

GUIDELINE FOR WEED MANAGEMENT PLANS

FOR FREMONT & CUSTER COUNTIES

SO MANY WEEDS, SO LITTLE TIME ...



APRIL 2010

THIS GUIDELINE WAS PREPARED BY FREMONT COUNTY WEED CONTROL

~ THIRD EDITION ~

Developed by:

◆ ***J.R. Phillips*** ◆ ***Rick Romano*** ◆ ***Jana Gregg*** ◆

INTRODUCTION:

SO MANY WEEDS, SO LITTLE TIME ...

This has been developed to be used as a tool to address noxious weed infestations in the greater Fremont and Custer County areas. Herbicide recommendations and other control methods are based on observations and research efforts throughout the western United States including local research results and applied experience.

Brand names and families of herbicides are shown for reference only as similar formulations developed by numerous manufacturers and providers may also be substituted.

*For chemical control, ALWAYS READ THE LABEL.
THE LABEL IS THE LAW.*

The noxious weeds on the right may be listed for control or eradication with Fremont and Custer Counties. Other weeds not found on this list can be taken to the Fremont County Weed Control Manager for recommendations. Please submit all plant parts in good condition.

The following pages address management of the individual weed species listed here. Many recommended control methods are suggested to offer the landowner/manager an opportunity to incorporate a variety of options. For ease in identification, the selected weeds are generally grouped by family or characteristics. Photographs are also included.

Biological Controls including insects and plant pathogens are not included in this guideline, due primarily to limited availability. If available, these controls will be applied to individual plans.

The preferred method of control ***is highlighted and shown in italics.*** These methods are used by Fremont County Weed Control.

LIST OF NOXIOUS WEEDS		
Common Name	Scientific Name	Pages to Review
Leafy Spurge	<i>Euphorbia esula</i>	4, 5
Myrtle Spurge	<i>Euphorbia myrsinites</i>	6, 7
Canada Thistle	<i>Cirsium arvense</i>	8, 9
Musk Thistle	<i>Carduus nutans</i>	10, 11
Bull Thistle	<i>Cirsium vulgare</i>	10, 11
Scotch Thistle	<i>Onopordum acanthium</i>	10, 11
Perennial Sowthistle	<i>Sonchus arvensis</i>	12, 13
Russian Knapweed	<i>Centaurea repens</i>	14, 15
Spotted Knapweed	<i>Centaurea maculosa</i>	16, 17
Diffuse Knapweed	<i>Centaurea diffusa</i>	16, 17
Yellow Toadflax	<i>Linaria vulgaris</i>	18, 19
Dalmatian Toadflax	<i>Linaria genistifolia dalmatica</i>	20, 21
Perennial Pepperweed	<i>Lepidium latifolium</i>	22, 23
Houndstongue	<i>Cynoglossum officinale</i>	24, 25
Hoary Cress (White Top)	<i>Cardaria draba</i>	26, 27
Field Bindweed	<i>Convolvulus arvensis</i>	28, 29
Salt Cedar (Tamarisk)	<i>Tamarisk ramossissima</i>	30, 31
Russian Olive	<i>Elaeagnus angustifolia</i>	32, 33

This list is organized to be used with “Weed Management Preferences” dated February, 2010.

LEAFY SPURGE



Photo from invasive.org

Management

Leafy spurge is difficult to manage and can recover from almost any control effort. Therefore, a management scheme that combines control methods over four to five years is recommended. Even after that time, one must monitor infestations for recurrence and adopt a long-term maintenance program.

Cultural Control of Leafy Spurge

Vigorous grass growth is an important aspect of leafy spurge control. Over-grazing stresses grasses and makes them much less competitive with weeds, leafy spurge in particular. Irrigation, where applicable, may favor grass growth and make it more competitive with leafy spurge. Sow perennial grasses in late fall to provide competition. Reducing grazing during summer months is also preferred.

Chemical Control of Leafy Spurge

For optimum leafy spurge control, proper timing of herbicide application is imperative. Research from North Dakota State University indicates that Tordon 22K (picloram) * 2,4-D, Banvel/Vanquish/Clarity (Dicamba) are most effective when applied in spring when true flowers emerge (not just bracts). ***Local favorable results have been obtained using Range Star (Dicamba+2,4-D). Fall application to leafy spurge regrowth also is the preferred timing for these herbicides.***

Note: Avoid using soil-active herbicides such as Tordon* or Vanquish/Clarity near windbreak plants or other desirable woody vegetation. Plant injury or death can occur. Also, do not allow any herbicide to drift onto desirable woody vegetation for the same reasons. Plateau (imazapic) is registered to control leafy spurge. It can be used safely around trees but may temporarily injure cool-season perennial grasses. Apply Plateau at 8 or 12 fl. oz/A in fall, followed by 4 fl. oz/A the following spring at flowering. Add a methylated seed oil at 2 pints/A to the spray solution. A liquid nitrogen fertilizer solution may be added to the spray mixture to increase weed control, but it may increase cool-season perennial grass injury.

