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.

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:

**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.

**Weed Control Methods**

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

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

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

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

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

**Fact Sheet:** 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 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: Perennial forb
- Flower: Flowerheads are purple and borne in clusters of 1-5 per branch. Heads are 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 spinescent.

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

**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 or perennial
- 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 tipped. Leaf margins are toothed, and are long and usually nodding. Deep rose, violet or purple, occasionally white. Flowers are subtended by broad, spine-tipped bracts. May-July.
- 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: Severing the root below the soil surface
- Bio: Cattle, goats, and sheep will graze when plants are young and succulent in the spring.

**Herbicide**  
**Rate**  
**Timing**
<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aminopyralid (Milestone)</td>
<td>5-7 oz/acre</td>
<td>Spring at the pre-bud growth stage and/or to fall regrowth.</td>
</tr>
<tr>
<td>Chlorsulfuron (Telar DF)</td>
<td>1.0 oz/acre</td>
<td>Spring during bud to bloom stage and/or to fall regrowth.</td>
</tr>
<tr>
<td>Clopyralid + 2,4-D (Redem)</td>
<td>3 oz/acre</td>
<td>Apply from rosette to bud stage when all plants have emerged.</td>
</tr>
</tbody>
</table>

**Musk thistle**  
Carduus nutans

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

**Identification**
- Lifecycle: Biennial, or sometimes winter annual
- Growth form: Forb
- Flower: Heads are terminal, solitary, 1 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 tipped. Leaf margins are toothed, and are long and usually nodding. Deep rose, violet or purple, occasionally white. Flowers are subtended by broad, spine-tipped bracts. May-July.
- 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: Severing the root below the soil surface
- Bio: Cattle, goats, and sheep will graze when plants are young and succulent in the spring.

**Scotch thistle**  
Onopordum acanthium L.

**Keys to Id**
- Leaves 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: Severing the root below the soil surface
- Bio: Mowing is most effective when plants are at full bloom.
- Bio: Seed head weevil and the crown weevil are none currently effective
**Diffuse knapweed**  
*Centaurea diffusa* Lam  

### Identification
- **Lifestyle:** Biennial or short-lived perennial  
- **Height:** 0.6-0.8 ft in tall, terminal solitary or in clusters of 2-3.  
- **Flowers:** White or lavender  
- **Floral bracts:** Yellow.  
- **Seeds:** Light brown to black.  
- **Growth form:** Forb  
- **Control:** herbicides include Aminopyralid (Milestone) and Triclopyr (Transline).  

### Control
- **Mech:** Use herbicides; mechanical control is ineffective.  
- **Bio:** Livestock, seedhead weevil (*Cyphocleonus achates*).  

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aminopyralid</td>
<td>5-7 oz/acre</td>
<td>Spring to early season</td>
<td>Aminopyralid</td>
<td>5-7 oz/acre</td>
<td>Spring to early season</td>
</tr>
<tr>
<td>Milestone</td>
<td>1 gal water</td>
<td>in the fall to rosettes.</td>
<td>Milestone</td>
<td>1 gal water</td>
<td>in the fall to rosettes.</td>
</tr>
<tr>
<td>2,4-D Amine (temp must be below 85°F)</td>
<td>1 qt/acre</td>
<td>1 oz/gal water</td>
<td>2,4-D Amine (temp must be below 85°F)</td>
<td>1 qt/acre</td>
<td>1 oz/gal water</td>
</tr>
<tr>
<td>Clopyralid</td>
<td>2-3 qts/acre</td>
<td>Spring to early season</td>
<td>Clopyralid</td>
<td>2-3 qts/acre</td>
<td>Spring to early season</td>
</tr>
<tr>
<td>(Roundup Ready)</td>
<td></td>
<td>to rosettes.</td>
<td>(Roundup Ready)</td>
<td></td>
<td>to rosettes.</td>
</tr>
</tbody>
</table>

**Spotted knapweed**  
*Centaurea maculosa* L.  

### Identification
- **Lifestyle:** Biennial or short-lived perennial  
- **Height:** 1 in tall, terminal solitary or in clusters of 2-3.  
- **Flowers:** Pink to purple, nickel size;  
- **Floral bracts:** Broad, fringed.  
- **Seeds:** White to light brown seeds with short plumes.  
- **Growth form:** Forb  
- **Control:** herbicides include Aminopyralid (Milestone), Picloram (Tordon 22K), and Clopyralid (Transline).  

### Control
- **Mech:** Hand pulling or digging of small populations; mechanical control is effective.  
- **Bio:** Gall midge (*Jaapiella ivannikovi*).  

