Noxious Weed Management Pocket Guide
THE TOWN OF SAWPIT

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 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 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 for this guide are thanks to the following sources:

CO Dept. of Ag. - Noxious Weed Management Program
http://www.colorado.gov/cs/Satellite/Agriculture?Main/CDAG/1167928159176

CO Weed Management Association - Noxious Weed Info.
http://www.cwma.org/

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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; mulch; 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/farmng/05003.html

Always add a nonionic surfactant @ 0.32 oz/gal (1qt/100 gal) unless otherwise noted.
## 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, 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

### Mechanical Control
- 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.

### Herbicide Control

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metsulfuron</td>
<td>1 oz/acre</td>
<td>Apply at the early bud growth stage; i.e. “broccoli” growth stage. (Early Spring to Early Summer)</td>
</tr>
<tr>
<td>Chlorsulfuron</td>
<td>1 oz/acre</td>
<td>Apply at the early bud growth stage; (Early Spring to Early Summer)</td>
</tr>
<tr>
<td>Imazapic</td>
<td>12 fl oz/acre + 2 pints/acre methylated seed oil or crop oil concentrate</td>
<td>Apply at late flower to post-flower growth stage. (Late Spring to Mid Summer)</td>
</tr>
</tbody>
</table>

### PRE Post-Emergence

<table>
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<tr>
<th>HERBICIDE</th>
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<tbody>
<tr>
<td>Picloram (Tordon 22K)* Restricted</td>
<td>1 pint/acre</td>
<td>Surfactant is absolutely necessary. Apply in summer or at fall regrowth.</td>
</tr>
<tr>
<td>Aminopyralid (Milestone)</td>
<td>6 oz/acre</td>
<td>Surfactant is absolutely necessary. Prebud / early flower (late spring or early summer)</td>
</tr>
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### Post-Emergence

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<tr>
<td>Chlorsulfuron (Tordon 22K) *Restricted</td>
<td>1.25 oz/acre added to Tordon</td>
<td>Apply at mid-flowering to late fall (Aug thru Sept)</td>
</tr>
<tr>
<td>Imazapic (Plateau)</td>
<td>2 oz/acre</td>
<td>Late summer to early fall before emergence</td>
</tr>
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</table>

## Sulfur Cinquefoil
*Potentilla recta*

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

### Identification
- Lifecycle: Perennial
- Growth form: Forb
- Flower: Light-yellow with 5 petals, deeply notched.
- Seeds/Fruit: Each flower produces numerous small seeds (0.05 in long) that are slightly flattened.
- Leaves: Alternate, palmately compound with 5-7 toothed leaflets on each leaf. Stalks have conspicuously perpendicular hairs,
- Stems: Reaches 1.5 ft tall with one to several stems growing from well developed rootstocks.
- Roots: Fibrous roots and lateral rhizomes

### 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.

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<tr>
<td>Glyphosate</td>
<td>6 - 12 oz / acre</td>
<td>Apply early spring prior to seed set</td>
</tr>
</tbody>
</table>

## 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: 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: Soft, lance-shaped, and pale green. Mainly alternate; lower leaves appear to be opposite.
- Stems: Mature plants are 1-3 feet tall with 1-25 smooth erect floral stems covered with cottony hairs
- Roots: Deep laorot, long horizontal roots that can develop adventitious bud sprouts.
- Other: Closely related to Dalmatian toadflax (who's leaves are shorter, wider, and clasp the stem.)

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

### Mechanical Control
- Cutting or mowing has a negligible effect, repeated hand pulling or grazing before seed set.

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<td>Chlorsulfuron</td>
<td>1 oz/acre</td>
<td>Apply at mid-flowering to late fall (Aug thru Sept)</td>
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## Downy brome (Cheatgrass)
*Bromus tectorum*

### Keys to Id
- Dropping 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 flower part of plant with flowers borne on individual stalks).
- Seeds: Spikelets including awns are 0.8-2.6" long, nodding, with 2-6 florets.
- Roots: 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.

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*For therapeutic use only. Always follow label directions.*
**Field Bindweed**
*Convolvulus arvensis*

**Keys to Id**
- **Lifestyle:** 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.
- **Roots:** Rhizomatous with deep taproot
- **Leaves:** Alternate, arrowhead shaped.
- **Stems:** Prostrate, many feet in length
- **Bio:** The bindweed gall mite, Tyta luctuosa are effective in Colo.

**Identification**
- Leaves are shaped like arrowheads.
- Flowers are funnel-shaped, white to pink, and have two small bracts one inch below the flower base.
- Leaves are shaped like arrowheads.
- **Identification**
- 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, Tyta luctuosa are effective in Colo.