Notes: (Include Location, Date, Control Method Applied)

MYRTLE SPURGE



Photo Courtesy of Boulder County.

Management

Myrtle spurge, also known as donkey tail or creeping spurge is a native of Eurasia. It was introduced as an ornamental and is often found in rock gardens. Myrtle Spurge is poisonous to touch and if digested causes nausea, vomiting and diarrhea. The milky sap can cause swelling, redness and blistering of the skin and irritation to the eyes. Myrtle spurge is usually spread by seed and root fragments. Eradication of this weed is required by Colorado State Law.

Cultural and Mechanical Control of Myrtle Spurge

This plant can be found in many rock gardens in the state of Colorado. Myrtle spurge can be controlled mechanically by hand digging or pulling. Eye protection, long sleeved shirt and gloves are required to prevent sap from contacting eyes and skin. To control infestations, remove as much of the root as possible and the area should be monitored in future years to prevent reinfestation.

Chemical Control of Myrtle Spurge

Colorado State University has suggested that Range Star or 2,4-D ester at 1.5 lbs./Acre will control myrtle spurge. Annual reinspection of the areas infested is also recommended.

Notes: (Include Location, Date, Control Method Applied)

CANADA THISTLE



Above: Canada Thistle Root;
Picture to right from casscd.org



Management

The key principle to Canada thistle control is to stress the plant and force it to use stored root nutrients. Canada thistle can recover from almost any stress, including control attempts, because of root nutrient stores. Therefore, returning infested land to a productive state occurs only over time. Success requires a sound management plan implemented over several years.

Cultural Control of Canada Thistle

Grasses and alfalfa can compete effectively with Canada thistle if their growth is favored by good management. Maintain fertility and, if possible, moisture at optimum levels to favor grass or alfalfa growth. Soil analysis can easily determine fertility needs. Be cautious with nitrogen fertilizers, because excess available soil nitrogen may favor weed growth. These are essential management steps to ensure optimum desirable plant growth and competition. However, competition alone seldom is effective against Canada thistle.

Chemical Control of Canada Thistle

Recent research at Colorado State University local treatment shows that the performance of Milestone to control Canada thistle can be improved when preceded by other control methods including mowing. ***When Canada thistle infestations occur in most areas, apply Milestone at 5 to 7 ounces/A in summer or in fall about one month after crop mowing. Follow this regimen for two to three consecutive years. This is the most effective herbicide to date.***

Curtail and Transline are effective when applied in spring after all Canada thistle plants have emerged. Apply Curtail (2 to 3 quarts/A) when the oldest Canada thistle plants are entering the bud growth stage and the youngest are in the rosette to bolting growth stages. Apply Transline (2/3 to 1 pt/A) when Canada thistle is in the rosette to bud growth stages. Transline at 1 pt/A also is effective when applied in fall.

Mechanical Control of Canada Thistle

Mowing hay meadows can be an effective tool if combined with herbicide treatments. Mowing alone is not effective unless conducted at one-month intervals over several growing seasons. Always combine mowing with cultural and chemical control. Mowing at hay cutting stimulates new Canada thistle shoots to develop from its root system.

In irrigated grass hay meadows, fall herbicide treatments that follow mowing can be an effective management system because more Canada thistle foliage is present after cutting to intercept herbicide. Additionally, root nutrient stores decrease after mowing because the plant draws on them to develop new shoots.

If a Canada thistle infestation exists in a field that will be rotated to alfalfa, control the weed before seeding alfalfa. Alfalfa is an effective competitor only after it is established. It will not adequately establish in a well-developed Canada thistle infestation. A Canada thistle management system can start with crop or grass competition combined with herbicides, with the field rotated to alfalfa when the management plan ends.

Notes: (Include Location, Date, Control Method Applied)

MUSK, BULL & SCOTCH THISTLES



Above Left: Scotch Thistle;

Above Right: Bull Thistle Flowering;

Left: Musk Thistle flowering

Photos courtesy of invasive.org

Cultural Control of Musk Thistle, Bull Thistle, & Scotch Thistle

Maintaining pastures and rangeland in good condition is a primary factor for musk thistle, bull thistle and scotch thistle management. To favor pasture and rangeland grass growth, do not overgraze. Fertilize when necessary and according to soil testing recommendations. To successfully manage musk thistle, prevent seed formation.

Mechanical Control of Musk Thistle, Bull Thistle, & Scotch Thistle

These thistles will not tolerate tillage and can be removed easily by severing its root below ground with a shovel or hoe. Mowing can effectively reduce seed output if plants are cut when the terminal

head is in the late-flowering stage. Gather and burn mowed debris to destroy any seed that has developed.