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aminopyralid</td>
<td>4-6 oz/acre</td>
<td>But and flowering stage to dormant plants in the fall.</td>
<td>Aminopyralid</td>
<td>4-6 oz/acre</td>
<td>But and flowering stage to dormant plants in the fall.</td>
</tr>
<tr>
<td>Milestone</td>
<td>1 gal water</td>
<td>in the fall to rosettes.</td>
<td>Milestone</td>
<td>1 gal water</td>
<td>in the fall to rosettes.</td>
</tr>
<tr>
<td>Picloram (Tordon 22K)</td>
<td>1 qt/acre</td>
<td>Apply in spring to bud/early flower stage or fall rosette.</td>
<td>Clopyralid</td>
<td>1 gal water</td>
<td>Apply in spring to bud/early flower stage or fall rosette.</td>
</tr>
<tr>
<td>(Tordon 22K)</td>
<td></td>
<td>2 oz/acre</td>
<td>(Tordon 22K)</td>
<td></td>
<td>2 oz/acre</td>
</tr>
<tr>
<td>Chlorsulfuron</td>
<td>1-3 oz/acre</td>
<td>Apply in spring from pre-bloom to bloom and to fall rosettes.</td>
<td>Chlorsulfuron</td>
<td>2-3 oz/acre</td>
<td>Apply in spring from pre-bloom to bloom and to fall rosettes.</td>
</tr>
<tr>
<td>(Telar)</td>
<td></td>
<td>2 oz/acre</td>
<td>(Telar)</td>
<td></td>
<td>2 oz/acre</td>
</tr>
</tbody>
</table>

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

### Identification
- **Lifestyle:** Perennial  
- **Height:** 36-72 in tall.  
- **Flowers:** Solitary at tips of branches, 3/4 in size.  
- **Seeds:** White, oval, or round;  
- **Growth form:** Forb  
- **Control:** herbicides include Picloram (Tordon 22K) and Picloram (Tordon 22K).  

### Control
- **Mech:** Hand pulling or digging of small populations; mechanical control is effective.  
- **Bio:** Gall midge (*Jaapiella ivannikovi*).  

<table>
<thead>
<tr>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
<th>HERBICIDE</th>
<th>RATE</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aminopyralid</td>
<td>7 oz/acre</td>
<td>Spring to early season</td>
<td>Aminopyralid</td>
<td>7 oz/acre</td>
<td>Spring to early season</td>
</tr>
<tr>
<td>Milestone</td>
<td></td>
<td>to bolting growth stages or fall.</td>
<td>Milestone</td>
<td></td>
<td>to bolting growth stages or fall.</td>
</tr>
<tr>
<td>Clopyralid</td>
<td>1 pint/acre</td>
<td>Spring to early season</td>
<td>Clopyralid</td>
<td>1 pint/acre</td>
<td>Spring to early season</td>
</tr>
<tr>
<td>(Transline)</td>
<td></td>
<td>to bolting growth stages or fall.</td>
<td>(Transline)</td>
<td></td>
<td>to bolting growth stages or fall.</td>
</tr>
<tr>
<td>Picloram (Tordon 22K)</td>
<td>1 quart/acre</td>
<td>Spring to early season</td>
<td>Picloram (Tordon 22K)</td>
<td>1 quart/acre</td>
<td>Spring to early season</td>
</tr>
<tr>
<td>(Restricted Use)</td>
<td></td>
<td>to bolting growth stages or fall.</td>
<td>(Restricted Use)</td>
<td></td>
<td>to bolting growth stages or fall.</td>
</tr>
</tbody>
</table>
Leafy spurge
Euphorbia esula L.

Key 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.

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 sp.), are effective especially when combined with grazing and/or herbicides

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.
- Stem: 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.
- Leaves: Alternate, narrow
- Seeds: Oblong, grayish to purple, in a capsule.
- Green bracts. May
- Flower: Numerous small clusters of small yellowish-green enclosed by paired heart-shaped yellow-green bracts.
- 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: 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 in to 3 ft tall.
- Roots: Shallow fibrous root system.

HERBICIDE | RATE | TIMING
---|---|---
Picloram (Plateau) | 1 oz/gal | Spring, just after full-bloom and/or fall.
Imazapic + Glyphosate (Platteau) | 12 oz/gal | Fall only treatment prior to hard freeze.
2,4-D Amin | 2-3 oz/gal | Early spring and fall. Prevents seed formation.

