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
   - 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 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 comprehensive. 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.

Preventive: Prevention is the first and, perhaps, the most important step in a weed control program. 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.

It takes consistent persistence to win the war on weeds!

 Compiled by: John Rizza
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http://www.cwma.org/
CO Weed Management Association - Noxious Weed Info.
http://www.cwma.org/

CO Dept. of Ag. - Noxious Weed Management Program
http://www.colorado.gov/cs/Satellite/Agriculture/Programs/CoAg/Utll/COAG/1197928159176

Sustainable Small Acreages
Colorado State University, U.S. Department of Agriculture and Colorado Counties cooperating.
Cooperative Extension programs are available to all without discrimination. To simplify technical terminology, trade names of products will be used. No endorsement of products named is intended nor criticism implied of products not motioned.

Third Edition - June 2012
**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 somewhat tapered and covered with spines.
- 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 undersides.
- 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.

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**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: Flower heads 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.
- Seeds/Fruit: One-seeded oblong fruit (achene) about 0.2 inches long, shiny, yellowish-brown with a white pappus (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 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: 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.

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**Musk thistle**
*Cirsium vulgare* (Curtail)

**Keys to Id**
- Broad, spine-tipped bracts located under the flower
- Flowering heads are terminal, solitary, and usually nodding
- Grows up to 6 ft 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) about 0.1 inches long, shiny, yellowish-brown with a white 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 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.

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**Scotch thistle**
*Onopordum acanthium* 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 spikes. 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
**Diffuse knapweed**
*Centaura diffusa Lam*

**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: Sow the root below the soil surface. Mowing is most effective when plants are at full-bloom.
- Bio: Livestock, seedhead weevil (*Larinius minutus*), and the root weevil fly (*Cyphochleonus achates*)

**HERBICIDE**
- **Herbicidal**
  - Aminopyralid (Milestone)
    - **Rate:** 5-7 oz/acre
    - **Timing:** Spring at rosette to early bolt stage and/or in the fall to rosettes.
  - 2,4-D Amine
    - **Rate:** 1 qt/acre or 1 oz/gal water
    - **Timing:** Spring/fall rosettes before flowering stalk lengthens.
  - Clopyralid (Transline, Blipline)
    - **Rate:** 2.3 to 1 pint/acre
    - **Timing:** Apply to spring/fall rosettes before flowering stalk lengthens.
  - Clopyralid + 2,4-D (Curtil)
    - **Rate:** 2-3 qts/acre
    - **Timing:** Apply in spring and fall to rosettes.
  - Clopyralid + Triclopyr (Redeem R&P)
    - **Rate:** 0.75 oz/gal
    - **Timing:** Rosette to early bolt stage of growth and/or in the fall to rosettes.

**Spotted knapweed**
*Centaura maculosa L.*

**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 (*Larinius minutus* and *Cyphochleonus achates*), and the root weevil fly

**HERBICIDE**
- **Herbicidal**
  - Aminopyralid (Milestone)
    - **Rate:** 5-7 ounces/acre or 1 gallon/acre
    - **Timing:** Spring at rosette to early bolt stage and/or in the fall to rosettes.
  - Picloram (Tordon 22K)
    - **Rate:** 1 qt/acre
    - **Timing:** Apply in spring to bud growth stage or fall rosette.
  - Chlorsulfuron (Tatel)
    - **Rate:** 1 oz/3 gals water
    - **Timing:** Apply in spring to bud growth stage or fall rosette

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

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

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

**Houndstongue**
*Cynoglossum officinale*

**Identification**
- Lifecycle: Biennial
- Growth form: Forb
- Flower: Flowers are reddish-purple, with 5 petals and 5 soft, hairy sepals.
- Velcro-like seeds with 4 nutlets

**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**
- **Herbicidal**
  - Metsulfuron Me-thyl + Chlor- sulfuron (Cimarron X-tra)
    - **Rate:** 2.0 oz / acre
    - **Timing:** Apply in spring to early bud growth stage
  - Picloram + 2,4-D (Grazon P+D) *Restricted Use
    - **Rate:** 4 pints / acre
    - **Timing:** Apply in spring to pre-bloom to bloom and fall rosettes.
**Leafy spurge (Euphorbia esula L.)**

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- Flower: Numerous small clusters of small yellowish-green bracts below each inconspicuous flower.
- Heads are white ray flowers & yellow disk flowers.
- Seeds: Oblong, grayish to purple, in a capsule.
- Roots: Shallow, branched rhizomes.
- Other: Oxeye daisy is easily confused with the or-Inflorescence is solitary at the ends of branches.