Chemical Control of Musk Thistle, Bull Thistle, & Scotch Thistle

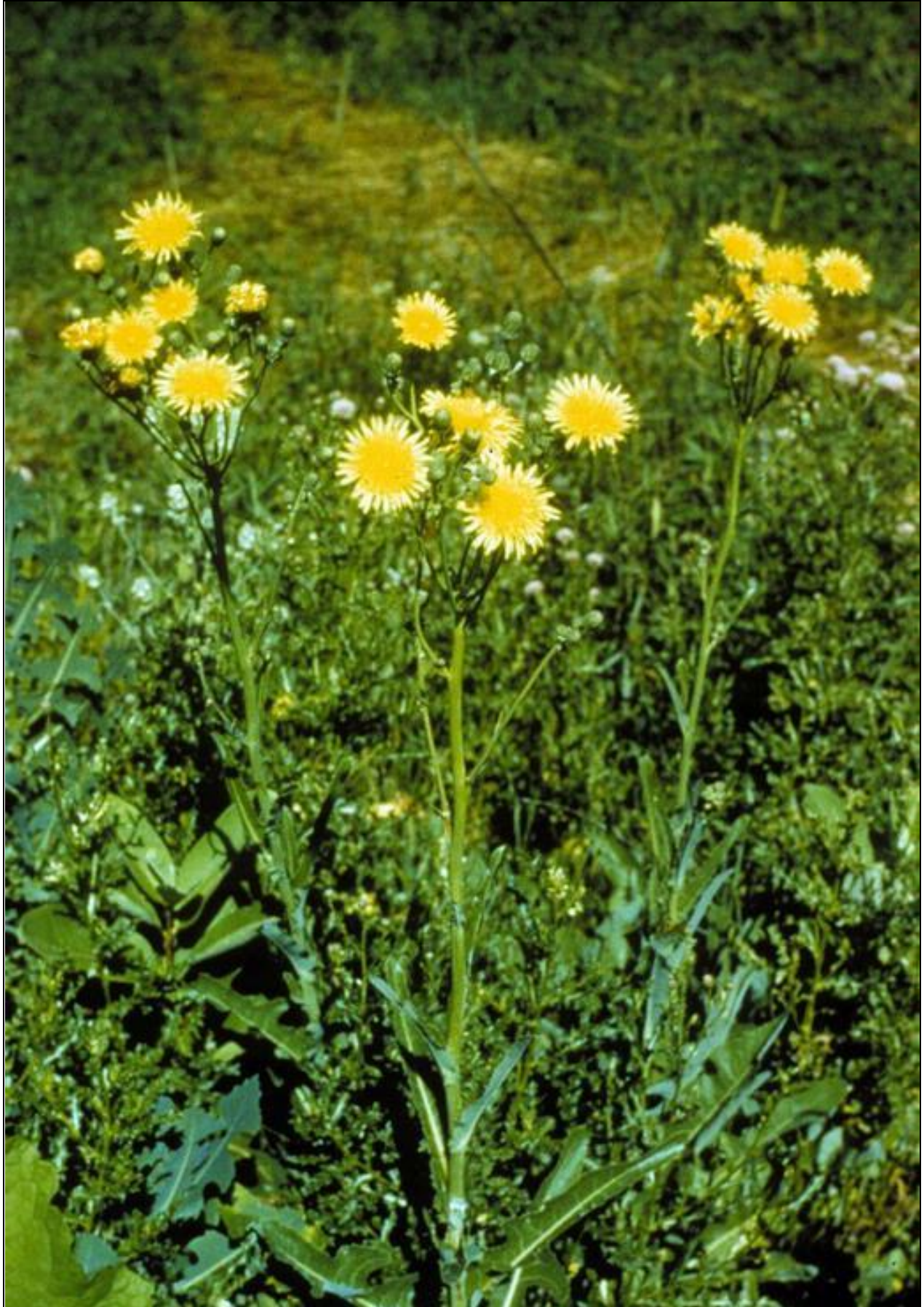
In Fremont and Custer Counties, Range Star at 1.5 pints to 2 quarts per acre and Milestone at 3 to 5 ounces/A have shown to be more effective on Bull and Musk thistles than other herbicides. These herbicides perform best before seed production. Labels recommend using non-ionic surfactants.

Ally-Escort (metsulfuron) or Telar (chlorsulfuron) also can be used. Use Telar in noncrop areas only and Ally-Escort in pastures, rangeland or noncrop areas. Research from Colorado State University and the University of Nebraska shows that Telar or Ally-Escort prevents or dramatically reduces viable seed formation when applied in spring, up to early flower growth stages. The latest time to apply these herbicides is when developed terminal flowers have opened up to the size of a dime.

Apply Telar at 1 ounce/A or Ally-Escort at 0.5 ounce/A. Add a good nonionic surfactant at 0.25 percent v/v² to Ally-Escort or Telar treatments for best treatment.

