressed; ligule 2-lobed, hood-like
- Scapes slender, 1−8 dm long, terminated by a raceme 1−4 dm long, dense with pedicellate flowers

Similar Species: T. palustris has 3 stigmas, fruits that are linear with narrow bases and fruiting receptacles with wings.

Habitat and Ecology: Locally common in marsh areas, seeps, lake shores and moist meadows. Grows mostly in alkaline soils.

Comments: Triglochin spp. contain cyanogenic glycoside (cyanide), a very poisonous compound, especially in high concentration in young plants. Common throughout Alaska, Canada and the United States, except in the southeastern states.
**Typha angustifolia L.**

Narrowleaf cattail

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**Key Characteristics:**
- Stems 1–1.5 m tall, arising from slender, creeping rhizomes
- Leaves exceeding the inflorescence, 5–10 mm wide, leaf sheaths closed with auricles
- Spike-bearing stems shorter than leaves

**Similar Species:** *T. latifolia* spikes are not separated by an axis segment. *T. domingenis* staminate and pistillate spikes are separated, but the staminate spikes are longer than the pistillate.

**Habitat and Ecology:** Found in shallow, slow-moving waters of ponds and streams. Discussion of the native status of *T. angustifolia* is on-going. According to USDA-NRCS PLANTS Database it can be native with non-native populations that have been established by human activities.

**Comments:** *Typha angustifolia* can be considered an aggressive plant, becoming dominant in shallow water wetlands. Eradication techniques can include mowing, fire, or wetland-approved herbicides. All parts of the cattail are edible when gathered at the appropriate stage of growth. Seeds are eaten by several duck species. Rootstalks are eaten by Canada Geese, muskrats and beavers. Deer eat fresh spring shoots.

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**Wetland Status:** OBL

**Native Status:** Native, Non-native, CO Noxious

**Weed Watch List**

**Conservation Status:** G5 SNR

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** None

**USDA PLANTS Symbol:** TYAN
**Typha latifolia** L.  
*Broadleaf cattail*

### Key Characteristics:
- Stems 1–3 m tall; arising from stout spreading fleshy rhizome
- Leaves light green, 8–20 mm wide, nearly flat, leaf sheaths open to bases, no auricles
- Spike-bearing stems as long or slightly longer than leaves

### Similar Species:
*T. angustifolia* and *T. domingensis* have staminate and pistillate spikes that are separated, exposing a portion of the axis.

### Habitat and Ecology:
Common, found in shallow water of ponds, ditches, slow-moving streams and creeks throughout the state.

### Comments:
All parts of the cattail are edible when gathered at the appropriate stage of growth. Seeds are eaten by several duck species. Rootstalks are eaten by Canada Geese, muskrats and beavers. Moose and elk eat fresh spring shoots. Cattails provide shelter and nesting cover for Marsh Wrens, Red-winged and Yellow-headed Blackbirds.

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**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:**  
**Duration:** Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** TYLA
**Cicuta maculata** L. var. **angustifolia** Hook.

**Water hemlock**

**Apiaceae**

**Key Characteristics:**
- Stems 5–25 dm tall, glabrous; roots tuberous, horizontally divided with cross partitions
- Leaves once pinnate or ternate-pinnate, **leaf veins terminate between serrations**
- Inflorescence a flat, compound umbel; involucel of several narrow bractlets
- Flowers white or greenish or pink-tinged in bud; stylopodia depressed or low-conic
- Fruits glabrous, 2–4.5 mm long, prominent corky ribs, not winged

**Similar Species:** *Conium maculatum* has distinctive stems with purple spots.

**Habitat and Ecology:** Locally common in wet places such as marshes, fens, along streams and irrigation ditches.

**Comments:** Water hemlock is considered one of the most toxic plants in the world. All parts of the plant, especially the roots, contain a cicutoxin alkaloid that affects the central nervous system and causes death.

**Wetland Status:** OBL

**Native Status:** Native

**Conservation Status:** G5T5 SNR

**Duck Food Value:** Unassigned

**Duration:** Perennial

**Synonyms:** *Cicuta douglasii*

**USDA PLANTS Symbol:** CIMAA
**Conium maculatum L.**  
Poison hemlock  

**Key Characteristics:**
- Stems 0.5–3 m tall, **purple-spotted**, hollow, glabrous; taproots stout
- Leaves large, pinnately or ternate-pinnately dissected with small ultimate segments, **fern-like**
- Numerous terminal and axillary compound umbels; involucre and involucel small, numerous bractlets
- Flowers white, styles reflexed; stylopodia depressed-conic; carpophores entire
- Fruits glabrous, prominent winged ribs raised, often wavy; oil tubes numerous and small

**Similar Species:** *Cicuta maculata var. angustifolia* leaves are 1-to-3 ternate-pinnately compound and the fruits are ribbed.

**Habitat and Ecology:** Common, a tall weed of roadside ditches and moist disturbed sites.

**Comments:** *C. maculatum* leaves, stems and seeds contain several potent neurotoxins that affect both the central and peripheral nervous systems. This is the plant that Socrates was given after being condemned to death for impiety.

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**Wetland Status:** FACW  
**Native Status:** Non-native, CO Noxious Weed
**List C**  
**Conservation Status:** G5 SNA  
**Duck Food Value:** Unassigned  
**Duration:** Biennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** COMA2
**Apocynum cannabinum L.**  
**Indianhemp**

**Apocynaceae**

**Key Characteristics:**
- Stems, red to purple, 3–12 dm tall, erect, mostly opposite-branched; glabrous; **milky sap present**
- **Leaves opposite**, 5.5–10 (13) cm long, 2–4 (5) cm wide, petiolate, ascending, ovate to lanceolate, acute, bases rounded or wedge-shaped
- Inflorescence a panicle, cyme or solitary
- Flowers perfect, round, sepals and petals 5, **erect**, connate often with a corona, greenish-white to cream
- Fruit a pair of follicles, 12–16 (20) cm long, pendulous at maturity; seeds 4 mm long, seeds with tuft of hair up to 2.5 cm long

**Similar Species:** Other *Apocynum* spp. have leaves and corollas that are spreading, not erect.

**Habitat and Ecology:** Found on disturbed sand or gravel bars of rivers, washes, and ditch banks.

**Comments:** It is larval host for the Monarch butterfly. Can be toxic if consumed in large enough quantities. Oleander (*Nerium oleander*), an extremely poisonous plant that grows in southern U.S., is also in this family.

**Wetland Status:** FAC

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** Low

**Duration:** Perennial

**Synonyms:** None

**USDA PLANTS Symbol:** APCA

Patrick Alexander USDA-NRCS PLANTS Database

Duck Food Value: Low

Duration: Perennial
**Key Characteristics:**

- **Stems**: 4–15 dm tall, solitary, milky juice, pubescent in lines pointing downward on nodes and petioles.
- **Leaves**: opposite, lanceolate, 6–15 cm wide, acute-tipped, entire, rounded at bases.
- **Inflorescences**: few to many at end of stems and branches.

**Similar Species**: None

**Habitat and Ecology**: Locally common along ditches, streams, in marshes and other wet areas of the plains and foothills. Milkweeds are poisonous to animals. They contain toxic cardenolides, which are steroids, that can cause heart failure. The monarch butterfly (*Danaus plexippus*) and its caterpillars have the ability to store the poisonous compounds in their tissues to deter predators.

**Comments**: Asclepias incarnata L. is a milkweed species found in wetlands and other wet areas of the plains and foothills. It is commonly found along ditches, streams, in marshes, and other wet areas.

**Wetland Status**: FACW

**Native Status**: Native

**Conservation Status**: G5 SNR

**Duck Food Value**: Unassigned

**Duration**: Perennial

**Synonyms**: None

**USDA PLANTS Symbol**: ASIN

Flowers 9–11 mm tall, calyx lobes white or green; **corolla lobes reflexed, bright pink**.

Follicles spindle shaped, 5–8 cm long; seeds 6.5–9 mm long; seeds with white hairs.
**Ambrosia psilostachya DC.**
Cuman ragweed

**Asteraceae**

**Key Characteristics:**
- Colonial from deep-seated creeping roots; stems 2–20 dm tall, rough-hairy throughout, often with long, spreading hairs
- Leaves all cauline, alternate, green on both sides, mostly bi- or tri-pinnatifid with narrow, often small segments, up to 15 cm long
- Staminate heads nodding or spreading, involucre 2 mm high, lobed less than halfway to base, often with resinous dots, not ribbed
- Pistillate involucres 1 (2)-flowered, 4–6 mm long, usually with 1 series of short tubercles, spines absent

**Similar Species:** *A. confertiflora* pistillate involucres have 1 to several series of hooked spines, 1 (2) mm long.

**Habitat and Ecology:** Common in disturbed sites and open fields, often in moist soils in depressions.

**Comments:** Nitrates can accumulate, especially in young plants.

**Wetland Status:** FACU
**Native Status:** Native
**Conservation Status:** G5 SNA
**Duck Food Value:** Low
**Duration:** Annual, Perennial
**Synonyms:** *Ambrosia coronopifolia*
**USDA PLANTS Symbol:** AMPS
**Bidens cernua L.**
Nodding beggartick

**Key Characteristics:**
- Stems 1–12 dm tall, branching, nodding, glabrous with spreading hairs, often bushy
- Leaves simple, 3–18 cm long x 0.5–4.5 cm wide, acuminate, toothed, sessile, clasping at the bases
- Involucral bracts 5–10, lance-linear, surpassing the disk; peduncles recurved below head

**Similar Species:** *B. tripartita (=B. comosa)* also has simple leaves, but they are petiolate, heads are erect, not nodding, and corollas of disk flowers are usually 4-lobed.

