

MONTANA'S NOXIOUS WEEDS

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MONTANA'S NOXIOUS WEEDS

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PLEASE NOTE:

The scientific names used in this document are the current nomenclature as provided by the USDA PLANTS Database or the Integrated Taxonomic Information System.

Introduction

Currently, 8.3 million acres in Montana, or about 9 percent of its area, are covered with noxious weeds. Noxious weeds pose an enormous threat to our economy and environment, decrease the economic value of land and crops, decrease forage for livestock and wildlife, displace native plant species, reduce plant diversity, increase soil erosion and sedimentation, and affect recreational value. The cost of leafy spurge to grazing lands and wildlands in Montana, South Dakota, North Dakota and Wyoming is estimated at \$129.5 million annually. Knapweeds in Montana cost an estimated \$42 million annually. Identifying noxious weeds is important for early detection and eradication of new weed infestations, containment of existing infestations, preventing weed spread, and responsibly implementing weed management and monitoring programs. Minimize the threat of noxious weeds by practicing good land stewardship and applying weed prevention measures.

Using this Guide

This guide will help you identify the 35 Montana noxious weeds, five regulated plants, and any known toxic effects to animals or humans. If a plant is listed as toxic to one animal, it may be toxic to others, but effects may not have been evaluated. In addition, we identify weed management methods considered moderately to highly effective for each species given the size of the infestations present in Montana. Integrating the management methods may provide the best results.

Details regarding each method must be determined for your site. Sustainable land management practices and revegetation following weed management are critical for long-term control. Integrated weed management methods include:



PREVENTION

Actively forestalling contamination of a weed species.



GRAZING

Cattle, goats, and sheep can be used to control weeds.



BIOLOGICAL CONTROL

Insects, mites, nematodes, or plant pathogens used to control weeds.



HERBICIDE

Herbicides kill or stunt weeds by disrupting metabolic processes.



CULTIVATION

Mechanically injuring young plants or bringing seeds to the surface where the plant is controlled with more tillage or other methods.



HAND PULLING & DIGGING

This manual approach can remove the weed and its root system in small infestations.



MECHANICAL REMOVAL

Mechanical equipment is needed to remove the weed and its root system.



CUTTING & MOWING

Prevents/reduces seed production, depletes root reserves, and favors the growth of more desired species.

Montana Statewide Noxious Weed Priorities

A weed attains a “noxious” status by Rule as described in the Montana County Weed Control Act. Noxious weeds are exotic plant species that can form dense infestations and may render land unfit for agriculture, forestry, livestock, wildlife or other beneficial uses or that harm native plant communities. The Weed Control Act declares it unlawful for any person to permit any noxious weed to propagate or produce seeds on their lands. The 35 noxious weeds and five regulated plants in Montana are divided into five priorities.

P1A **Priority 1A** weeds are not present or have very limited presence in Montana. Management criteria will require prevention, education, and eradication if detected.

P1B **Priority 1B** weeds have limited presence in Montana. Management criteria will require eradication or containment, where present, and prevention and education elsewhere.

P2A **Priority 2A** weeds are common in isolated areas of Montana. Management criteria will require containment and suppression where common, and eradication or containment, prevention, and education where less abundant. Management shall be prioritized by local weed districts.

P2B **Priority 2B** weeds are abundant in Montana and widespread in many counties. Management criteria will require containment and suppression where abundant and widespread, and eradication or containment, prevention and education where less abundant. Management shall be prioritized by local weed districts.

P3 **Priority 3** weeds are NOT noxious weeds, but **REGULATED PLANTS** that have potential for significant negative economic and ecological impact. Intentional spread or sale of regulated plants other than as a contaminant in agricultural products is prohibited. Research, education, prevention, and control programs, where appropriate, are recommended to minimize the spread of these weeds. Control of Priority 3 weeds is not mandated.

Need Identification or Management Assistance?

For additional information, contact your county weed district (contacts on pages 94-95) or Extension office.

Canada Thistle

(*Cirsium arvense*)

Asteraceae (Sunflower family)



- **Life cycle:** Perennial
- **Root:** Horizontal and vertical
- **Leaves:** Alternate, wavy, lance-shaped, lobed, spine-tipped and lack stalks. Upper leaves smaller than lower leaves.
- **Stems:** 1 to 4 feet tall, lack spines, erect, ridged, branched, and slightly hairy.
- **Flower:** Purple fading to white with diameter of $\frac{1}{2}$ to $\frac{3}{4}$ inch form clusters at branch ends. Bracts have weak prickles without sharp points.
- **Seed/Fruit:** Long, flattened seeds with tufts of white hairs.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-5](#).

Flowering Rush

(*Butomus umbellatus*)

Butomaceae (Flowering rush family)



- **Life cycle:** Perennial
- **Root:** Thick creeping rhizomes
- **Leaves:** Erect or floating leaves, opposite, 3 feet long and ½ inch wide with smooth edges, triangular cross section, and twisted ends.
- **Stems:** Leafless, green and round in cross section.
- **Flower:** Umbrella-shaped clusters of pink to white flowers, 1 inch in diameter, with three small sepals and three larger petals.
- **Seed/Fruit:** Dark brown, beaked fruits, ½ inch long. Rarely produces seed.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0201](#).

Houndstongue

(*Cynoglossum officinale*)
Boraginaceae (Borage family)



- **Life cycle:** Biennial
- **Root:** Taproot
- **Leaves:** Rosette leaves are up to 12 inches long, velvety, lack teeth or lobes. Stem leaves alternate and smaller as move up stem.
- **Stems:** 1 to 4 feet tall with branches near the top.
- **Flower:** Reddish-purple with 5 petals. Clustered at the top of the plant, unrolls like a scorpion tail.
- **Seed/Fruit:** Each flower produces 4 sticky burs, 1/3 inch long and somewhat flat.
- **Toxic:** Horses, cattle, sheep, goats

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT199709AG](#).

