



Weed Management Additions to El Paso County Land Development Code

I. Introduction

El Paso County's Undesirable Plant Management Plan mandates that weeds be controlled on any property within the confines of the County. In essence, this means that each individual landowner or developer is responsible for weed control on their property. This may be challenging for developers, as land development activities can cause weeds to proliferate at construction sites, and without attention may be difficult to control.

The easiest and most economical means of weed management is achieved by employing three main tactics: prevention, early detection/mapping, and eradication. These techniques are further discussed in the following text.

II. Weed Prevention

Preventing and controlling noxious weed invasions during development depends on early detection of the presence of weed species. Prevention is most easily achieved by ensuring that weed seed or reproductive plant parts are not brought into a new area. The avenues by which weeds commonly invade new areas include:

- Mulch, straw, feed, seed mixes, or forage.

- Animals moving from one area to the next with seed trapped in fur or through their digestive tract.
- The planting of noxious weeds for ornamental purposes.
- Transportation of noxious weeds with seed attached.
- The feeding of wild birds.
- Noxious weeds producing seed along watercourses, roads, or disturbed areas.
- The use of topsoil or gravel containing noxious weed seed or vegetative plant parts.
- Transporting construction or agricultural equipment from a weed contaminated area to another site.

The best way to prevent the invasion of weeds is to survey the area and identify and remove any individual weed plants before they become established. It is critical to prevent seed production by weeds, as once the weeds have dispersed their seed, control efforts are greatly increased. This section describes specific strategies for the prevention and early detection of noxious weed species on development property.

A. Be sure that all seed and mulch used for revegetation purposes are free of weed seed or plant reproductive parts.

1. Seed

- a. Seed used for revegetation purposes should be tested for noxious weed seed content and be certified as weed-free by a state seed laboratory. The following website offers seed testing services in Colorado:

<http://seeds.colostate.edu/CSL/Home.html>

- E. Revegetate disturbed areas with native grasses to provide strong competition with weeds, as newly germinated weed seedlings do not compete well with established vegetation

III. Early Detection of Weeds

Rapid and accurate identification of noxious weeds is a critical aspect of weed control. The most effective time for eradicating weeds is before they become established, and early detection is the best way to prevent establishment. Prevention and treatment of new noxious weed introductions is the most successful, cost effective, and least environmentally damaging means of control. After initial introduction of a new invasive plant, there is a short period of opportunity for eradication and containment. Once permanently established, a new invader becomes a long-term management problem. Early detection includes weed identification, weed mapping, and determining high-priority areas.

- A. There are several excellent resources available for use in weed identification. The following list of internet resources will be invaluable in helping to identify weeds:

Colorado Weed Management Association:

www.cwma.org

North American Weed Management Association:

www.nawma.org

Weed Science Society of America:

<http://www.wssa.net/>

The Nature Conservancy:

<http://tncweeds.ucdavis.edu/esadocs.html>

USDA APHIS Noxious Weed Home Page:

www.aphis.usda.gov/ppq/weeds/

USDA NRCS Invasive Plants Database:

http://plants.nrcs.usda.gov/cgi_bin/topics.cgi?earl=noxious.cgi

USEPA Pesticide Safety Program:

<http://www.epa.gov/pesticides/safety/>

National Invasive Species Information Center:

<http://www.invasivespeciesinfo.gov/plants/main.shtml>

B. Mapping of Weeds

The weed infestation should be identified on a map, marked or flagged in the field, and continually monitored and controlled during subsequent surveys. The map can be hand-drawn and will be used to direct efforts aimed at eliminating weeds and to evaluate the progress of weed management efforts.

1. Identify areas where weeds are likely to start growing. These include along access roads, high-traffic areas, and disturbed areas with the development.
2. Conduct a weed inventory when weeds are easy to locate. This is usually in mid to late summer.
3. Inventory a few species at a time, unless infestations are very small.
4. Delineate the boundary of the weed infestation on the ground.
5. Define weed infestations on a map.

