

NOXIOUS WEED MANAGEMENT PLAN

For

Grandwood Ranch Final Plat

Prepared by:



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Noxious Weed Maintenance by:
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September, 2020

Management Goal: The goal is to contain, suppress, and eradicate an infestation of noxious weeds that may be found in the developing community known as Grandwood Ranch while promoting desirable self-sustaining native plant communities.

Description of Property: The area is described by the El Paso County Assessor's page as Parcel Number 6119000003 with the legal description S2N2, EX PT TO HIGBY RD CONV BY REC# 205092691 W/MR SEC 19-11-66.

Weed Control Objective: Through rural development, the use of properly timed herbicide applications, grazing, maintenance, and the possible establishment of a community of predacious insects within the property, any emerging noxious weeds can be mitigated early and the onset of dense growth can be greatly reduced in the following years. Also, well-defined thresholds are a critical element of integrated vegetation management.

Distinguishing Plant Features: The project lies within or adjacent to an area with documented noxious weeds including spotted knapweed, Canada thistle, yellow toadflax and downy. The properties current land use is designated as agricultural grazing land.

Control Methods: Key control is to prevent noxious weeds from spreading. There are several options for noxious weed mitigation that include the use of integrated vegetation management techniques to control spread.

a. Biological

- i. Insects: The Colorado Department of Agriculture Insectary in Palisade, CO can recommend the appropriate insect to release to establish a community of predatory insects that may assist in the suppression of diffuse knapweed on the property. Call the insectary at (866) 324-2963, or see the Colorado Department of Agriculture website – Divisions – Conservation Services – Biological Pest Control Program. Once the insect community is well established on the property, they can have a great influence reducing noxious weed infestation.
- ii. Population establishment: An appropriate population of feeding insects may take 2-4 years to become established in an area protected from mowing and herbicide application such as under a grove of scrub oak or other woody shrubs.

b. Mechanical/cultural

Mowing: Regular mowing and maintenance to keep weeds from growing and spreading depending upon the species of noxious weed and the recommendations for mowing.

c. Chemical:

- i. Aminopyralid (Milestone)
- ii. Clopyralid plus triclopyr (Redeem R&P)
- iii. 2,4-D plus Dicamba (Weedmaster)

(The above control methods and the below timeframe are all listed on the State of Colorado Department of Agriculture Website search noxious weeds and fact sheets.)

Timeframe: Herbicide control is most effective in early spring (May/June) when the rosette is bolting. Chemical control is not as effective during the flowering stage, which is July and August. A fall (September) herbicide application following the rainy season will successfully treat the new seedlings and rosettes.

Monitor: The Grandwood Ranch area shall be monitored to ensure the suppression of any new emerging noxious weeds.

Evaluation Methods: Photographs/plant counts at permanent monitoring points are a good way to compare and ensure the decline of the infestation from one year to the next. In most cases, the suppression of an infestation will take several years with multiple treatments per year to kill the plants and reduce the seed bank in the soil. Successive sprouting of seeds in the soil from desirable plant groups will eventually re-vegetate bare soils until an optimum community of plants develops.

Analyze Effectiveness: Management objectives are aided by monitoring, which assures that the treatment effects are gauged and shortfalls are corrected.

Assistance: El Paso County weed management personnel are available for assistance as needed. Contact El Paso County at (719) 520-7839 or (719) 520-7846. The Noxious Weeds and Control Methods document prepared by El Paso County Community Services Department Environmental Division has been provided with this plan for reference and additional information and control methods.



Community Services Department
Environmental Division

Noxious Weeds and Control Methods



Purple loosestrife
(EPC Environmental Division)



Orange hawkweed
(EPC Environmental Division)



Canada thistle
(EPC Environmental Division)

For More Information Contact:

El Paso County Community Services Department
Environmental Division
3255 Akers Drive
Colorado Springs, CO 80922-1503

(719) 520-7839 or (719) 520-7846

www.elpasoco.com

Updated 2015

CONTENTS

What is a Noxious Weed?	1
Why are Noxious Weeds a Threat?	1
How can Noxious Weeds be Managed?	2

List A:

Cypress spurge	3-4
Dyer's woad	5-6
Knotweeds: Giant, Japanese & Bohemian	7-8
Myrtle spurge	9-10
Orange hawkweed	11-12
Purple loosestrife	13-14

List B:

Absinth wormwood	15-16
Bouncingbet	17-18
Bull thistle	19-20
Canada thistle	21-22
Chinese clematis	23-24
Common teasel	25-26
Dalmatian toadflax	27-28
Dame's rocket	29-30
Diffuse knapweed	31-32
Hoary cress (whitetop)	33-34
Houndstongue	35-36
Leafy spurge	37-38
Musk thistle	39-40
Russian knapweed	41-42
Russian olive	43-44
Scentless chamomile	45-46
Scotch thistle	47-48
Spotted knapweed	49-50
Tamarisk (Salt cedar)	51-52
Yellow toadflax	53-54

List C:

Common mullein	55-56
Downy brome / Cheatgrass	59-60
Field bindweed	57-58
Puncturevine	59-60

Glossary	61
Resources	62
Contacts	63
References	64

What is a Noxious Weed?

In 1996 the Colorado Noxious Weed Act (Title 35, Article 5.5) was passed to control noxious weeds in the state. "Noxious weed" means an alien plant or parts of an alien plant that have been designated by rule as being noxious or has been declared a noxious weed by a local advisory board, and meets one or more of the following criteria:

- (a) Aggressively invades or is detrimental to economic crops or native plant communities;
- (b) Is poisonous to livestock;
- (c) Is a carrier of detrimental insects, diseases, or parasites;
- (d) The direct or indirect effect of the presence of this plant is detrimental to the environmentally sound management of natural or agricultural ecosystems.

Plants are prioritized as List A, B, or C species by the Colorado Department of Agriculture (CDA).

List A: Rare noxious weeds that must be eradicated statewide.

List B: Discretely distributed noxious weeds that must be eradicated, contained, or suppressed, depending on their location, to stop their continued spread.

List C: Widespread and well-established noxious weeds in Colorado; control is recommended by the state and may be required by local government.

For more information on noxious weeds: <http://www.colorado.gov/ag/weeds>

Why are Noxious Weeds a Threat?

Noxious weeds impose a wide variety of negative impacts on people, wildlife, and the environment. Livestock production and crop yields can be greatly reduced as well as adding the significant costs of weed management. Noxious weeds can also reduce the value of land when infestations are severe.

Wildlife habitat and forage are severely degraded by noxious weeds, often rendering the land totally unusable to native animals. Noxious weeds are capable of displacing native plant communities and forming monocultures in their stead, as well as threatening rare and endangered plants.

Many noxious weeds alter or damage environmental processes like hydrology, nutrient cycling, and fire cycles, or degrade the environment by increasing soil salinity or erosion. Many recreational activities such as hiking, biking, fishing, hunting, bird watching, and boating are also negatively impacted by noxious weeds.