Russian Knapweed

(*Acroptilon repens*)

Asteraceae (Sunflower family)



- **Life cycle:** Perennial
- **Root:** Rhizomes with black, bark-like covering
- **Leaves:** Basal leaves toothed, covered with fine hairs, grayish-green. Lower stem leaves deeply lobed, 2 to 4 inches long. Upper stem leaves narrow, toothed, and up to 2½ inches long.
- **Stems:** One or more stems up to 3 feet tall.
- **Flower:** One purple flower head per branch tip. Bracts rounded with papery edge.
- **Seed/Fruit:** Oval, gray or ivory with long white bristles.
- **Toxic:** Horses

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0204](#).

Spotted Knapweed

(*Centaurea stoebe*, formerly *C. maculosa*)

Asteraceae (Sunflower family)



- **Life cycle:** Biennial or short-lived perennial
- **Root:** Taproot
- **Leaves:** Rosette leaves are deeply lobed, grayish-green, and up to 6 inches long. Stem leaves finely divided into linear segments.
- **Stems:** Up to 4 feet tall and highly branched.
- **Flower:** One pinkish-purple flower head on each branch. Bracts have dark spot on tip and fringed, comb-like edges.
- **Seed/Fruit:** Black seeds, 1/8 inch long with bristly tips.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0204](#).

Purple Loosestrife

(*Lythrum salicaria*)

Lythraceae (Loosestrife family)



- **Life cycle:** Perennial
- **Root:** Short rhizomes and taproot
- **Leaves:** Clasping, lance-shaped leaves with smooth edge. Opposite or whorled on stem.
- **Stems:** 3 to 10 feet tall, square or octagonal.
- **Flower:** Rose to purple petals. Clustered on top of stems. Flower clusters may be 2 inches to 3 feet long. Sepals are joined into a tube with 5 to 7 lobes.
- **Seed/Fruit:** Small brown capsules with many seeds.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-21](#).

Eurasian Watermilfoil

(*Myriophyllum spicatum*, *M. spicatum*
x *M. sibiricum*)

Haloragaceae (Watermilfoil family)



NOTE: Native milfoils typically don't collapse when removed from the water, and native milfoils have winter buds (visible in fall through early spring). Eurasian watermilfoil can hybridize with native watermilfoils.

- **Life cycle:** Aquatic perennial
- **Root:** Fibrous at base and along stem. Can reproduce from stem fragments.
- **Leaves:** 3 to 4 bright-green leaves arranged in whorls around stem at each joint. 1¼ inches long with 12 to 48 threadlike divisions. Leaves rarely extend above water surface and mat or collapse when removed from water.
- **Stems:** Slender, hairless, leafless toward base, and 10 feet long or longer. Grow to water surface then branch, forming dense floating mats. Somewhat whitened when dry.
- **Flower:** Rigid, pink flowering spike, 2 to 8 inches long, held erect above water surface. Small, inconspicuous, 4-petaled flowers arranged in clusters.
- **Seed/Fruit:** Hard, segmented capsule contains 4 seeds.

Integrated Management Options



WATER LEVEL DRAW DOWN

For information on biology and management, see [MSU Extension Publication EB0193](#).

CONTACT THE LOCAL WEED DISTRICT
OR EXTENSION OFFICE IMMEDIATELY IF FOUND.

Saltcedar

(*Tamarix ramosissima* and *T. chinensis*)

Tamaricaceae (Tamarisk family)



- **Life cycle:** Perennial deciduous or evergreen shrubs or small tree
- **Root:** Deep taproot
- **Leaves:** Small leaves on green stalks are alternate, overlapping, and appear scale-like. Foliage salty to taste.
- **Stems:** 5 to 20 feet tall, highly branched, smooth, dark brown to reddish-brown bark.
- **Flower:** Small, pink to white, with 5 petals borne in fingerlike clusters on top and lateral branches.
- **Seed/Fruit:** Extremely small seeds with a tuft of hairs on tip, contained in capsules.

Integrated Management Options*



For information on biology and management, see [MSU Extension Publication MT199710AG](#).

*Mechanical equipment may be necessary to remove plant, followed by herbicide application to cut stump.

Blueweed

(*Echium vulgare*)

Boraginaceae (Borage family)



- **Life cycle:** Biennial
- **Root:** Black taproot with fibrous lateral roots
- **Leaves:** Basal leaves narrow, 2 to 10 inches long, stalked. Stem leaves alternate, smaller and stalkless near top. All leaves covered with stiff hairs.
- **Stems:** 12 to 32 inches tall. Covered with short hairs and scattered long, stiff hairs. Base of some hairs is dark and swollen.
- **Flower:** Buds reddish-purple, becoming bright blue upon flowering. Petals fused at base into a short tube that flares. Numerous flowers $\frac{1}{3}$ to $\frac{2}{3}$ inch long arranged on upper side of short stems that elongate after flowering.
- **Seed/Fruit:** Nutlets clustered in groups of 4, $\frac{1}{10}$ inch long, grayish-brown, angular, and wrinkled.
- **Toxic:** Horses, sheep

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0195](#).

Orange Hawkweed

(*Hieracium aurantiacum*)
Asteraceae (Sunflower family)



- **Life cycle:** Perennial
- **Root:** Shallow, fibrous, creeping stolons and rhizomes
- **Leaves:** Rosette leaves are narrow, wider at tip, hairy, 4 to 6 inches long, with a dark green surface and light green underside.
- **Stems:** 1 to 3 feet tall with bristly hairs and few, if any, small leaves. Entire plant contains a milky sap.
- **Flower:** Red-orange petals with notched tips. 5 to 30 flower heads form a compact, umbrella-like cluster at top of stem.
- **Seed/Fruit:** Dark brown or black with ridges and bristly plumes.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT199816AG](#).

