This brochure was created to increase awareness of Noxious Weeds, the importance of identification, the importance of a weed management program, and some methods of weed control based on local, state and national research-based information.

How do I control weeds on my property?

1. Identify the weeds on your property.
2. Once a weed is identified, understand the life cycle of the weed:
   - winter or summer annual
   - biennial
   - simple or creeping perennial
3. Understand the types of controls:
   - Preventative
   - Biological
   - Cultural
   - Chemical
   - Mechanical
4. Develop a weed management plan:
   - planning saves money and increases effectiveness
   - include long term monitoring to address any reinfections.
   - timing is a critical part of successful weed control. Regardless of which combination of control methods are used, implementing these control methods at the correct stage of weed development will increase the chances for successful weed control in the shortest period of time, with the least cost.

What are noxious weeds?

Noxious weeds are non-native plants that disrupt native vegetation because they have no natural controls and are able to adapt to varied conditions. As a result of the Colorado Noxious Weed Act, these weeds have been placed on three separate lists (weed names are color-coded corresponding to the list they are on):

- **List A plants**: Eliminated everywhere
- **List B plants**: Spread should be stopped
- **List C plants**: Control is recommended

Effective management occurs over time and requires repeated exposure to the recommended techniques and control methods. After years of investment in mitigating the weeds on your property, the plant will eventually be destroyed.

This brochure is not meant to be all inclusive or restrictive, but offers guidelines and recommendations. References and photographs for this guide are thanks to the following sources:


Colo. Dept. of Ag - Noxious Weed Management Program [www.colorado.gov/ag/weeds](http://www.colorado.gov/ag/weeds)


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It takes consistent persistence to win the war on weeds!

Weed Control Methods

**Preventive**: Prevention is the first and, perhaps, the most important step in a weed control program. In addition, prevention is probably the most cost-effective method of weed control. Methods include: maintaining healthy pastures, using weed-free crop seed, weed-free manure and hay, and clean harvesting and tillage equipment, as well as the elimination of weed infestations in areas bordering cropland, and in irrigation ditches and canals.

**Cultural**: Methods include, and are not limited to: Establishing and managing an adequate population of desirable vegetation to compete with the weeds; utilizing livestock (cattle, goats, sheep) when possible; mulching; burning; and even plastic weed barriers.

**Mechanical**: Methods include, and are not limited to: Hand-pull, hoe, mow and tillage.

**Biological**: Biological weed control involves the utilization of natural enemies for the control of specific weed species. Biological weed control is never 100% effective, and can take 5 to 10 years for success. However, this method can be successful especially when combined with other control methods.

**Chemical**: Always read the label before using any herbicide! Weed control with herbicides is an effective tool for many target weed species. However, there are several aspects to consider when choosing a chemical program. These include: ID of target weed; herbicide selection; timing of application; desirable crops or plant species near control areas; the number of applications per year, and the number of years for treatment. Sprayer calibration methods can be obtained from your local Extension office. ([Sprayer Calibration Fundamentals](http://www.ext.colostate.edu/pubs/farmmg/05003.html))

Always add a nonionic surfactant @ 0.32 oz/gal (1qt/100 gal) unless otherwise noted.
Canada thistle
Cirsium arvense (L.) Scop.

**Keys to Id**
- Purple flowers form in clusters of 1-5 per branch.
- Floral bracts are spineless.
- Small heads, vanilla scent.

**Identification**
- Lifecycle: Perennial
- Growth form: Forb/herb
- Flower: Flowerheads are purple and borne in clusters of 1-5 per branch. Heads are only about 3/4 in. wide. June-Oct.
- Seeds/Fruit: One-seeded fruits (achenes) are straw or light brown, straight or slightly curved
- Leaves: Leaves are spiny, alternate, oblong or lance-shaped, with the base leaves stalkless and clasping, or extended down along the stem.
- Stems: Mature plants range from 2-4 ft tall.
- Roots: Two types of roots, horizontal and vertical. The horizontal roots produce numerous shoots, while vertical roots store water and nutrients in their many small branches.
- Seedling: Early spring growth appears as rosettes with spiny-tipped, wavy leaves.
- Other: The floral bracts are spineless.

**Control**
- Mech: Mowing can be effective if done every 10 to 21 days throughout the growing season.

### HERBICIDE | RATE | TIMING
--- | --- | ---
Aminopyralid (Milestone) | 5-7 ounces/acre 1 L/gal water | Spring at the pre-bud growth stage and/or to fall regrowth.

Plumeless Thistle
Carduus acanthoides L

**Keys to Id**
- Flower heads occur in clusters of 2-5, purple to dark red in color.
- Alternate leaves, stalk-less, hairy on bottom.

**Identification**
- Lifecycle: Biennial
- Growth form: Forb
- Flower: Solitary at the ends of branches or in clusters of 2-5. Bracts appear as sharp spines. Purplish-pink; heads are 1-2 inches in diameter
- Leaves: Alternate, stalk-less, hairy underneath, coarsely lobed, basal leaves spiny.
- Stems: Spiny, can reach 48” tall.
- Roots: Fleshy taproot.
- Other: Plumeless thistles are distinguished from musk thistle by the leaf-like spines on stem and hairy leaf underside; flowers are 1/3rd size of musk.