A few noxious weed facts (<http://www.invasive.org/library/index.cfm>):

- Estimated damage from invasive species worldwide totals more than \$1.4 trillion.
- Russian thistle stands have been known to survive more than 100 years.
- The 2003 Guinness Book of World Species listed giant hogweed as the world's largest weed.
- Before the introduction of embalming, tansy ragwort was used to line coffins before burying the dead because of its ability to repel vermin.

How can Noxious Weeds be Managed?

The most effective way to control noxious weeds is through Integrated Pest Management (IPM). IPM incorporates weed biology, environmental information, and available management techniques to create a management plan that prevents unacceptable damage from pests, such as weeds, and poses the least risk to people and the environment. IPM is a combination of treatment options that, when used together, provide optimum control for noxious weeds; however, IPM does not necessarily imply that multiple control techniques have to be used or that chemical control options should be avoided.

- **Prevention:** The most effective, economical, and ecologically sound management technique. The spread of noxious weeds can be prevented by cleaning equipment, vehicles, clothing, and shoes before moving to weed-free areas; using weed-free sand, soil, and gravel; and using certified weed-free seed and feed.
- **Cultural:** Promoting and maintaining healthy native or other desirable vegetation. Methods include proper grazing management (prevention of overgrazing), re-vegetating or re-seeding, fertilizing, and irrigation.
- **Biological:** The use of an organism such as insects, diseases, and grazing animals to control noxious weeds; useful for large, heavily infested areas. Not an effective method when eradication is the objective, but can be used to reduce the impact and dominance of noxious weeds.
- **Mechanical:** Manual or mechanical means to remove, kill, injure, or alter growing conditions of unwanted plants. Methods include mowing, hand-pulling, tilling, mulching, cutting, and clipping seedheads.
- **Chemical:** The use of herbicides to suppress or kill noxious weeds by disrupting biochemical processes unique to plants.

Whether eradication or suppression is the objective of noxious weed management, priority should always be given to restoring desirable vegetation and a healthy ecosystem to prevent further noxious weed infestations.

This booklet lists chemical controls for noxious weeds as recommended by the Colorado Department of Agriculture (CDA). **Always read and follow the product label** to ensure proper use and application. For more information regarding agents listed for biological control, contact the CDA Palisade Insectary at 970-464-7916 or 1-866-324-2963.

Cypress spurge



LIST A

Cypress spurge - *Euphorbia cyparissias*

A low-growing perennial containing a milky latex that is toxic to horses and cattle, and can cause severe skin irritation to people. An escaped ornamental, popular in xeriscape and rock gardens. Has an extensive root system and can reproduce from root fragments.

Identification:

- Leaves: Linear and needle-like.
- Flowers: Yellow-green bracts, blooms early spring to late fall.
- Seeds: Projected up to 15' feet, and viable for up to 8 years.

Control methods:

Biological:

Not approved for Cypress spurge, which is a List A species, since eradication is the management objective.

Mechanical:

Hand-pull or dig while infestation is still small, removing all roots; tillage will encourage spreading. Wear rubber gloves and eye protection. Follow-up and perseverance is important.

Chemical:

Quinclorac: Apply during flowering stage.

2,4-D + Dicamba: Apply during flowering stage.

**Picloram*: Apply during the spring while in full bloom or fall re-growth.

*Restricted-use chemical

Dyer's woad



Steve Dewey, USU, Bugwood.org



LIST A

Dyer's woad - *Isatis tinctoria*

A winter annual, biennial, or short-lived perennial. Thrives in light sandy and gravelly soils with minimum water. Ranges from 1 to 4 feet tall with a deep taproot. Causes loss of livestock forage by displacing native species. Dyer's woad is an abundant re-seeder and can heavily out-compete the native plant community.

Identification:

- Leaves: White mid-rib on upper surface.
- Flowers: Numerous, yellow, and very small.
- Seeds: Pods turn dark purple to black.

Control methods:

Early detection and control when infestations are small, as well as long-term management and monitoring, are essential to ensure eradication.

Biological:

Not approved for Dyer's woad, which is a List A species, since eradication is the management objective.

Mechanical:

Hand-pulling or digging when soil is moist are effective control methods.

Chemical:

Metsulfuron: Apply at the bolt to bud growth stage.

Chlorsulfuron: Apply at the bolt to bud growth stage.

Knotweeds

Bohemian knotweed



Giant knotweed



dnr.wi.gov

Japanese knotweed



LIST A

Giant knotweed - *Polygonum sachalinense*

Japanese knotweed - *Polygonum cuspidatum*

Bohemian knotweed - *Polygonum x bohemicum*

Bright green, bamboo-like perennial plants that grow 5 to 16 feet tall and spread through roots and root fragments. Introduced from Asia as an ornamental, for erosion control and landscape screening. They can tolerate many environmental conditions, including high temperatures and drought. Infestations can clog small waterways and degrade wildlife habitat. Bohemian knotweed is a hybrid of giant and Japanese knotweed.

Identification:

- Leaves: Heart-shaped and bright green.
- Flowers: Small, showy, greenish-white, in clusters.
- Stems: Hollow between nodes and swollen at nodes.

Control methods:

Biological:

Not approved for giant knotweed, which is a List A species, since eradication is the management objective.

Mechanical: Not recommended due to extensive root system.

Chemical:

**Glyphosate:* Apply evenly over leaf surface.
Treat when plants are actively growing.

Triclopyr: Apply evenly over leaf surface.
Treat when plants are actively growing.

Imazapyr: Apply evenly over leaf surface.
Treat when plants are actively growing.

*Non-selective chemical, will kill all vegetation it contacts

Myrtle spurge



LIST A

Myrtle spurge - *Euphorbia myrsinites*

A tap-rooted perennial with low-growing or trailing fleshy stems. Sometimes referred to as donkey-tail spurge. Leaves and stems have a toxic, milky sap that can cause severe skin irritations. Escaped ornamental, popular in xeriscape and rock gardens.

Identification:

- Leaves: Fleshy, blue-green.
- Flowers: Yellow-green bracts, blooms in early spring.
- Seeds: Projected up to 15 feet, viable for up to 8 years.

Control methods:

Biological:

Not approved for Myrtle spurge, which is a List A species, since eradication is the management objective.

Mechanical:

Hand-pull prior to seed set, wear rubber gloves and eye protection. Follow-up is important.

Chemical:

2,4-D ester: Apply in spring and during fall re-growth.