Common Buckthorn

(*Rhamnus cathartica*)

Rhamnaceae (Buckthorn family)



- **Life cycle:** Perennial shrub or small tree
- **Root:** Taproot
- **Leaves:** Glossy, dark green with tiny teeth on the edges. Opposite to alternate arrangement on stem, egg-shaped $\frac{3}{4}$ to $2\frac{1}{2}$ inches long. 3 to 5 pairs of lateral veins curve toward tip. Leaves stay green late into fall.
- **Stems:** Plant 3 to 25 feet, brown or gray outer bark and orange to yellow inner bark. Twigs often tipped with small (less than $\frac{1}{4}$ inch) thorns. May form dense thickets.
- **Flower:** Yellowish-green with 4 petals, not showy, borne in clusters where leaf meets the stem.
- **Seed/Fruit:** Round, shiny, berry-like fruit contains 4 seeds. Ripens from green to red to purple-black and is $\frac{1}{3}$ inch diameter. Separate male and female plants means not all plants bear fruit.
- **Toxic:** Horses, cattle, humans

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT201708AG](#).

Common Tansy

(*Tanacetum vulgare*)

Asteraceae (Sunflower family)



- **Life cycle:** Perennial
- **Root:** Rhizomatous
- **Leaves:** Leaves alternate, consistent in size along stem, and deeply divided into fern-like leaflets with toothed edges.
- **Stems:** 1 to 6 feet tall, often purplish-red.
- **Flower:** Numerous (20 to 100) yellow-orange, button-like flower heads appear in flat-topped, dense clusters at the top of stem. Flowers lack long petals.
- **Seed/Fruit:** Yellowish-brown with toothed ridges.
- **Toxic:** Horses, cattle, humans

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT199911AG](#).

Dyer's Woad

(*Isatis tinctoria*)

Brassicaceae (Mustard family)



- **Life cycle:** Winter annual, biennial or short-lived perennial
- **Root:** Taproot and some lateral roots
- **Leaves:** Bluish-green with white midrib. Rosette leaves have long slender stalks, are widest near the tip and covered with soft hairs. Stem leaves lack hairs, are alternate, lance-shaped, and clasp the stem. Rubbery texture.
- **Stems:** 1 to 4 feet tall, branching.
- **Flower:** Yellow, 4 petals, 1/8 inch long and wide. Form flat-topped cluster at top of stem.
- **Seed/Fruit:** Purplish-brown when ripe, teardrop-shaped and dangle from small stalks.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-10](#).

Leafy Spurge

(*Euphorbia esula*)

Euphorbiaceae (Spurge family)



- **Life cycle:** Perennial
- **Root:** Brownish rhizomes with pink buds
- **Leaves:** Alternate, narrow, 1 to 4 inches long. Stems and leaves contain a milky sap.
- **Stems:** Up to 3 feet tall.
- **Flower:** 7 to 10 yellowish-green flowers in small clusters. The inconspicuous flower is surrounded by showy, heart-shaped yellow bracts.
- **Seed/Fruit:** Oblong, grayish to purple, and borne in a three-celled fruit.
- **Toxic:** Horses, cattle, humans

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0134](#).

Meadow Hawkweed Complex



(*Hieracium pratense*,
H. floribundum, *H. piloselloides*)
Asteraceae (Sunflower family)

P2A

- **Life cycle:** Perennial
- **Root:** Shallow, fibrous, creeping stolons and rhizomes
- **Leaves:** Rosette leaves are narrow, wider at tip, hairy, with a dark green surface and light green underside.
- **Stems:** 10 to 25 stems up to 3 feet tall. Stems have short, stiff hairs and few, if any, leaves. The entire plant contains a milky sap.
- **Flower:** 5 to 30, bright yellow flowers with notched tips arranged in an umbrella-like cluster at top of stem.
- **Seed/Fruit:** Black with bristly plumes.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT199816AG](#).

NOTE: Native hawkweed species lack stolons, have leafy branched stems, and do not have flowers arranged in an umbrella-like cluster.

Rush Skeletonweed

(*Chondrilla juncea*)

Asteraceae (Sunflower family)



- **Life cycle:** Perennial
- **Root:** Taproot and some lateral roots
- **Leaves:** Lobed rosette leaves with spine-tipped edges, wither as the stem grows. Occasional narrow leaves on stem.
- **Stems:** Downward bent, dark, coarse hairs on the lower 4 to 6 inches of green stems.
- **Flower:** Yellow flower heads $\frac{3}{4}$ inch in diameter are scattered on the stems and branch tips. Flowers single or clusters of 2 to 5.
- **Seed/Fruit:** Light brown to black, ribbed, with long, white dandelion-like bristles.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-25](#).

Russian Olive

(*Elaeagnus angustifolia*)

Elaeagnaceae (Oleaster family)



- **Life cycle:** Perennial shrub or small tree
- **Root:** Taproot
- **Leaves:** 1 to 4 inches long and ½ to 1½ inches wide with smooth edges and arranged alternately. Upper leaf surface green-gray and lower surface silver-gray.
- **Stems:** Dark reddish-brown with silvery scales. Thorns 1 to 2 inches long, alternate, and numerous. Reaches 10 to 30 feet in height with trunk up to 20 inches in diameter.
- **Flower:** 4 yellow sepals resemble petals. Bell-shaped and arranged in clusters.
- **Seed/Fruit:** Clusters of ½ inch, hard, olive-shaped fruit that each contain 1 seed. Immature fruits silver and ripen to tan or brown. Brown, oval seeds ¼ to ½ inch long.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-30](#).

St. Johnswort

(*Hypericum perforatum*)

Clusiaceae (Mangosteen family)



- **Life cycle:** Perennial
- **Root:** Taproot and lateral roots
- **Leaves:** Oval-shaped leaves up to 1 inch long are opposite, lack stalks and teeth, are darker green on surface, and have rolled edges and tiny transparent dots on the surface.
- **Stems:** 1 to 5 feet tall, reddish with black dots (glands), erect, with 2 opposite longitudinal ridges. Branching near the top.
- **Flower:** Numerous 5-petaled yellow flowers form flat-topped clusters at the end of branches. Up to 1 inch in diameter. Black dots along the petal edges.
- **Seed/Fruit:** Rust-colored seed pods are ¼ inch long and contain numerous seeds in three-pointed capsules.
- **Toxic:** Horses, cattle, sheep

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT199810AG](#).