**Control**
- Mech: Sever roots below soil surface; mow in full bloom and dispose of flowering heads-seeds can mature after plant is cut. Monitor to prevent reoccurrences.
- Bio: Seedhead weevil (Larinus minutus).

### HERBICIDE | RATE | TIMING
--- | --- | ---
Aminopyralid (Milestone) | 5 oz/acre | Spring to early summer rosette to bolting growth stages or fall.
Clopyralid (Transline) | 0.67 pint/acre | In rosette growth stage. (Spring or Fall)
Clopyralid + 2,4-D (Cortil) | 2 quarts/acre | In rosette growth stage. (Spring or Fall)
Picolam (Tordon 22K) | 1-2 pint/acre | Restricted Use
2,4-D | 1 quart/acre | In rosette growth stage. (Spring or Fall)

Bull thistle
Cirsium vulgare (Savi) Tenore

**Keys to Id**
- Leaves are prickly-hairy above and cot-tony below.
- Heads cobwebby-pubescent.
- Flowers are composite and purple

**Identification**
- Lifecycle: Biennial
- Growth form: Forb/herb
- Flower: Flowerheads are purple and borne in clusters of 1-5 per branch. Heads are only about 3/4 in. wide. June-Oct.
- Seeds/Fruit: One-seeded fruits (achenes) are straw or light brown, straight or slightly curved
- Leaves: Leaves are spiny, alternate, oblong or lance-shaped, with the base leaves stalkless and clasping, or extended down along the stem.
- Stems: Mature plants range from 2-4 ft tall.
- Roots: Two types of roots, horizontal and vertical. The horizontal roots produce numerous shoots, while vertical roots store water and nutrients in their many small branches.
- Seedling: Early spring growth appears as rosettes with spiny-tipped, wavy leaves.
- Other: The floral bracts are spineless.

**Control**
- Mech: Sever the root below the soil surface.
- Bio: Urophora stylata, a fly predator, can be used to help control this thistle.

### HERBICIDE | RATE | TIMING
--- | --- | ---
Countylon + 2,4-D (Curtail) | 0.2 + 1.0 to 0.3 + 1.5 oz | Apply to rosettes in spring or fall.
Dicamba (Banvel, Tankan, or Clarity) | 0.5 + 1.0 oz | Apply to rosettes in spring or fall.
Chlorsulfuron (Telar) | 1-3 ounces/acre 0.50 g1 gal water | Spring during bud to bloom stage and/or to fall regrowth.
Clopyralid + 2,4-D (Redeem) | 3 pints/acre 1.25 oz/gal water | Apply from rosette to bud stage when all plants have emerged.

Musk thistle
Carduus nutans

**Keys to Id**
- Broad, spine-tipped bracts located under the flower.
- Flowering heads are terminal, solitary, and usually nodding.
- Grows up to 6 feet tall.

**Identification**
- Lifecycle: Biennial, or sometimes winter annual
- Growth form: Forb
- Flower: Heads are terminal, solitary, 1/2-3 in wide, and usually nodding. Deep rose, violet or purple, occasionally white. Flowers are subtended by broad, spine-tipped bracts. May-July.
- Seeds/Fruit: One-seeded oblong fruit (achene) about 0.2 inches long, shiny, yellowish-brown with a pappus (plume) of white hair-like bristles.
- Leaves: Alternate, dark green, deeply lobed, and spiny margined. The leaves extend onto the stem giving a winged appearance. Basal rosettes are well developed, leaves elliptical to lanceolate, 6-14 in, smooth to densely hairy.
- Stems: Mature plants can grow as tall as 6 ft. It can appear solitary or with several stems from one base, and is highly branched above.
- Roots: Fleshy taproot

**Control**
- Mech: Sever the root below the soil surface. Mowing is most effective when plants are at full-bloom.
- Bio: seed head weevil and the crown weevil are effective on large infestations.

### HERBICIDE | RATE | TIMING
--- | --- | ---
Aminopyralid (Milestone) | 5 oz/acre | Spring to early summer rosette to bolting growth stages or fall.
Clopyralid (Transline) | 0.67 pint/acre | In rosette growth stage. (Spring or Fall)
Clopyralid + 2,4-D (Cortil) | 2 quarts/acre | In rosette growth stage. (Spring or Fall)
Picolam (Tordon 22K) | 1-2 pint/acre | Restricted Use
2,4-D | 1 quart/acre | In rosette growth stage. (Spring or Fall)
Meadow Knapweed
Centaraurea pratensis

**Keys to Id**
- Flowers are pink to purple; nickel size;
- Leaves 6" long, 1" wide;
- Fringed margins on bracts.

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- Seeds: white to light brown seeds with short plumes.
- Leaves: Brightly green; lower leaves are entire, coarsely lobed, or toothed.
- Stems: Several upright stems, can reach 40" tall.
- Roots: Long taproot.
- Other: Hybrid - traits can vary between plants.
- Other: Meadow knapweed has a more upright growth form than spotted knapweed.
- Habitat: Meadow knapweed prefers cooler and wetter conditions than spotted knapweed

**Control**
- Mech: Hand pulling or digging of small populations; remove entire root system. Monitoring for long term is essential to prevent recurrences.
- Bio: livestock, seedhead weevil (Larinus minutus), and the root weevil fly (Cyphochleonus achates).