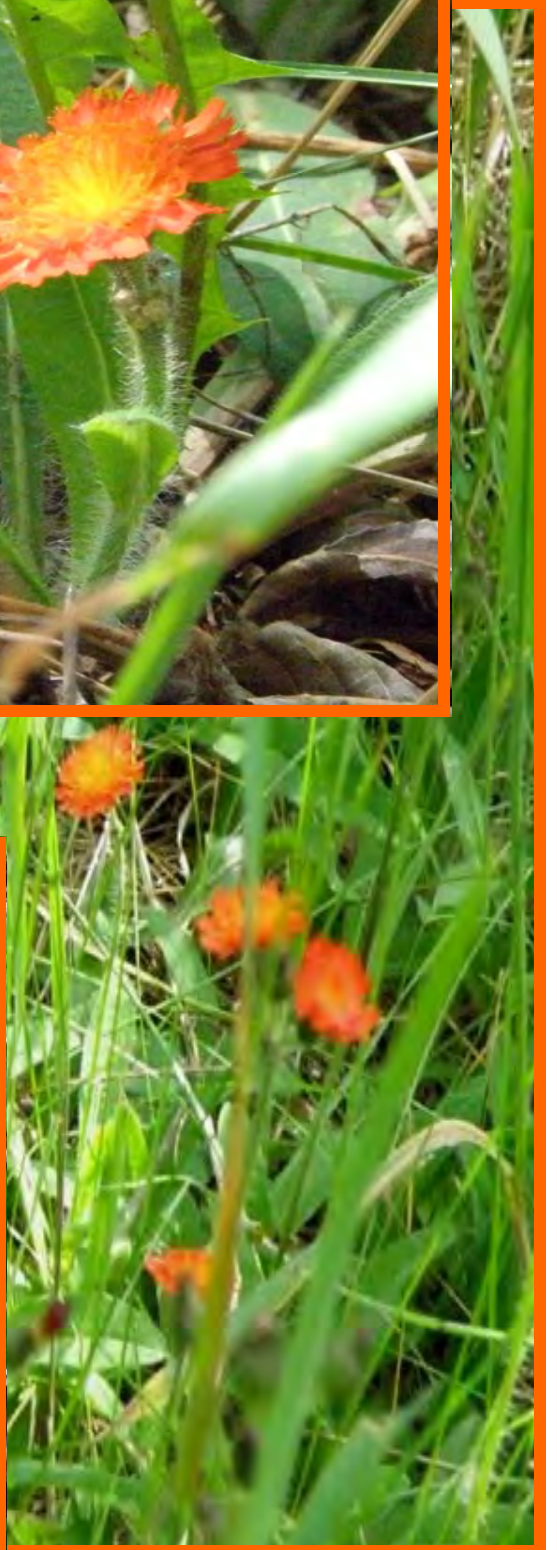
Dicamba + 2,4-D: Apply in spring and during fall re-growth.

**Picloram:* Apply when flowering or during fall re-growth.

**Picloram + 2,4-D:* Apply when flowering or during fall re-growth.

*Restricted-use chemical

Orange hawkweed



LIST A

Orange hawkweed - *Hieracium aurantiacum*

A perennial plant that has 5 to 30 bright red-orange, dandelion-like flower heads per stem. The stems and leaves are hairy and bristly and contain a milky juice. Plant reproduces from underground rhizomes and seeds.

Identification:

- Leaves: Basal with 1 or 2 small leaves.
- Flowers: Red-orange flowers, petals have notched tips.
- Stems: Hairy.

Control methods:

Biological:

Not approved for orange hawkweed, which is a List A species, since eradication is the management objective.

Mechanical:

Not recommended because of ability to reproduce by stolons, rhizomes, and root fragments.

Chemical:

- | | |
|-----------------------------|--|
| <i>Aminopyralid</i> : | Apply when plants are in rosette to bolting stage. |
| <i>Clopyralid</i> : | Apply when plants are in the rosette growth stage. |
| <i>Clopyralid + 2,4-D</i> : | Apply when plants are in the rosette growth stage. |
| <i>*Picloram</i> : | Apply when plants are in the rosette growth stage. |
| <i>2,4-D</i> : | Apply when plants are in the rosette growth stage. |

*Restricted-use chemical

Purple loosestrife

Linda Wilson UI, Bugwood.org



Linda Haugen, USDA Forest Service, Bugwood.org



LIST A

Purple loosestrife - *Lythrum salicaria*

Escaped ornamental that often grows on riverbanks and in wet areas. Pieces of roots and stems can produce new plants, and a mature plant can produce up to 3 million seeds that can remain viable in the soil for 5 to 20 years.

Identification:

- Leaves: Whorled, smooth edges, 2 to 5 inches long, lance-shaped.
- Flowers: Purple, crushed look, 5 to 7 petals, long flower stalk.
- Stems: Four-sided (square).

Control methods:

Early detection and control when infestations are small, as well as long-term management and monitoring, are essential to ensure eradication.

Biological:

Not approved for purple loosestrife, which is a List A species, since eradication is the management objective.

Mechanical:

Remove by hand prior to seed set. If flowering, clip all flowers and buds, bag them, then apply herbicide to plant.

Chemical:

Check for aquatic-approved herbicides if growing on or near the water.

Triclopyr: Apply in the summer. If plants are flowering, clip, bag, and dispose of flower heads before spraying.

**Glyphosate:* Apply in summer during flowering stage. Clip, bag, and dispose of flower heads before applying a glyphosate formula approved for aquatics.

Aquatic 2,4-D Amine: Apply in early spring. Will prevent seed formation only. Re-treatment will be necessary.

*Non-selective chemical, will kill all vegetation it contacts

Absinth wormwood



LIST B

Absinth wormwood - *Artemisia absinthium*

A long-lived perennial with a strong odor of sage. Plant can grow 2 to 4 feet in height, with a lateral root system extending 6 feet in all directions. Grows well in disturbed sites, moist soil, and is shade tolerant. First cultivated for medicinal purposes.

Identification:

- Leaves: Blue-olive green, alternate and highly divided.
- Flowers: Small, yellowish, arranged in large, spike-like panicles.
- Stems: Numerous, and covered with fine gray hairs.

Control methods:

Biological:

No insect biological control available.

Mechanical:

Hand-pull or dig when soil is moist. Make certain to pull all roots. Multiple mowings prior to seed production may provide a control option.

Chemical:

**Picloram:* Apply when plant is 12 inches tall through flowering growth stage.

Aminopyralid: Apply when plant is 12 inches tall through flowering growth stage.

Clopyralid + 2,4-D: Apply when plant is 12 inches tall through flowering growth stage.

Dicamba: Apply when plant is 12 inches tall through flowering growth stage.

*Restricted-use chemical

Bouncingbet



LIST B

Bouncingbet - *Saponaria officinalis*

An escaped ornamental forb that reproduces by seed and rhizomes. This perennial plant is poisonous to livestock and humans. Prefers moist, well-drained soils in full sun, and is often found in municipal areas and surrounding wildlands.

Identification:

- Leaves: Opposite, smooth, narrow, 2 to 4 inches long, 3 distinct veins from the leaf base.
- Flowers: White to light pink, 5 petals, clustered at branch ends, slightly notched apex.
- Stems: Three feet tall, erect, sparingly branched, smooth and forming.

Control methods:

Biological:

No insect biological control available.