Scotch Broom

(*Cytisus scoparius*)

Fabaceae (Legume family)



- **Life cycle:** Perennial evergreen shrub
- **Root:** Taproots and lateral roots
- **Leaves:** ½ inch long rounded leaflets grouped in threes.
- **Stems:** Up to 10 feet tall, mostly erect, stiff, angled and dark green.
- **Flower:** Bright yellow, pea-like, ¾ to 1 inch flower, arising between leaf and stem.
- **Seed/Fruit:** Pods are 1 to 2 inches long, brown to black, smooth and flat with white hairs, and contain several shiny green-brown seeds.
- **Toxic:** Horses, sheep

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0202](#).

Sulfur Cinquefoil

(*Potentilla recta*)

Rosaceae (Rose family)



NOTE: These characteristics distinguish sulfur cinquefoil from native cinquefoils. Sulfur cinquefoil leaves are green, not grayish, on the underside; its seeds are ridged while others usually are not; it has comparatively more stem leaves and fewer basal leaves than other *Potentilla* species, and its hairs are at right angles to the stem and typically as long as stem is wide, while others usually lay flat against stem.

- **Life cycle:** Perennial
- **Root:** Fibrous spreading roots
- **Leaves:** Palmately compound with 5 to 7 toothed leaflets and relatively few basal leaves. Leaf stalk length decreasing toward top.
- **Stems:** One to several erect stems 1 to 2 feet tall, may be branched, have hairs at right angles to stem and leafstalks.
- **Flower:** 5 light yellow petals with deeply notched tips and a darker yellow center. Clustered at top of stems.
- **Seed/Fruit:** Comma-shaped, brownish-purple, covered with net-like ridges.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-17](#).

Tall Buttercup

(*Ranunculus acris*)

Ranunculaceae (Buttercup family)



NOTE: Montana has many native buttercup species. Take a sample to the local weed district or Extension office for positive identification.

- **Life cycle:** Perennial
- **Root:** Hairy, fibrous, and occasionally with rhizomes
- **Leaves:** Hairy leaves deeply lobed (nearly to the base) into four to five segments with each segment lobed again. Leaves decrease in size toward stem top. Upper stem leaves more deeply lobed than bottom leaves.
- **Stems:** Up to 3 feet tall, branched and hairy.
- **Flower:** Glossy yellow flowers in clusters, $\frac{3}{4}$ to 1 inch in diameter with greenish center.
- **Seed/Fruit:** Disc-shaped, reddish-brown with short hook.
- **Toxic:** Horses, cattle, sheep, goats

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT201502AG](#).

Tansy Ragwort

(*Senecio jacobaea*)

Asteraceae (Sunflower family)



- **Life cycle:** Biennial or short-lived perennial
- **Root:** Taproot
- **Leaves:** Rosette has 10 to 20 leaves with web-like hairs. Basal leaves 2 to 10 inches long, lobed into leaflets and leaflets lobed again. Stem leaves alternate, evenly distributed along stem, lower leaves larger. Strong odor when crushed.
- **Stems:** Commonly 1 to 3 feet tall but up to 6 feet. One to several stems may branch near the top of plant. Stems and leaf stalks often purplish and have cobwebby hairs.
- **Flower:** Daisy-like flower heads, yellow petals, yellow center, less than 1 inch diameter, clustered on top of plant.
- **Seed/Fruit:** Tipped by white hairlike plumes.
- **Toxic:** Horses, cattle, sheep, goats, humans

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-24](#).

Dalmatian Toadflax

(*Linaria dalmatica*)

Scrophulariaceae (Figwort family)



- **Life cycle:** Perennial
- **Root:** Taproot and horizontal roots
- **Leaves:** Waxy, pale green to bluish-green. Heart-shaped to oval, alternate, smooth edges, and clasp stem.
- **Stems:** Up to 3 feet tall, robust, waxy.
- **Flower:** Bright yellow snapdragon-shape with an orange throat and a long spur. Occur along length of stem at top of plant.
- **Seed/Fruit:** Irregular angled seeds in two-celled capsule.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-3](#).

Yellow Toadflax

(*Linaria vulgaris*)

Scrophulariaceae (Figwort family)



NOTE: A hybrid of Dalmatian and yellow toadflax has been reported. The hybrid may demonstrate a combination of each species' traits.

- **Life cycle:** Perennial
- **Root:** Creeping rhizomes
- **Leaves:** Numerous, alternate, pale-green to gray-green, 2½ inches or longer and narrow, pointed at both ends, with smooth edges.
- **Stems:** 8 to 24 inches tall, usually not branched.
- **Flower:** Yellow, snapdragon-like flowers often with orange center, 1 to 1¼ inch long with 1 inch long spur. Dense clusters at top of stems.
- **Seed/Fruit:** Seeds dark brown to black, less than ¼ inch diameter, flattened, with papery circular wing. Capsule brown, round to oval with two compartments.

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-6](#).

Yellow Starthistle

(*Centaurea solstitialis*)

Asteraceae (Sunflower family)



- **Life cycle:** Annual
- **Root:** Taproot
- **Leaves:** Rosette leaves are deeply lobed with pointed tip. Stem leaves are vertical, flat extensions along the stem and covered with cottony hairs.
- **Stems:** Up to 5 feet tall, rigid. Appears winged due to vertical leaves.
- **Flower:** One yellow flower head per branch. Sharp, straw-colored spines up to $\frac{3}{4}$ inch long radiate from the bracts. After seed dispersal, a cottony tuft remains on stem.
- **Seed/Fruit:** Light to dark-colored with or without bristles.
- **Toxic:** Horses

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT201101AG](#).