Notes: (Include Location, Date, Control Method Applied)

PERENNIAL SOWTHISTLE



Picture taken from invasive.org

Management

Perennial Sowthistle are highly competitive, persistent, and can rapidly colonize new sites by vegetative reproduction. Perennial Sowthistle seldom flowers in the first year. With true roots this plant creeps underground and comes up meters away. Flowers open two to three hours after sunrise and close around noon. Seeds are

dispersed around ten days after first opening. With no dormancy period a seed from the previous year will germinate next spring. If the seed is in water for more than three months it will decompose. Perennial Sowthistle also produces seeds. Perennial Sowthistle thrives on non-compacted, fine , rich slightly alkaline to neutral soils. This plant will tolerate some salinity.

Mechanical Control of Perennial Sowthistle

By tilling below 30 cm or leaving thistles on the surface to dessicate may reduce infestations. The optimal timing for cultivation to reduce root energy reserves is when plants are just emerging from the ground. Repeated cultivation will be necessary for most infestations.

Chemical Control of Perennial Sowthistle

Auxin type herbicides such as 2,4-D, dicamba, (Range Star), MCPA, and clopyralid have been effective with repeated applications when plants are in the seedling or early bud stages. Glyphosate may also be applied as effective spot treatment.

In Fremont and Custer Counties, Milestone applied at a rate of 3 to 5 ounces/A plus a nonionic surfactant, spot sprayed is the preferred method of control.

Notes: (Include Location, Date, Control Method Applied)

RUSSIAN KNAPWEED



*Left: Russian Knapweed in Chaffee County
Below: Taken from texasinvasive.org*



Management

Like other creeping perennials, the key to Russian knapweed control is to stress the weed and cause it to expend nutrient stores in its root system. An integrated management plan should be developed that places continual stress on the weed. Currently, the best management plan includes cultural control combined with mechanical and/or chemical control techniques. A single control strategy, such as mowing or a herbicide, usually is not sufficient.

Russian knapweed typically invades degraded areas, dominating the plant community and desirable plants (e.g. perennial grasses). Seeding competitive, perennial grass species (cultural control) after Russian knapweed has been stressed by other control measures (set-up treatments) is essential. Set-up treatments may include chemical or mechanical methods.

Cooperative research between Colorado State University and the University of Wyoming showed that chemical set-up treatments were superior to mowing. Curtail (clopyralid + 2,4-D), Escort (metsulfuron), and Roundup (glyphosate) were used to suppress Russian knapweed. Then perennial grasses were sown in late fall as a dormant seeding. Tillage is necessary to overcome the residual allelopathic effects of Russian knapweed. Curtail (3 quarts per acre) (A) or Escort (1 ounce/A) were applied at the bud-growth stage. Roundup was applied twice at 1 quart/A, first at the bud-growth stage and again about 8 weeks later. Curtail controlled Russian knapweed best, but Roundup failed to control it.

None of the herbicides injured seeded grasses. Grasses established similarly among herbicide suppression treatments, even though Russian knapweed control varied. However, where Escort or Roundup was used to suppress Russian knapweed, additional herbicide treatments would be necessary to achieve acceptable control. While two mowings, eight weeks apart (first at bud-growth

stage), suppressed Russian knapweed during that year, the weed recovered vigorously the subsequent season. Perennial grasses established in the mowing treatments but much less than in herbicide treatments. Two mowings per year for several years may control Russian knapweed better, but further research is needed to test this hypothesis. Currently, no biological control is available for this weed.

Chemical Control of Russian Knapweed

In most circumstances, herbicides alone will not effectively manage Russian knapweed. However, there may be situations where desirable plants within a Russian knapweed infestation may compete effectively with the weed if it is stressed with a single weed management technique. When integrating chemical and cultural control, avoid using herbicide rates that injure grasses because effective competition will be reduced.

For Telar (chlorsulfuron), a noncrop herbicide that controls Russian knapweed, application timing is critical. Apply (1 ounce/A) when Russian knapweed is in the bloom to postbloom stage. Earlier applications do not control the weed effectively. Fall is a good time to apply Telar, but it may injure smooth brome or other brome species. Always add a good non-ionic surfactant at 0.25 to 0.5 percent v/v to the spray solution. ***Milestone is labeled for pasture and rangeland use. Apply it at 5 to 7 ounces/A with a good nonionic surfactant. Optimum timing for Milestone is similar to Telar.***

Mechanical Control of Russian Knapweed

Russian knapweed tends to form monocultures and usually eliminates other plants. Therefore, sowing desirable plant species is necessary after the weed is controlled. Smooth brome will compete with Russian knapweed. Research shows that streambank wheatgrass, thickspike wheatgrass, crested wheatgrass and Russian wildrye established after Russian knapweed was suppressed with herbicides. Sod-forming perennial grasses, like streambank or thickspike wheatgrasses, help prevent reinvasion better than bunch grasses like crested wheatgrass.