**Diffuse knapweed
Centaraurea diffusa Lam**

**Keys to Id**
- Floral bracts have yellow spines with teeth like a comb and a distinct spine.
- Flowers are white or lavender
- Seedlings have finely divided leaves

**Identification**
- Lifecycle: Biennial or short-lived perennial
- Growth form: Forb
- Flower: Broadly urn-shaped, 0.6-0.8 in tall, terminal solitary or in clusters of 2-3. Floral bracts are yellowish with a brownish margin, fringed on the sides, and terminating in a slender bristle or spine. The heads contain two types of flowers, ray flowers (white, rose-purple, to lavender) around the edges surrounding tubular disk flowers. June-Aug.
- Seeds: Seeds are light brown to black.
- Leaves: Basal leaves are stalked and divided into narrow, hairy segments. Stem leaves are smaller, alternate, less divided, stalkless, and become bract-like near the flower clusters.
- Stems: Upright, 4-24 in tall, highly branched, angled, with short, stiff hairs on the angles.
- Seedling: Finely divided leaves, covered by short hair

**Control**
- Mech: Hand pulling or digging of small populations; remove entire root system. Monitoring for long term is essential to prevent recurrences.
- Bio: livestock, seedhead weevil (Larinus minutus), and the root weevil fly (Cyphochleonus achates).

**Russian knapweed
Acroptilon repens (L.) De Candolle**

**Keys to Id**
- Distinguished by the pointed papery tips of the floral bracts.
- The roots are dark brown and have scale leaves.

**Identification**
- Growth form: Perennial forb
- Flower: Heads are urn-shaped, solitary, and composed of disk flowers. Floral bracts are broad, ovoid, entire, and greenish at the base with papery, finely hairy edges. The petals are pink or purple.
- Seeds: Oval, grayish or ivory, with long white bristles (pappus) at the tip when young.
- Leaves: Alternate. Lower stem leaves are narrowly oblance-shaped, and deeply lobed. The upper leaves are oblong, toothed, and become progressively smaller. Rosette leaves are lance-shaped, tapering at both ends, broadest at the tip.
- Stems: Mature plants are between 18-36 inches tall. The stems are erect, thin, stiff, branched, and when young are covered with soft, short, gray hair.
- Roots: Well-developed, recognizable by their black color and presence of small scale leaves.
- Seedling: The seed leaves are oval, with shallow toothed or smooth edges. The surface of the leaves looks greyish-green, but is not hairy.

**Control**
- Mech: Mowing repeatedly before the plants bolt during the summer, then herbicide in the fall.
- Bio: gall midge (Jaapia liviannikovi)

**HERBICIDE**
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<tr>
<th>HERBICIDE</th>
<th>RATE</th>
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<tbody>
<tr>
<td>Aminopyralid (Milestone)</td>
<td>7 oz/acre</td>
<td>Spring to early summer rosette to bolling growth stages or fall</td>
</tr>
<tr>
<td>Clopyralid (Transline)</td>
<td>1 pint/acre</td>
<td>Spring to early summer rosette to bolling growth stages or fall</td>
</tr>
<tr>
<td>Pidloram (Tordon 22K) *Restricted Use</td>
<td>1 qart/acre</td>
<td>Spring to early summer rosette to bolling growth stages or fall</td>
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<tr>
<td>Aminopyralid (Milestone)</td>
<td>5-7 oz/acre</td>
<td>Spring at rosette to early boll stage and/or in the fall to rosettes.</td>
</tr>
<tr>
<td>2,4-D Amine (temp must be below 85*)</td>
<td>1 qt./acre</td>
<td>Spring/fall rosettes - before flowering stalk lengths.</td>
</tr>
<tr>
<td>Clopyralid + Triclopyr (Redeem R&amp;P)</td>
<td>1.5-2 pints/acre</td>
<td>Rosette to early boll stage of growth and/or in the fall to rosettes.</td>
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<td>Aminopyralid (Milestone)</td>
<td>4-6 ounces/acre</td>
<td>Bud and flowering stage and to dormant plants in the fall.</td>
</tr>
<tr>
<td>Pidloram (Tordon 22K) *Restricted Use</td>
<td>1 qt./acre</td>
<td>Apply in spring to bud/early flower stage or fall rosette.</td>
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<tr>
<td>Chlorosulfuron (Telar)</td>
<td>1-3 oz/acre</td>
<td>Apply in spring from pre-bloom to bloom.</td>
</tr>
<tr>
<td>Clopyralid + 2,4-D (Curtail)</td>
<td>2/3 gr./gal water</td>
<td>Apply in spring and fall to rosettes.</td>
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**Spotted knapweed
Centaraurea maculosa L.**

**Keys to Id**
- Floral bracts have black tips, with comb-like spines of equal length.
- Flowers are pink to purple, but rarely white.
- Leaves are pinnately divided.