Yellowflag Iris

(*Iris pseudacorus*)

Iridaceae (Iris family)



- **Life cycle:** Perennial
- **Root:** Bulbs and rhizomes
- **Leaves:** Long, linear, dark green leaves emerge from ground in fanlike arrangement. Smooth-edged, flattened, with a pointed tip and raised midrib.
- **Stems:** 3 to 4 feet tall, round to flattened.
- **Flower:** Large pale to deep yellow flowers have three downward- and three upward-pointing petals, some with light-brown to purple veins or flecks.
- **Seed/Fruit:** Many flat, brown seeds contained in a 1 to 4 inches long 3-chambered capsule.
- **Toxic:** Horses, cattle, sheep, goats

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0203](#).

Brazilian Waterweed

(*Egeria densa*)

Hydrocharitaceae (Tape-grass family)



NOTE: Brazilian waterweed has not been reported in Montana.

- **Life cycle:** Aquatic perennial
- **Root:** Fibrous at base and along stem
- **Leaves:** Submerged, in whorls of 4 to 6 leaves on upper stem and whorls of 3 on lower stem; ½ to 1½ inches long with finely-toothed margins.
- **Stems:** Simple or branched, up to 20 feet long. Leaves along entire length.
- **Flower:** White, ¾-inch wide with 3 petals and a yellow center, elevated an inch above the water or floating on the surface.
- **Seed/Fruit:** None in North America because there are only male flowers.

Integrated Management Options



Curlyleaf Pondweed

(*Potamogeton crispus*)

Potamogetonaceae (Pondweed family)



- **Life cycle:** Aquatic perennial
- **Root:** Creeping rhizomes
- **Leaves:** Narrow, stiff, 1½ to 4 inches long, and translucent. Curly leaf edges (like lasagna noodles), and tiny serrations on edges, visible with a hand lens.
- **Stems:** 4 angled, with few branches, up to 35 inches long.
- **Flower:** Cream to brown, inconspicuous, bloom on short emergent spike with up to 10 flowers per spike.
- **Seed/Fruit:** Small, flat, with pointed beak. Seeds not a major form of spread. Reproduces through hard vegetative buds (turions) in leaf axils.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0223](#).

Diffuse Knapweed

(*Centaurea diffusa*)
Asteraceae (Sunflower family)



- **Life cycle:** Biennial or short-lived perennial
- **Root:** Taproot
- **Leaves:** Finely divided, alternate, wider at tip, grayish-green, and covered with woolly hairs.
- **Stems:** Up to 2 feet tall and highly branched.
- **Flower:** White or pink. Bracts have stiff, cream- to brown-colored spines arranged in comb-like teeth.
- **Seed/Fruit:** Brown or grayish with bristle-like hairs.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0204](#).

Field Bindweed

(*Convolvulus arvensis*)

Convolvulaceae (Morning-glory family)



- **Life cycle:** Perennial
- **Root:** Taproot with lateral roots
- **Leaves:** Dark green, arrowhead-shaped with sharp, pointed lobes are alternate and grow on one side of the stem.
- **Stems:** 1 to 4 feet long, growing horizontally or climbing.
- **Flower:** White to pinkish, tubular or bell-shaped. One inch in diameter. Two bracts on stem below flower.
- **Seed/Fruit:** Four seeds contained in small, round fruit.
- **Toxic:** Horses

Integrated Management Options



For information on biology and management, see [NRCS Tech Note MT-9](#).

Hoary Alyssum

(*Berteroa incana*)

Brassicaceae (Mustard family)



- **Life cycle:** Annual, biennial to short-lived perennial
- **Root:** Taproot
- **Leaves:** Grayish-green with star-shaped hairs. Basal leaves, 1 to 2 inches long with slender stalks. Stem leaves face upward, pressed to stem. Lower leaves with short stalks, upper leaves lack stalks.
- **Stems:** 1 to 3½ feet tall, erect, branched, covered with star-shaped hairs.
- **Flower:** White, ¼ to ⅓ inch long. 4 deeply notched petals on slender stalks.
- **Seed/Fruit:** Flattened oval seed pods ⅓ to ⅔ inch long. Pods contain 6 to 14 seeds. A clear translucent divider between the pod chambers remains after the seeds fall out.
- **Toxic:** Horses

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0194](#).

Hydrilla

(*Hydrilla verticillata*)

Hydrocharitaceae (Frog's-bit family)



NOTE: Hydrilla has not been reported in Montana.



- **Life cycle:** Aquatic perennial
- **Root:** Rhizomes and stolons form tubers
- **Leaves:** $\frac{5}{8}$ inch long with saw-toothed margins, pointed tips, in whorls of 4 to 8. Sharp teeth on mid-vein on underside of leaf. Green and translucent, but can bleach in sun or turn yellow to brownish-green.
- **Stems:** Submersed, sinewy and up to 25 feet long.
- **Flower:** Female: white, solitary, six-petaled, $\frac{1}{16}$ inch long, and float on the surface from a long threadlike stalk. Male: greenish, break loose and rise to the surface to float and pollinate female flowers.
- **Seed/Fruit:** Less than $\frac{1}{16}$ inch. Reproduce by stem fragmentation.

Integrated Management Options



Knotweed Complex

Bohemian knotweed (*Fallopia x bohemica*)

Giant knotweed (*Fallopia sachalinensis*)

Japanese knotweed (*Fallopia japonica*)



Polygonaceae

(Buckwheat family)

PIB

- **Life cycle:** Perennial
- **Root:** Rhizomes
- **Leaves:** Alternate, stalked, broadly oval to heart-shaped or triangular. Giant knotweed leaves are 1 foot long or longer and $\frac{2}{3}$ as wide. Japanese knotweed leaves are 6 inches long by 3 to 4 inches wide. Bohemian knotweed is a hybrid between giant and Japanese knotweed that looks very similar to Japanese and varies in size.
- **Stems:** Hollow, smooth, weakly woody, jointed, swollen at nodes, up to 20 feet tall. Base surrounded by membranous sheath.
- **Flower:** Greenish-white flowers, $\frac{3}{8}$ to $\frac{1}{2}$ inch wide, in clusters at branch tips.
- **Seed/Fruit:** Black and ribbed.
- **Toxic:** Horses, cattle, goats

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0196](#).