If the Russian knapweed stand is not too old and grasses are still present, stimulating grass growth by irrigation (where possible) should increase grass competition with knapweed and keep the weed under continual stress.

Notes: (Include Location, Date, Control Method Applied)

SPOTTED & DIFFUSE KNAPWEED



*Above: Spotted;
Below: Diffuse Knapweed*

Photos taken from invasive.org



Management

Diffuse and spotted knapweed can be managed similarly to Russian Knapweed. They are readily controlled with herbicides. However, the weeds will reinvade unless cultural techniques are used.

Chemical Control of Spotted Knapweed and Diffuse Knapweed

Spotted knapweed and diffuse knapweed generally occupy the same areas in Colorado, so the same herbicide treatments can be applied. ***Weed scientists locally, indicate that 5 to 7 ounces/A of Milestone should control spotted knapweed for several years, but the weed may reinvade the area unless other management techniques are used.***

Mechanical Control of Spotted Knapweed and Diffuse Knapweed

If desirable grass competition is evident in diffuse or spotted knapweed stands, judicious herbicide application that does not injure grasses may allow them to compete effectively with the weeds. Irrigation (where possible) may help stimulate grass competition in these cases. However, infested rangeland or pastures often are degraded, allowing knapweed invasion, and herbicides alone will not restore the land to a productive state. Seeding suitable perennial grasses is necessary to prevent weed reinvansion.

Notes: (Include Location, Date, Control Method Applied)

YELLOW TOADFLAX



Photo from invasive.org

Management

All toadflax species are very difficult to control and management plans should integrate as many strategies as possible to increase potential for success. Assess the condition and composition of the existing plant community in an infested area then determine the approximate composition of the desired plant community needed to achieve land management goals and objectives. Create a management plan that combines various control strategies to foster development of the desired plant community.

Chemical Control of Yellow Toadflax

Yellow toadflax appears to be more difficult to manage than Dalmatian toadflax. In Colorado, control from Tordon* applied at flowering has been most consistent and typically, 4 pt/A is recommended. Yellow toadflax usually recovers from a single application. For example, Tordon* applied at 4 or 8 pt/A controlled 13 percent and 69 percent of yellow toadflax three years after treatments were applied. Other research conducted in Colorado suggests that yellow toadflax control may be improved if Tordon* is applied over three consecutive years, but control varied with location. In one experiment conducted at high altitude (Camp Hale; elevation approximately 10,000 feet), 4 pt/A of Tordon* applied at

flowering for three consecutive years decreased shoot density to zero. However, the same treatment applied for three years at two other locations (White River drainage, elevation approximately 8,500 feet) controlled 69 percent and 35 percent of yellow toadflax. Telar also may be used to control yellow toadflax in non-crop areas. In an experiment conducted in Middle Park near Parshall, ***Telar at 1.25 ounce/A applied during flowering or in fall controlled 84 percent of yellow toadflax one year later.***

Escort, 2,4-D amine, Banvel, and Paramount controlled from 5 percent to 24 percent of yellow toadflax one year after single treatments were applied at flowering. Plateau showed some potential to control yellow toadflax in another Colorado experiment where 8 fluid ounces per acre applied once in fall controlled 59 percent of yellow toadflax one year later. While this level of control is unsatisfactory, sequential treatments may increase control but experiments must be conducted to test this hypothesis.

Mechanical and Chemical Control of Yellow Toadflax

Mowing combined with spraying Tordon* did not improve control in an experiment conducted near Hesperus, Colorado. Yellow toadflax was mowed three times per year then treated with Tordon at 4 pt/A in fall for two consecutive years and compared to Tordon* applied at 4 pt/A at flowering also for two consecutive years. Yellow toadflax control was the same (85 percent) whether Tordon* treatments were combined with mowing or not.

Notes: (Include Location, Date, Control Method Applied)

DALAMATIAN TOADFLAX



Photo from taborcd.org

Management

This differs from yellow toadflax principally in being larger and having differently shaped leaves. Clumps of stems are 3 to 4 feet tall. Waxy leaves are broad, ovate, sometimes heart shaped and upper leaves clasp the stem (an important difference). Seeds are irregular in shape, angular, somewhat flattened, thin-edged, strongly netted, tan-gray and 1/24 to 1/16 inch across. It is not as common, but is more aggressive than yellow toadflax. It is reported in various parts of the state from 5,000 to 7,000 feet.

All toadflax species are very difficult to control and management plans should integrate as many strategies as possible to increase potential for success. Assess the condition and composition of the existing plant community in an infested area then determine the approximate composition of the desired plant community needed to achieve land management goals and objectives. Create a management plan that combines various control strategies to foster development of the desired plant community.

