Noxious Weed Management Pocket Guide

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
   - Mechanical
4. Develop a weed management plan.
   - planning saves money and increases effectiveness
   - include long term monitoring to address any reinfestations.
   - timing is a critical part of successful weed control. Regardless of which combination of control methods are used, implementing those 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 weeds 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 information presented are thanks to the following sources:

- CO Dept. of Ag. - Noxious Weed Management Program
  http://www.colorado.gov/cs/Satellite/Agriculture/Mail/CDAG/1173201987
- CO Weed Management Association - Noxious Weed Info.
  http://www.cwsma.org/

- Palisade Insectory - Home of Colorado’s Biological control program (CO Dept of Ag)

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)

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.
Bull thistle  
*Cirsium vulgare* (Savi) Tenore  

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

**Identification**  
- Lifecycle: Biennial  
- Growth form: Forb/herb  
- Flower: Flowers are 1.5-2 in wide and clustered at the ends of branches. The flower bracts are somewhat tapered and covered with spines (Whiston et al. 1996).  
- Seeds/Fruit: Seeds are capped with a circle of plume-like white hairs.  
- Leaves: Leaves are alternate. Bull are the only thistles in Colorado that are prickly hairy on the top surface of the leaves. They are cottony-hairy on the underside.  
- Stems: In mature plants the leaves extend down, clasping the stem and are divided into segments (i.e. strongly decurrent).  

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

**HERBICIDE**  
- Clomax (2,4-D)  
  - **Rate**: 0.2 + 1.0 oz  
  - **TIMING**: Apply to rosettes in spring or fall.  
- Dicamba (Banvel, Currant)  
  - **Rate**: 0.5 + 1.0 oz  
  - **TIMING**: Apply to rosettes in spring or fall.  
- 2,4-D or Dicamba (Ranger)  
  - **Rate**: 1.5 to 2.0 oz  
  - **TIMING**: Apply to rosettes in spring.

**HERBICIDE**  
- Aminopyralid (Milestone)  
  - **Rate**: 5-7 oz/gal water  
  - **TIMING**: Spring at the pre-bud growth stage and/or to fall regrowth.  
- Chlorsulfuron (Telar)  
  - **Rate**: 1.3 oz/gal water  
  - **TIMING**: Spring during bud to bloom stage and/or to fall regrowth.  
- Tryclopyr + Chlorsulfuron (Redeem R&P)  
  - **Rate**: 3 oz/gal water  
  - **TIMING**: Apply from rosette to bloom stage when all plants have emerged.

**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: Perennial forb  
- 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.  
- Bio: Cattle, goats, and sheep will graze when plants are young and succulent in the spring.  

**HERBICIDE**  
- Aminopyralid (Milestone)  
  - **Rate**: 5 oz/gal water  
  - **TIMING**: Spring rosette to early bolting or in fall to rosettes.  
- Chlorsulfuron (Telar)  
  - **Rate**: 1 oz/gal water  
  - **TIMING**: Spring from rosette through very early flower stage.  
- Chlorsulfuron (Telar)  
  - **Rate**: 1 oz/gal water  
  - **TIMING**: Spring from rosette through early flower stage.

**Musk thistle**  
*Carduus nelson*  

**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 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) is about 0.2 inches long, shiny, yellowish-brown with a plume (pappus) 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 to 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**  
- Aminopyralid (Milestone)  
  - **Rate**: 5 fl. oz./acre  
  - **TIMING**: Spring rosette to early bolting or in fall to rosettes.  
- Chlorsulfuron (Telar)  
  - **Rate**: 1 oz/acre  
  - **TIMING**: Spring from rosette through early flower stage.