Dame’s Rocket
Hesperis matronalis

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

Identification
- Lifecycle: Biennial or short-lived perennial; member of the mustard family.
- Growth form: Forb
- Flower: White or purple with 4 petals. Flowers are clustered in loose terminal stalks. May-Sept.
- Seeds/Fruit: Fruits are many seeded, long and narrow and cylindrical. Seeds are small (3-4 mm long), angular, grooved and dark reddish-brown.
- Leaves: Alternate, 2-4 in long, lance-shaped, with finely toothed margins.
- Stems: Mature plants range from 4 in to 3 ft tall.
- Roots: Shallow fibrous root system.
- Impact: Commonly planted as an ornamental

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

HERBICIDE | RATE | TIMING
---|---|---
Roundup Ultra* | 4-5 qts/acre | Apply during flowering stage until full-bloom before seed production.
Glyphosate* | 1-2 qts/acre | Pre-emergence (late summer) and early growth before

Medusoahead rye
(Taeniatherum caput-medusae)

Key to Id
- Stems are wiry and slender with a few short leaves.
- Grows 6 to 24 inches tall.
- Long and twisted awns.

Identification
- Lifecycle: Winter Annual
- Growth form: Grass
- Flower: Long awns; twisted, stiff, and barbed when they reach maturity.
- Leaves: Short and narrow, rolled in the stalk.
- Stems: Wiry and slender with a few short leaves.
- Roots: Fibrous; develops rapidly to extract moisture before perennials have a chance to do so.
- Other: Hazardous for livestock and pets.
- Other: Not known to occur in Colorado currently.

Control
- Mech: Hand pull/dig from moist soil in spring before emerging from boot. Pull all roots carefully so as not to scatter seeds if present. Disking and plowing or a slow hot fire before seed set can reduce by 90%.
- Bio: Inappropriate, as eradication is the goal.

HERBICIDE | RATE | TIMING
---|---|---
Sulfometuron + Metsulfuron (Oust Extra) | 3 oz/acre | Fall for pre-emergent or very early post-emergent.
Salt Cedar (Tamarisk)
*Tamarix ramosissima Ledeb.*

**Identification**
- Lifecycle: Perennial
- Growth: deciduous, loosely branched.
- Flower: Whitish or pinkish in clumps 2-6 cm long on the current year’s branches. Petals retained on fruit.
- Seeds: Very small capsule, tuft of hair at one end.
- Leaves: Scale-like, alternate, bluish-green.
- Stems: Smooth, slender, flexible, break easily; may become 15-25 ft tall; reddish-brown bark.
- Roots: Deep taproot, extensive spreading horizontal roots. Produces adventitious buds.

**Control**
- Cultural: Maintain healthy riparian vegetation.
- Mech: Chainsaw, bulldozer, mulching, and mowing MUST be combined with chemical treatments.
- Bio: The saltcedar leaf beetle (Diorhabda elongata) feeds on foliage causing stem dieback.

### Herbicide Table

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tcloprens (Garban 4)</td>
<td>Foliar: 2-4 qt/acre</td>
<td>Feria: late spring to early fall</td>
</tr>
<tr>
<td>Glyphosate (Rodeo)</td>
<td>Foliar: 100%</td>
<td>Basal bark: 1:3 herbicide:natural oil</td>
</tr>
<tr>
<td>Imazapyr (Arsenal or Habitat)</td>
<td>Foliar: 0.5-0.5 oz/gal water</td>
<td>Foliar: late spring to late summer; avoid spray solution run-off</td>
</tr>
</tbody>
</table>

**Common Mullein
*Verbascum thapsus*

**Identification**
- Lifecycle: Biennial
- Growth form: Forb
- Flower: 3-5 petals, white to cream in color, and are about 1 inch long, small bracts below.
- Seeds: Alternate, arrowhead shaped.
- Stem: Prostrate, many feet in length
- Roots: Shallow taproot.
- Seedling: Forms a rosette in the first year

**Control**
- Mech: Dig or pull, and remove entire root when in the rosette stage. Will not tolerate tillage. Mowing is not as effective, repeated mowing is necessary.
- Bio: none currently available in Colorado

**Bio: Productivity must apply with surfactant to aid in the penetration of chemical through the hairs on leaves.

### Herbicide Table

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metsulfuron + Chlorsulfuron (Cimarron X-tra)</td>
<td>0.5 oz.</td>
<td>Apply at rosette stage.</td>
</tr>
<tr>
<td>Glyphosate</td>
<td>12-16 oz.</td>
<td>Apply in spring rosette stage.</td>
</tr>
</tbody>
</table>

**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.
- Seeds: Alternate, arrowhead shaped.
- Stems: Prostrate, many feet in length
- Roots: Shallow taproot.
- Seedling: Forms a rosette in the first year

**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, Acrea mahlerbae, and bindweed moth, Tyta lucidosa are effective in CO.

### Herbicide Table

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundup Ultra*</td>
<td>4-5 gts/acre</td>
<td>Apply at full-bloom and/or fall.</td>
</tr>
</tbody>
</table>

**Puncturevine
*Tribulus terrestris*

**Identification**
- Lifecycle: Annual
- Growth form: Forb
- Flower: small, yellow, 5 petals.

**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 lareynii, a seed feeding weevil, and Microlarinus lypoffloris, a stem boring weevil.