Chemical and Cultural Management of Dalmatian Toadflax

Dalmatian toadflax may be controlled with Tordon 22K* at 2 pt/A sprayed at flowering or in fall. In Colorado, rates of 2, 4, and 8 pt/A of Tordon* were compared and control longevity was greatest from the 2 pt rate, apparently because competition from crested wheatgrass was maintained. Researchers in Wyoming treated Dalmatian toadflax in early September, 1994, with Tordon* at 2 pt/A, then seeded the following year in April or August with 'Hycrest' crested wheatgrass, 'Luna' pubescent wheatgrass, 'Critana' thickspike wheatgrass, 'Bozoisky' Russian wildrye, or 'Sodar' streambank wheatgrass. The combination of spraying and seeding competitive grasses controlled Dalmatian toadflax better than spraying alone. Three years after treatments were started, control of Dalmatian toadflax ranged from 61 percent to 86 percent where grasses were seeded in April and from 76 percent to 95 percent from the August seeding, compared to no control from spraying alone. ***Dalmatian Toadflax can also be treated using metsulfuron at 1.5 to 2 oz./A or chlorsulfuron at 2 to 3 oz./A. A fall application is best in Fremont and Custer Counties and a non-ionic surfactant is recommended.***

Notes: (Include Location, Date, Control Method Applied)

PERENNIAL PEPPERWEED OR "TALL WHITE TOP"



Pictures from invasive.org

Management

Perennial pepperweed is most often found in open, unshaded areas on disturbed, and often saline soils. It is most common in seasonally wet areas from 5,500 to 9,000 feet. Areas along the South Platte River, in the San Luis Valley area, and communities of the Piceance Basin of Colorado are susceptible to Perennial pepperweed. Locally, early detection and rapid response is planned. Best management is to treat as soon as found.

Mechanical Control of Perennial Pepperweed

Periodic mowing and spring burning have reduced perennial pepperweed density in Utah (FEIS 1996)

Chemical Control of Perennial Pepperweed

Dicamba at 1 lb. ai/acre, glyphosate at 1.5 lb. ai/acre or glyphosate +2,4D at 54 fl. oz. Product/acre will control perennial pepperweed. Other herbicides that proved to be effective include imazapyr as well as metsulfuron and chlorsulfuron (at 1 oz./A). ***Fremont County Weed Control has experienced success at controlling this species using Escort XP and Telar XP at 1 oz./A.***

Notes: (Include Location, Date, Control Method Applied)

HOUNDSTONGUE



Picture from invasive.org

Management

Houndstongue contains toxic alkaloids that stop liver cells from reproducing. Therefore, houndstongue reduces livestock and wildlife forage and grazing animals should be kept away. Animals may live six or more months after eating a lethal dose of houndstongue. Houndstongue is an early successional species on recently disturbed sites. Houndstongue is common on gravelly, alkaline soils. ***Maintaining a healthy population of native perennials is the best way to prevent the establishment and spread of Houndstongue.***

Mechanical Control of Houndstongue

Mowing second year plants during flowering but before seed maturation reduces seed production and may kill the plant.

Chemical Control of Houndstongue

Metsulfuron (Escort XP) at 0.6 oz. ai/acre applied in spring provides control of houndstongue. Spring treatments with metsulfuron are more effective than fall treatments.

Chlorsulfuron (Telar XP) applied 0.5 lb. ai/ac gave complete control when applied any time beginning with the rosette stage until the bolted plant had attained 10 inches in height.

Notes: (Include Location, Date, Control Method Applied)

HOARY CRESS OR "WHITE TOP"



Photos from invasive.org

Management

Hoary cress is typically found on generally open, unshaded, disturbed ground. Hoary cress grows well on alkaline soils that are wet in late spring and generally does better in areas with moderate amounts of rainfall. It is widespread in fields, waste places, meadows, pastures, croplands, and along roadsides. Hoary cress is commonly found with saltcedar, antelope bitterbrush, bluebunch wheatgrass, big sagebrush, and Wyoming big sagebrush. Hoary cress flowers from May to June, are self-incompatible, and are pollinated by insects. Hoary cress will set seed by mid-summer. If conditions are favorable, a second crop of seeds can be produced in the fall. Hoary cress spreads by creeping roots and by seeding.

Mechanical Control of Hoary cress

Mowing 2-3 times a year for several years may slow the spread and reduce seed production of hoary cress. Mowing may increase the effectiveness of subsequent herbicide application. Mowing should be conducted during the bud stage and repeated when the plants re-bud. The effectiveness of a mowing program can be increased by planting perennial grasses as competitors.

Burn Control of Hoary cress is not recommended since Hoary cress has a rapid growth rate when compared to non noxious weeds.