**Scotch thistle**  
*Onopordon acanthurum* L.  

**Keys to Id**  
- Flower heads cluster 2-5 and are purple  
- Leaves are alternate, stalk-less and hairy underneath.  

**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: Leaves are alternate, large, irregularly lobed, and have sharp yellow spines. Rosette leaves may be up to 2 feet long and 1 foot wide. Upper and lower leaf surfaces are covered with a thick mat of cotton-like or woolly hairs, giving the foliage a gray-green color.  
- Stems: Mature plants can grow up to 12 feet tall, and have a large, fleshy taproot. Stems are numerous, branched, and have broad spiny wings.  
- Roots: Thick fleshy taproot  
- Seedling: Forms rosette  

**Control**  
- Mech: Sever the root below the soil surface. Mowing is most effective when plants are at full-bloom.  
- Bio: none currently effective.

**HERBICIDE**  
- Picloram (Tordon 22K)  
  - **Rate**: 1 pint/acre  
  - **TIMING**: Apply spring or fall in the rosette stage.  
- Aminopyralid (Milestone)  
  - **Rate**: 7 fl. oz./acre  
  - **TIMING**: Apply spring or fall in the rosette stage.  
- Chlorsulfuron (Cimarron X-Ira)  
  - **Rate**: 2 oz./acre  
  - **TIMING**: Apply rosette to early bolting stages of growth (Spring).
**Diffuse knapweed**  
Centaraea diffusa Lam.

**Keys to Id**
- Floral bracts have yellow spines with teeth like a comb and a distinct terminal 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: Sever the root below the soil surface. Mowing is most effective when plants are at full-bloom.
- Bio: Livestock, seedhead weevil (Larinus minutus), and the root weevil fly (Cyphocleonus achates)

**HERBICIDE** | **RATE** | **TIMING**
--- | --- | ---
Aminopyralid (Milestone) | 5-7 oz/acre | Spring at rosette to early bolt stage and/or in the fall to rosettes.
Clopyralid (Transline, Stinger) | 2/3 - 1 pint/acre | Apply to spring/fall rosettes - before flowering stalk lengthens.
Clopyralid + 2,4-D(Curtail) | 2-3 qts/acre | Apply in spring and fall to rosettes.

**Spotted knapweed**  
Centaraea 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 tipped with 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 Cyphocleonus achates), and the root weevil fly (Cyphocleonus achates)

**HERBICIDE** | **RATE** | **TIMING**
--- | --- | ---
Aminopyralid (Milestone) | 5-7 ounces/acre | Spring at rosette to early bolt stage and/or in the fall to rosettes.
Clopyralid (Transline, Stinger) | 1 oz/gal water | Spring at rosette to early bolt stage and/or in the fall to rosettes.
Clopyralid + Triclopyr (Reedem R&P) | 0.75 oz/gal | Rosette to early bolt stage of growth and/or in the fall to rosettes.

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

**Keys to Id**
- Distinguished by the pointed papery tips of the floral bracts.
- The roots are 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 oblong to lance-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 grayish-green, but is not hairy.

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

**Houndstongue**  
Cynoglossum officinale

**Keys to Id**
- Panicles of reddish-purple flowers with 5 petals and 5 soft, hairy sepals.
- Velcro-like seeds with 4 nutlets.

**Identification**
- Lifecycle: Biennial
- Growth form: Forb
- Flower: Flowers are reddish-purple, with five 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, 1-12 inches long, 1-3 inches wide, rough, hairy, and lacking teeth or lobes. Basal leaves are elliptical and tapered at the base.
- Stems: Produces a single flowering stem. Stem is erect, stout, heavy, 1-5 ft tall, branched above.
- 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

**HERBICIDE** | **RATE** | **TIMING**
--- | --- | ---
Metsulfuron Methyl + Chlorosulfuron (Cimarron X-tra) | 2.0 oz / acre | Apply in spring rosette to early bud growth stages.
Picoluron + 2,4-D (Grazon P+D) *Restricted Use | 4 pints / acre | Apply in spring to badly flowering rosette to fall rosette.
Picloram (Tordon 22K) *Restricted Use | 1 oz/gal water | Spring to budding flowering stage.
Chlorsulfuron (Telar) | 1-3 oz/acre | Apply in spring from pre-bloom to bloom and to fall rosettes.
**Leafy spurge**

*Euphorbia esula L.*

**Keys to Id**
- Flowers are yellowish-green and have a pair of heart shape yellow-green bracts below each inconspicuous flower.
- The entire plant contains white, milky latex.