Mechanical:

Not recommended due to extensive root system. Hand-pull or dig individual plants, removing all roots when the soil is moist. Prevent seed production by clipping and disposing of flower heads.

Chemical:

Chlorsulfuron: Apply at bolting to bud stage, in late spring to mid-summer.

Bull thistle



LIST B

Bull thistle - *Cirsium vulgare* (Savi) Tenore

A biennial forb introduced as a seed contaminant. Can produce up to 4,000 seeds. Presence of bull thistle in hay decreases forage and lowers market value. Will grow on gravel and clay-textured soils. Can be distinguished from musk thistle by the presence of winged spines extending to the flower heads.

Identification:

- Leaves: Prickly-hairy on top and cottony underneath.
- Flowers: Gum-drop shaped, pinkish to dark purple.
- Seeds: Capped with circle of plume-like white hairs.

Control methods:

Biological:

Urophora stylata, a fly predator, can aid in control.

Mechanical:

Physical method that severs the root below the soil surface will kill weed.

Chemical:

Clopyralid: Apply to rosettes in spring or fall.

Clopyralid + 2,4-D: Apply to rosettes in spring or fall.

Dicamba: Apply to rosettes in spring or fall if good growing conditions exist.

2,4-D or 2,4-D + *Dicamba*: Apply to rosettes in spring.

**Picloram*: Apply to rosettes in spring or fall.

Chlorsulfuron: Apply in spring from bolting to bud stages; add a non-ionic surfactant.

Metsulfuron: Apply in spring from bolting to bud stages; add a non-ionic surfactant.

Canada thistle

University of Alaska Fairbanks, Bugwood.org



Steve Dewey, USU, Bugwood.org



LIST B

Canada thistle - *Cirsium arvense*

A deep-rooted perennial that spreads mainly through an aggressive rhizomatous root system, but also through seed production. Often grows in wet areas, but can grow in a variety of habitats. Small pieces of root (½ inch) can form new plants, reducing the effectiveness of tilling for control.

Identification:

- Leaves: Spine-tipped, bright green, oblong, and crinkled.
- Flowers: Small purple (sometimes white) clusters on ends of branches.
- Stems: Hollow and spineless.

Control methods:

Biological: Grazing by cattle, goats, and sheep when plants are young. Insects available; have not shown effective control.

Stem gall-forming fly - *Urophora cardui*

Stem-mining weevil - *Ceutorhynchus littura*

Mechanical: Hand-pulling is not an option, but mowing can be effective if done every 10 to 21 days during the growing season. Especially effective combined with fall herbicide treatment.

Chemical:

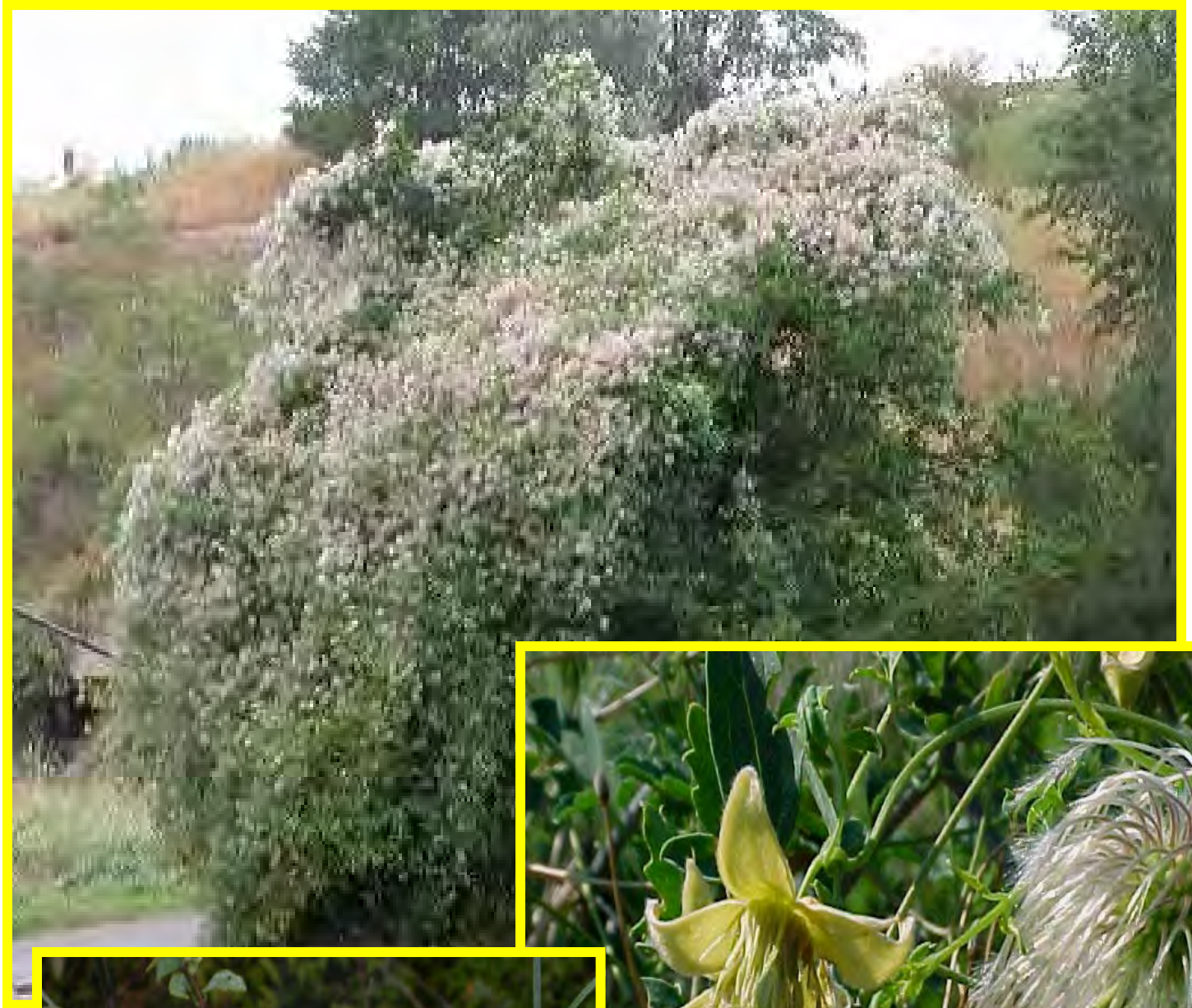
Aminopyralid: Apply in spring at the pre-bud growth stage and/or to fall re-growth. Especially effective in fall after the first light frost.

Chlorsulfuron: Apply in spring during bud to bloom stage and to fall re-growth.

Clopyralid + 2,4-D: Effective from rosette to bud stage when all plants have emerged.

**Picloram*: Early bud stage, spring or fall re-growth.

Chinese clematis



LIST B

Chinese clematis - *Clematis orientalis*

A perennial, herbaceous-to-woody climbing vine that is capable of completely covering trees and bushes, causing death to young trees and shrubs. An escaped ornamental that prefers well-drained soils and sunny locations, and is often found along roadsides, riparian areas, and rocky slopes.