Chemical Control of Hoary cress

Hoary cress is most commonly controlled with herbicides. However, multiple applications are usually needed to provide lasting control. The best time to apply herbicides is in May or June before or at flowering. The non-crop herbicides metsulfuron and chlorsulfuron are the most effective herbicides as long as the plants still have green tissue. It is important to use a non-ionic surfactant with the herbicide. 2,4-D+dicamba (Range Star) is somewhat effective when applied during the early pre-bud stage (late May through early June).

Locally Escort XP has been an effective control when applied at .5-1 ounce/A with a good non-ionic surfactant.

Notes: (Include Location, Date, Control Method Applied)

FIELD BINDWEED



Picture from www.Cypress.ab.ca

Management

Establishment of selected, aggressive grasses can be an effective cultural control of field bindweed. Contact your local Colorado State University Extension office or Natural Resources Conservation Service office for seed mix recommendations. Good grazing management will stimulate grass growth and keep pastures healthy. Healthy pastures may be more resistant to field bindweed invasion. Bare spots caused by overgrazing are prime habitat for weed infestations.

Mechanical and Cultural Control of Field Bindweed

Cutting, mowing, or pulling has a negligible effect unless the plants are cut below the surface in the early seedling stage. Well-established populations have a large seed bank in the soil that can remain viable for over 40 years.

Chemical Control of Field Bindweed

The following are recommendations for herbicides that can be applied to range and pasturelands. Optimum results occur when the plants have recently received moisture and are actively growing.

Herbicide rate, application and timing include using Clarity + 2,4-D Amine 1 qt./acre for each product or 1 oz/gal water for each product Spring at or just after full-bloom and/or fall. DO NOT apply when outside temperatures will exceed 85 degrees. DO NOT apply near or under trees or where soils have rapid permeability or where water level is high. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. Roundup Ultra is a non-selective herbicide and will kill all vegetation. Apply 4 –5 qts./acre or 4 –5 oz/gal water at full-bloom and/or fall. Add a non-ionic surfactant @ 0.32oz/gal water or 1 qt/100 gal water. Use caution when applying near grasses or other desirable vegetation. Roundup will possibly kill surrounding vegetation.

Due to the population of this common weed throughout Colorado, ***Fremont County recommends good grazing management, reducing areas of disturbance and seeding grasses for competition.***

Notes: (Include Location, Date, Control Method Applied)

SALT CEDAR OR "TAMARISK"



Photo taken from invasive.org

Management

After managing saltcedar infestations, other vegetation must be established to prevent re-invasion. Competitive grasses and planted cottonwood cuttings have proven to be effective at reducing the chances of re-invasion. Contact your local Colorado State University Extension office or Natural Resources Conservation Service office for proper seed mix recommendations.

Mechanical and Chemical Control of Saltcedar

A bulldozer or prescribed fire can be used to open up large stands of saltcedar. These methods must be followed up with an herbicide treatment of the resprouts when they are 1 to 2 meters tall. Locally, a Hydro-Axe shredding machine has been very effective in initial dry matter removal. This method followed by resprout spraying in the next season using Habitat herbicide is also successful.

Chemical Control of Saltcedar

For large stands of saltcedar that would essentially be monotypic, foliar applications of Habitat herbicide or Arsenal plus Roundup are effective. Late summer/early fall are optimum treatment times. This is recommended for areas that have little to no desirable shrubs and trees. In areas where woody native plants are present and their continued existence is desired, it may be necessary to cut and treat saltcedar stumps with a herbicide. This is referred to as the cut-stump method. Cuts should be made within 2 inches of the ground surface, immediately followed by an herbicide application to the perimeters of the cut-stems. The products Habitat and Garlon are effective but must be applied within a few minutes after cutting because wound healing occurs very quickly and decreases herbicide penetration.

Habitat has replaced Arsenal as the EPA approved riparian area herbicide of choice. Thousands of acres have been treated utilizing spot treatment and aerial application in the Upper Arkansas drainage basin.

Notes: (Include Location, Date, Control Method Applied)

RUSSIAN OLIVE



Left: Hydro-Axe and Russian Olive at Florence River Park; Right: Russian Olive fruits from invasive.org

Management

Russian olive tolerates a wide range of soil and moisture conditions, from sand to heavy clay, and can withstand flooding and silting. It grows best in deep sandy or loamy soils with only slight salt and alkali content. Russian olive can withstand temperatures ranging from -50 degrees F to 115 degrees F. It is also shade tolerant, which means it can grow under larger trees. Russian olive reproduces by seed, which is usually produced after trees are four to five years old. It generally flowers from May through June. The fruits mature from August to October and remain on the tree throughout the winter.

Seeds are ingested with the fruit by birds, bears, small animals and dispersed in their droppings. Russian olive is a rapid growth rate tree with growth up to six feet a year. Control methods vary with tree size, habitat, and use of the area. Removal should be undertaken before seeds are fully developed to prevent further spread of seeds. Control is difficult once trees mature, so early detection and control are important.

