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:

- US Department of Agriculture: http://plants.usda.gov/java/plantsheet
- CO Dept. of Ag. - Noxious Weed Management Program: https://www.colorado.gov/pacific/extension/noxiousweeds
- CO Weed Management Association - Noxious Weed Info: http://www.cwarn.org

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Noxious Weed Management Pocket Guide

Small Acreage Management
Colorado State University Extension

Third Edition - Dec 2018

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.

It takes consistent persistence to win the war on weeds!
**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 (Whitson 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-haired on the undersides.
- Stems: In mature plants the leaves extend down, clasping the stem and are divided into segments (i.e. strongly dentate).

**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: Biennial
- 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.

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**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 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 0.2 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 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.
- Bio: see tables below the section.

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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 plumule (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.
- Seeds: 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

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**Table of Herbicides and Timing**

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
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<tbody>
<tr>
<td>Aminopyralid (Milestone)</td>
<td>5-7 ounces/acre</td>
<td>Spring at the pre-bud growth stage and/or to fall regrowth.</td>
</tr>
<tr>
<td>Chlorsulfuron (Telar DF)</td>
<td>1-3 ounces/acre</td>
<td>Spring during bud to bloom stage and/or to fall regrowth.</td>
</tr>
<tr>
<td>Chlorsulfuron (Telar)</td>
<td>1 oz. product/acre</td>
<td>Spring from rosette through early flower stage.</td>
</tr>
<tr>
<td>Metsulfuron (Escort XP)</td>
<td>1 oz. product/acre</td>
<td>Spring from rosette through early flower stage.</td>
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<td>5 fl. oz./acre</td>
<td>Spring rosette to early blooming or in fall to rosettes.</td>
</tr>
<tr>
<td>Metsulfuron (Cimarron X-tra)</td>
<td>2 oz./acre</td>
<td>Apply rosette to early bolt stages of growth. (Spring)</td>
</tr>
</tbody>
</table>
**Diffuse knapweed**  
_Centaurea diffusa_ Lam.

**Keys to Id**
- Flora: broad leaves 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-purplish, 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)

**HORSECHEW**
- Herbicide: Aminopyralid (Milestone), Picloram (Tordon 22K), Oxadiazon (Velcro)
- Rate: 5-7 oz/acre or 1 t./gal water
- Timing: Spring at rosette to early bolt stage or in the fall to rosettes.

**Spotted knapweed**  
_Centaurea maculosa_ L.

**Keys to Id**
- Flora: broad leaves with teeth like a comb and a distinct terminal spine
- 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 Cypselus achates)

**HORSECHEW**
- Herbicide: Aminopyralid (Milestone), Picloram (Tordon 22K), Oxadiazon (Velcro)
- Rate: 5-7 oz/acre or 1 t./gal water
- Timing: Spring at rosette to early bolt stage and/or fall rosettes.

**Russian knapweed**  
_Agrostemma githago_

**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 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, stiff, branched, and when young are covered with soft, short, gray hairs.
- 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)

**HORSECHEW**
- Herbicide: Aminopyralid, Picloram, Bensulide (Cimarron X-tra)
- Rate: 4-6 oz./acre
- Timing: But and flowering stage and to dormant plants in the fall.

**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, 1.5-3 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

**HORSECHEW**
- Herbicide: Metsulfuron Methyl + Chlorosuluron (Cimarron X-tra), Propachlor + 2,4-D (Grazon P+D)
- Rate: 2.0 oz. /acre or 4 pints / acre
- Timing: Apply in spring rosette to early bud growth stages.
Euphorbia esula L.

**Leafy spurge**

**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
- Seeds: Oblong, greyish to purple, in a capsule.
- Leaves: Alternate, narrow (1/4” wide), 1-2.5” long.
- Stems: Erect and unbranched (except at flower), thickly clustered, can reach 3 ft 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

**HERBICIDE** | **RATE** | **TIMING**
---|---|---
2,4-D Ester | 1 qt/acre | Spring, just after full-bloom and/or fall.
Imazapic | 12 oz/acre 0.4 oz/gal water | Fall only treatment prior to hard freeze.
2,4-D Amines | 2-3 oz/acre 2-3 oz/gal water | Early spring and fall. Prevents seed formation.

**Myrtle Spurge**

**Euphorbia myrsinites**

**Keys to Id**
- Low growing, blue green waxy leaves;
- Flowers are yellow-green pedal like bracts;
- Contains milky sap.