**Common Mallow**
*Malva neglecta*

**Keys to Id**
- **Lifestyle:** Winter annual, short lived perennial
- **Growth form:** Bunch grass
- **Seeds:** Nodding, bristly spike up to four inches long; readily breaks apart when mature; center spikelet has a single, rough awn up to two inches long, thus the bristly appearance.
- **Roots:** Taproot.
- **Seedling:** Second set of leaves have geranium look.
- **Other:** Seed looks like cheese wheel—round flattened disk with wedge shaped sections.

**Identification**
- Leaves: Hairy geranium shaped leaves, white to pink, and are about 1 inch long, small bracts below
- Flowers: Bell or trumpet-shaped, white to pink in color, and are about 1 inch long, small bracts below
- Lifecycle: Winter annual, short lived perennial
- Growth form: Bunch grass

**Control**
- Hand pull, dig, cultivate when small.
- **Mech:** Hand pull, dig, cultivate when small.
- **Bio:** None known. Can be toxic to livestock (nitrate accumulation).

**Russian Thistle**
*Salsola tragus*

**Keys to Id**
- **Lifestyle:** Summer annual
- **Growth form:** Forb—brushy
- **Flower:** Lack petals and are borne above a pair of small spine-tipped bracts.
- **Leaves:** Young plants - feathery, dark green, narrow, and about 1 inch in length. Mature plants - short and stiff with a sharp-pointed tip.
- **Roots:** Taproot.
- **Seeds:** Very finely dissected leaves that almost look like pine needles.
- **Other:** seeds spread prolifically by tumbleweed mechanism over vast distances.

**Identification**
- Lifecycle: Perennial
- Growth form: Bunch grass
- **Seeds:** Nodding, bristly spike up to four inches long; readily breaks apart when mature; center spikelet has a single, rough awn up to two inches long, thus the bristly appearance.
- **Leaves:** Glabrous sheaths sometimes pubescent; blades flat, up to 3/8 inches wide and 5 inches long
- **Lifecycle:** Perennial
- **Control**
- Cultural: Maintain healthy stand of natives/desired perennials, carefully manage grazing to ensure protection of desired plant species.
- Mech: Tillage or mowing has a negligible effect, but can help reduce amount of seed produced if done repeatedly before seed set.
- Bio: Domestic livestock grazing, when timed correctly can help reduce invasions over time. No other biocontrols currently exist in CO.

**Field Bindweed**
*Convolvulus arvensis*

**Keys to Id**
- **Lifestyle:** Perennial
- **Growth form:** Forb
- **Flower:** 5 crinkly petals, small, white to pale pink or lavender and not very noticeable. Blooms from summer to fall.
- **Leaves:** Hairy geranium-shaped leaves attach to the stem with a petiole (stalk). Leaves have 5 to 7 shallow lobes with round teeth and veins that radiate out from the base.
- **Stems:** Tough, slightly hairy, and round.
- **Roots:** Taproot.
- **Seedling:** Second set of leaves have geranium look.
- **Other:** Seed looks like cheese wheel—round flattened disk with wedge shaped sections.

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- Mech: Tillage or mowing has a negligible effect, but can help reduce amount of seed produced if done repeatedly before seed set.
- Bio: Domestic livestock grazing, when timed correctly can help reduce invasions over time. No other biocontrols currently exist in CO.
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.
- Stems: Multi branched from base, erect, reddish tint
- 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 with hairs.

Biological:
- Hand pulling, digging, to remove all parts of plant when found in grazing pasture land, combine with chemical treatment option.

Mechanical:
- 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
--- | --- | ---
Dicamba (Banvel, Vanquish, or Clarity) | As specified on the label | 
Glyphosate* or nonselective | 1-2 qts/acre | Apply early in growth before flowering stage
*“Burdown” apply early in growth before flowering stage

Winter Annuals
Select problem plants

Mustards - Shepherd’s-purse
Capsella bursa-pastoris

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

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: Dicamba (Banvel, Oracle, Clarity) with any 2,4-D Amine product. Rate: Mix one ounce of each product into one gallon of water (1 oz/gal).

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

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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.

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:
- San Miguel County Weed Control Program
  (970) 327-0399
  www.sanmiguelcounty.org/departments/weeds/
- Sawpit Weed Committee (Susie St.Onge)
  (970) 708-1287
- CMG Garden Notes #351, Weed Management
  http://www.cmg.colostate.edu/gardennotes/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/pubs/natrex/03106.pdf
- CSU Ext. Yard and Garden Publications
  http://www.ext.colostate.edu/pubs/pubs.html#garden

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