Mechanical Control of Russian Olive

Russian olives with small diameters can be pulled out with a weed wrench when soils are moist. In certain situations larger trees can be removed using a tractor/chain. Any remaining exposed roots should be cut off below ground level and buried. Grinding and cutting are not effective controls by themselves. The tree may resprout below the cut area or along root line.

Chemical Control of Russian Olive

Most translocating herbicides (e.g., glyphosate) are effective at label strength when applied during the growing season. Some dormant-season herbicides (e.g., imazipyr as Chopper RTU®) are labeled for Russian olive control. Foliar spraying with Habitat has been successful, as has injecting herbicide capsules around base of trunk. When injecting herbicides into the tree, monitoring should occur to ensure that the entire tree is affected. When cutting the stump should be as close to the ground as possible and treated with 5 –10 cc of glyphosate (Roundup®) applied at full strength. Frill application should be applied to trees debarked at the base and herbicide sprayed or brushed immediately on the area at 25-100% concentration. Brushing on herbicide is the most effective application for Russian olive

In Fremont County, the Hydro-Axe has been very effective at cutting the trees in one growing season. Habitat herbicide is then applied to the regrowth in the following growing season along with a suitable surfactant. Mid-summer is best.

Notes: (Include Location, Date, Control Method Applied)

Glossary

Imazapyr - a broad-spectrum herbicide manufactured under the product names Arsenal, Chopper, and Assault. Imazapyr is non-selective and so care must be taken of other non-targeted plants.

Chlorsulfuron (such as Telar) and **Metsulfuron** (such as Escort)– are systemic, residual herbicides that kill broad-leaf weeds and some grasses. They inhibit cell formation in shoots and roots and have very low toxicity to mammals, birds, fish, and insects.

Glyphosate - a general use broad-spectrum, non-selective systemic herbicide. Trade names for products containing glyphosate include Roundup, Rodeo, and Pondmaster. It is useful on essentially all annual and perennial plants including grasses, sedges, broad-leaved weeds and woody plants.

Picloram - in the pyridine family of compounds and is a systemic herbicide used for general woody plant control and many broad-leaf weed, except mustards. Since most grasses are resistant to picloram, it is used in many range management programs. (All formulations, except for Tordon 101R and Tordon RTU, are restricted by the EPA. Restricted Use Pesticides (RUP) may be purchased and used only by certified applicators.)

* Tordon 22K (Picloram) is a Restricted Use Pesticide. All Restricted Use Herbicides should only be applied by qualified applicators licensed through Colorado Department of Agriculture.

References

“Weeds of the West” 9th Edition, 2000 Published by The western Society of Weed Science in cooperation with the Western United States Land Grant Universities Cooperative Extension Services, printed by Grand Teton Lithography, Jackson, Wyoming.

“Creating an Integrated Weed Management Plan-A Handbook for Owners and Managers of Lands with Natural Values” Caring for the Land Series Volume IV March 2000, written and distributed by Colorado Natural Areas Program in conjunction with Colorado State Parks in conjunction with Colorado Department of Natural Resources.

Idaho “ONE PLAN” that can be viewed at
<http://oneplan.org/Crop/noxWeeds.htm>

University of California Cooperative Extension, Weed RIC that can be viewed at
<http://group.ucanr.org/WeedRIC.htm>

California Invasive Plant Council “CAL-IPC” that can be viewed at
<http://group.ucanr.org/ceppc.htm>

California Department of Food and Agriculture, Division of Plant Health and Pest Prevention Services that can be viewed at
<http://cdfa.ca.gov/phpps/ipc/weedinfo.htm>

Colorado State University Adams County Cooperative Extension, Adams County Weed & Pest control that can be found at
<http://www.colostate.edu/Depts/CoopExt/Adams/weeds.htm>

<http://en.wikipedia.org/wiki/Metsulfuron-methyl>

<http://pmep.cce.cornell.edu/profiles/extoxnet/dienochlor-glyphosate/glyphosate-ext.html>

<http://pmep.cce.cornell.edu/profiles/extoxnet/metiram-propoxur/picloram-ext.html>

http://www.akaction.org/PDFs/imazapyr_facts.pdf

<http://www.invasive.org>

<http://www.tahoercd.org>

“Weed Guide” developed by L.J. Development in 2006 for use in Division of Reclamation Mining and Safety mining permit applications.

“Guideline for Weed Control Plans” developed by Fremont County in cooperation with Custer County.



Fremont County
Weed Control Department
615 Macon Ave., Room LL5
Cañon City, CO 81212

Phone: 719-276-7317
E-mail: jr.phillips@fremontco.com



Custer County
Weed Board
C/O: Beverley Goertz
P.O. Box 360
Westcliffe, CO 81252

Phone: 719-783-2514