**Habitat and Ecology:** Common along streams, ditches, or disturbed areas.

**Comments:** *Bidens cernua* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** High
**Duration:** Annual
**Synonyms:** None
**USDA PLANTS Symbol:** BICE

Asteraceae
**Bidens frondosa** L.  
**Devil’s beggartick**

![Image of Bidens frondosa](Image)

**Key Characteristics:**
- Stems erect, 1.5–8 dm tall, usually branched, often purplish, glabrous, hairy at upper nodes
- Leaves ternate, some pinnately divided into 5 leaflets, the leaflets ovate to lanceolate, serrate
- Involucral bracts 5–10, green, usually surpassing disk, ciliate on margins
- Disk flowers 4- or 5-lobed, orange-yellow; flowering heads small, 10 mm wide
- Achenes flat, 1-nerved, 2 retrorsely barbed awns, dark brown to black, 4–9 mm long

**Similar Species:** *B. vulgata* is not as common, but occurs in similar habitats. The flowering heads are larger, 15–25 mm across, and disk flowers are yellow.

**Habitat and Ecology:** Common in disturbed wet areas along ditches, stock ponds and levees.

**Comments:** *Bidens frondosa* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.

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**Wetland Status:** FACW  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** High  
**Duration:** Annual  
**Synonyms:** None  
**USDA PLANTS Symbol:** BIFR  

Karin Freeman Colorado Natural Heritage Program
**Carduus nutans** L.  
**Musk thistle**

**Asteraceae**

**Key Characteristics:**
- Coarse, single-stemmed, up to 2 m tall, open branched, stem spiny-winged by decurrent leaf bases
- Leaves glabrous or long-villous chiefly along main veins, deeply lobed, margins and midribs white

**Similar Species:** *C. acanthoides* is found in similar habitats, and is becoming more common. It has smaller heads, 1–2 cm in diameter and the outer involucre bracts are narrowly lanceolate, 1–2 mm wide at base without the median constriction.

**Habitat and Ecology:** Common in disturbed places, open fields and meadows and along roadsides.

**Comments:** *C. nutans* is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manger to verify identification. Once confirmed, eradication methods will be discussed. The first specimens of musk thistle were collected in 1953, then only known from Jefferson and Boulder counties. Now it is widespread, reported in over half of the counties. The musk thistle weevil was introduced to limit the spread of musk thistle, but it also feeds on the seeds of native thistles.

**Wetland Status:** FACU  
**Native Status:** Non-native, CO Noxious Weed List B  
**Conservation Status:** GNR SNR  
**Duck Food Value:** Unassigned  
**Duration:** Biennial, Perennial  
**Synonyms:** *Carduus nutans*  
**USDA PLANTS Symbol:** CANU4
Cirsium arvense (L.) Scop.
Canada thistle

Key Characteristics:
- Stems 3–15 (20) dm tall, branching above, from deep-seated creeping roots, plants dioecious
- Leaves alternate, lace petioles, oblong or lance-shaped, white-tomentose beneath, divided into spiny-tipped irregular lobes
- Heads unisexual, small; involucre bracts 10–20 mm high x 5–10 mm wide, spineless, imbricate in several series
- Flowers pink-purple, occasionally white, pappus of pistillate heads surpassing the corollas, pappii of staminate heads are shorter than the corollas
- Achenes flattened, brown with tuft of hair on top

Similar Species: Canada thistle is easily identified due to the small heads and branching stems.

Habitat and Ecology: Common and widespread in disturbed places, along roadsides, and in fields and meadows.

Comments: C. nutans is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manager to verify identification. Once confirmed, eradication methods will be discussed. Canada thistle differs from other thistles since the male and female flower heads are on separate plants. A colony of male plants can still maintain and increase due to asexual reproduction.
**Key Characteristics:**

- Stems up to 2 m or more tall, with rough-hairy herbage, often branched and several headed; taprooted
- Leaves alternate, petiolate, toothed, ovate or broader in well developed plants, lower leaves often cordate
- Flowering heads large, reddish-brown, involucre bracts ovate and narrowed above middle into an acuminate tip, hispid-ciliate on margins
- Ray flowers yellow, disk flowers yellowish to reddish brown
- Achenes usually glabrous, wedge-shaped

**Similar Species:** *H. petiolaris* involucre bracts are lanceolate to ovate, appressed hairy, usually glabrous on the margins and tips taper, not abruptly attenuate.

**Habitat and Ecology:** Very common in open, dry to moderately moist soil, especially common in disturbed or waste places.

**Comments:** *Helianthus annuus* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disk ing, tilling, mowing, or using herbicides to reduce woody and perennial plants.
**Iva axillaris** Pursh
Povertyweed

**Key Characteristics:**
- Perennial from deep-seated, creeping roots, 1.5–6 dm tall, sparsely hairy
- Leaves opposite below, alternate above, sessile oblong or broadly linear, mostly 1–5 cm long, entire
- Flowering heads nodding, solitary on short peduncles in the axils of the reduced upper leaves.
- Small, tubular yellow flowers borne in leaf axils are produced in late summer; involucre bracts fused to form a cup; receptacle chaffy
- Achenes black, gland-dotted, 2.5–3 mm long; pappi none

**Similar Species:** *Artemisia* spp. look similar, but the involucre bracts are distinct and overlapping in 2 series.

**Habitat and Ecology:** Common in dry, open, sometimes alkaline places on the plains and valleys; tolerant of saline and alkaline soils. Native of western U.S., found throughout the contiguous U.S.

**Wetland Status GP:** FAC
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Unassigned
**Duration:** Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** IVAX
**Lactuca serriola L.**  
**Prickly lettuce**

**Key Characteristics:**
- Stems glabrous, 3–15 dm tall, with sharp bristles on lower 1/3 of stem, white latex present
- Leaves prickly on the midrib beneath, twisted at base to stand erect, sagittate-clasping, 5–30 cm long x 1–10 cm wide, with pale midrib
- Heads numerous, 13–27 flowered
- Flowers yellow with a dark blue stripe on abaxial side; pappus white
- Achenes with 5–7 conspicuous nerves on each face

**Similar Species:** *L. ludoviciana* achenes have only 1 conspicuous nerve on face and the stem is glabrous. Not as common.

**Habitat and Ecology:** Common in waste places, disturbed sites, open grasslands, and forest clearings.

**Comments:** Native of Europe, naturalized throughout the United States. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.

**Wetland Status:** FAC
**Native Status:** Non-native
**Conservation Status:** GNR SNR
**Duck Food Value:** Low
**Duration:** Annual, Biennial
**Synonyms:** None
**USDA PLANTS Symbol:** LASE
**Solidago gigantea Aiton**  
Giant goldenrod

**Asteraceae**

**Key Characteristics:**
- Stems (5) 10–15 dm tall, sometimes glaucous; rhizomes short to long creeping
- Leaves narrowly elliptical, margins sharply serrate for at least half the leaf length
- Inflorescence a pyramidal panicle with recurved, secund branches
- Ray flowers 9–15, conspicuous, yellow
- Achenes short-pubescent, 1.3–1.5 mm long

**Similar Species:** *S. missouriensis* leaf margins are entire or remotely toothed and the plant is shorter, 1.5–9 dm tall. *S. canadensis* has hairy leaves and stems.

**Habitat and Ecology:** Common in moist places, especially on the eastern plains.

**Comments:** Goldenrods are attractive sources of nectar for bees, flies, wasps and butterflies.

- Wetland Status: FAC
- Native Status: Native
- Conservation Status: G5 SNR
- Duck Food Value: Low
- Duration: Perennial
- Synonyms: *Solidago serotina*
- USDA PLANTS Symbol: SOGI

**USDA-NRCS PLANTS Database**

**Thomas G. Barnes**
Symphyotrichum lanceolatum (Willd.) Nesom ssp. hesperium (Gray) Nesom
White panicle aster

Similar Species: S. spathulatum has hairs on the stem that are uniform, hairs found consistently under the flowering heads, and the flowering heads are fewer (3–10) per branch. S. foliaceum (= Aster foliaceus) has middle cauline leaves that are wider than 1 cm wide and the involucre bracts are wider and leafy.

Habitat and Ecology: Common along streams and ditches and in moist meadows. Probably the most frequently encountered aster in Colorado’s wetlands.

Comments: Widespread throughout the west and midwest into Canada.

Key Characteristics:
- Stems stout, 3–15 dm tall, pubescence in lines extending downward from leaf bases
- Leaves all cauline, linear-lanceolate, margins shallowly serrate, 5–15 cm long x 5–25 mm wide
- Heads in branched panicle panicle usually subtended by large, foliaceous bracts
- Involucral bracts green-tipped, somewhat imbricate; ray flowers pale to dark purple, 4.2–10.1 mm long
- Achenes 0.7–2.7 mm long

Wetland Status: FACW
Native Status: Native
Conservation Status: G5T5? SNR
Duck Food Value: Unassigned
Duration: Perennial
Synonyms: Aster lanceolatus ssp. hesperius, Aster hesperius
USDA PLANTS Symbol: SYLAH
**Tragopogon dubius Scop.**
**Western salsify**

### Key Characteristics:
- Stems branched, 3–10 dm tall, **white latex present**; taproot
- Leaves up to 30 cm long x 2 cm wide, often narrower, slightly hairy with long hairs, especially in leaf axils, leaf tips straight
- Solitary flowering heads at end of long, hollow peduncles; **peduncles swollen at base**; involucre bracts distinctly surpass ray flowers
- Disk flowers absent; ray flowers yellow; pappi a single series of plumose bristles
- Achenes 5– or 10-nerved, slender beaked

**Similar Species:** *T. pratensis* peduncles are not enlarged and the involucre bracts are roughly the same length as the ray flowers.

**Habitat and Ecology:** Common in disturbed places and open meadows.

**Comments:** Native to Eurasia, it has become naturalized throughout temperate North America. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.

**Wetland Status:** NI
**Native Status:** Non-native
**Conservation Status:** GNR SNR
**Duck Food Value:** Low
**Duration:** Annual, Biennial
**Synonyms:** None
**USDA PLANTS Symbol:** TRDU

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*Tragopogon dubius Scop.*
Western salsify

Max Licher, University of Arizona Herbarium
Cardaria draba (L.) Desvaux
Whitetop

Brassicaceae

Key Characteristics:
- Stems 2–4.5 (6) dm tall, strongly rhizomatous, forming dense colonies; herbage pubescent, hairs simple
- Leaves 4–7 (9) cm long x 1–3 (4) cm wide, oblanceolate to obovate, dentate to subentire, leaf base tapering into a winged petiole, sagittate clasping
- Inflorescence a much branched, many flowered corymb
- Flowers small; sepals 1.5–2.5 mm long, white margined, rounded; petals 2–4 mm long, white, clawed
- Silicles 2.5–4.5 mm long x 3–6 mm wide, cordate to reniform with obtuse apex and cordate base; styles 0.7–2 mm long

Similar Species: Cardaria chalepensis (Lepidium chalepensis) mature fruits are globose or obovoid, not cordate at base. Lepidium latifolium stems lack a clasping base and the fruits do not have a cordate base.