**Identification**
- Lifecycle: Biennial or short-lived perennial
- Growth form: Forb
- Flower: Flowering heads are solitary at the ends of branches. The floral bracts are stiff and topped in a dark comb-like fringe. The flowers are pinkish-purple or rarely cream colored.
- Seeds: Have a tuft of persistent bristles.
- Leaves: Alternate rosette leaves are up to 6 in long, and deeply lobed. The principal stem leaves are pinnately divided, have smooth margins, and become smaller toward the top of the shoot.
- Stems: Mature plants are 1-3 ft tall, single stemmed
- Roots: Spotted knapweed has a stout taproot.
- Seedling: Rosettes of spotted and diffuse knapweed are nearly indistinguishable. Leaves are narrow and 1-2 times pinnately divided

**Control**
- Mech: remove all roots below the soil surface. Mowing is most effective when plants are at full bloom.
- Bio: Seed head and Root weevils (Larinus minutus and Cyphochleonus achates)

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<td>Aminopyralid (Milestone)</td>
<td>5-7 ounces/acre</td>
<td>Spring at rosette to early boll stage and/or in the fall to rosettes.</td>
</tr>
<tr>
<td>Clopyralid (Transline, Slinger)</td>
<td>2/3 - 1 pint/acre</td>
<td>Apply to spring/fall rosettes - before flowering stalk lengths.</td>
</tr>
<tr>
<td>Clopyralid + 2,4-D (Curtail)</td>
<td>2-3 or 3 qts./acre</td>
<td>Apply in spring and fall to rosettes.</td>
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</table>
**Purple loosestrife**  
*Lythrum salicaria L.*  
*Nonselective aquatic safe*  
*(Rodeo (Garlon 3A))

**Identification**
- Lifecycle: Perennial  
- Growth form: Forb or woody sub-shrub  
- Color: Purple/magenta  
- Flower structure: Small clusters  
- Seed structure: Oblong, gray to purple  
- Notes: Contains milky sap.

**Control**
- Mechanism: Hand removal, prior to seed set  
- Bio: Appropriately use as eradication is the goal.

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**Myrtle Spurge**  
*Euphorbia myrsinites*

**Identification**
- Lifecycle: Perennial  
- Growth form: Forb  
- Flower: Yellow-green bracts that bloom in the early spring.  
- Seeds/Fruit: Yellow, round  
- Seeds/Fruit: Hard, round  
- Leaves: Alternative, narrow (1/4" wide)  
- Roots: Taproot  
- Other: The plant exudes sap that can irritate the skin.

**Control**
- Mechanism: Hand removal  
- Bio: Appropriately used, as eradication is the goal.

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**Leafy Spurge**  
*Euphorbia esula L.*

**Identification**
- Lifecycle: Perennial  
- Growth form: Forb  
- Flower: Numerous small clusters of small yellow-green enclosed by paired heart-shaped yellow-green bracts.  
- Seeds/Fruit: Baby's breath seed head  
- Seeds/Fruit: Tightly clustered, can reach 3 ft tall  
- Roots: Extensive lateral root system  
- Foliage: Seed leaves (cotyledons) are linear to lanceolate, with entire margins.  
- Other: The entire plant contains milk latex.

**Control**
- Mechanism: Mowing will reduce seed production  
- Bio: Both sheep and goats can be effective grazers.

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**Scotch Thistle**  
*Onopordum acanthium L.*

**Identification**
- Lifecycle: Biennial  
- Growth form: Forb  
- Flower: Heads are numerous, 1-2 inches in diameter, with spine-tipped bracts.  
- Seeds/Fruit: One-seeded fruit (achene) is wrinkled, brown to grayish-black, tipped with a plume (pappus) of slender bristles.  
- Leaves: Alternate, large, irregularly lobed, and have sharp yellow spikes. Rosette leaves may be up to 2 ft long and 1 ft wide.  
- Roots: Thick fleshy taproot  
- Seedling: Forms rosette

**Control**
- Mechanism: Sever the root below the soil surface. Mowing is most effective when plants are at full bloom.  
- Bio: None currently effective.
Yellow toadflax
Linaria vulgaris P. Miller

**Keys to Id**
- Yellow flowers that are like snapdragons with deep orange centers.
- Stems that are woody at the base and smooth to the top.

**Identification**
- Lifecycle: Perennial
- Growth form: Herbaceous biennial
- Flower: Bright yellow and resemble snapdragons, singly on ends of branches, sharp thorns below.
- Seeds: Capsules are round-ovate, and two-celled. Seeds are brown or black, circular, and surrounded by a notched wing.
- Leaves: Alternate or opposite leaves appear to be opposite.
- Stems: Mature plants are 1-3 feet tall with 1-2 smooth erect floral stems covered with cottony hairs.
- Roots: Deep taproot, long horizontal roots that can develop adventitious bud sprouts.
- Other: Closely related to Dalmatian toadflax (who's roots may grow to be several yards long, and can develop adventitious buds).
- Yellow toadflax is similar, but has more linear pointed leaves, and is generally a smaller plant.

**Control**
- Mech: Hand pulling, digging, or till ing is NOT recommended for eradication.
- Bio: Calophasia lunula, a predatory noctuid moth, Eleobaea intermediella, a root boring moth and Mecinus janthinus, a stem boring weevil are currently available in Colorado.

Dalmatian toadflax
Linaria dalmatica

**Keys to Id**
- Yellow flowers that are like snapdragons with deep orange centers.
- Thick, waxy, bluish heart-shaped leaves that wrap the stem.