Identification:

- Flowers: Solitary, four yellow sepals (petal-like), often nodding.
- Fruits: Feathery, long-tailed, conspicuous all winter.
- Roots: Five to ten feet long.

Control methods:

Biological: No insect biological control available.

Mechanical: Pull or dig up the plant prior to flowering when soil is moist; remove all roots.

Chemical:

Metsulfuron: Apply at flowering growth stage.

Imazapic: Apply at flowering growth stage.

2,4-D Amine: Effective at flowering to early post-flowering growth stages (will damage neighboring broadleaf brush species if present).

**Picloram*: Apply at flowering growth stages; do not apply near trees or water.

*Restricted-use chemical

Common teasel



LIST B

Common teasel - *Dipsacus fullonum*

A biennial or sometimes monocarpic perennial forb that can grow up to 6 feet tall. Generally found along irrigation ditches, rivers, abandoned fields, pastures, waste areas, and forests. Can produce more than 2,000 seeds per plant, and seeds can stay viable for up to 2 years. Plants die after seed production.

Identification:

- Flowers: Purple or white and egg-shaped with spiny bracts.
- Leaves: Dark green at the base and appear rippled.
- Fruits: Four-angled achene, each containing a single seed.

Control methods:

Biological: No insect biological control available.

Mechanical: Digging while at the rosette stage and cutting plants near flowering stage can be effective. Re-visit the site frequently to ensure re-growth does not occur.

Chemical:

Metsulfuron: Apply when in rosette or bolting growth stage.

Imazapic: Apply when in rosette or bolting stage.
Good herbicide choice in riparian areas.

Aminopyralid: Apply when in rosette or bolting stage.
Best choice of herbicide in riparian areas.

Dalmatian toadflax



Linda Wilson, UI, Bugwood.org



Bob Nowierski, MSU, Bugwood.org



Bob Nowierski, MSU,
Bugwood.org

LIST B

Dalmatian toadflax - *Linaria dalmatica*

A perennial forb introduced from the Mediterranean as a folk remedy, fabric dye, and ornamental. Grows up to 3 feet high in disturbed open sites, fields, pastures, rangelands, and wildlife habitats. Reproduces by seed (up to 500,000 per plant), and extensive, creeping rhizomes.

Identification:

- Flowers: Showy yellow snapdragon-like with an orange throat.
- Leaves: Thick, waxy, bluish, heart-shaped, and wraps the stem.
- Roots: Can regenerate from vegetative buds.

Control methods:

Controlling toadflax is expensive and difficult. Control when infestations are small, but prevention is the best option.

Biological:

Calophasia lunula - a predatory noctuid moth that feeds on flowers and leaves.

Mecinus janthinus - a stem-boring weevil

Mechanical:

Pulling by hand can be effective for small infestations.

Chemical:

Chlorsulfuron: Apply when flowering, in spring or fall.

2,4-D + Dicamba: Apply during pre-bloom to flower stage.

**Picloram*: Apply when flowering, in spring or fall.

*Restricted-use chemical

Dame's rocket



LIST B

Dame's rocket - *Hesperis matronalis*

A biennial or short-lived perennial forb belonging to the mustard family (*Brassicaceae*). Flowers appear from May to August and the plant can produce seeds and flowers on any flower cluster at the same time. Plant quickly escapes gardens and is often sold in “native wildflower” mixes. Please check contents of seed packs to avoid this plant.

Identification:

- Flowers: White or purple in color with four petals.
- Fruits: Long, narrow, and cylindrically shaped.
- Leaves: Slightly hairy, alternate, 2 to 4 inches long.

Control methods:

Biological:

No insect biological control available.

Mechanical:

Pull the plant when soil is moist; remove all roots.

Cut and bag the flowers before seeds set.

Chemical:

Metsulfuron: Apply when plant is in rosette or bolting stage.

Chlorsulfuron: Apply when plant is in rosette or bolting stage.

Imazapic: Apply when plant is in late flowering stage.

Diffuse knapweed



Cindy Roche, Bugwood.org



LIST B

Diffuse knapweed - *Centaurea diffusa*

A tap-rooted plant that usually grows as a biennial, but can sometimes survive as a short-lived perennial. It reproduces by seeds only, and is capable of producing 18,000 seeds per plant. Following seed production, the plant dries out and often takes the form of a tumbleweed, spreading seeds great distances.

Identification:

- Flowers: Usually white, sometimes lavender; spiny bracts with a distinct central spine and fringed comb-like edges.
- Leaves: Finely divided, become reduced as plant matures.

Control methods:

Biological:

Insects listed below provide good control when used together, but may take 3 to 5 years to establish and achieve optimum results.

Seedhead weevil - *Larinus minutus*

Root weevil - *Cyphocleonus achates*

Mechanical:

Sever the taproot below ground while still in rosette stage. Mowing is effective at full-bloom; plant parts must be disposed of properly as seed may still develop on cut plants.

Chemical:

Aminopyralid: Apply in early spring at the rosette to early bolt stage and/or in the fall to the rosettes.

2,4-D Amine: Can be applied to spring or fall rosettes.

Clopyralid + Triclopyr: Apply in early spring at the rosette to early bolt stage and/or in the fall to the rosettes.

**Picloram*: Apply in early spring at the rosette to mid-bolt stage and/or in the fall to the rosettes.

*Restricted-use chemical

Hoary cress



LIST B

Hoary cress - *Cardaria draba*

Commonly known as whitetop, this perennial member of the mustard family (*Brassicaceae*) reproduces by seeds and creeping rhizomes. One of the first noxious weeds to emerge in the spring, it flowers in early spring and sets seed by mid-summer. Single plants are capable of producing as many as 4,800 seeds that can remain viable in the soil for about 3 years. It prefers moderate precipitation, alkaline soils, lots of sun, and disturbed sites, and can grow in a variety of habitats.

Identification:

- Flowers: White with four petals, flat-topped flower clusters.
- Leaves: Blue-green, lance-shaped, serrated edges, blunt ends.
- Seeds: Heart-shaped capsules hold two flat reddish-brown seeds.

Control methods:

Biological:

No insect biological control available.

Mechanical:

Mow frequently in early spring before the bolting stage to stress the plant. Mow several times during the summer, and apply herbicide during the fall for optimum control.

Chemical:

Metsulfuron: Apply at early bud growth stage ("broccoli stage") in spring.

Chlorsulfuron: Apply at early bud growth stage ("broccoli stage") in spring.

Imazapic: Apply at late-flower to post-flower growth in fall.

Houndstongue



US Department of Agriculture

LIST B

Houndstongue - *Cynoglossum officinale*

A short-lived perennial or biennial forb. Produces rosettes in the first year, and bolts a stout erect stem that is 1 to 4 feet tall by mid-summer of the second year. Seeds have barbs like Velcro and will cling to animals, clothing, and machinery. Houndstongue is poisonous and can be lethal to livestock.