Habitat and Ecology: Noxious weed in alkaline, moderately moist disturbed places such as roadsides, irrigate fields and ditch banks.

Comments: C. draba is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manager to verify identification. Once confirmed, eradication methods will be discussed. One plant can produce from 1,200 to 4,800 seeds. It also emerges in the early spring taking advantage of available soil moisture.
**Descurainia sophia** (L.) Webb ex Prantl
*Flixweed*

**Key Characteristics:**
- Stems usually single, erect, 2.5–8 dm tall, sparsely to densely pubescent with minute branched hairs, lacks glandular hairs; taproot
- Lower leaves 2–3 times pinnately compound, to 9 cm long
- Inflorescence a raceme with erect to divaricately ascending pedicels

**Similar Species:** Other common flixweeds (*D. incana, D. incisa*, and *D. pinnata*) have shorter siliques, 2.2–15 mm long and the lower leaves are pinnate or bipinnate. *Sisymbrium altissimum* sepal lappets have a small, hood-shaped appendage at tip and the pedicels are as thick as the siliques.

**Habitat and Ecology:** Common in disturbed areas, fields, along roadsides and railroads, in grasslands and shrublands.

**Comments:** *D. sophia* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication. Young leaves are edible when cooked. Seeds can be ground into a powder to mix with cornmeal for bread.
**Hesperis matronalis L.**  
Dames rocket  

**Brassicaceae**

**Wetland Status:** FACU  
**Native Status:** Non-native, CO Noxious Weed  
**List B**  
**Conservation Status:** G4G5 SNA  
**Duck Food Value:** Unassigned  
**Duration:** Biennial, Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** HEMA3

**Key Characteristics:**
- Stems stout, erect, 1 to few, 5–12 dm tall, pubescent with simple, unbranched hairs; taproot  
- Leaves petiolate or upper ones sessile, petioles 3–16 (30) mm long, 7–12 (17) cm long x 1.5–4.5 (7) cm wide, dentate  
- Racemes many-flowered; flowers fragrant  
- Sepals 5.5–9 mm long, oblong; petals 4, 17–23 mm long, lilac to purple, rarely white  
- Siliques 5–14 cm long, 1–1.7 mm thick, linear, terete, torulose, glabrous; styles 0.7–2 mm long

**Similar Species:** No other tall mustard has such large, pink flowers.

**Habitat and Ecology:** Weedy plants found along roadsides, meadows, gardens and disturbed areas. It is common in early spring along the banks of major rivers in the Front Range, such as the Cache La Poudre.

**Comments:** *H. matronalis* is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manager to verify identification. Once confirmed, eradication methods will be discussed. Commonly escapes from gardens. The seeds are still found in several wildflower seed packets.
Key Characteristics:
- Stems 4–15 dm tall, glabrous; from a vigorous, colony-forming, rhizomatous base
- Leaves petiolate, middle and upper leaves 4.5–13 cm long x 1.6–3 cm wide, sessile, usually serrate
- Basal leaves not pinnately lobed or pinnatifid
- Flowers white; petals 4
- Silicles 2–3 mm long x 2–2.5 mm wide, broadly ovate; styles 0.05–0.1 long, lacking apical notches

Similar Species: Cardaria draba stem leaves have a clasping base and the fruits have cordate bases.

Habitat and Ecology: Found in disturbed areas, along ditches and roadsides and in grasslands.

Comments: Native to Europe and Asia. L. latifolium is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manger to verify identification. Once confirmed, eradication methods will be discussed. In most mustards, the presence of sulfur and nitrogen containing glucosinolates (also known as mustard oil) helps reduce herbivory and imparts the characteristic sharply bitter taste. High doses of mustard oils can be toxic, but a number of moths and other insects have evolved metabolisms to counteract the chemicals.
**Rorippa palustris** (L.) Besser

**Bog yellowcress**

**Brassicaceae**

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**Key Characteristics:**

- Stems erect, usually solitary, 2.5–10 dm tall; **glabrous or sparsely to densely hirsute with simple hairs**
- Basal leaves wither early; **cauline blades 1.5–4 cm wide, deeply pinnatifid, lobes dentate**
- Terminal leaflet lobes larger; **petioles auriculate and clasping stems**
- Flowers yellow, petals 0.8–2.7 mm long
- Siliques 3–11 mm long, globose to obtuse or rounded at both ends; styles 0.3–0.9 mm long

**Similar Species:** *R. sinuata* is pubescent with oval, white and inflated hairs. *R. curvipes* stem leaves have an auriculate, clasping base and the siliques are constricted near the middle.

**Habitat and Ecology:** Common along margins of lakes, ponds, streams, ditches, fields and in moist depressions.

**Comments:** In most mustards, the presence of sulfur and nitrogen containing glucosinolates (also known as mustard oil) helps reduce herbivory and imparts the characteristic sharply bitter taste. High doses of mustard oils can be toxic, but a number of moths and other insects have evolved metabolisms to counteract the chemicals.
Similar Species: *Rorippa palustris* lacks the white, inflated, mealy hairs around the stem base and does not have creeping rhizomes.

**Habitat and Ecology:** Common along margins of lakes and ponds, streams, ditches, fields and in moist depressions.

**Comments:** In most mustards, the presence of sulfur and nitrogen containing glucosinolates (also known as mustard oil) helps reduce herbivory and imparts the characteristic sharply bitter taste. High doses of mustard oils can be toxic, but a number of moths and other insects have evolved metabolisms to counteract the chemicals.
**Sisymbrium altissimum L.**  
Jim Hill mustard or tumble mustard  
Brassicaceae

**Key Characteristics:**
- Stems single, erect, stout, coarsely hairy below with simple hairs, divaricately branched, often maturing into a **rounded tumbleweed**; taproot
- Leaves petiolate, lower 1–20 cm long (with petiole) runcinate to pinnatifid, lobes oblong and dentate, upper blades deeply pinnately divided with linear segments
- Racemes dense in flower, elongating in fruit; pedicels stout
- Sepals 3–5.5 mm long, outer with short horn at apex, glabrous; petals 5.5–8.5 mm long, pale yellow fading to white
- Siliques **divaricately ascending to erect**, 5.5–8.5 cm long, narrowly linear, terete, rigid, septum deeply convoluted around seeds

**Similar Species:** Descurainia sophia plants have branched, glandular hairs and thinner pedicels.

**Habitat and Ecology:** Common in disturbed areas, fields, grasslands, and along roadsides. It commonly breaks off at soil level when mature and scatters seed as it tumbles in the wind.

**Comments:** *S. altissimum* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication. The name Jim Hill comes from a railroad magnate, referring to its dispersal pathway along the railroad right of ways.

**Wetland Status:** FACU  
**Native Status:** Non-native  
**Conservation Status:** GNR SNA  
**Duck Food Value:** Unassigned  
**Duration:** Annual, Biennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** SIAL2
**Bassia scoparia** (L.) A. J. Scott
Kochia or Mexican fireweed

**Chenopodiaceae**

**Key Characteristics:**
- Stems erect, much branched, 3–10 (40) dm tall, pilose to villous, sometimes glabrate below; taproots
- Leaves alternate, 1.5–4 cm long x 1.5–4.5 (7) mm wide, oblanceolate, bases attenuate to petiole, apices acuminate, veins 1–3, parallel, prominent beneath
- Inflorescence of solitary flowers or 3(5)-flowered glomerules in leaf axils, glomerules sometimes associated with tufts of hair

**Similar Species:** *B. hyssopifolia* perianth segments have hooked appendages from the back, the leaves are well-developed along the stem and the flowers are in terminal spikes and axillary clusters.

**Habitat and Ecology:** Common in disturbed places, fields and along roadsides, sometimes on alkaline soils. Kochia has a specialized leaf structure known as Kranz anatomy. This leaf structure enables the plant to photosynthesize 50% more efficiently.

**Comments:** Kochia is native to Eurasia but is naturalized throughout temperate North America. It was introduced as an ornamental in the early 1900s. Plants can sometimes contain high nitrate levels and can be toxic.

**Wetland Status:** FACU
**Native Status:** Non-native
**Conservation Status:** GNR SNA
**Duck Food Value:** Unassigned
**Duration:** Annual

**Synonyms:** *Bassia sieversiana, Kochia scoparia*

**USDA PLANTS Symbol:** BASC5

**USDA-NRCS PLANTS Database**
**British & Brown 1913**

**Jean L. Pawel CalPhotos**

**Ernie Marx Eastern Colorado Wildflowers**
**Chenopodium album L.**

*Lambsquarters*

**Chenopodiaceae**

**Key Characteristics:**
- Stems erect, single, sometimes reddish, branches ascending, 2–7 (15) dm tall, farinose
- Leaves alternate, ovate, petioled to 4 cm long, 2–4 (6) cm long x 1–4 cm wide, upper surfaces glabrate or glabrous, bases wedge-shaped, margins irregularly sinuate-dentate, apices rounded with mucronate tips
- Inflorescence consists of erect, axillary and terminal panicle, glomerules usually crowded
- Sepals 5, segments broad and overlapping, farinose
- Fruits 1.1–1.5 mm diameter, rim obtuse, **smooth or faintly pitted, without distinct yellow area at style base**

**Similar Species:** *C. glaucum* has 3–4 sepals, glabrous and not keeled and the leaves are densely farinose below and green, glabrous above. *C. berlandieri* fruit surface is honeycombed, with a large, distinct yellow area at the style base and seeds are also honeycomb pitted.