**Identification**
- Lifecycle: Perennial
- Growth form: Herbaceous biennial
- Flower: Loose, elongate, bright yellow.
- Seeds/Fruit: Fruits are egg-shaped capsules. Seeds are sharply angular, and slightly winged.
- Leaves: Alternate, broad, clasping but crowded.
- Stems: Mature plants are up to 3 ft tall. A single toadflax plant contains from 1-25 vertical, floral stems, are thick-walled and semi-woody.
- Roots: May penetrate 3 ft into the soil. Horizontal roots may grow to be several yards long, and can develop adventitious buds.
- Yellow toadflax is similar, but has more linear pointed leaves, and is generally a smaller plant.

**Control**
- Mech: Hand pulling, for many years after 1st detection, is recommended for eradication.
- Bio: Calophasia lunula, a predatory noctuid moth, Eleobaea intermediella, a root boring moth and Mecinus janthinus, a stem boring weevil are currently available in Colorado.

Dame’s Rocket
Hesperis matronalis

**Keys to Id**
- Flowers are white or purple with four petals.
- Leaves are lanced shaped with toothed margins and 2-4" long.

**Identification**
- Lifecycle: Biennial or short-lived perennial; member of the mustard family.
- Growth form: Forb
- Flower: White or purple with 4 petals. Flowers are clustered in loose terminal stalks. May-Sept.
- Seeds/Fruit: Seed capsules are heart shaped, and contain two reddish-brown seeds.
- Leaves: Alternate, blue green, and lance-shaped. Lower leaves are stalked, while the upper leaves have two lobes clasping the stem.
- Stems: Mature plants reach 2 ft tall with erect stems.
- Roots: Shallow fibrous root system.
- Impact: Commonly planted as an ornamental

**Control**
- Mech: Hand pull/dig when soil is moist, remove flowers before the plant sets seed.
- Bio: none currently available

**HERBICIDE** | **RATE** | **TIMING**
--- | --- | ---
Picloram *(Tordon 22K)* | 4-5 qts/acre | Apply at spring flowering or in the fall
*Restricted* | 4-5 oz/gal | Pre-bloom to flowering stage (retreatment is essential)
Chlorsulfuron *(Telar)* | 2-3 oz/acre | Apply at spring flowering or in the fall
Chlorpyrifos* *(non-selective herbicide)* | 2 qt + 2 qt/acre | Pre-bloom to flowering stage (retreatment is essential)

Metsulfuron *(Escort XP)*

**RATE** | **TIMING**
--- | ---
1 oz/acre | Apply at the early bud growth stage; i.e. “broccoli” growth stage. (Early Spring to Early Summer)

Chlorsulfuron (Telar)

**RATE** | **TIMING**
--- | ---
1 oz/acre | Apply at the early bud growth stage; (Early Spring to Early Summer)

Imazapic (Plateau)

**RATE** | **TIMING**
--- | ---
12 fl. oz/acre + 2 pints/acre methylated seed oil or crop oil concentrate | Apply at late flower to post-flower growth stage. (Late Spring to Mid Summer)

Hoary Cress (Whitetop)
Cardaria draba

**Keys to Id**
- White flowers.
- Grows erect 10-24" in height
- Leaf is 3/4-4" long with blunt end and fine white hairs.

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- Flower: Numerous white flowers with four petals, plant has white, flat-topped appearance. May-June.
- Seeds/Fruit: Seed capsules are heart shaped, and contain two reddish-brown seeds.
- Leaves: Alternate, blue green, and lance-shaped. Lower leaves are stalked, while the upper leaves have two lobes clasping the stem.
- Stems: Mature plants reach 2 ft tall with erect stems.
- Roots: Rhizomatous; 29-32 inches deep

**Control**
- Mech: Mowing several times before the plants bolt stresses it and allows for better chemical efficacy.
- Bio: none currently available

**HERBICIDE** | **RATE** | **TIMING**
--- | --- | ---
Metsulfuron *(Escort XP)* | 1 oz/acre | Apply at the early bud growth stage; i.e. “broccoli” growth stage. (Early Spring to Early Summer)

Chlorsulfuron (Telar)

**RATE** | **TIMING**
--- | ---
1 oz/acre | Apply at the early bud growth stage; (Early Spring to Early Summer)

Imazapic (Plateau)

**RATE** | **TIMING**
--- | ---
12 fl. oz/acre + 2 pints/acre methylated seed oil or crop oil concentrate | Apply at late flower to post-flower growth stage. (Late Spring to Mid Summer)
Salt Cedar (Tamarisk)
Tamarix ramosissima Ledeb. or T. parviflora DC.

Identification
- Lifecycle: Perennial
- Growth: deciduous, loosely branched.
- Flower: Whitish or pinkish in clumps 2-5 cm long on the current year’s branches. Petals retained on fruit.
- Seeds: Very small capsule, tuft of hair at one end.
- Leaves: Scale-like, alternate, bluish-green.
- Stems: Smooth, slender, flexible, break easily; may become 15-25 ft. tall; reddish-brown bark.
- Roots: deep taproot, extensive spreading horizontal roots. Produces adventitious buds.

Control
- Cultural: Maintain healthy riparian vegetative cover.
- Mech: Chainsaw, bulldozer, mulching, and mowing.
- Foliar: 2-4 qt/acre
- Basal bark: 1:3 herbicide:natural oil

Oxeye Daisy
Chrysanthemum leucanthemum L.

Identification
- Lifecycle: Annual, biennial or short-lived perennial.
- Growth form: Forb
- Flower: White, 1/8 inch daisy flowers that are solitary on each stem.
- Seed: Continually produces flowers and seed all season. One flower head can produce 300 seeds.
- Leaves: Alternate, finely divided and fernlike.
- Roots: Thick, black, woody taproot.
- Seedling: Forms a rosette in the first year.