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- Flower: Numerous small clusters of small yellowish-green enclosed by paired heart-shaped yellow-green bracts. May-July.
- Seeds: Oblong, grayish to purple, in a capsule.
- Leaves: Alternate, narrow (1/4” wide), 1-2.5” long.
- Stems: Erect and unbranched (except at flower), 2-3’ tall.
- Roots: Extensive lateral root system.
- Seedling: Seed leaves (cotyledons) are linear to lanceolate, with entire margins.
- Other: The entire plant contains white, milky latex. Foliage of the plant is smooth and hairless.

**Control**
- Mech: Mowing will reduce seed production; repeat every 2 to 4 weeks during the growing season
- Bio: Both sheep and goats can be effective grazers. Flea beetles (*Aphthona* spp.), are effective especially when combined with grazing and/or herbicides very late in the season not than the end of July.
- Other: The entire plant contains white, milky latex. Foliage of the plant is smooth and hairless.

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**Oxeye daisy**

*Chrysanthemum leucanthemum L.*

**Keys to Id**
- Creeping perennial. Daisy-like; grows 10 inches to 2 feet tall.
- White ray flower on yellow disk; 2” diameter.

**Identification**
- Lifecycle: Perennial, short-lived
- Growth form: Forb
- Flower: 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. The upper leaves become stalkless and toothed. Basal and lower stem leaves are 2-5” long, spoon-shaped. Stems: Mature plants are 10-24” tall with erect, smooth to sparsely hairy stems.
- Roots: Shallow, branched rhizomes.
- Other: Oxeye daisy is easily confused with the ornamental Shasta daisy which has a root ball and is less and toothed.

**Control**
- Mech: Hand pull or dig when soil is moist and infestations are small, be sure to pull up all roots.
- Bio: Goats or sheep can be effective. There are no insect biological controls currently available.

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**Yellow Starthistle**

*Carduus acanthoides*

**Keys to Id**
- Winged stems
- Yellow ray & disk flowers
- Stiff spines at flower base
- Plant has a unique blue-green color

**Identification**
- Lifecycle: Winter annual
- Growth form: Forb
- Flower: Heads are yellow, located singly at the ends of branches, distinguished by sharp, straw-colored thorns, which are up to 0.75 inches long.
- Seeds: Two types: plumed and planeless.
- Leaves: Basal leaves are deeply lobed while the upper leaves are entire and sharply pointed.
- Stems: Mature plants are 2-3 feet tall and have rigid, branching, winged stems that are covered with cottony hairs.
- Roots: Taproot.
- Seedling: Oblong, tongue-shaped cotyledons

**Control**
- Mech: Mowing several times before the plants bolt stresses it and allows for better chemical efficacy
- Bio: None currently approved for use in Colorado.

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**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

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<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picloram (Tordon 22K)</td>
<td>1 qt/acre + 1 oz/gal water</td>
<td>Spring, just after full bloom and/or fall.</td>
</tr>
<tr>
<td>Imazapic (Plateau)</td>
<td>12 oz/acre + 0.4 oz/gal water</td>
<td>Fall only treatment prior to hard freeze.</td>
</tr>
<tr>
<td>2,4-D Amine</td>
<td>2-3 oz/gal + 2-3 oz/gal water</td>
<td>Early spring and fall. Prevents seed formation.</td>
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<tr>
<td>Metsulfuron (Escort XP)</td>
<td>1 oz/acre + 1.5 pint/acre</td>
<td>Apply during rosette growth stage or when actively growing.</td>
</tr>
<tr>
<td>Aminopyralid (Milestone)</td>
<td>5 fl oz/acre</td>
<td>Apply during rosette growth stages.</td>
</tr>
<tr>
<td>Clopyralid (Transline)</td>
<td>0.67 pint/acre</td>
<td>Apply during rosette growth stages.</td>
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<tr>
<td>Imazapic (Plateau)</td>
<td>12 fl oz/acre + 2 pints/acre methylated seed oil or crop oil concentrate</td>
<td>Apply at late flower post-flower growth stage. (Late Spring to Mid Summer)</td>
</tr>
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</table>
Dalmatian toadflax
Linaria dalmatica

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

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- 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, Eteobalea intermediella, a root boring weevil are currently available in CO.