**Habitat and Ecology:** Common in disturbed places, along roadsides, and open places.

**Comments:** *Chenopodium album* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.

**Wetland Status:** FACU

**Native Status:** **Non-native**

**Conservation Status:** G5 SNA

**Duck Food Value:** Medium

**Duration:** Annual

**Synonyms:** None

**USDA PLANTS Symbol:** CHAL7
**Suaeda calceoliformis** (Hook.) Moq.

**Pursh seepweed**

**Chenopodiaceae (Amaranthaceae)**

**Key Characteristics:**
- Stems decumbent to erect, green to dark red, usually striped, 0.5–8 (10) dm tall, glaucous
- Leaves tightly ascending, blades linear-lanceolate, upper surfaces flat, (5) 10–40 mm long
- Glomerules crowded in 1–6 cm long, compound spikes, 3- to 5 (7)-flowered; bracts leaf-like

**Similar Species:** *S. moquinii* (=*S. nigra*) is a perennial from a woody caudex with a perianth that is radially symmetrical and all segments are equal, not keeled.

**Habitat and Ecology:** Found on alkaline or saline flats, along the margins of lakes or drying ponds.

**Comments:** *S. calceoliformis* is considered a halophyte, a plant that is tolerant of soils and water with high salinity. Common throughout alkaline wetlands in North America.

**Wetland Status:** FACW

**Native Status:** Native

**Conservation Status:** G5 SNR

**Duck Food Value:** Unassigned

**Duration:** Annual, Perennial

**Synonyms:** *Suaeda depressa* var. *erecta*, *Suaeda occidentalis*

**USDA PLANTS Symbol:** SUCA2

- Perianth irregular shape (1–3 segments larger), fleshy conical outgrowth on back of perianth is horned
- Seeds lenticular, black, shiny
**Suckleya suckleyana** (Torr.) Rydb.  
**Poison suckleya**

**Key Characteristics:**
- **Stems stout, purplish-red, prostrate,** 5–30 cm tall
- **Leaves** 1–3 cm long x 0.5–2 cm wide, fleshy, triangular, acute teeth; flowers inconspicuous in leaf axils
- **Staminate flowers** with 4 perianth lobes, 2 segments longer than others
- **Pistillate flowers** with 4 marginal fused perianth lobes; stigmas 2
- **Fruits** are reddish-brown, enclosed by 2 dark brown bracts with ventrical keels, united to tip, ovate with winged margins, joined at tips

**Similar Species:** *Atriplex* spp. fruiting bracts are not vertically keeled.

**Habitat and Ecology:** Found along margins of lakes and ponds, in dried lake bottoms and dry beds of seasonal pools and in pastures. Primarily found on the Eastern Slope.

**Comments:** *S. suckleyana* contains cyanogenic glycosides that can produce hydrogen cyanide. When chewed or crushed, the glycosides become cyanide.

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**Wetland Status:** FACW  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Unassigned  
**Duration:** Annual  
**Synonyms:** None  
**USDA PLANTS Symbol:** SUSU2

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**Greg Goodwin SEINet**

**Bee F. Gunn Flora of North America**

**Hank Jorgensen Snowbirdpix**
Euphorbia esula L.
Leafy spurge

Key Characteristics:
- Vigorously colonial, stems 3–7 dm tall, milky sap; strong-rooted, pink buds form new shoots on root crowns
- Leaves alternate, numerous, broadly linear, 3–9 cm long x 3–8 mm wide, 1-nerved, rounded at apex, not crowded
- Inflorescence an umbel with 7–15 rays, with a pair of well-developed leafy, heart-shaped bracts
- Cyathium (cup-shaped involucre) 2–3 mm high, glands 4, yellowish-green
- Seeds ellipsoid, 2–2.5 mm long, smooth with a caruncle (protuberance near attachment)

Similar Species: *E. cyparissias* leaves are smaller, 1–3 cm long x 0.5–3 mm wide and crowded on stem. Plants are also shorter, 1–4 dm tall. Weber and Wittmann (2012) recognize *Tithymalus uralensis* (*E. uralensis*). The main difference is in the leaf shape.

Habitat and Ecology: Common in disturbed areas, fields, grasslands, on floodplains, and along roadsides and streams. Leafy spurge produces a prolific and often deep root system. It produces abundant seeds that explode when dry, often projecting seeds as far as 15 feet. Seeds can remain viable up to 8 years.

Comments: *E. esula* is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manager to verify identification. Once confirmed, eradication methods will be discussed. Entire plant contains milky juice reported to cause severe irritation of the mouth and digestive tract in cattle. Economically, this family contains important species that are the source for rubber, castor oil, and tapioca.
**Glycyrrhiza lepidota**
American licorice

Key Characteristics:
- Stems 3–10 (12) dm tall, coarse, thinly pubescent with fine hairs
- Leaves alternate, odd-pinnately compound with conspicuously glandular-punctate under magnification
- Inflorescence a dense, axillary spike
- Flowers aromatic, zygomorphic, greenish-white or ochroleucous; sepals 5, connate, teeth subequal; petals 5, composed of a banner, wing, and keel; stamens 9, the free stamen lacking
- Pods sessile, densely covered with stout hooked prickles; seeds 2–4, purplish brown, 2.5–3 mm long

Similar Species: None. Unique with long pods that are densely covered with stout, hooked prickles.

Habitat and Ecology: Colonial and common along streams and ditches, along roadsides, in disturbed areas.

Comments: Native Americans used American licorice as a medicine, usually as a tea made from dry, peeled roots.
**Lycopus americanus** Muhl. ex W. Bartram
American water horehound

**Key Characteristics:**
- Stems 2–8 dm tall, square, simple or branched, hairy at the nodes, especially upward
- Lower leaves pinnatifid, others irregularly sharply serrate
- Calyx lobes 5, narrow, firm, slender-pointed, with midnerve surpassing the mature nutlets

**Similar Species:** *L. asper* and *L. uniflorus* leaf margins are sharply, but evenly serrate, not pinnatifid and both arise from tuberous roots.

**Habitat and Ecology:** Common in moist soil, sometimes in standing water.

**Comments:** Even though *Lycopus* spp. are in the mint family, they do not have aromatic leaves. They are pollinated mainly by bees.

**Wetland Status:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Low
**Duration:** Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** LYAM
**Lythrum salicaria L.**
Purple loosestrife

Key Characteristics:
- Stems 5–15 (20) dm tall, colonial, sub-glabrous or pubescent, clustered; rhizomes extensive, long
- Leaves opposite or sometimes whorled, sessile, lanceolate to nearly linear, 3–10 cm long
- Inflorescence a spike-like panicle, flowers 3 or more in axil of each bract, lower bracts leafy

Similar Species: *L. alatum* is a native loosestrife that has a winged stem, flowers that are solitary or paired in the axils and 6 stamens.

Habitat and Ecology: Locally common in moist places, along margins of ponds, in irrigation ditches and wetlands.

Comments: Purple loosestrife is one of the most aggressive, non-native wetland plant, quickly outcompeting native plants and becoming a monoculture. *L. salicaria* is designated as a List A species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manager to verify identification. It is an aggressive weed that should be eliminated immediately upon discovery.
**Epilobium ciliatum Raf.**
Fringed willowherb

**Key Characteristics:**
- Stems 0.5—20 dm tall, solitary, simple to freely branched, basal leaves with or without turions
- **Leaves opposite,** 3—12 cm long x 0.5—5.5 mm wide, serrulate, teeth remote or obscure
- Inflorescence an erect raceme, with numerous flowers, glandular-puberulent; pedicels 2—15 mm long

**Similar Species:** *E. leptophyllum* is likely a variety of *E. ciliatum*. The only morphological character that distinguishes *E. leptophyllum* are the leaves are not more than 3 mm broad and the lateral veins are not evident.

**Habitat and Ecology:** Common along streams, in meadows and other wet places.

**Comments:** *Epilobium* spp. are used as food plants by caterpillars of certain butterflies, moths and hawk-moths (*Lepidoptera* spp.). Turions can be seen if the base of the stem when gently pulled from the ground. Look for the withered, rounded bud-scales at the base of the stem. The new turions will be produced in the axils of the old bud-scales.

**Wetland Status:** FACW
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Unassigned
**Duration:** Perennial
**Synonyms:** *Epilobium ciliatum* var. *glandulosum*
**USDA PLANTS Symbol:** EPCI
**Plantago major**

Common plantain

![Image of Plantago major](image1.jpg)

**Key Characteristics:**
- Stems from a short, stout, erect caudex, **glabrous**, not woolly at crown
- Leaves, all basal, **broadly elliptic**, ovate, or cordate-ovate, 4–18 cm long x 2.5–11 cm wide, blades abruptly narrowed at base to a petiole
- Spikes are dense, narrow, less than 1 cm thick, elongate, 5–30 cm long, glabrous; bracts broad, thin-margined, 2–4 mm long
- Corolla lobes reflexed, 1 mm long, stamens 4, exserted
- Capsules 2.5–4 mm long; seeds 6–30, black or brown, strongly net-veined

**Similar Species:** *P. major* is easily identified by its glabrous herbage and broad, elliptical leaves.

**Habitat and Ecology:** Common weed in disturbed places and lawns, and along roadsides.

**Comments:** *P. major* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication. A poultice of leaves can be applied to wounds and stings for healing and prevention of infection.

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**Wetland Status:** FAC  
**Native Status:** Non-native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Unassigned  
**Duration:** Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** PLMA2

Ernie Marx Eastern Colorado Wildflowers
**Key Characteristics:**

- Stems prominently 8–16-ribbed, light green, erect then decumbent, 50–70 cm long
- Leaves with pinnate venation, elliptic to ovate or obovate, same size throughout, **often covered with a whitish, powdery mildew**

**Similar Species:** *P. aviculare* leaves are linear to oblong, not as broad as *P. achoreum*. Also the fruiting perianth is 2–3 mm long, not constricted or beaked with purple to pink tepals. *P. ramosissimum* stems usually erect, with yellowish-green margins on tepals. Leaves are also linear and the achenes are smooth.