### Herbicide Table

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyphosate + non-selective</td>
<td>1.6% Solution</td>
<td>Apply in early growth stages.</td>
</tr>
<tr>
<td>2,4-D and Dicamba (Outlaw)</td>
<td>1-2 pints/acre</td>
<td>Spring at emergence of seedlings thru growing season.</td>
</tr>
<tr>
<td>Chlorsulfuron (Tilar)</td>
<td>1-3 oz/acre</td>
<td>Pre-emergent or early post-emergent</td>
</tr>
<tr>
<td>Pendimethalin</td>
<td>2.1-4.2 gts/acre</td>
<td>Pre-emergent spray</td>
</tr>
</tbody>
</table>
Snow on the Mountain
Aegopodium podagraria ‘Variegata’

Keys to Id
- Low-growing ground cover
- Green compound leaves with white variegated margins

Identification
- Lifecycle: Perennial
- Growth form: Groundcover
- Flower: Inconspicuous greenish-yellow, bloom at the stem ends, lack sepals/petals, not showy.
- Leaves: Attractive, compound, green with showy white variegation.
- Other: Sap is a milky juice that is toxic if ingested.
- Other: Highly invasive ornamental.

Grassy sandbur
Cenchrus spp.

Keys to Id
- Sharp, spiny burs
- Hairy ligule
- Smooth leaf blade and appears to have a hairy margin

Identification
- Lifecycle: Annual
- Growth form: Grass
- Flower: Spike-like clusters 1 to 4 inches long at stem tips and arising from leaf axils in the upper stem. Flowers are enclosed in round, spire-covered burs, with 2 or 3 spikelets (flower clusters) per bur and 1 fertile flower per spikelet.
- Leaves: Alternate, 2 to 7 inches long, about ¼ inch wide, rough on the upper surface, mostly smooth on the lower, flat or folded lengthwise. Ligule is fringed with short, white hairs. The sheath is contracted where it meets the leaf.

Control
- Mechanical:
  - Digging or hand pulling to remove entire root system is necessary to achieve control.
  - Mow or cut plant close to the soil surface often to deplete carbohydrate reserves in the root system.
  - Sulfocate using mulches.
  - Cover on the ground surface (solarize).
- Chemical:
  - Non-selective herbicides (glyphosate) can be used to spot treat this plant.
  - Combination of treatments for an integrated approach.
  - Multiple applications will be necessary for long term control.

Locoweed (White or Purple)
Oxytropis sericea or Oxytropis lambertii

Keys to Id
- Flowers are white or purple with a pointed keel (pea-like) and borne on a leafless stalk.
- Leaves: Opposite, pinnate, and covered with silvery hairs.
- Seed pods are erect, stalkless, with a short beak that splits open to release numerous smooth brown seeds.

Identification
- Lifecycle: Pernnial
- Growth form: Groundcover
- Flower: Spike-like clusters 1 to 4 inches long at stem tips and arising from leaf axils in the upper stem. Flowers are enclosed in round, spire-covered burs, with 2 or 3 spikelets (flower clusters) per bur and 1 fertile flower per spikelet.
- Leaves: Opposite, pinnate, and covered with silvery hairs.
- Other: Toxic to livestock and domestic animals.
- Other: Highly invasive ornamental.

Control
- Cultural:
  - Reduce grazing pressure in to maintain healthy desirable species.
  - Defer grazing from locoweed-infested sites in the spring when locoweed is growing and growing.
- Mech:
  - Hand pull, dig, grub to remove all parts of plant, especially seed.
  - Wear protective clothing, plant is toxic to humans in addition to livestock.
  - Removal of plant, especially seed.

HERBICIDE
Picloram + 2,4-D (Grazon P&D)
Metribuzin (Escort, Ally )

RATE
2 qt./acre
0.6 oz/acre

TIMING
Spring, vegetative to early bloom
Spring, vegetative to early bloom

Some Additional Resources:
- CMG Garden Notes #351, Weed Management
  http://www.cmg.colostate.edu/gardennotes/351.pdf
- CSU Ext, Preparation of small spray quantities
  http://www.ext.colostate.edu/pubs/garden/07615.pdf
- CSU Ext, Weed Management for small rural acreages
  http://www.ext.colostate.edu/pubs/haltnes/03106.pdf
- CSU Ext, Yard and Garden Publications
  http://www.ext.colostate.edu/pubs/pubs.html#garden
- Utah State University Extension - Yard and Garden
  http://extension.usu.edu/yardandgarden/