Oxeye Daisy

(*Chrysanthemum leucanthemum*)

Asteraceae (Sunflower family)



- **Life cycle:** Short-lived perennial
- **Root:** Shallow, branched rhizomes
- **Leaves:** Basal and lower stem leaves on long narrow stalks have rounded teeth, are 2 to 5 inches long and widest at tip. Upper stem leaves smaller toward top of plant, have no stalk, and are toothed.
- **Stems:** 1 to 2 feet tall, simple or once-branched, smooth.
- **Flower:** White flowers with yellow center, 1 to 2 inch diameter. One flower per stem.
- **Seed/Fruit:** Black and ribbed.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT200002AG](#).

Parrot Feather Watermilfoil

(*Myriophyllum aquaticum*)
Haloragaceae (Watermilfoil family)



NOTE: Parrot feather watermilfoil has not been reported in Montana.



- **Life cycle:** Aquatic perennial
- **Root:** Rhizomes
- **Leaves:** Feather-like, in whorls of 4 to 6 leaves. Submerged leaves (if present) are ½ to 1½ inches long. Emergent leaves are stiff and ¾ to 2 inches long.
- **Stems:** Sturdy, up to 6 feet long. May extend up to a foot above water surface.
- **Flower:** 4 white sepals, less than ⅛ inch wide, borne singly on short stalks between leaf and stem.
- **Seed/Fruit:** None in North America because there are only female flowers.

Integrated Management Options



Perennial Pepperweed

(*Lepidium latifolium*)

Brassicaceae (Mustard family)



- **Life cycle:** Perennial
- **Root:** Deep, spreading roots
- **Leaves:** Bright green to gray-green, broadest at base and tapering to pointed tip, with prominent whitish midvein. Basal leaves are up to 13 inches long and 4 inches wide with long stalks, and waxy. Stem leaves smaller with smaller stalks, alternate, and do not clasp stem.
- **Stems:** Typically 1 to 3 feet tall, may reach 6 feet.
- **Flower:** White with four petals, less than $\frac{1}{8}$ inch wide and occur in dense, rounded clusters at end of branches.
- **Seed/Fruit:** Flat, rounded, $\frac{1}{16}$ inch long capsule contains one reddish-brown seed per chamber.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT199906AG](#).

Whitetop

(*Cardaria draba*)

Brassicaceae (Mustard family)



- **Life cycle:** Perennial
- **Root:** Rhizomes
- **Leaves:** Blue-green to gray-green, alternate on stem, covered with soft white hairs, and lance- to arrowhead-shaped. Lower leaves stalked; upper leaves clasp stem.
- **Stems:** Up to 2 feet tall.
- **Flower:** Numerous white flowers with 4 petals borne on ½ inch long stalk. Dense clusters create white, flat-top appearance.
- **Seed/Fruit:** Two reddish-brown seeds contained in capsule.
- **Toxic:** Cattle

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB0138](#).

Cheatgrass

(*Bromus tectorum*)
Poaceae (Grass family)



- **Life cycle:** Annual
- **Root:** Fibrous
- **Leaves:** Light green and hairy, upper leaf sheaths may be smooth, but lower sheaths are hairy. Each leaf has a membranous ligule where it separates from the stem.
- **Stems:** 4 to 30 inches tall, slender and erect, slightly hairy.
- **Flower:** Light green and inconspicuous, occur in a nodding, open inflorescence. Color changes from green to reddish-purple to brown as plant matures.
- **Seed/Fruit:** $\frac{3}{8}$ inch long seed, with an awn $\frac{1}{2}$ to 1 inch long extending from tip.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT20081 IAG](#).

Common Reed

(*Phragmites australis* ssp. *australis*)

Poaceae (Grass family)



NOTE: Common reed is difficult to distinguish from its native relative *Phragmites australis* ssp. *americanus*, which is common in Montana. Glumes (top right photo) of common reed, on the left, are much smaller than those of native *Phragmites*, on the right. Stems of common reed (bottom left) are often dull green or tan with small ridges, while stems of native *Phragmites* (bottom right) are smooth, shiny, and often reddish.

- **Life cycle:** Perennial
- **Root:** Scaly rhizomes and stolons
- **Leaves:** Flat blades $\frac{3}{4}$ to $1\frac{1}{2}$ inches wide. Lower leaf sheaths tightly attached. Membranous ligule where leaf blade attaches to stem.
- **Stems:** Hollow, 6-12 feet but up to 20 feet tall, dull and rough with small ridges. When leaf sheaths are removed, green or tan stems are visible, not reddish except at nodes.
- **Flower:** Plume or feather-like inflorescence that is green, purple, or golden and 6-20 inches long; upper glume (bract at base of grass spikelet) $\frac{1}{4}$ inch, lower glume less than $\frac{1}{4}$ inch.
- **Seed/Fruit:** Small, up to $\frac{1}{10}$ long.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication EB4611](#).

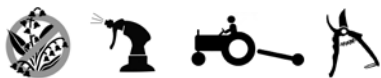
Medusahead

(*Taeniatherum caput-medusae*)
Poaceae (Grass family)



- **Life cycle:** Annual
- **Root:** Fibrous
- **Leaves:** Few bright green leaves are short and narrow (to $\frac{3}{8}$ inch wide), slightly rolled. Short, membranous ligule where leaf separates from stem. Auricles present.
- **Stems:** 6 to 24 inches tall, wiry and slender.
- **Flower:** Each stem produces a single spike seedhead. Awns are 3 inches long, barbed, and twist when mature and dry. Inflorescence stays intact after seed dispersal.
- **Seed/Fruit:** Minutely barbed. Awns up to 3 inches long extending from tip.

Integrated Management Options



For information on biology and management, see [MSU Extension Publication MT201802AG](#).