**Habitat and Ecology:** Uncommon weed in disturbed places.

**Comments:** *Polygonum achoreum* is a preferred plant for waterfowl. It is also a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin and end up crowding out native plants. If feasible, managers should consider eradication.
**Polygonum aviculare** L.
Narrowleaf knotweed

**Key Characteristics:**
- **Stems prostrate, prominently 8–16 ribbed,** bluish-green, sometimes whitish with powdery mildew
- **Leaves lanceolate, elliptic, obovate, or spatulate,** upper leaves longer than flowers
- **Inflorescence an axillary, cyme uniformly distributed or aggregated; pedicels 1.5–5 mm long**
- **Perianth 2–3 mm long, not constricted or beaked,** green or reddish-brown
- **Tepals purple to pink; achenes dull, rough, dark brown**

**Similar Species:** *P. achoreum* tepals are enlarged at the base and abruptly pinched and narrowed above. Leaves are elliptic to obovate, same size throughout often covered with powdery mildew.

**Habitat and Ecology:** Common weed in disturbed places along roadsides and ditches.

**Comments:** *Polygonum aviculare* is a preferred plant for waterfowl. It is also a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin and can end up crowding out native plants. If feasible, managers should consider eradication. The scientific name pertains to birds, who eat the seeds and young leaves.
**Polygonum lapathifolium L.**
Curlytop knotweed

**Key Characteristics:**
- Stems (0.5) 1–10 dm tall, scarcely ribbed, usually glabrous; rhizomes or stolons absent
- Leaf sheaths (ocrea) brown, 4–24 mm, bases inflated; blades usually lacking dark blotch on upper side
- Inflorescence a raceme, densely clustered, nodding; peduncles with granular yellow glands
- Perianth segments greenish-white or pink, 4, outer with midvein divided at top giving an anchor-shaped appearance
- Achenes brown to black, disk-shaped, shiny or dull, smooth

**Similar Species:** *P. pensylvanicum (P. bicornis)* has 5 perianth segments, the racemes are erect, rarely drooping, and flowers are pink or rose-colored.

**Habitat and Ecology:** Common in shallow water, margins of lakes and ponds and irrigation ditches. Though native to other regions of North America, Colorado and Wyoming consider *P. lapathifolia* as an adventive species.

**Comments:** *Polygonum lapathifolium* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.
**Polygonum pensylvanicum L.**
Pennsylvania smartweed

**Key Characteristics:**
- Stems 1–20 dm tall, ribbed, glandular or stipitate-glandular
- Racemes erect or rarely arching; **peduncles with stalked red-purple glands**
- Perianth glabrous or rarely glandular, **segments 5, without anchor-shaped vein**
- Tepals pink or rose, rarely greenish-white; styles and stamens not exserted
- Achenes brownish-black to black, one side usually concave and other with central hump, shiny

**Similar Species:** *P. lapathifolia* has 4 perianth segments, the outer ones with a midvein that is divided at the top giving the nerve an anchor shape.

**Habitat and Ecology:** Common in shallow water, margins of lakes and ponds and irrigation ditches.

**Comments:** *Polygonum pensylvanicum* is preferred for moist-soil management. Flooding in fall/winter, drying in spring/summer maintains early succession to maximize food production for waterfowl and shorebirds. Techniques include disking, tilling, mowing, or using herbicides to reduce woody and perennial plants.
**Polygonum persicaria L.**  
**Spotted ladysthumb**

**Key Characteristics:**
- Stems 1–7 (13) dm, glabrous; roots arising from nodes, rhizomes and stolons absent
- Leaves often with prominent dark blotch on upper side; leaf sheaths (ocreas) with cilia or bristles
- Flowers densely clustered in a raceme, pink, greenish white to pink; peduncles glabrous
- Tepals pink, not gland dotted
- Achenes brownish black to black, disk-shaped, shiny, smooth

**Similar Species:** *P. amphibium var. emersum* inflorescence is usually a solitary, terminal raceme and leaves are not glandular-punctate.

**Habitat and Ecology:** Common in shallow water, margins of lakes and ponds and irrigation ditches.

**Comments:** *Polygonum persicaria* is a preferred plant for waterfowl. It is also a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin and can end up crowding out native plants. If feasible, managers should consider eradication.
Rumex crispus L.
Curly dock

Key Characteristics:
- Stems erect, 4–10 (15) dm tall, glabrous; roots vertical, spindle-shaped
- Leaf blades strongly undulate, margins crisped, 15–30 (35) cm long x 2–6 cm wide, petioles distinct, 3–15 cm long
- Inflorescence is terminal, half the length of stem, narrow to broadly paniculate; pedicels 4–8 mm long, swollen at point of attachment
- Tepals 10–25 in whorls; inner tepals orbiculate-ovate or ovate-deltoid, 3.5–6 x 3–5 mm, base truncate or subcordate, margins entire or subentire to very weakly erose, flat, apices, with a tubercle (swelling)
- Achenes usually reddish-brown, 2–3 mm long x 1.5–2 mm wide, enclosed in papery, winged structures, not spiny

Similar Species: R. obtusifolius leaves are broader and the winged structure around the achenes has 1 to 3 spines.

Habitat and Ecology: Found in disturbed places, fields, meadows, roadsides and ditches.

Comments: Rumex crispus is a preferred plant for waterfowl. It is also a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin and can end up crowding out native plants. If feasible, managers should consider eradication.

Wetland Status: FAC
Native Status: Non-native
Conservation Status: GNR SNA
Duck Food Value: Medium
Duration: Perennial
Synonyms: None
USDA PLANTS Symbol: RUCR

Denise Culver Colorado Natural Heritage Program
**Rumex stenophyllus** Lede.  
*Narrowleaf dock*  
*Polygonaceae*

**Key Characteristics:**
- Stems 4–8 (13) dm tall, erect, branched; rootstocks vertical, spindle-shaped
- **Leaves** lanceolate to oblong-lanceolate, 2–7 cm wide with truncate bases
- Inflorescence is terminal, flowers 20–25 in whorls

**Similar Species:** *R. obtusifolius* leaves are oblong to broadly ovate, 10–15 cm wide, with cordate bases and there is only one inner tepal with a tubercle.

**Habitat and Ecology:** Uncommon along shores of lakes, creeks, in marshes and ephemeral ponds.

**Comments:** *Rumex stenophyllus* is a preferred plant for waterfowl. It is also a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin and can end up crowding out native plants. If feasible, managers should consider eradication.
**Ranunculus cymbalaria Pursh**  
**Alkali buttercup**

**Key Characteristics:**
- Stems 0.2-3 dm tall, erect; stolons prostrate, rooting nodally, glabrous
- Basal leaves simple, undivided, ovate to rhombic, 0.7–3.8 cm x 0.8–3.2 cm, bases rounded, margins crenate
- Receptacles hispid-glabrous; sepals spreading, 2.5–6 mm x 1.5–3 mm; petals 5, yellow, 2–7 mm long
- Heads of achenes long-ovoid or cylindric, 6–12 mm long x 4–5 (9) mm wide, ribbed
- Achenes in cylindrical cluster, beaks persistent, conic, straight, 0.1–0.2 mm long

**Similar Species:** *R. flammula* is also stoloniferous and rooting at nodes, but the leaves are linear, 1–8 mm wide, not oblong or rounded, and the sepals are 2–5 mm long.

**Habitat and Ecology:** Common along margins of streams, ponds and lakes, in seepage or swampy areas and in moist meadows. The Ranunculaceae, a primitive family, is one of the few plant families that is characterized by protogyny, where the female parts mature before the male flower parts as a strategy to avoid self-pollination.

**Comments:** All *Ranunculus* spp. are poisonous when eaten fresh by cattle, horses and other livestock. They contain an oil glycoside, ranunculin that is converted to protoanemonin by the action of plant enzymes released when the plant is chewed. The protoanemonin irritates the mouth causing excessive salivation and intestinal irritation.

**Wetland Status:** OBL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Unassigned  
**Duration:** Perennial  
**Synonyms:** *Halerpestes cymbalaria* ssp. saximontana  
**USDA PLANTS Symbol:** RACY
Ranunculus macounii Britton
Macoun’s buttercup

**Key Characteristics:**
- Stems prostrate to erect, hirsute or glabrous, sometimes emergent in shallow water; sometimes rooting at nodes
- Basal leaf blades cordate-reniform, 3-foliolate, 3.7–7.5 cm long x 4.5–9.5 cm wide, leaflets 3-lobed or 3-parted
- Ultimate leaf segments elliptic, margins toothed or lobulate, apices acute to broadly acute
- Receptacles hirsute; sepals spreading, 4–6 mm long x 1.5–3 mm wide; petals 5, yellow, 4–6 mm long x 3.5–5 mm wide
- Heads of achenes globose; achenes 2.4–3 mm long x 2–2.4 mm wide, glabrous, narrow ribs; beaks 1–1.2 mm long

**Similar Species:** *R. pensylvanicus* is erect, has shorter petals 2–4 mm long, stems are erect and not rooting at nodes.

**Habitat and Ecology:** Common in moist meadows, riparian woods, along streams and often in disturbed areas.

**Comments:** All *Ranunculus* spp. are poisonous when eaten fresh by cattle, horses and other livestock. They contain an oil glycoside, ranunculin that is converted to protoanemonin by the action of plant enzymes released when the plant is chewed. The protoanemonin irritates the mouth causing excessive salivation and intestinal irritation.

**Wetland Status GP:** OBL
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Unassigned
**Duration:** Perennial
**Synonyms:** None

**USDA PLANTS Symbol:** RAMA2
**Veronica peregrina** L. ssp. **xalapensis** (Kunth) Pennell
Hairy purslane speedwell

**Scrophulariaceae (Plantaginaceae)**

**Key Characteristics:**
- Stems erect 0.5–2 (3) dm tall, simple or branched at the bases, glandular-pubescent; taproots
- **Leaves** sessile or lowermost ones narrowed to petiolar bases; blades 0.5–2.2 long mm x 0.5–5 mm wide
- Flowers in terminal racemes, elongate, glandular-puberulent, bracts foliaceous; pedicels 0.5–1.5 mm long
- Calyx 3–6 mm long, segments subequal, narrowly elliptic to lanceolate; orolla inconspicuous, 2–3 mm across, whitish
- Capsule with notch 0.2–0.5 mm deep; style 0.1–0.4 mm long

**Similar Species:** *V. wormskjoldii* is a perennial from rhizomes. The stems are usually decumbent or prostrate at bases and pubescent with long, loose, spreading hairs. *V. serpyllifolia* var. *humifusa* is also a perennial, but has pubescent stems and the calyx has a conspicuous notch.