Control
- Mech: Hand pull or pull when soil is moist and infestations are small, be sure to pull up all roots. Mowing is not effective, stop seed spread by removal.
- Bio: Goats or sheep can be effective. There are no insect biological controls currently available.

HERBICIDE | RATE | TIMING
--- | --- | ---
Triclopyr (Garlon 4) **approved aquatic label** | Foliar: 2-4 qt/acre | Anytime unless snow present.
Basal bark: 1:3 herbicide:natural oil | Foliar: late spring to early fall | Anytime unless snow present.
Cut-stump: 100% | Anytime unless snow present.
Glyosphate (Rodeo) **nonselective aquatic label** | Foliar: 2-4 qt/acre | Anytime unless snow present.
Basal bark: 1:3 herbicide:natural oil | Foliar: late spring to early fall | Anytime unless snow present.
Cut-stump: 100% | Anytime unless snow present.

Houndstongue
Cynoglossum officinale

Identification
- Lifecycle: Biennial
- Growth form: Forb
- Flower: Flowers are reddish-purple, with 5 petals, arranged in panicles in the upper leaf axils.
- Seeds/Fruit: The fruit is composed of four prickly nutlets each about 1/3 inch long
- Leaves: Alternate, 1-1/2 inches long, 1-3 inches wide, rough, hairy, and lacking teeth or lobes. Basal leaves are elliptical and tapered at the base.
- Roots: Thick, black, woody taproot.
- Seedling: Forms a rosette in the first year.

Control
- Mech: Cut or pull, and remove entire root crown when in the rosette stage. Remove the accumulated dense litter layer to stimulate germination of desired plants. Mow or cut flowering stems before seed nutlets develop.
- Bio: none currently available in Colorado.

Herculex I Injectable
- Apply in spring rosette to early bud growth stage.
- 2.0 oz / acre

Saltcedar leaf beetle (Diorhabda elongata)

Identification
- Lifecycle: Perennial, short-lived
- Growth: Heads are solitary at the ends of branches. Heads are white ray flowers & yellow disk flowers.
- Seeds/Fruit: Fruits have about 10 ribs.
- Leaves: Alternately arranged leaves become progressively smaller upward along the stem.
- Seed: Continually produces flowers and seed all season. One flower head can produce 300 seeds.
- Leaves: Alternate, finely divided and fernlike.
- Roots: Shallow, branched rhizomes.
- Other: Oxeye daisy is easily confused with the ornamental Shasta daisy which has a root ball and is a more robust plant with larger flowers.

Control
- Mech: Hand pulling small populations; frequent, shallow tillage in non-native areas. Mowing is not effective. Prevent seed production. Combine efforts with chemical options for effective control.
- Bio: Nothing available in Colorado.

HERBICIDE | RATE | TIMING
--- | --- | ---
Metsulfuron (Escort XP) | 0.33 oz/ac | Apply when plant is in rosette to bolting growth stage.
Chlorsulfuron (Telar) | 0.33 oz/ac | Apply when plant is in rosette to bolting growth stage.
Aminopyralid (Milestone) | 7 fl oz/ac | Apply when plant is in rosette growth stage.

Scentless Chamomile
Matricaria perforata

Identification
- Lifecycle: Annual, biennial or short-lived perennial.
- Growth form: Forb
- Flower: Heads of daisy flowers on a stalk.
- Seed: Continually produces flowers and seed all season. One flower head can produce 300 seeds.
- Leaves: Alternate, finely divided and fernlike.
- Roots: Large and fibrous.
- Seedling: Seedlings emerging in spring can produce a dense mat, out competing other species.

Control
- Mech: Hand pulling small populations; frequent, shallow tillage in non-native areas. Mowing is not effective. Prevent seed production. Combine efforts with chemical options for effective control.
- Bio: Nothing available in Colorado.

HERBICIDE | RATE | TIMING
--- | --- | ---
Metsulfuron (Escort XP) | 0.33 oz/ac | Apply when plant is in rosette to bolting growth stage.
Chlorsulfuron (Telar) | 0.33 oz/ac | Apply when plant is in rosette to bolting growth stage.
Aminopyralid (Milestone) | 7 fl oz/ac | Apply when plant is in rosette growth stage.

Oxeye Daisy
Chrysanthemum leucanthemum L.

Identification
- Lifecycle: Annual, biennial or short-lived perennial.
- Growth form: Forb
- Flower: Heads of daisy flowers on a stalk.
- Seed: Continually produces flowers and seed all season. One flower head can produce 300 seeds.
- Leaves: Alternate, finely divided and fernlike.
- Roots: Large and fibrous.
- Seedling: Seedlings emerging in spring can produce a dense mat, out competing other species.

Control
- Mech: Hand pulling small populations; frequent, shallow tillage in non-native areas. Mowing is not effective. Prevent seed production. Combine efforts with chemical options for effective control.
- Bio: Nothing available in Colorado.