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<tr>
<td>Picloram</td>
<td>2-4 pints/acre</td>
<td>Apply at spring flowering or in the fall</td>
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<tr>
<td>Chlorsulfuron</td>
<td>2-3 oz/acre</td>
<td>Apply at spring flowering or in the fall</td>
</tr>
<tr>
<td>Chlorsulfuron (Telar)</td>
<td>1.25 oz/acre added to Tordon</td>
<td>Apply at mid-flowering to late fall (Aug thru Sept)</td>
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<tr>
<td>Picloram (Tordon 22K)*</td>
<td>Restricted</td>
<td>1.5 qts/acre 1 oz/gal</td>
</tr>
<tr>
<td>Metsulfuron (Escort XP)</td>
<td>1 oz/acre</td>
<td>Bolting growth stage. (Spring)</td>
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**Perennial Pepperweed**
Lepidium latifolium

**Keys to Id**
- Dense clusters of white flowers.
- Leaves and stem - covered with waxy layer.

**Identification**
- Lifecycle: Perennial, member of the mustard family.
- Growth form: Forb
- Flower: White; packed in dense clusters near the ends of branches. May-Aug.
- Fruit: Nearly round, very small and sparsely hairy.
- Leaves: Alternate, lance-shaped, may be toothed, bright-green to gray-green, basal leaves are larger than the upper leaves.
- Stems: Mature plants are 1-3 ft tall.
- Roots: Deep-seated roots.
- Other: The leaves and stem are covered with a waxy layer.
- Exotics: Do not have clasping bases, unlike Hoary cress leaves with clasping bases.

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

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<tr>
<td>Clarity + 2,4-D Amine</td>
<td>(temp must be below 85*)</td>
<td>1 qt/acre 1 oz/gal water</td>
</tr>
<tr>
<td>Tordon 22K*</td>
<td>*Restricted Use</td>
<td>1 qt/acre 1 oz/gal water</td>
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<td>Chlorsulfuron (Telar)</td>
<td>1 oz/acre</td>
<td>Bolting to early flower. (Early Spring to Early Bloom)</td>
</tr>
<tr>
<td>Metsulfuron (Escort XP)</td>
<td>1 oz/acre</td>
<td>Bolting growth stage. (Spring)</td>
</tr>
<tr>
<td>Imazapyr (Plateau)</td>
<td>12 fl oz / acre + 2 pt / ac. seed oil</td>
<td>Flower to late flower growth stages. (Summer)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup Ultra*</td>
<td>*non-selective herbicide</td>
<td>4-5 qts/acre 4-5 oz/gal</td>
</tr>
</tbody>
</table>

**Field Bindweed**
Convolvulus arvensis

**Keys to Id**
- Flowers are funnel-shaped, white to pink, and have two small bracts one inch below the flower base.
- Leaves are shaped like arrowheads.

**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.
- Seeds/Fruit: Seeds can remain viable for 40 years.
- Leaves: Alternate, arrowhead shaped.
- Stems: Prostrate, many feet in length
- Roots: Rhizomatous with deep taproot

**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, Tyle lucusca are effective in Colo.
**Kochia**  
*Kochia scoparia (L.) Roth*

**Keys to Id**  
- Grooved branches  
- Erect stems can reach 5 ft. (Tumbleweed)  
- Small green flower lacks petals  

**Identification**  
- Summer annual; Forb; Flower head is a spiked cluster of green, petal-less, stalk-less flowers; with egg shaped seeds; has alternate leaves; erect stems with reddish tint and a taproot.