**Habitat and Ecology:** Common along streams, creeks, in wet meadows, seeps and springs.

**Comments:** Weber and Wittmann (2012) state that *V. peregrina* var. *xalapensis* is adventive in Colorado.

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**Wetland Status:** FACW
**Native Status:** Native
**Conservation Status:** G5T5 SNR
**Duck Food Value:** Low
**Duration:** Annual
**Synonyms:** None
**USDA PLANTS Symbol:** VEPEX2
Verbena hastata L.
Swamp verbena

Key Characteristics:
- Stems 4–15 dm tall, square, branched above only, hairy
- **Leaves opposite**, lanceolate, 5–15 cm long, lower leaves hastate, **distinctly petiolate, not veined**
- Fruiting spikes narrow to 7 mm wide, usually numerous spikes in an upright panicle
- Sepals 2.5–3 mm long; petals blue to purplish or pink, tubes 3 mm long, limbs 2.5–4 mm wide
- Fruits dry, separating into 4 nutlets at maturity

Similar Species: Other Verbena spp. sepals are either glandular or densely hairy. *V. bracteata* also has blue flowers arranged in spikes, but is an annual.

Habitat and Ecology: Found along margins of ponds, lakes, streams and ditches.

Comments: Widespread throughout the contiguous United States.
**Symphoricarpos occidentalis**  
**Western snowberry**

**Key Characteristics:**
- Shrubs, 0.3–1 m tall, spreading freely from rhizomes and forming dense colonies
- **Leaves opposite**, elliptic or ovate, entire, 2.5–8 cm long x 1.5–5 cm wide
- Flowers actinomorphic, several, 6–15 in dense, spicate clusters in the uppermost leaf axils
- Corolla white, 5–8 mm long, densely hairy within, lobes spreading; stamens and style exserted from the corolla
- Fruits white, subglobose, 6–9 mm long; nutlets 3.5 mm long x 2–2.5 mm wide

**Similar Species:** Other snowberries known in Colorado occur in drier, open sites. *S. albus* can occur along riparian areas, it does not form dense colonies, stamens and style are included, and the leaves are shorter, 1–3 cm long.

**Habitat and Ecology:** Common near streams and lakes, and in meadows.

**Comments:** The bitter berries are toxic when eaten in quantity. The branches, leaves, and roots are also poisonous.

**Wetland Status:** UPL  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Unassigned  
**Duration:** Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** SYOC
**Convolvulus arvensis**
Field bindweed

**Key Characteristics:**
- **Vines from rhizomes:** Stems climbing by twining or creeping, 1m long, glabrous to pubescent
- **Leaves alternate, petiolate, blades 4–8 (10) cm long x 2.5–6 (8) cm wide, sagittate to hastate bases**
- **Peduncles from leaf-axils, 1-flowered, 3.5–12 cm long**
- **Calyx 3–5 mm long, glabrous, corolla 4–6 cm long, broadly funnelform, white to pinkish**
- **Capsules 10 mm long, 4-seeded; seeds flattened on 2 sides**

**Similar Species:** *C. equitans*, a native bindweed, has a longer calyx, 6–12 mm long, and is densely pubescent. It is found in drier areas in southeastern Colorado.

**Habitat and Ecology:** Common along roadsides, in fields and other disturbed places.

**Comments:** Field bindweed is one of the most aggressive perennial plants in Colorado. It is difficult to eradicate for its roots are extensive and deep, up to 10 feet. Seeds can remain viable in the soil for up to 50 years. *Convolvulus arvensis* is designated as a List C species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manger to verify identification. Once confirmed, eradication methods will be discussed.
**Elaeagnus angustifolia L.**  
*Russian olive*

### Key Characteristics:
- Trees or shrubs, 5–12 m tall, trunks 1–5 dm thick; stems with coarse thorns
- Leaves alternate, silvery or rusty with peltate scales, lanceolate, 1 main vein, 2–9 cm long
- Flowers perfect, lacking petals; sepals 4, yellow inside, fragrant; stamens 4
- Fruits are drupes, olive-like, cream- to brown-colored, densely covered with silver scales

### Similar Species:
From a distance, *Shepherdia argentea*, which mainly occurs on western slope, looks like *E. angustifolia*, but *S. argentea* has opposite leaves and red berries instead of cream colored fruits.

### Habitat and Ecology:
Common throughout Colorado. Initially planted for wind breaks and bank stabilization. Escaped from cultivation along roadsides, streams and floodplains. *Elaeagnus angustifolia* is capable of fixing nitrogen in the roots, thus being able to grow on bare soils. Even though it is non-native it does provide a source of edible fruits for a variety of birds. Pheasants and Sharp-tailed Grouse will loaf in trees, eating the fruits. It is this seed dispersal by birds which has contributed to Russian olive’s spread.

### Comments:
*E.angustifolia* is designated as a List B species in the Colorado Noxious Weed Act. Managers are recommended to contact the County Weed Manger to verify identification. Once confirmed, eradication methods will be discussed.

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**Wetland Status:** FACU  
**Native Status:** Non-native, CO Noxious Weed List B  
**Conservation Status:** GNR SNA  
**Duck Food Value:** Unassigned  
**Duration:** Perennial  
**Synonyms:** None  
**USDA PLANTS Symbol:** ELAN
Ribes inerme Rydb.
Whitestem gooseberry

Key Characteristics:
- Shrubs 1–3 m tall; stems with or without spines, 0 to 3 per node, spines 1–12 mm long
- Leaves 2.0–6.0 cm wide, 3 to 5 lobed or dentate, bases truncate, long-hairy
- Inflorescence a pendant, solitary or 1- to 4-flowered raceme, 1.5–3.5 cm, axis glabrous

Similar Species: *R. americanum* also has glabrous ovaries and berries, but has distinctive leaves with yellow gland-dots on lower surfaces.

Habitat and Ecology: Common along streams, moist roadsides, in meadows and sometimes on dry slopes.

Comments: Fruits of *Ribes* species are a valuable food source for songbirds, chipmunks, ground squirrels, as well as numerous wildlife species and other animals.

Wetland Status: FACW
Native Status: Native
Conservation Status: G5 SNR
Duck Food Value: Unassigned
Duration: Perennial
Synonyms: None
USDA PLANTS Symbol: RIIN2

- Hypanthium glabrous, campanulate; styles pilose; filaments pubescent; sepals reflexed
- Berries palatable, greenish or reddish-purple to gray-black, glabrous
**Populus deltoides** Bartram ex Marsh.
**Plains or Rio Grande cottonwood**

**Key Characteristics:**
- Trees to 55 m tall, 35 dm across; bark light brown, deeply furrowed; twigs with stellate pith (see lower left); dioecious (male and female flowers on separate plants)
- Terminal buds more than 15 mm long, very resinous and sticky; pedicel length uniform, 1–6 (8 in fruit) mm

**Similar Species:** *P. deltoides* ssp. *wislizeni* occurs on the Western Slope. The leaf tips are short-acuminate, leaf bases lack glands, pedicel lengths are longer, 1–13 (17 in fruit) mm and winter buds are pubescent.

**Habitat and Ecology:** Common along streams and rivers and on floodplains on Eastern and Western Slopes.

**Comments:** The plains cottonwood provides critical habitat for many wildlife species. They provide habitat for deer, elk, beaver, porcupines, rabbits, mice and rodents.

**Wetland Status:** FAC  
**Native Status:** Native  
**Conservation Status:** G5 SNR  
**Duck Food Value:** Low  
**Duration:** Perennial  
**Synonyms:** *Populus fremontii* var. *wislizeni*  
**USDA PLANTS Symbol:** PODE3
**Salix amygdaloides** Andersson
Salicaceae

**Peachleaf willow**

**Key Characteristics:**
- Trees 12–20 (30) m tall, crooked; bark shaggy; bud scales with free overlapping margins
- **Leaves glaucous on underside, lanceolate to ovate, serrulate; petioles drooping, 5–21 mm long**
- Catkins appear with leaves, 2.5–11 cm long; peduncles 0.4–6 cm long, leafy
- **Capsules glabrous, 3–5.5 mm long; stipes 1.2–3.2 mm long**
- Flower bracts pale, deciduous in fruit

**Similar Species:** *S. fragilis* has duck bill-shaped bud scales and yellow branchlets. *S. gooddingii* (uncommon in Colorado) has green, non-glaucous leaves.

**Habitat and Ecology:** Common along streams, pond edges, marshes, seeps and floodplains. Grows from the foothills to lower montane.

**Comments:** Willows are extremely important browse for moose, deer and elk, provide cover for nongame birds, game birds, waterfowl, small mammals, amphibians, and nesting habitat for migratory passerines. Willows stabilize streambanks, shade stream and river margins, and contribute organic matter and food (e.g. leaves and insects) to adjacent water bodies.
**Salix exigua** Nutt.
**Narrowleaf or coyote willow**

*Salix exigua* Nutt.

**Key Characteristics:**
- Shrubs, (1) 2–3 m tall, spreading underground, forming thickets
- Leaves linear, 4–16 cm long x 0.3–1.1 (2) cm wide, pale or grayish-green
- Catkins 1.5–10 cm long, appearing with or after leaves
- Capsules glabrous, 3–5 (7) mm long; stipes absent or very short, 0–2 mm long
- Flower bracts yellow, pointed, hairy, deciduous

**Similar Species:** *S. melanopsis* has bright green leaves, older leaves are glabrous and the flower bracts have rounded or blunt tips. *S. melanopsis* is only known from central Colorado, it is absent from the Eastern Slope.

**Habitat and Ecology:** Abundant and common along streams and rivers, ditches and floodplains throughout Colorado.

**Comments:** Narrowleaf or coyote willow has perhaps the greatest range of all willows; distribution from the Yukon River in Alaska to the Mississippi river in southern Louisiana, east to west in North America.