**Control**
- Hand removal, prior to seed set, of isolated individuals on small infestations. Remove the entire rootstock. Flowerheads must be cut and disposed of properly before a herbicide is applied.
- Inappropriate, as eradication is the goal, a root
- 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. Flee beetles (Aphthona spp.), are effective especially when combined with grazing and/or herbicides

**Hoary Cress (Cardaria draba)**

**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.
- Roots: Rhizomatous; 29-32 inches deep

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

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**Oxeye daisy (Chrysanthemum leucanthemum L.)**

**Identification**
- Lifecycle: Perennial, short-lived
- Growth form: Forb
- Flower: Numerous white flowers with four petals, flowerheads must be cut and disposed of properly before a herbicide is applied.
- Bio: Inappropriate, as eradication is the goal, a root

**Control**
- Mech: Hand removal, prior to seed set, of isolated individuals on small infestations. Remove the entire rootstock. Flowerheads must be cut and disposed of properly before a herbicide is applied.
- Inappropriate, as eradication is the goal, a root
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- Bio: none currently available

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**Purple loosestrife (Lythrum salicaria L.)**

**Identification**
- Lifecycle: Perennial
- Growth form: Forb or woody sub-shrub
- Flower: Purple/magenta with 5-7 petals arranged in long vertical racemes.
- Seeds/Fruit: Fruits are many-seeded capsules, seeds are small and ovoid.
- Leaves: Simple, entire, opposite or whorled
- Stems: Annual stems arise from a perennial rootstock. Stems are erect, 1.5-5 feet tall. Plants become taller and bushier as the rootstock matures.
- Roots: Short rhizomes and taproot.
- Other: Sometimes confused with fireweed (Epilobium spp.), which have 4-petaled flowers.

**Control**
- Mech: Hand removal, prior to seed set, of isolated individuals on small infestations. Remove the entire rootstock. Flowerheads must be cut and disposed of properly before a herbicide is applied.
- Inappropriate, as eradication is the goal, a root
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- Bio: none currently available

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<tr>
<td>Metsulfuron (Escort XP)</td>
<td>1 oz/acre</td>
<td>Surfactant is absolutely necessary. Apply at flowering growth stage. (Summer)</td>
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<tr>
<td>Glyphosate* (Rodeo - aquatic safe) *nonselective</td>
<td>1-2 qts./acre</td>
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<tr>
<td>Triclopyr (Garlon 3A)</td>
<td>1.2-3.2 oz/12 gal water</td>
<td>Winter. If plants are flowering, cut and properly dispose of flowerheads before applying. (Summer)</td>
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<td>Apply at the early bud growth stage; i.e. “broccoli” growth stage. (Early Spring to Early Summer)</td>
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<tr>
<td>Chlorsulfuron (Telar)</td>
<td>1 oz/acre</td>
<td>Apply at the early bud growth stage; (Early Spring to Early Summer)</td>
</tr>
<tr>
<td>Imazapic (Plateau)</td>
<td>12 fl oz/acre</td>
<td>Apply at late flower growth stage. (Late Spring to Mid Summer)</td>
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Yellow Starthistle

_Centaurea solstitialis_

**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: plummed and plumeless.
- Leaves: Basal leaves are entire and sharply pointed. Petioles are rigid, branching, winged stems that are covered with cottony hairs.
- Roots: Taproot.
- Seedling: Oblong, tongue-shaped cotyledons.

**Control**
- Mech: Hand pull, make certain to pull all the roots. Remove all parts of plant including dry skeletons. Mowing is NOT advised.
- Bio: Inappropriate, as eradication is the goal, none currently approved for use in Colorado.

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<td>Picloram</td>
<td>1.5 pints/acre</td>
<td>Apply during rosette growth stage or when actively growing</td>
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</tbody>
</table>
| Tordon 22K*   | 0 oz/gal    | Apply during rosette and bolting growth stages. *

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: 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: Deep-seated roots. Other: The leaves and stem are covered with a waxy layer.
- Exotics: Do not have clamping bases, unlike Hoary cress leaves with clamping bases.

**Control**
- Mech: Hand pull/dig is not effective. Instead, mow flowering to late fall. Just after full bloom and/or fall.
- Bio: The bindweed gall mite, Aceria mahlerbae, and bindweed moth, Tylus luctuosa are effective in Colo.

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 clamping bases, unlike Hoary cress leaves with clamping bases.

**Control**
- Mech: Hand pulling, digging, or tilting is NOT recommended for eradication.
- Bio: Calophasia lunula, a predatory noctuid moth, _Eilelealea intermedia_, a root boring moth and _Mecinus lanjathus_, a stem boring weevil are currently available in Colorado.

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<td>Clarity +</td>
<td>1 qt/acre</td>
<td>Just after full bloom and/or fall. DO NOT apply near or under trees/shrubs or where soils have rapid permeability.</td>
</tr>
<tr>
<td>2,4-D Amine (temp must be below 85°)</td>
<td>1 oz/gal water</td>
<td></td>
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<tr>
<td>Tordon 22K*</td>
<td>1 qt/acre</td>
<td>Just after full bloom and/or fall. DO NOT apply near or under trees/shrubs or where soils have rapid permeability.</td>
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<tr>
<td>*Restricted Use</td>
<td>1 oz/gal</td>
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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, Tylus luctuosa are effective in Colo.