**Russian thistle**  
*Salsola tragus (L.)*

**Keys to Id**  
- Red/purple striped stems. (Tumbleweed)  
- Small green flower on upper part of plant.  

**Identification**  
- Tall summer annual;  
- Stems are erect and branched with red or purple striping; seedlings look similar to grass when emerging; leaves are alternate, small, narrow and appear scale-like with a stiff spine; flowers are green with spiny, floral bracts.

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**Jointed Goatgrass**  
*Aegilops cylindrica*

**Keys to Id**  
- Annual grass.  
- Spikelets appear to be “jointed.”  
- Looks like winter wheat when a seedling.

**Identification**  
- Lifecycle: Annual  
- Growth form: grass.  
- Flower: The seed head is 2-4 inches long with 5-10 spikelets (joints) per head. Early to mid-June.  
- Seeds/Fruit: Spikelets are 0.5 inches long with 1-3 viable seeds. At maturity spikelets separate with a segment of the stems still attached.  
- Leaves: Leaves are alternate, simple, with a flap-like appendage (auricle) at the base, and a leaf blade 0.17 -0.25 in wide, with hairs.  
- Stems: Mature plants are generally 15-30 in tall with one to many tillers.  
- Roots: Short fibrous root system  

**Control**  
- Mech: Tilling when seedlings. Prevent seed production and spread  
- Bio: none currently available in Colorado

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**Winter Annuals**

**Cheatgrass - Downy brome**  
*Bromus tectorum*

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

**Identification**  
- Lifecycle: Annual  
- Growth form: grass.  
- Flower: The seed head is 2-4 inches long with 5-10 spikelets (joints) per head. Early to mid-June.  
- Seeds/Fruit: Spikelets are 0.5 inches long with 1-3 viable seeds. At maturity spikelets separate with a segment of the stems still attached.  
- Leaves: Leaves are alternate, simple, with a flap-like appendage (auricle) at the base, and a leaf blade 0.17 -0.25 in wide, with hairs.  
- Stems: Mature plants are generally 15-30 in tall with one to many tillers.  
- Roots: Short fibrous root system  

**Control**  
- Mech: Hand pulling, digging, to remove all parts of plant when found in grazing pasture land, combine with chemical treatment option.  
- Chemical: Dicamba (Banvel, Oracle, Clarity) with any 2,4-D Amine product. Rate: 1 oz/gal of water.

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**Poisonous Plants**

**Asclepias subverticillata**  
*Western Whorled Milkweed*

**Keys to Id**  
- Whorled linear leaves  
- Greenish white flower  
- Slender seed pod  
- Milky latex sap

**Identification**  
- Lifecycle: Annual  
- Growth form: herbaceous perennial.  
- Flower: The seed head is 2-4 inches long with 5-10 spikelets (joints) per head. Early to mid-June.  
- Seeds/Fruit: Spikelets are 0.5 inches long with 1-3 viable seeds. At maturity spikelets separate with a segment of the stems still attached.  
- Leaves: Leaves are alternate, simple, with a flap-like appendage (auricle) at the base, and a leaf blade 0.17 -0.25 in wide, with hairs.  
- Stems: Mature plants are generally 15-30 in tall with one to many tillers.  
- Roots: Short fibrous root system  

**Control**  
- Mech: Hand pulling, digging, to remove all parts of plant when found in grazing pasture land, combine with chemical treatment option.  
- Chemical: Dicamba (Banvel, Oracle, Clarity) with any 2,4-D Amine product. Rate: 1 oz/gal of water.

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**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.

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**Some Additional Resources:**

- Montezuma County Weed Program  
  109 W. Main, Room 305  
  (970) 565-0580  
  [www.co.montezuma.co.us/news/WeedsHome.html](http://www.co.montezuma.co.us/news/WeedsHome.html)

- Dolores Conservation District  
  628 West 5th Street  
  (970) 565-9045 ext 118  
  [www.dolorescd.org](http://www.dolorescd.org)

- CSU Ext, Preparation of small spray quantities of pesticides  
  [http://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  
  [http://www.ext.colostate.edu/pubs/newsite/weedshome.html](http://www.ext.colostate.edu/pubs/newsite/weedshome.html)

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