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- Flower: Yellow-green bracts that bloom in the early spring.
- Seeds/Fruit: Hard, round
- Leaves: Alternate, stalkless, narrow.
- Stems: Annual stems arise from a perennial rootstock. Stems are erect, 1.5-3 feet tall. Plants become taller and bushier as the rootstock matures.
- Roots: Long indeterminate roots, spread in horizontal and vertical planes, and short determinant roots, spread strictly horizontal.
- Other: The entire plant exudes white, milky sap that can be irritating to the skin. Exotics: Distinguished from leafy spurge by its slender stems with numerous, crowded, narrow leaves.

**Control**
- Mech: Hand removal, with care, avoid milky sap. Remove the entire rootstalk. Remove any seed source.
- Bio: Inappropriate, as eradication is the goal.

**HERBICIDE** | **RATE** | **TIMING**
---|---|---
Dicamba + 2,4-D (amine or ester) | 1 pint Dicamba + 2-3 pints 2,4-D | Spring/fall regrowth; 4.0 lbs active ingredient/acre.
Dicamba (Tordon 22K) *Restricted Use* | 1 quart/acre | Flowering growth stage during spring or to fall regrowth.

**Cypress Spurge**

**Euphorbia cyparissias**

**Keys to Id**
- Flowers are yellow-green.
- Leaves are narrow covering multi-branched stems.

**Identification**
- Lifecycle: Perennial
- Growth form: Forb
- Flower: Tiny, lime green to white; clustered in small, cup-like structures. May-Sept.
- Seeds: The three-capped fruits explode at maturity, ejecting the seeds.
- Leaves: Alternate, stalkless, narrow.
- Stems: Mature plants are about 1-1.5 feet tall.
- Roots: Long indeterminate roots, spread in horizontal and vertical planes, and short determinant roots, spread strictly horizontal.
- Other: The entire plant exudes white, milky sap that can be irritating to the skin. Handle with protective clothing, sap is an irritant.

**Control**
- Mech: Dig or hand pull entire plant. Tillage not effective, it may only encourage spread.
- Bio: Inappropriate, as eradication is the goal. Do not graze with livestock, plant is toxic (sheep can tolerate grazing this plant).

**HERBICIDE** | **RATE** | **TIMING**
---|---|---
Dicamba + 2,4-D (amine or ester) | 1 pint Dicamba + 2-3 pints 2,4-D | Spring/fall regrowth; 4.0 lbs active ingredient/acre.

**Purple loosestrife**

**Lythrum salicaria L.**

**Keys to Id**
- Showy pinkish-purple flowers bloom in long vertical racemes.
- Smooth Lance-shaped leaves
- Four sided stem.

**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 oval.
- Leaves: Simple, entire, opposite or whorled
- Stems: Annual stems arise from a perennial rootstock. Stems are erect, 1.5-3 feet tall. Plants become taller and bushier as the rootstock matures.
- Roots: Short rhizomes and taproot.

**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.
- Bio: Inappropriate, as eradication is the goal, a root feeding weevil (Hylobius transversovittatus)

**HERBICIDE** | **RATE** | **TIMING**
---|---|---
Triclopyr (Garlon 3A) | 1-2 qts/acre 1.3-2.5 oz/gal water | Summer. If plants are flowering, cut and properly dispose of flower heads before applying.
Glyphtosate* (Rodeo - aquatic safe) *nonselective | 1-2 qts/acre 1.3-2.5 oz/gal water | Summer during the flowering stage. Cut and properly dispose of flowerheads before applying Rodeo.
Yellow toadflax
*Linaria vulgaris* P. Miller

**Identification**
- **Lifecycle:** Perennial
- **Growth form:** Forb
- **Flower:** Bright yellow and resemble snapdragons, singly on ends of branches, sharp thorns below.
- **Seeds:** Capsules are round-oval, 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 taproot, long horizontal roots that can penetrate 25+ ft into the soil. Horizontal roots may grow to several yards long, and can develop adventitious buds.

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

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<tr>
<td>Picoloram</td>
<td>2-4 pts/acre</td>
<td>Apply at spring flowering in the fall</td>
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<tr>
<td>Tordon 22K*</td>
<td>1.5 qts/acre</td>
<td>Apply at mid-flowering to late fall</td>
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<tr>
<td>Chlorosulfuron*</td>
<td>2 oz/gal</td>
<td>Apply at mid-flowering to late fall</td>
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Yellow flowers that are like snapdragons with deep orange centers. Stems are woody at the base and smooth to the top.

*Restricted (Tordon 22K*)

Picloram

Field bindweed
*Convolvulus arvensis*

**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 flower.
- **Seeds/Fruit:** Seeds can remain viable for 40 years.
- **Leaves:** Alternate, arrowhead shaped.
- **Stems:** Prostrate, many feet in length
- **Roots:** Deep taproot, long horizontal roots that can develop adventitious buds.