HERBICIDE | RATE | TIMING
--- | --- | ---
Metsulfuron (Escort XP) | 0.33 oz/ac | Apply when plant is in rosette to bolting growth stage.
Chlorsulfuron (Telar) | 0.33 oz/ac | Apply when plant is in rosette to bolting growth stage.
Aminopyralid (Milestone) | 7 fl oz/ac | Apply when plant is in rosette growth stage.
**Sulfur Cinquefoil**

*Potentilla recta*

**Keys to Id**
- Leaves - palately compound, 5-7 toothed leaflets.
- Flowers are light yellow with five petals.
- Leaf stalks have perpendicular hairs.

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- Flower: bell or trumpet-shaped, white to pink in color, and are about 1 inch long, small bracts below.
- Leaves: Alternate, arrowhead shaped.
- Stems: Prostrate, many feet in length.
- Roots: Fibrous roots and lateral rhizomes

**Control**
- Mech: Cutting, mowing, or pulling has a negligible effect unless the plants are cut below the surface in the early seedling stage.
- Bio: The bindweed gall mite, Aceria mahlerbae, and bindweed moth, Tyta luctuosa, are the major insect biological controls currently available.

**COMMON HERBICIDES**

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tordon 22K®</td>
<td>1 pt/acre</td>
<td>Just after full-bloom and/or fall.</td>
</tr>
<tr>
<td><em>Restricted Use</em></td>
<td>1 oz/gal</td>
<td>DO NOT apply near or under trees/ shrubs or where soils have rapid permeability.</td>
</tr>
<tr>
<td>Aminopyralid</td>
<td>6 oz/acre</td>
<td>Just after full-bloom and/or fall.</td>
</tr>
<tr>
<td>(Milestone)</td>
<td></td>
<td>DO NOT apply near or under trees/ shrubs or where soils have rapid permeability.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Apply at full-bloom and/or in fall.</td>
</tr>
</tbody>
</table>

**Common Burdock**

*Arctium minus*

**Keys to Id**
- Large heart shaped leaf.
- Burs with hooked bristle.
- Biennial, rosette year 1, tall flowering stem year 2.

**Identification**
- Lifecycle: Biennial
- Growth form: Forb
- Flower: Each head is bristles with hooked tips that form a round but under a closely packed cluster of many individual, tube-shaped, reddish-purple flowers. Alone or grouped on short stalks attached to the end of main branches.
- Seed: 1/4”-long, brown, oblong, angular with a short, stiff bristle at one end.
- Leaves: Alternate, large rosette leaves attached to the stem by way of hollow petioles that may be purple-tinged. Upper leaf surface is dark green, underside is pale gray-green and woolly.
- Stems: Year 1, stem is close to the soil surface. Year 2, the stem elongates reaches 2-6 feet tall.
- Roots: thick, fleshy taproot, brown, corky, shredded.

**Control**
- Mech: Hand pull or dig when soil is moist and infestations are small, be sure to pull up all roots. Mowing is not effective, stop seed spread by removal.
- Bio: Animals dislike due to high tannin content. There are no insect biological controls currently available.

**COMMON HERBICIDES**

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</tr>
</thead>
<tbody>
<tr>
<td>2,4-D or dicamba, or picloram</td>
<td>1 lb. ai / ac</td>
<td>Year 1 rosette application is most effective.</td>
</tr>
<tr>
<td>Glyphosate</td>
<td>1.5 lb. ai / ac</td>
<td>Prior to bud formation.</td>
</tr>
</tbody>
</table>

**Common Muellein**

*Verbascum thapsus*

**Keys to Id**
- Leaves - felt-like, bluish green in color.
- 5-10ft. tall flower spike.
- Biennial, rosette year 1, tall flowering stem year 2.

**Identification**
- Lifecycle: Biennial
- Growth form: Forb
- Flower: 5 lobed sulfur to pale yellow color, developing as the flower spike extends.
- Seeds: Numerous tiny, angular, brownish seeds in 2-chambered capsules.
- Leaves: Year 1: rosette leaves are felt-like soft, and bluish-green in color; Year 2: large fuzzy alternate overlapping leaves on stem.
- Stems: Produces a single flowering stem. Stem is erect, 2-8 ft tall; dried stalks stand through winter.
- Roots: Shallow taproot.
- Seedling: Forms a rosette in the first year

**Control**
- Mech: Dig or pull, and remove entire root when in the rosette stage. Will not tolerate tillage. Mowing is not as effective, repeated mowing is necessary.
- Bio: none currently available in Colorado
- Chemical: must apply with surfactant to aid in the penetration of chemical through the hairs on leaves.

**COMMON HERBICIDES**

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</tr>
</thead>
<tbody>
<tr>
<td>2,4-D</td>
<td>0.5 oz. / ac</td>
<td>Apply at rosette stage.</td>
</tr>
<tr>
<td>Glyphosate</td>
<td>16 oz. /ac</td>
<td>Apply in spring rosette stage.</td>
</tr>
</tbody>
</table>
**Downy brome** (Cheatgrass)  
*Bromus tectorum*

**Keys to Id**
- Drooping seedhead
- Densely hairy leaves
- Green-up in early spring
- Changes to purple/tan in early summer

**Identification**
- Lifecycle: Summer/Winter Annual.
- Growth form: Grass
- Flower: panicles (loose, irregularly compound flowering part of plant with flowers borne on individual stalks).
- Seeds: Spikelets including awns are 0.8-2" long, nodding, with 2-8 florets.
- Leaves: Light-green and hairy. Lower sheaths are conspicuously hairy, upper sheaths are smooth.
- Stems: Erect, slender, glabrous, or slightly hairy.
- Roots: Fibrous root system.