Identification:

- Flowers: Reddish-purple with 5 petals and 5 soft, hairy sepals. Slightly drooping from densely clustered panicles.
- Leaves: Lance or oblong-shaped, with a smooth edge and no teeth or lobes. Leaf tip is sharply pointed, like a hound's tongue.
- Seeds: Prickly teardrop-shaped nutlets in a pyramid-shaped receptacle.

Control methods:

Biological:

No insect biological control available.

Mechanical:

Cut or pull plants, remove entire root crown when plants are in rosette stage.

Chemical:

Metsulfuron: Apply in spring, rosette to early bud growth stages.

**Picloram*: Apply in spring, rosette stage.

*Restricted-use chemical

Leafy spurge



LIST B

Leafy spurge - *Euphorbia esula*

A long-lived perennial that emerges early in spring with an extensive creeping root system. Roots can extend to a depth of 30 feet. Plants contain a milky latex that can damage sensitive skin and eyes. A single plant can produce up to 130,000 seeds that can be projected up to 15 feet from the plant, and are capable of remaining viable in the soil for at least 8 years. The plant also reproduces from the large numbers of vegetative buds on its roots.

Identification:

- Flowers: Small, enclosed by yellowish-green heart-shaped bracts.
- Leaves: Alternate, narrow, and linear.
- Stems: Erect, 1 to 3 feet tall, unbranched except at flower clusters.

Control methods:

Biological:

Both sheep and goats are effective grazers of leafy spurge.
Three flea beetles (below) are available for control.

Flea beetle - *Apthona nigriscutis*

Flea beetle - *Apthona czwalinae* / *lacertosa*

Flea beetle - *Apthona cyparissiae*

Mechanical:

Hand-pulling is not an option due to the vast root system. Frequent mowing can reduce seed production but will not provide long-term control.

Chemical:

Fosamine: Bloom to post-bloom stage, only apply in spring.

**Picloram*: Spring, right after full bloom, or fall application.

Imazapic: Treat prior to a hard freeze, only in the fall.

2,4-D Amine: Early spring/fall, only prevents seed production.

*Restricted-use chemical

Musk thistle



Dr. Amadej Trnkoczy © 2004



LIST B

Musk thistle - *Carduus nutans*

A biennial thistle with very showy flowers producing up to 20,000 seeds per plant. Flower heads often bend over or nod, giving rise to the common name “nodding thistle.” Reproduces only by seeds, which mature in June or July of the second year of growth. Often found in disturbed / overgrazed areas, but can invade various habitats.

Identification:

- Flowers: Purple, 1.5 to 2.5 inches wide, nodding, solitary on stems; large triangular-shaped, spine-tipped bracts.
- Leaves: Spiny, dark green, whitish margins, prominent midrib.
- Stems: Leaves usually absent or very reduced below flower. Stem smooth below flower head.

Control methods:

Biological:

The crown weevil, *Trichosiromus horridus*, is available for control.

Mechanical:

Severing the root below the soil surface is a very effective control method. Mowing is most effective at full bloom, but flowering plant parts must be disposed of properly because seeds may still develop on cut plants.

Chemical:

**Picloram*: Apply in spring to rosette.

Metsulfuron: Apply in spring during rosette through very early flowering stages.

Chlorsulfuron: Apply in spring during rosette through very early flowering stages.

Aminopyralid: Apply in spring during rosette to early bolting stages, fall to rosettes.

*Restricted-use chemical

Russian knapweed

Ron Wolf © 2008



Steve Dewey, USU, Bugwood.org



Steve Dewey, USU, Bugwood.org



LIST B

Russian knapweed - *Acroptilon repens*

A deep-rooted, creeping perennial that reproduces mainly from adventitious buds on the roots, but it also reproduces from seed. It is allelopathic, meaning it exudes a toxic substance that inhibits the growth of surrounding plants. It is also toxic to horses, and prolonged consumption results in “chewing disease.”

Identification:

- Flowers: Pink to purple, urn-shaped, and solitary at the ends of upper branches, pointed papery tips on rounded bracts.
- Stems: Upright, branched, covered in short stiff hairs.
- Roots: Horizontal, vigorous, and black with a scaly appearance.

Control methods:

Biological:

The gall midge, *Jaapiella ivannikovi*, is currently being established by the Colorado Department of Agriculture, but is not yet available to the public.

Mechanical:

Mow several times before plants bolt. Most effective when mowing is combined with fall herbicide treatment.

Chemical:

Chlorsulfuron: Apply in spring from pre-bloom to bloom, and in fall to the rosettes.

Aminopyralid: Apply in spring and summer to plants in the bud and flowering stage, or apply to dormant plants in the fall.

**Picloram*: Apply in spring to the bud/early flower stage, and in the fall to rosettes or to dormant plants.

*Restricted-use chemical

Russian olive



J. Scott Peterson, Bugwood.org

LIST B

Russian olive - *Elaeagnus angustifolia*

A fast-growing perennial shrub or small tree (up to 30 feet) that reproduces through adventitious roots and seed production. It possesses an extensive root system, and can grow on bare, mineral substrates within the soil. It tolerates many soil, light, and moisture conditions, but prefers open, moist riparian areas and often out-competes native riparian vegetation. Prior to being listed as a noxious weed by the CDA, it was commonly used for erosion control and can be found in home landscaping.

Identification:

- Leaves: Narrow, linear, upper surface is light green, lower surface is silvery white.
- Branches: Young twigs, reddish and flexible with 1" to 2" thorns.
- Fruit: Olive-shaped, become yellow-red when mature.

Control methods:

Biological:

Tubercularia canker is an unapproved bio-control; however, it can girdle entire stems and kill stressed plants over time.

Mechanical:

Cut trees, then immediately treat stumps with a herbicide to prevent re-sprouting.

Chemical:

Triclopyr: Apply to the cambial layer of the tree immediately after the stump is cut.

Imazapyr: Apply to the cambial layer of the tree immediately after the stump is cut, or use as a broadcast spray.

Scentless chamomile



LIST B

Scentless chamomile - *Matricaria perforata*

An annual, biennial, or short-lived perennial forb that is native to Europe. Produces a dense mat that out-competes other plants. A single plant can produce 300,000 seeds. Seeds and flowers are continuously formed, producing many generations during the growing season.

Identification:

- Flowers: Yellow-centered disk surrounded by white petals, daisy-like.
- Leaves: Alternate, finely divided, fern-like.
- Stems: 6 inches to 3 feet tall with numerous branches.

Control methods:

Biological:

There is no biological control available at this time.

Mechanical:

Frequent shallow tilling can help exhaust seed bank.

Chemical:

Metsulfuron: Apply when plant is in rosette to bolting stage.

Chlorsulfuron: Apply when plant is in rosette to bolting stage.

Aminopyralid: Apply when plant is in rosette growth stage.