**Wetland Status:** FACW
**Native Status:** Native
**Conservation Status:** G5 SNR
**Duck Food Value:** Unassigned
**Duration:** Perennial
**Synonyms:** None
**USDA PLANTS Symbol:** SAEX

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**Denise Culver Colorado Natural Heritage Program**
**Salix fragilis** L.
Crack willow

**Key Characteristics:**
- Trees up to 25 m tall, trunk up to 1 m thick; branches stout, yellow/brown, very brittle at bases
- **Leaves glaucous on underside, glandular serrate,** 7–17 cm long x 1.7–3.5 cm wide; petioles 7–20 mm long
- **Catkins** appear with leaves, 2–8 cm long; peduncles 1–5 cm long, leafy
- Capsules glabrous, 4–5.5 mm long; stipes 0.5–1 mm long
- **Bud scales** duck bill-like, margins fused; flower bracts pale and deciduous in fruit

**Similar Species:** *S. amygdaloides* has bud scales with free overlapping margins, leaves that typically droop on each side of branchlets and does not have yellow branches. *Populus angustifolia* saplings can be mistaken for *S. fragilis*. Look at bud scales and catkins if available.

**Habitat and Ecology:** Naturalized trees, very common along streams and pond edges in plains, foothills and lower montane regions.

**Comments:** Called crack willow because the twigs easily break off at the base, especially in the spring. Introduced in colonial times to provide charcoal for gunpowder and as a shade tree. *S. fragilis* is a non-native plant that has become naturalized in the U.S. Naturalized plants have become established in areas other than their place of origin. Naturalized plants can end up crowding out native plants. If feasible, managers should consider eradication.

**Wetland Status:** FAC

**Native Status:** Non-native

**Conservation Status:** GNR SNA

**Duck Food Value:** Unassigned

**Duration:** Perennial

**Synonyms:** None

**USDA PLANTS Symbol:** SAFR

**Salicaceae**

Matt Lavin
Salix lutea Nutt.
Yellow willow

Key Characteristics:
- Shrubs, up to 8 m high; **year old branchlets yellowish or greenish- or reddish-brown**
- **Leaves glaucous on underside**, (3.5) 4–8 (11) cm long x (0.8) 1–3 (4.5) cm wide; petioles 4–15 (25) mm long
- Catkins appear slightly before or with leaves, 1–6 cm long; peduncles 0–0.7 (1.7) cm long, leafy when present
- **Capsules glabrous**, 3–5.5 mm long; stipes (1) 1.5–4 (4.5) mm long
- Flower bracts dark, persistent in fruit

Similar Species: *S. eriocephala* is a complex of six taxa that gradually intergrade where their ranges overlap. For Colorado, these include: *S. lutea* and *S. ligulifolia*. *S. ligulifolia (=S. eriocephala var. ligulifolia)* has leaves that are distinctly toothed and dull above and branches that are usually reddish above and yellow below.

**Habitat and Ecology:** Locally uncommon willow that occurs along streams and floodplains.

**Comments:** Willows, especially those with early spring catkins, provide nectar to native bees and honey bees before other food sources are available. Willows stabilize streambanks, shade stream and river margins, and contribute organic matter and food to adjacent waters.
**Tamarix chinensis** Lour.
**Saltcedar**

**Key Characteristics:**
- Shrubs or small trees 2–8 m tall, **many stemmed with slender branches, forming thickets**
- Bark on stems and branches reddish-brown
- Leaves small, scale-like, **1–3 mm long**
- Flowers pink to white, **5 petals, 1.4–2.5 mm long**, appearing with and after leaves
- Capsules lance-subulate, **3–4 mm long**

**Similar Species:** *T. parviflora* is not as common and has 4-merous flowers appearing before the leaves and has dark brown branches.

**Habitat and Ecology:** Common along streams and lake margins and reservoirs on the Eastern and Western Slopes where it has escaped cultivation.

**Comments:** Tamarisk is an aggressive, non-native shrub that can thrive along low-order streams. It is a prolific seed producer, becoming a monoculture throughout lower elevation rivers (e.g., Colorado, South Platte and Arkansas Rivers). The release of the tamarisk leaf beetle (*Diorhabda* spp.) has proven to be an effective biological control on the invasive shrub. However, the Southwestern Willow Flycatcher does nests in both tamarisk and willow riparian shrublands.
Acaulescent — Without a stem, or the stem so short that the leaves are apparently all basal, as in the dandelion.

Achene — A small, dry, hard, one-celled, one-seeded, indehiscent fruit with the seed attached to the pericarp at one point.

Actinomorphic — Radially symmetrical, so that a line drawn through the middle of the structure along any plane will produce a mirror image on either side.

Acuminate — Tapering to a pointed apex with concave sides along the tip.

Acute — Tapering to a pointed apex with more or less straight sides.

Adnate — Fusion of unlike parts, as the stamens to the corolla.

Adventive — Not native and not fully established; locally or temporarily naturalized.

Alien (=Exotic) — A species that is non-native to the region or state, introduced by accident or spreading after being deliberately planted for another purpose.

Androgynous — With both staminate and pistillate flowers, the staminate flowers borne above the pistillate (as in some Carex spp.).

Anther — The expanded, apical, pollen-bearing portion of the stamen.

Apical — Located at the apex or tip.

Attenuate — Tapering gradually to a narrow tip or base.

Auricle — A small, ear-shaped appendage.

Auriculate — With auricles.

Awn — A bristle-shaped appendage.

Basal — Positioned at or arising from the base, as leaves arising from the base of the stem.

Beak — A narrow or prolonged tip, as on some fruits and seeds.

Bidentate — With two teeth.

Bifid — Deeply two-cleft or two-lobed, usually from the tip.

Bipinnate — Twice pinnate; with the divisions again pinnately divided.

Bipinnatifid — Twice pinnately cleft.

Blade — The broad, usually flat part of a leaf.

Bract — A modified leaf subtending a spike or inflorescence.

Bractlet — A small bract, often secondary in nature.

Callus — A hard thickening or protuberance; the thickened basal extension of the lemma in many grasses.

Calyx — The outer perianth whorl; collective term for all of the sepals of a flower.

Campanulate — Bell-shaped.

Canescent — Gray or white in color due to a covering of short, fine gray or white hairs.

Capsule — A dry, dehiscent fruit composed of more than one carpel.

Carpophore — A slender prolongation of the receptacle or carpel forming a central axis between the carpels, as in the fruits of some members of the Apiaceae and the Geraniaceae.

Caruncle — A protuberance or appendage near the scar on a seed marking the attachment of a seed (as in grasses).

Catkin — An inflorescence consisting of a dense spike or raceme of apetalous, unisexual flowers as in Salicaceae and Betulaceae; an amethyst.

Caulescent — With an obvious leafy stem rising above the ground.

Cauline — Of or on the stem.

Cespitose (Caespitose) — Growing in dense tufts.

Ciliate — With a marginal fringe of hairs.

Ciliolate — With a marginal fringe of minute hairs.

Clavate — Club-shaped, gradually widening toward the apex.

Cleistogamous — Flowers which self-fertilize without opening.

Coma — A tuft of hairs, especially on the tip of a seed.
Connate — Fusion of like parts, as the fusion of staminal filaments into a tube.
Cordate — Heart-shaped, with the notch at the base.
Coriaceous — With a leathery texture.
Corolla — The collective name for all the petals of a flower; the inner perianth whorl.
Corona — Petal-like or crown-like structures between the petals and stamens in some flowers.
Corymb — A flat-topped or round-topped inflorescence, racemose, but with the lower pedicels longer than the upper.
Corymbiform — An inflorescence with the general appearance, but not necessarily the structure, of a true corymb.
Crenate — Rounded teeth along the margin.
Culm — A hollow or pithy stalk or stem, as in the grasses, sedges, and rushes.
Cyme — A flat-topped or round-topped determinate inflorescence, paniculate, in which the terminal flower blooms first.
Deciduous — Falling off; not evergreen; not persistent.
Decumbent — Reclining on the ground but with the tip ascending.
Decurrent — Extending downward from the point of insertion, as a leaf base that extends down along the stem.
Dentate — Toothed along the margin, the teeth directed outward rather than forward.
Dichotomous — Branched or forked into two more or less equal divisions.
Dimorphic — With two different sized parts or positions of parts; with two forms.
Dioecious — Flowers imperfect, the staminate and pistillate flowers borne on different plants.
Discoid — Resembling a disk.
Divaricate — Widely diverging or spreading apart.
Drupe — A fleshy, indehiscent fruit with a stony endocarp usually surrounding a single seed, as in a peach or cherry.
Eglanular — Without glands.
Elliptic — In the shape of an ellipse, or a narrow oval; broadest at the middle and narrower at the two equal ends.
Emergent — Rising out of water.
Emersed — Rising out of or rising above water surface.
Endemic — Peculiar to a specific geographic area or edaphic type.
Ensiform — Sword-shaped.
Equitant — Folded along midrib with fused margins toward the tips; overlapping or straddling in two ranks, as the leaves of Iris.
Erose — Margin irregularly toothed, as if gnawed.
Eutrophication — Process by which a body of water becomes enriched in dissolved nutrients that stimulate growth of aquatic plant life resulting in the depletion of dissolved oxygen.
Exotic (=alien) — A species that is non-native to the region or state, introduced by accident or spreading after being deliberately planted for another purpose.
Farinose — Mealy in texture.
Filiform — Thread-like; filamentous.
Foliaceous — Leaf-like in color and texture; bearing leaves; of or pertaining to leaves.
Follicle — A dry, dehiscent fruit composed of a single carpel and opening along a single side, as a milkweed pod.
Frond — The leaf or leaf-like part of a palm or a fern often with many divisions.
Fusiform — Spindle-shaped; broadest near the middle and tapering toward both ends.
Geniculate — Abrupt knee-like bends or joints.
Gibbous — Swollen or enlarged on one side.
Glabrate — Becoming glabrous, almost glabrous.
Glabrous — Smooth; hairless.
Glandular — With small granules or grains.
Glaucous — With a waxy bluish or whitish covering.
Glomerule — A dense cluster; a dense head-like cyme.
Gynaecandrous — With the pistillate flowers borne above the staminate.
Habit — General appearance or form of a plant i.e., erect, prostrate.
Halophyte — A plant that grows in waters of high salinity.
Hastate — Arrowhead shaped with basal lobes turned outward.
Hirsute — Pubescent with coarse, stiff hairs.
Hispid — Rough with firm, stiff hairs.
Hyaline — Thin, membranous and translucent or transparent.
Hypanthium — A cup-shaped extension of the floral axis usually formed from the union of the basal parts of the calyx, corolla, and androecium, commonly surrounding or enclosing the pistils.
Imbricate — Overlapping like tiles or shingles on a roof.
Inflorescence — The flowering part of a plant; the arrangement of the flowers on the flowering axis.
Invasive Species — A species that is non-native to the ecosystem, whose introduction causes or is likely to cause economic or environmental harm.
Involucel — A small involucre; a secondary involucre, as in the bracts of the secondary umbels in the Apiaceae.
Involucre — A whorl of bracts subtending a flower or flower cluster.
Involute — With the margins rolled inward toward the upper side.
Keel — A prominent longitudinal ridge, like the keel of a boat.
Lax — Loose; with parts open and spreading, not compact.
Lenticels — A slightly raised somewhat corky, often lens-shaped area on the surface of a young stem.
Lenticular — Lentil shaped (lens-shaped); biconvex.
Ligule — A strap shaped organ; the flattened part of the ray corolla in the Asteraceae; a membranous appendage arising from the inner surface of the leaf at a junction with the leaf sheath in many grasses and some sedges; a tongue-like projection at the base of leaves above the sporangia in Isoetes.
Locule — The cavity of an organ, as in the cell of an ovary containing the seed or the pollen bearing compartment.
Monoecious — Flowers imperfect, the staminate and pistillate flowers borne on the same plant.
Monospecific — A genus which contains only one known species.
Mucronate — Tipped with a short, sharp, abrupt point (mucro).
Native Plant — A plant species that occurs naturally in a particular region, state, ecosystem, and habitat without direct or indirect human actions.
Nectary Scale (as in Ranunculaceae) — The scale that subtends the nectary which contains a sugary, sticky fluid secreted by glands.
Nerve — A prominent, simple vein or rib of a leaf or other organ.
Oblique — With unequal sides.
Obconic — Conical or cone-shaped, with the attachment at the narrow end.
Obovate — Inversely ovate, with the attachment at the narrower end.
Ocrea (Ocreae) — Sheath around the stem formed from stipules and is found in members of the Polygonaceae.
Oil Tube — Narrow ducts in the walls of the fruit of many members of the Apiaceae containing volatile oils.
Oligotrophic — Waters with a low concentration of plant nutrients that is usually accompanied by an abundance of dissolved oxygen.
Ovate — Egg-shaped in outline and attached at the broad end (applied to plane surfaces).
Palea — A chaffy scale or brat; the uppermost of the two bracts (lemma and palea) which subtend a grass floret.