Glossary

- adventitious roots** Roots appearing in an unusual or unexpected place on a plant.
- alternate** Referring to a leaf or bud arrangement in which there is one bud or one leaf at a node.
- annual** A plant that lives one year or less. A winter annual germinates late one growing season and produces seed and dies in the next growing season.
- auricle** On a grass, small outgrowth or ear-like lobes that occur on either side of the leaf sheath-blade junction.
- basal** Refers to the base of the plant.
- biennial** A plant that lives for two growing seasons, normally producing a basal rosette the first year and the flower and fruit the second year.
- bract** A small leaf-like structure surrounding or enclosing the flower, usually below the petals.
- capsule** Dry fruit with more than one seed.
- clasping** Partly surrounding the stem.
- dioecious** Only male or only female flowers on a single plant.
- fibrous roots** Root system with many, fine, diffuse roots.
- flower head** A cluster of individual flowers in one compact unit, usually referring to compound flowers of the Sunflower Family members.
- inflorescence** One or more flowers which comprise the flowering part of the plant.
- ligule** On a grass, thin membrane or a line of hairs on the inside of the leaf blade at the junction of the sheath and blade.
- lobed** Divided less than one-half the distance to the base or midvein, usually rounded or obtuse.
- midrib** The central axis or vein of the leaf blade or leaflet.
- monoecious** Plants with male and female flowers on the same plant.

- noxious weed** Invasive plant which a landowner has a legal responsibility to control, based on the Montana Noxious Weed Law.
- nutlet** Hard, small, one-seeded fruit, usually refers to fruits of Boraginaceae members.
- opposite** Leaves or buds occurring in pairs at a node.
- palmate** Leaflets, lobes, or veins which arise from the same point at the tip of the stalk.
- perennial** Plants which live two or more years.
- pinnate** Leaflets or lobes developing from several different points on the main leaf axis.
- plume** A hairlike or featherlike structure, often on a seed.
- rhizomatous** Having rhizomes.
- rhizome** A horizontal stem growing beneath the ground which can develop roots or sprouts at the joints.
- rosette** A cluster of leaves radiating out from the base of the plant.
- sepal** One of the outermost flower structures, usually enclosing the other flower parts in bud.
- spur** Any long, narrow (sometimes tubular) extension of a petal.
- stolon** A horizontal stem growing above the ground which can develop roots or sprouts at the joints.
- taproot** The primary descending root along the vertical axis of the plant which is larger than the branching roots.
- terminal** Borne at or belonging to the end, tip, or top of a plant.
- tubers** Short, thickened, potato-like underground stems that function in food storage, reproduction, or both.
- torion** An overwintering bud produced by aquatic herbs, often rich in starch and sugars enabling them to act as storage organs.
- umbelliform inflorescence** Many flowered inflorescence where flower stems arise from a common point, ascend in all directions, and form a relatively level-topped cluster.

Photo Credits

R-rosette; **P**-plant; **F**-flower; **S**-seed or fruit; **L**-leaf; **O**-other;

Blueweed: **R**-Stevens Cty, WA, NWCB; **F**-B. Giuscà, wikipedia;
O-R. Olson, XID Services, BW

Brazilian Waterweed: **F**-Honour Kristinsson; **P**-Paul Slawinski;
L-R. Coventry

Canada Thistle: **P**-M. Prokorny, MSU; **F**-L. Merhoff, U of CT, BW;
R-J. Mangold, MSU

Cheatgrass: **P**-C. Evans, River to River CWMA, BW; **S**-S. Hurst,
USDA NRCS, BW; **O**-L. Mehrhoff, U of CT, BW

Common Buckthorn: **F**-R. Videcki, Doronicum Kft, BW; **P**-M.
Lavin, MSU; **O**-L. Merhoff, U of CT, BW; **O**-M. Lavin, MSU

Common Reed: **P**-Terry Turner, Hill County Weed District, MT;
O-Lindsey & Scott Namestnick; **O**-University of Michigan
Herbarium, modified by Orloff & Mangold

Common Tansy: **L**-J. DiTomaso, UC, BW; **P**-M. Shephard,
USDA-FS, BW; **F**-M. Pokorny, MSU

Curlyleaf Pondweed: **O,P**- J. Mangold, MSU

Dalmatian Toadflax: **L**-L. Wilson, U of ID, BW; **P**-USU, BW;
F-Bob Nowierski

Diffuse Knapweed: **R**-R. Old, XID Services, BW; **P**-M. Lavin,
MSU; **F**-C. Roche, BW

Dyer's Woad: **R**-S. Dewey, USU, BW; **P**-S. Dewey, USU, BW;
F- S. Dewey, USU, BW; **S**-M. Pokorny, MSU

Eurasian Watermilfoil: **L**-J.K. Clark; **P**-A. Fox, U of FL, BW; **F**-L.
Mehroff, U of CT, BW

Field Bindweed: **P**-B. Rice, sarracenia.com, BW; **F**-S. Dewey,
USU, BW; **S**-J. Randall/TNC

Flowering Rush: **P**-M. Tu, TNC; **F**-L. Mehroff, U of CT, BW; **O**-J.
Mangold, MSU

Hoary Alyssum: **R**-Jim Jacobs, NRCS; **S**, **P**-H. Parkinson, MSU;
F-R. Old, XID Services, BW

Houndstongue: **R**, **S**-MSU; **P**-S. Dewey, USU, BW; **F**-MSU

Hydrilla: **R**-L. Mehrhoff, U of CT, BW; **P**-G. Lovell, AL Dept. CNR,
BW; **F**- M. Frank, BW

Knotweed complex: **P**-J. Raney, U of TN, BW; **F**-JR. Old XID
Services, BW; **O**-L. Mehrhoff, U of CT, BW

Leafy Spurge: **O**-N. Rees, USDA-ARS, BW; **P**-J. Randall, TNC,
BW; **F**-S. Dewey, USU, BW; **L**-M. Pokorny

Meadow Hawkweed Complex: R-King County, WA; P-R. Old, XID Services, BW; F-E. Bella, USDA-FS, BW