**Control**
- Cultural: Maintain healthy stand of natives/desired perennials, carefully manage grazing to ensure protection of desired plant species.
- Mech: Cutting or mowing has a negligible effect, repeated hand pulling or grazing before seed set.

**Control**
- Hand pull, dig, grub to remove all parts of plant, especially roots - highly toxic.
- Repeated mowing close to the ground.
- Wear protective clothing, plant is highly toxic to humans in addition to livestock.
- Chemical: Triclopyr, 2,4-D plus dicamba, or Glyphosate. Rate: Mix as recommended on label.

**Herbicide**

<table>
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<tr>
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<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyphosate</td>
<td>6 - 12 oz / acre</td>
<td>Apply early spring prior to seed set</td>
</tr>
<tr>
<td>Imazapic (Plateau)</td>
<td>2 - 12 oz / acre</td>
<td>Late summer to early fall before emergence</td>
</tr>
</tbody>
</table>

**Poisonous Plants**

**These plants are poisonous to domestic livestock**

- *Asclepias subverticillata* (Western Whorled Milkweed)
  **Keys to Id**
  - Whorled linear leaves
  - Greenish white flower
  - Slender seed pod
  - Milky latex sap

- *Asclepias speciosa* (Showey Milkweed)
  **Keys to Id**
  - Opposite elliptical leaves
  - Pink/white crown like flower
  - Erect stem can reach 5 ft.
  - Milky latex sap

- *Conium maculatum* (Poison hemlock)
  **Keys to Id**
  - Fern-like leaves
  - Purple spotted stems
  - White flower: umbrella shaped clusters
  - Biennial lifecycle

**Control**
- Mech: Hand pull, dig, grub to remove all parts of plant, especially roots - highly toxic.
  - Repeat mowing close to the ground.
  - Wear protective clothing, plant is highly toxic to humans in addition to livestock.
- Chemical: Triclopyr, 2,4-D plus dicamba, or Glyphosate. Rate: Mix as recommended on label.

**Control**
- Mechan: Mowing, or tillage.
- Chemical:
  - Tordon 22K
  - *Restricted Use
  - Rate: 1 qt. / acre (spring or fall application)

**Species of Concern**

- *Knautia arvensis* (Field Scabious)
  **Keys to Id**
  - petals: dome-shaped.
  - purple spotted stems
  - leaves are coarsely toothed, feather-shaped.
  - Unpalatable to livestock.
  - Deep woody taproot.

**Control**
- Hand pull, dig, grub to remove all parts of plant, especially roots - highly toxic.
  - Repeat mowing close to the ground.
  - Wear protective clothing, plant is highly toxic to humans in addition to livestock.
- Chemical: Triclopyr, 2,4-D plus dicamba, or Glyphosate. Rate: Mix as recommended on label.

- *Conium maculatum* (Poison hemlock)
  **Keys to Id**
  - Fern-like leaves
  - Purple spotted stems
  - White flower: umbrella shaped clusters
  - Biennial lifecycle

**Control**
- Mech: Hand pull, dig, grub to remove all parts of plant, especially roots - highly toxic.
  - Repeat mowing close to the ground.
  - Wear protective clothing, plant is highly toxic to humans in addition to livestock.
- Chemical: Triclopyr, 2,4-D plus dicamba, or Glyphosate. Rate: Mix as recommended on label.

**Additional Resources:**

- **Brian Griffin**  
  Noxious Weed Control Program Manager  
  (970) 328-3553  
  [Brian.Griffin@eaglecounty.us](mailto:Brian.Griffin@eaglecounty.us)

- **Eagle County Weed and Pest Department**  
  [http://www.eaglecounty.us/weeds/](http://www.eaglecounty.us/weeds/)

- **CMG Garden Notes #351, Weed Management**  
  [www.cmg.colostate.edu/gardennotes/351.pdf](http://www.cmg.colostate.edu/gardennotes/351.pdf)

- **Preparation of small spray quantities of pesticides**  
  [www.ext.colostate.edu/pubs/garden/07615.pdf](http://www.ext.colostate.edu/pubs/garden/07615.pdf)

- **CSU Ext, Weed Management for small rural acreages**  
  [www.ext.colostate.edu/pubs/natres/03106.pdf](http://www.ext.colostate.edu/pubs/natres/03106.pdf)

- **CSU Ext, Yard and Garden Publications**  
  [www.ext.colostate.edu/pubs/garden/07615.pdf](http://www.ext.colostate.edu/pubs/garden/07615.pdf)

- **http://www.eaglecounty.us/weeds/**

**Backyard Weed Control Tips**

Weeds (or undesirable vegetation) are a concern anytime they compete with the desired vegetation of your landscape or garden area. Weeds are opportunistic and will occupy any space that they can readily invade. Know that tolerating a few weeds can allow a healthy, functioning, attractive sustainable system.

**Proper management, whether it be healthy turfgrass, adequate native plantings, or adequate mulch depth, can help to severely limit the impact that invasive and weed plants have.**

**The best weed control is prevention!**

An integrated management approach to weed prevention will allow for the best results to reduce any weed concerns on your property. This takes time and attention over the long term to achieve successful results.

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