**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 lucicosa* are effective in CO.

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<tr>
<td>Roundup Ultra*</td>
<td>4-5 qts/acre</td>
<td>Apply at full-bloom and/or in fall</td>
</tr>
</tbody>
</table>

*Non-selective* herbicide

**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:** 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 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 tilling is NOT recommended for eradication.
- **Bio:** *Calophasia lunula*, a predatory noctuid moth, *Eteleobales intermedia*, a root boring moth and *Mecinus janthinus*, a stem boring weevil are currently available in CO.

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<td>Apply at spring flowering in the fall</td>
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<td>Tordon 22K*</td>
<td>1.5 qts/acre</td>
<td>Apply at mid-flowering to late fall</td>
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<tr>
<td>Chlorosulfuron*</td>
<td>2 oz/gal</td>
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Yellow flowers that are like snapdragons with deep orange centers. Stems are woody at the base and smooth to the top.

*Restricted (Tordon 22K*)

Picloram

**Puncturevine**
*Tribulus terrestris*

**Keys to Id**
- Mat forming, trails along ground.
- Yellow flower with 5 petals.
- ‘Goathead’ seed pod.

**Identification**
- **Lifecycle:** Annual
- **Growth form:** Forb
- **Flower:** Small, yellow, 5 petals.
- **Seeds:** Shape of capsule is a “goathead” which will produce 2-4 seeds. Each capsule is hard and contains many spines. Seeds viable for 4 to 5 years.
- **Leaves:** Opposite, with each leaflet containing 5 to 10 oval leaves which are hairy.
- **Stems:** Trailing and can grow 1.5 to 5 feet long.
- **Roots:** Tapped is shallow.

**Control**
- **Mech:** Hand pull/dig when soil is moist, but make sure to wear gloves. The key to effective control is to prevent seed production and/or spread.
- **Bio:** *Microlarinus larvini*, a seed feeding weevil, and *Microlarinus pyriformis*, a stem boring weevil.

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<tr>
<td>Glyphosate*</td>
<td>1.6% Solution</td>
<td>Apply in early growth stages</td>
</tr>
<tr>
<td>Tordon 22K*</td>
<td>1 qt/acre</td>
<td>Just after full-bloom and/or in fall</td>
</tr>
<tr>
<td>Chlorosulfuron</td>
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<td>Roundup Ultra*</td>
<td>4-5 qts/acre</td>
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*Non-selective* herbicide

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<td>Chlorosulfuron*</td>
<td>2 oz/gal</td>
<td>Apply at mid-flowering to late fall (Aug thru Sept)</td>
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</table>

2,4-D + Dicamba (Rangerst)

2 qt. + 2 qt/acre

Pre-bloom to flower stage (retreatment is essential)
**Oxeye daisy**
Chrysanthemum leucanthemum L.

**Keys to Id**
- Creeping perennial; Daisy-like; grows to 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.
- Flower: Heads are solitary at the ends of branches.
- Leaves: Alternately arranged leaves become progressively smaller upward along the stem.
- 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 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.

**Herbicide Chart**

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorsulfuron</td>
<td>1 oz/acre</td>
<td>Surfactant is abso-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lutely necessary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Apply at flowering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>growth stage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Summer)</td>
</tr>
<tr>
<td>Methyl +</td>
<td>0.5 oz. / ac</td>
<td>Apply at rosette</td>
</tr>
<tr>
<td>Chlorsulfuron</td>
<td></td>
<td>stage.</td>
</tr>
<tr>
<td>(Cimarron X-tra)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glyphosate</td>
<td>12-16 oz. / ac</td>
<td>Apply in spring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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 flower part of plant with flowers borne on individual stalks).
- Seeds: Spikelets including awns are 0.8-2" long, noding, 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.
- Bio: Domestic livestock grazing, when timed correctly can help reduce the plant over time.

**Herbicide Chart**

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

**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.

**Some Additional Resources:**
- CMG Garden Notes #351, Weed Management
  [http://www.cmg.colostate.edu/gardennotes/351.pdf](http://www.cmg.colostate.edu/gardennotes/351.pdf)
- CSU Ext, Preparation of small spray quantities
  [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/homes/03106.pdf](http://www.ext.colostate.edu/pubs/homes/03106.pdf)
- CSU Ext, Yard and Garden Publications
  [http://www.ext.colostate.edu/pubs/hubs.html#garden](http://www.ext.colostate.edu/pubs/hubs.html#garden)
- UNL Extension, Backyard Farmer Weed ID and Control
  [http://byf.unl.edu/weeds](http://byf.unl.edu/weeds)
- Utah State University Extension - Yard and Garden
  [http://extension.usu.edu/yardandgarden](http://extension.usu.edu/yardandgarden)

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