Medusahead: P-R. Steineckert, OSU; F-J. Mangold, MSU; S-S. Dewey, USU, BW

Orange Hawkweed: R-C. Duncan; P-J. DiTomaso, UC, BW; F-U. of AK, BW

Oxeye Daisy: R, F-MSU; P-M. Harte, BW

Parrot Feather Watermilfoil: P-Andrey Zharkikh; F-N. Loewenstein, AU, BW; O-Harry Rose

Perennial Pepperweed: R, P-MSU; F-L. Mehrhoff, U of CT, BW; L-J. DiTomaso, UC, BW

Purple Loosestrife: O-R. Routledge, Sault Col., BW; P-B. Mullin; F-N. Rees, USDA-ARS, BW

Rush Skeletonweed: R-MSU; P-G. Piper, WSU, BW; F, O-MSU

Russian Knapweed: R-MSU; P-J. Littlefield, MSU; F-S. Dewey, USU, BW

Russian Olive: P-C. Evans, UI, BW; F-N. Frank, UWH, BW; S-J. Samanek, PA, BW

Saltcedar: L-S. Dewey, USU, BW; P-M. Pokorny, MSU; F-S. Dewey, USU, BW

Scotch Broom: L-T. Heutte, USFS, BW; P-J.S. Peterson, USDA; F-B. Rice/TNC; O-W. Ciesla, Forest Health Mgmt, BW

Spotted Knapweed: R-S. Dewey, USU, BW; P-B. Ackley, OSU, BW; F-M. Pokorny, MSU

St. Johnswort: L-S. Dewey, USU, BW; P-J. Cardina, OSU, BW; F, O-MSU

Sulfur Cinquefoil: R-J. DiTomaso, UC, BW; P, F-MT Noxious Weed Awareness; O-T. Webster, USDA-ARS, BW

Tall Buttercup: R, F-J. Cardina, Ohio State, BW; P- MT Noxious Weed Awareness

Tansy Ragwort: R-L. Merholl, U of CT, BW; P-E. Coombs, BW; F-M. Shephard, USDA-FS, BW

Whitetop: R-S. Dewey, USU, BW; P-C. Evans; F-MSU

Yellow Toadflax: L-S. Dewey, USU, BW; P-L. Wilson, U of ID, BW; F-M. Shephard

Yellow Starthistle: R-S. Dewey, USU, BW; P-S. Dewey, USU, BW; F,O-MSU

Yellowflag Iris: L, F, P-M. Pokorny, MSU

BW: Bugwood.org

MSU: Montana State University

TNC: The Nature Conservancy

MSU Extension County and Weed District Offices

All Area Codes are (406)

E: Extension office; W: Weed District Office

Beaverhead
E: 683-3785
W: 683-3790

Big Horn
E: 665-9770
W: 208-7675

Blackfeet Reservation
E/W: 338-2650

Blaine
E: 357-3200
W: 357-2340

Broadwater
E: 563-9242
W: 266-9243

Carbon
E: 962-3522
W: 962-3967

Carter
E: 775-8271
W: 775-6278

Cascade
E: 454-6980
W: 454-6920

Chouteau
E: 622-3751
W: 622-5824

Crow Reservation
W: 638-4411

Custer
E/W: 874-3370

Daniels
E: /W: 487-2861

Dawson
E: 377-4277
W: 377-6546

Deer Lodge
E: 563-4035
W: 563-4071

Fallon
E/W: 778-7110

Fergus
E: 535-3919
W: 535-3970

Flathead
E: 758-5553
W: 758-5798

Flathead Reservation
E/W: 675-2700

Fort Belknap Reservation
E: 353-2565
W: 353-2901

Fort Peck Reservation
E: 768-4341
W: 768-3928

Gallatin
E: 582-3280
W: 582-3265

Garfield
E/W: 557-2770

Glacier
E: 873-2239
W: 873-4362

Golden Valley
E: 323-2704
W: 323-3740

Granite
E/W: 859-3304

Hill
E: 265-5481
W: 265-4453

Jefferson
E: 287-3282
W: 225-4165

Judith Basin
E: 566-2277
W: 566-2241

Lake
E: 676-4271
W: 883-7330

Lewis & Clark
E: 447-8346
W: 447-8372

Liberty
E: 759-5625
W: 759-5673

Lincoln
E: 296-9019
W: 283-2420

Madison
E: 287-3282
W: 842-5595

McCone
E: 485-2605
W: 485-2493

Meagher
E: 547-3042
W: 547-2196

Mineral
E: 822-3545
W: 822-3547

Missoula
E/W: 258-4200

Musselshell
E: 323-2704
W: 323-3740

**Northern Cheyenne
Reservation**
E/W: 477-6498

Park
E: 222-4156
W: 222-4158

Petroleum
E: 535-3919
W: 429-2239

Phillips
E/W: 654-2543

Pondera
E: 271-4054
W: 271-5672

Powder River
E: 436-2424
W: 436-2405

Powell
E: 846-9791
W: 846-3348

Prairie
E: 635-2121
W: 635-4433

Ravalli
E: 375-6611
W: 777-5842

Richland
E: 433-1206
W: 433-9047

Rocky Boy Reservation
W: 395-4207

Roosevelt
E: 787-5312
W: 787-5312

Rosebud
E: 346-7320
W: 346-7608

Sanders
E: 827-9734
W: 826-3487

Sheridan
E: 765-3406
W: 765-3415

Silver Bow
E: 723-0217
W: 497-6460

Stillwater
E: 322-8035
W: 322-1106

Sweet Grass
E: 932-5146
W: 932-3582

Teton
E: 466-2491
W: 466-2155

Toole
E: 424-8350
W: 434-2742

Treasure
E: 346-7320
W: 342-5549

Valley
E: 228-6241
W: 228-6237

Wheatland
E: 632-4728
W: 632-4138

Wibaux
E/W: 796-2486

Yellowstone
E: 256-2828
W: 256-2731



ORIGINALLY DEVELOPED IN PARTNERSHIP WITH:

Montana Department of Agriculture

Montana Weed Control Association

REVISED IN PARTNERSHIP WITH:



United States Department of Agriculture

Natural Resources Conservation Service