Scotch thistle



LIST B

Scotch thistle - *Onopordum acanthium*

Scotch thistle - *Onopordum tauricum*

A non-native biennial forb that reproduces solely by seed. Can produce up to 14,000 seeds per plant. Due to spiny nature, Scotch thistle can act as a living barbed wire fence to livestock and can grow up to 12 feet tall. Invades overgrazed pastureland, roadsides, and irrigation ditches.

Identification:

- Flowers: 2 to 5 clusters, purple to dark red in color.
- Leaves: Alternate, stalk-less, and spiny edged.
- Stems: Numerous, branched, with broad, spiny wings.

Control methods:

Biological:

Urophora stylata, a fly predator, is used to help control this plant. The limited numbers do not allow for general redistribution.

Mechanical:

Any physical method that damages the root below the soil surface will kill the plant. Properly dispose of flowering cut plants, as seeds can mature and become viable.

Chemical:

- *Picloram:* Apply in spring or fall during the rosette stage.
- Aminopyralid:* Apply in spring or fall during the rosette stage.
- Metsulfuron:* Apply during rosette to early bolt stage of growth.

*Restricted-use chemical

Spotted knapweed



LIST B

Spotted knapweed - *Centaurea maculosa*

A short-lived perennial that reproduces only by seed. Each plant is capable of producing up to 40,000 seeds. It tends to invade disturbed / overgrazed areas, but can tolerate both dry conditions and high moisture areas.

Identification:

- Flower: Urn-shaped, pink to purple, usually single at the end of branches; black-tipped (“spotted”) spiny bracts.
- Leaves: Small, oblong, pinnately divided.
- Root: Stout taproot.

Control methods:

Biological:

The insects listed below are available for control:

Root weevil - *Cyphocleonus achates*

Seedhead weevil - *Larinus minutus*

Mechanical:

Dig when the soil is moist, removing all roots. Mow at full bloom to stress the plant; all parts must be disposed of properly, as seed may still develop on cut plants.

Chemical:

Clopyralid + 2,4-D: Apply to spring or fall rosettes.

Clopyralid: Apply in spring before bolt stage occurs or in fall to the rosettes.

Aminopyralid: Apply in spring at the rosette to early bolt stage and /or in fall to the rosettes.

**Picloram*: Apply in spring through mid-bolt or in fall to the rosettes.

Tamarisk



Steve Dewey, USU, Bugwood.org



Steve Dewey, USU, Bugwood.org



LIST B

Tamarisk (Salt cedar) - *Tamarix chinensis*

Tamarisk (Salt cedar) - *Tamarix parviflora*

Tamarisk (Salt cedar) - *Tamarix ramosissima*

A small shrub or tree that reproduces vegetatively and by seed. Mature plants can produce up to 600,000 seeds that are viable for up to 45 days. It increases the salinity of the soil surface, which favors its growth while hindering native plant growth. It is often found in floodplains, along river / stream banks, irrigation ditches, and marshes.

Identification:

- Flowers: Tiny, pink to white, 5 petals, slender flower stalks.
- Leaves: Small, scale-like (like juniper), bluish-green in color.
- Stems: Reddish-brown color.

Control Methods:

Biological:

The Leaf Beetle, *Diorhabda elongata*, is available for control.

Mechanical:

Bulldozing can be used to open up large stands of salt cedar; follow up with herbicide treatment of re-growth when 1 to 2 meters tall.

The cut-stump method can be applied with a chainsaw, or loppers for smaller plants.

Chemical:

Cut-stump method refers to mechanically cutting down the tree, then immediately applying herbicide to the stump.

Imazapyr: Cut-stump - treat anytime except during heavy sap flow.
Foliar - late spring to late summer.

Triclopyr: Cut-stump & basal bark - anytime, except when snow is present. Foliar - late spring to early fall.

**Glyphosate:* Cut-stump - treat anytime except when snow is present.
Treat the cambium immediately after cutting.
Thoroughly wet surface, but not to the point of run-off.

*Non-selective chemical, will kill all vegetation it contacts

Yellow toadflax

John M. Randall, Nature Conservancy, Bugwood.org



Linda Wilson, University of Idaho, Bugwood.org

LIST B

Yellow toadflax - *Linaria vulgaris*

A perennial with an extensive creeping root system that reproduces vegetatively, and also through prolific seed production. It is well-adapted to moist or dry sites and is found in all soil types. Very competitive due to early spring emergence from vegetative buds on root stock. Herbicide control results can be highly variable. Known to be mildly poisonous to cattle, but no known ill effects to sheep or goats.

Identification:

- Flowers: Snapdragon-like, bright yellow with orange centers, long spur.
- Leaves: Narrow, linear, 1 to 2 inches long.
- Stems: Woody at the base and smooth toward top, 1 to 3 feet tall.

Control Methods:

Controlling toadflax is expensive and difficult. Control when infestations are small. Prevention is the best option.

Biological:

The following insects are available for control:

Noctuid moth - *Calophasia lunula*

Stem-boring weevil - *Mecinus janthinus*

Mechanical:

Hand-pulling and tillage are not recommended due to its extensive creeping root system. Hand-pulling may be an option for a new infestation where only a few plants are present.

Chemical:

**Picloram*: Fall application, late August through September.

**Picloram* + *Chlorsulfuron*: Apply while flowering through fall. Late August through September timing gives best results.

* Restricted-use chemical

Common mullein



LIST C

Common mullein - *Verbascum thapsus*

Common mullein, often mistaken as a native plant, is a biennial plant that originated in Eurasia. It can be found in disturbed areas, preferring dry, stony soil. It reproduces by seed, which can remain viable in the soil for over 80 years.

Identification:

- Flowers: Sulfur yellow, saucer-shaped, attached to stem.
- Leaves: Oblong, hairy, with a rounded tip.
- Stems: Erect, rigid up to 6 feet tall covered with wooly hairs.

Control Methods:

Biological: No insect biological control available.

Mechanical: Easy to pull before flowering due to shallow taproot.
Bag and dispose of plants to prevent spread of seeds.

Chemical:

Chlorsulfuron: Apply in spring at rosette stage before bolting or in fall to rosettes.

**2,4-D Picloram*: Apply in spring at rosette stage before bolting or in fall to rosettes.

**Picloram*: Apply in spring at rosette stage to early growth or in fall to rosettes.

Metsulfuron: Apply in spring or fall to rosettes.

* Restricted-use chemical



List C

Downy brome / Cheatgrass - *Bromus tectorum*

This annual or winter annual, native to the Mediterranean region, ranges in height from 2" to 36". Each plant contains multiple erect stems with multi-branched inflorescences at their tips, which are slender, dense and usually drooping; at maturity they appear greenish-purple. Cheatgrass reproduces solely by seed, which is viable for 2 to 5 years. The root system is fibrous and fleshy. When mature Cheatgrass dries it becomes a major fire hazard, which has increased rangeland fire frequency from once every 60-110 years to once every 3-5 years. Habitats include roadsides, waste areas, misused pastures, rangelands, cultivated fields, and eroded sites. Grazing animals will forage on the green plants, but the sharp seeds on the dried plants can injure grazing animals, getting caught in the mouth, nose and eyes.