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity</td>
<td>1 qt/acre</td>
<td>Just after full bloom and/or fall. DO NOT apply near or under trees/shrubs or where soils have rapid permeability.</td>
</tr>
<tr>
<td>+</td>
<td>1 oz/gal</td>
<td></td>
</tr>
<tr>
<td>2,4-D Amine</td>
<td>1 oz/gal</td>
<td></td>
</tr>
<tr>
<td>(temp must be below 85°)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tordon 22K*</td>
<td>1 qt/acre</td>
<td>Just after full bloom and/or fall. DO NOT apply near or under trees/shrubs or where soils have rapid permeability.</td>
</tr>
<tr>
<td>*Restricted Use</td>
<td>1 oz/gal</td>
<td></td>
</tr>
<tr>
<td>4 fl oz/acre</td>
<td>4-5 oz/galwater</td>
<td>Apply at full bloom and/or in fall.</td>
</tr>
</tbody>
</table>
Kochia
Kochia scoparia (L.) Roth

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

**Identification**
- Lifecycle: Summer annual
- Growth form: Forb
- Flower: Head is a spike, formed by clusters of inconspicuous, green, petal-less, stalk-less flowers that grow in the axils of reduced leaves.
- Seeds: Egg shaped, flattened, and very small.
- Leaves: Alternate, simple, linear to lance shaped.
- Roots: Taproot.
- Seedling: Cotyledons are very narrow, essentially linear in outline, dull green in color, and covered with hairs.
- Other: seeds spread prolifically by tumbleweed mechanism over vast distances

**Control**
- Mech: Till seedlings early in spring. Mow or slash plants before flowering to reduce seed production.
- Bio: None known.

Poisonous Plants
These plants are poisonous to domestic livestock

Western Whorled Milkweed
Asclepias subverticillata

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

**Control**
- Mech: Hand pulling, digging, to remove all parts of plant when found in grazing pasture land, combine with chemical treatment option.
- Bio: Domestic livestock grazing, when timed correctly can help reduce invasives over time.
- Chemical: Glyphosate herbicides applied at the recommended label rate to young seedlings will be effective when combined with other control methods.

Winter Annuals
Select problem landscape plants

Cheatgrass - Downy brome
Bromus tectorum

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

**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 must be done to include as much of the remaining root system as possible.
- Bio: Domestic livestock grazing, when timed correctly can help reduce invasives over time.
- Chemical: Glyphosate herbicides applied at the recommended label rate to young seedlings will be effective when combined with other control methods.

Mustards - Sheperd's-purse
Capsella bursa-pastoris

**Keys to Id**
- Lobed basal leaf
- Deeply toothed leaf
- Long, slender flower stalk
- Terminal flower cluster
- Small white 4-petal flowers

Mustards - Tumble mustard
Sisymbrium altissimum

**Keys to Id**
- Coarse deeply divided leaf
- Narrow lobed upper leaf
- Stem erect and branched
- Small yellow 4-petal flowers
- Tumbles in the wind

**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 must be done to include as much of the remaining root system as possible.
- Bio: Domestic livestock grazing, when timed correctly can help reduce invasives over time.
- Chemical: Glyphosate herbicides applied at the recommended label rate to young seedlings will be effective when combined with other control methods.

**HERBICIDE**
**RATE**
**TIMING**

Most Effective
Dicamba
Barvel, Vanquish, or Clarity
When Combined
Apply early in growth before flowering stage

Glyphosate*
nonselective
1-2 qts/acre
1.3-2.5 oz/gal water
“Burdown” apply early in growth before flowering stage

Some Additional Resources:
- CMG Garden Notes #351, Weed Management
- CSU Ext, Preparation of small spray quantities of pesticides
- CSU Ext, Weed Management for small rural acreages
- CSU Ext, Yard and Garden Publications

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.

Some Additional Resources:
- Justin Musser
Montrose County Weed Mitigation
(970) 249-5216
jmusser@montrosecounty.net

CMG Garden Notes #351, Weed Management
http://www.cmg.colostate.edu/gardinotes/351.pdf

CSU Ext, Preparation of small spray quantities of pesticides
http://www.ext.colostate.edu/pubs/garden/07615.pdf

CSU Ext, Weed Management for small rural acreages
http://www.ext.colostate.edu/pubs/natree/03106.pdf

CSU Ext, Yard and Garden Publications
http://www.ext.colostate.edu/pubs/pubs.html

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http://www.ext.colostate.edu/pubs/natree/03106.pdf

http://www.ext.colostate.edu/pubs/pubs.html