Panicle — A branched, racemose inflorescence with flowers maturing from the bottom upwards.

Paniculiform — An inflorescence with the general appearance, but not necessarily the structure of a true panicle.

Papilla (Pappilae) — A short, rounded nipple-like bump or projection.

Pappus (Pappi) — The modified calyx of the Asteraceae, consisting of awns, scales, or bristles at the apex of the achene.

Pedicel — The stalk of a single flower in an inflorescence, or of a grass spikelet.

Peduncle — The stalk of a solitary flower or of an inflorescence.

Pedunculate — With a peduncle.

Peltate — Shield-shaped; a flat structure borne on a stalk attached to the lower surface rather than to the base or margin.

Perfect — With both male and female reproductive organs (stamens and pistils); bisexual.

Perianth — The calyx and corolla of a flower, collectively, especially when they are similar in appearance.

Perigynium (Perigynia) — An inflated sac-like structure enclosing the ovary (achene) in the genus Carex.

Petall — An individual segment or member of the corolla, usually colored or white.

Petaloid — Petal-like in appearance.

Petiolule — The stalk of a leaflet of a compound leaf.

Phyllary — An involucral bract found in the Asteraceae.

Physiognomy — Using the structure of a plant as the basis for its classification.

Pilose — Bearing long, soft, straight hairs.

Pinnate — Resembling a feather, as in a compound leaf with leaflets arranged on opposite sides of an elongated axis.

Pinnatifid — Pinnately cleft or lobed half the distance or more to the midrib, but not reaching the midrib.

Plano-convex — Flat on one side and convex on the other.

Plumose — Feathery; with hairs or fine bristles on both sides of a main axis, as a plume.

Polygamous — With unisexual and bisexual flowers on the same plant.

Procumbent — Lying or trailing on the ground, but not rooting at the nodes.

Prophyll — One of the paired bracteoles subtending the flowers in some Juncus spp.

Prostrate — Lying flat on the ground.

Pruinose — With a waxy, powdery, usually whitish coating (bloom) on the surface; conspicuously glaucous, like a prune.

Puberlent (Puberulous) — Minutely pubescent; with fine, short hairs.

Punctate — Dotted with pits or with translucent, sunken glands or with colored dots.

Raceme — An unbranched, elongated inflorescence with pedicellate.

Racemiform — An inflorescence with the general appearance, but not necessarily the structure, of a true raceme.

Rachilla — The axis of a grass or sedge spikelet.

Receptacle — Tip of floral axis where sepals, petals, stamens and gynoecium are attached.

Reflexed — Bent backward or downward.

Reniform — Kidney-shaped.

Replum — Partition or septum between two valves or compartments of silicles or siliques in the Brassicaceae.

Reticulate — In the form of a network; net veined.

Retorse — Directed downward or backward.

Retuse — With a shallow notch in a round or blunt apex.

Revolute — With the margins rolled backward toward the underside.
Runcinate — Sharply pinnatifid or cleft, the segments directed downward.

Sagittate — Arrowhead shaped with basal lobes downward.

Scabrous — Rough to the touch, due to the structure of the epidermal cells, or to the presence of short, stiff hairs.

Scape — Leafless peduncle arising from ground level often from a basal rosette in aculescent plants.

Scarious — Thin, dry, and membranous in texture, not green.

Secund — Arranged on one side of the axis only.

Sepal — A segment of the calyx.

Septate-nodulose — Divided by small transverse knobs or nodules.

Septum — A partition, as the partitions separating the locules of an ovary.

Serrate — Saw-like; toothed along the margin, the sharp teeth pointing forward.

Sheath — The basal portion of the rush, sedge, or grass leaf that forms a tubular cover surrounding the stem; the portion of an organ which surrounds, at least partly, another organ, as the leaf of a base of a grass surrounds the stem.

Silicle — A dry, dehiscent fruit of the Brassicaceae, typically less than twice as long as wide, with two valves separating from the persistent placenta and septum.

Silique — A dry dehiscent fruit of the Brassicaceae, typically more than twice as long as wide, with two valves separating from the persistent placenta and septum.

Spathe — A bract or pair of bracts that enclose an inflorescence.

Spatulate — Like a spatula in shape, with a rounded blade above gradually tapering.

Spike — An unbranched, elongated inflorescence with sessile or subsessile flowers or spikelets.

Squarrose — Abruptly recurved or spreading above the base; rough or scurfy due to the presence of recurved or spreading bracts.

Stigma — The portion of the pistil which is receptive to pollen.

Stipitate — Borne on a stipe or stalk.

Stipule — One of a pair of leaf-like appendages found at the base of the petiole in some leaves.

Stramineous — Straw-like in color or texture.

Style — The usually narrowed portion of the pistil connecting the stigma to the ovary.

Stylopodium — A disc-like expansion or enlargement at the base of the style in the Apiaceae family.

Submersed — Covered with water, adapted to grow under water.

Subulate — Awl-shaped.

Synoeious — With staminate and pistillate flowers together in same head.

Tepals — Perianth segment not differentiated into petals and sepals (corolla or calyx).

Terete — Round in cross section; cylindrical.

Ternate — In threes, as a leaf which is divided into three leaflets.

Thallus — An expanded “stem” that functions as a leaf; as in Lemna.

Thryse — A compact, cylindrical, or ovate panicle with an indeterminate main axis and cymose sub-axes.

Tomentose — With a covering of short, matted or tangled, soft, wooly hairs; with tomentum.

Torulose — Slightly torose (cylindrical with alternate swellings and contractions) like a small fruit with constrictions between the seeds.

Trichome — A hair or hair-like outgrowth of the epidermis.

Trigonous — Three-angled.

Tripinnate — Pinnately compound three times, with pinnate pinnules.

Truncate — With apex or base squared at the end as if cut off.
Tubercules — Small, tuber-like swelling at base of style as in *Eleocharis*.

Turions — Small, fleshy, scaly shoot or winter bud.

Umbel — A flat-topped or convex inflorescence with the pedicels arising more or less from a common point, like the struts of an umbrella; a highly condensed raceme.

Villous — Bearing long, soft, shaggy, but unmatted, hairs.

Wing — A thin, flat appendage or the border of an organ.

Zygomorphic — Bilaterally symmetrical, so that a line drawn through the middle of the flower along only one plane will produce a mirror image.
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<tr>
<td><em>Symphyotrichum lanceolatum ssp.</em></td>
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<tr>
<td>Tamarix chinensis</td>
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<td>Thistle Canada</td>
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<td>Musk 92</td>
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<td>Timothy 50</td>
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<td>Tragopogon dubius</td>
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<td>Triglochin maritima</td>
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<tr>
<td>Tumble mustard</td>
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<td>Typha angustifolia</td>
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<tr>
<td><em>Latifolia</em></td>
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<td><strong>V</strong></td>
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<td>Verbena hastata</td>
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<td><em>Veronica americana</em></td>
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<tr>
<td><em>Anagallis-aquatica</em></td>
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<tr>
<td>peregrina ssp. xalapensis</td>
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</tbody>
</table>
**W**

Watercress 21
Western salsify 99
Western snowberry 128
Western wheatgrass 48
White panicle aster 98
Whitestem gooseberry 131
Whitetop 100
White water crowfoot 30
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  Bog 104
  Spreading 105

**Z**

*Zannichellia palustris* 34