Identification:

- Inflorescences: Slender, dense, 3/8" to 3/4" long, usually drooping. Greenish-purple at maturity.
- Leaves: Flat blades, densely covered with soft hairs.
- Stems: Multiple erect stems, 2" to 36" tall.

Control Methods:

Biological: No insect biological control currently available.

Mechanical: Tillage, mowing and grazing help reduce established plant populations. The key to effective control is to prevent seed production and/or spread.

Chemical:

Imazapic: Apply in fall prior to a hard freeze and/or in early spring.

**Glyphosate*: Apply in fall or early spring.

* Non-selective chemical, will kill all vegetation it contacts

Field bindweed



Steve Dewey, USU, Bugwood.org



LIST C

Field bindweed - *Convolvulus arvensis*

A deeply rooted perennial that reproduces through seeds and rhizomes. Taproots can extend up to 20 feet deep into the soil and seeds can remain viable for up to 40 years. Commonly found throughout Colorado in cultivated areas, pastures, roadsides, waste areas, lawns, and gardens from 4,000 to 8,000 feet in elevation.

Identification:

- Flowers: White to light pink, trumpet or bell-shaped.
- Leaves: Arrowhead shape.
- Stems: Prostrate, twining, up to 6 feet long.

Control Methods:

Biological:

The Bindweed Gall Mite, *Aceria mahlerbae*, is available for control and has been found to be successful.

Mechanical:

Cutting, mowing, and pulling have negligible effects unless plants are cut below the soil surface in the early seedling stage.

Chemical:

Dicamba + 2,4-D: Apply just after full bloom and/or in fall.

**Picloram*: Apply just after full bloom and/or in fall.

***Glyphosate*: Apply when plants are in full bloom and/or in fall.

* Restricted-use chemical

** Non-selective chemical, will kill all vegetation it contacts

Puncturevine



LIST C

Puncturevine - *Tribulus terrestris*

The trailing stems of puncturevine can grow up to 3 feet long, which create a mat-forming plant with an extensive root system. This annual plant produces burs that can injure humans and animals, as well as puncture tires. The plant contains a photosensitizing agent that adversely affects livestock. Commonly known as goathead or sandbur.

Identification:

- Flowers: Single, bright yellow.
- Leaves: Opposite, divided into 3 to 7 pairs of leaflets.
- Fruit: Gray, woody, 5-lobed bur.

Control Methods:

Biological:

Microlarinus lareynii - Seed-feeding weevil

Microlarinus lypriformis - Stem-boring weevil

Mechanical:

Frequent hand-pulling or light tillage prior to seed production.

Chemical:

Chlorsulfuron: Apply pre-emergence or early post-emergence.

2,4-D + Dicamba: Apply as seedlings emerge in spring and continue through growing season.

**Glyphosate*: Apply to early growth stages, emergence and rosettes.

Pendimethalin: A pre-emergence spray.

* Non-selective chemical, will kill all vegetation it contacts

Glossary

Adventitious: Tissue that is not growing at the typical location on the plant.

Annual: A plant completing its lifecycle within a single growing season.

Apex: The tip of a leaf, root, or stem.

Biennial: Herbaceous plant that completes its life cycle in two years: in the first year, plants germinate and typically exist as basal rosettes; in the second year, plants bolt, flower, and die.

Bolting: Producing erect, elongated flowering stems from a basal rosette of leaves. Usually associated with winter annuals or biennials.

Bracts: A very reduced leaf-like structure usually associated with the base of a flower or inflorescence.

Inflorescence: The flowering part of a plant.

Midrib: Central vein of a leaf.

Perennial: A plant that lives through several growing seasons (more than two years).

Restricted-Use Pesticide: Use of pesticide requires a certified applicator's license from the Colorado Department of Agriculture.

Rhizome: An underground, horizontal stem capable of producing shoots above ground and roots below ground. A plant with rhizomes is often referred to as **rhizomatous** or a **creeping perennial**.

Rosette: A circular cluster of leaves arising from a very short stem at the surface of the soil. Lacks an erect stem.

Sepal: A flower part that usually encloses and protects the flower bud.

Spur: A tubular projection from a flower.

Taproot: A prominent root with few branches, sometimes swollen to store nutrients.

Viable: Capable of germination.

Whorl: More than two leaves or flowers attached at a node.

*Listings are informational only, not an endorsement by El Paso County.
Application of restricted chemicals requires a certified professional.*

Herbicide Vendors

Big R

165 Fontaine Blvd.
Colorado Springs, CO 80911
(719) 390-9134

5845 Constitution Ave
Colorado Springs, CO 80915
(719) 591-1830

14155 E. Highway 24
Peyton, CO 80831
(719) 749-9136

840 Spanish Bit Drive
Monument, CO 80921
(719) 488-0000

Colorado Agri-Feed

4625 Park Vista Blvd.
Colorado Springs, CO 80918
(719) 599-5961

Herbicide Applicators

Ark Ecological Services, LLC

(303) 985-4849

Colorado Noxious Weed Management, LLC

(719) 352-1981

Colorado Vegetation Management, Inc.

(719) 545-6163

Horizon Vegetation Management

(303) 419-5332

T-P Enterprises, Inc.

(719) 243-0558

Biological Control

Colorado Department of Agriculture Insectary

750 37.8 Road
Palisade, CO 81526
(866) 324-2963
www.colorado.gov/agmain

Resources

El Paso County

Community Services Department

Environmental Division

3255 Akers Drive

Colorado Springs, CO 80922-1503

Phone: (719) 520-7839, (719) 520-7846

<http://adm.elpasoco.com/environmental%20division/pages/default.aspx>

Colorado Department of Agriculture

Conservation Services Division

Noxious Weed Program

305 Interlocken Parkway

Broomfield, CO 80021

<https://www.colorado.gov/agmain>

Colorado State Forest Service

Woodland Park District

113 South Boundary Street

Woodland Park, CO 80863

Phone: (719) 687-2951, (719) 687-2921

Email: CSFS_WoodlandPark@mail.colostate.edu

<http://csfs.colostate.edu/pages/woodlandparkdist.html>

Colorado State University Extension Office

17 N. Spruce Street

Colorado Springs, CO 80905

Phone: (719) 520-7675, Master Gardeners (719) 520-7684

<http://elpasoco.colostate.edu/>

Colorado Weed Management Association

PO Box 364

Paonia, CO 81428

(970) 361-8262

www.cwma.org

Natural Resources Conservation Service

Colorado Springs Service Center

5610 Industrial Place

Colorado Springs, CO 80916

(719) 632-9598

www.nrcs.usda.gov

Simla Service Center

504 Washington Street

Simla, CO 80835

(719) 541-2358