6. Map should show roads, power lines, water bodies, streams, and wetlands.

V. Eradication of Weeds

Eradication means the complete removal of weed infestations by employing appropriate management methods. In El Paso County the following eight noxious weeds have been aggressively targeted for control by the County and are listed as priority noxious weed species:

- Purple loosestrife (*Lythrum salicaria*)
- Canada thistle (*Cirsium arvense*)
- Russian knapweed (*Centaurea repens*)
- Diffuse knapweed (*Centaurea diffusa*)
- Spotted knapweed (*Centaurea maculosa*)
- Musk thistle (*Carduus nutans*)
- Yellow toadflax (*Linaria vulgaris*)
- Leafy spurge (*Euphorbia esula*)

El Paso County joins the Colorado State Department of Agriculture in adopting control measures for noxious weed species contained in Lists A, B and C (C.R.S.35-5.5-101 through 119). List A species are rare noxious weed species that are designated by the Commissioner for eradication wherever found within the state. Of the eight species listed as priority by the County, only Purple loosestrife is contained within List A. List B species are noxious weed species that the Commissioner will develop and implement state management plans to stop the continued spread of these species. The remaining seven species on the County's priority list are contained within List B.

The most effective means for controlling weed species is through the employment of integrated weed management. This approach uses a minimum of two or more control strategies to prevent weeds from adapting to any single control method. Although the County has outlined four methods for controlling noxious weeds: biological, chemical, cultural, and mechanical. Two of these methods will be employed by developers: mechanical and chemical control.

A. Integrated Weed Control Techniques.

1. Mechanical control

- a. These include tilling, mowing, burning, flooding, mulching, pulling, hoeing, or grazing.

2. Chemical control

- a. This includes the use of herbicides or plant growth regulators to disrupt the growth of noxious weeds.

Control techniques for El Paso County's eight high-priority weed species are presented below:

- **Purple loosestrife:** Small infestations of Purple loosestrife can be controlled by mechanical means, but treatment must be repeated. All roots and underground stems must be removed and disposed of properly. Applications of Roundup or Rodeo and 2,4-D labeled for aquatic use are effective if applied in the spring before flowering or in the fall prior to hard freezing. Concentrations of these chemical should be from 1 to 1.5% (1.3 -1.9 oz. per gallon). Small seedlings can be effectively controlled with a 2% solution of 2, 4-D.

- **Canada thistle:** Canada thistle can be difficult to control because it has a very extensive root system. As a result, one must be persistent in order to exhaust root nutrient stores. The most effective means for control are herbicide application used in conjunction with mowing. Applying Tordon 22K, Curtail, Transline, Banvel/Vanquish/Clarity, or 2, 4-D can provide good control of Canada thistle. Mowing will reduce the production of seed. Seeding areas of infestation with competitive native grasses is desirable.
- **Russian knapweed:** Control of Russian knapweed is generally only achievable with herbicides combined with other measure such as pulling or digging and seeding treated areas with competitive native grasses. Curtail, Roundup, and Escort are effective herbicides. Small infestations can be controlled with repeated pulling/digging, but must be continued for long time periods.
- **Diffuse knapweed:** Chemical herbicides are generally effective for controlling diffuse knapweed. Tordon will control this species, as well as spotted knapweed, but areas may be reinvaded in two to three years. Reinvasion can be reduced significantly by seeding areas with competitive native grasses.
- **Spotted knapweed:** The same control measures used to control diffuse knapweed are also effective in controlling infestations of spotted knapweed.
- **Musk thistle:** One of the most effective ways to control musk thistle is by maintaining pastures and rangeland in good condition. This can be accomplished by fertilizing only when necessary and by avoiding overgrazing. Mowing is effective, but must be performed when the terminal head is in the late flowering stage. Tillage or cutting roots with a hoe or shovel can also be very effective, as musk thistle cannot

tolerate tillage. Chemical herbicides such as Tordon, Banvel, 2,4-D, and Curtail are also effective if applied in the spring or fall to rosettes.

- **Yellow toadflax:** Yellow toadflax exhibits a very extensive root system and thus is very difficult to control. The plants must be continually stressed in order to get good control. Mechanical control with tillage often spreads root pieces that can sprout. Tordon applied at the rate of 4 pints/acre during flowering has proven to be the most effective control technique, but re-treatment will be needed as yellow toadflax usually recovers after a single application.
- **Leafy spurge:** Leafy spurge is very difficult to control and requires several management control efforts to eradicate. The combination of different control methods over a period of five years or more may be required. Tordon, 2,4-D, and Banvel/Vanquish/Clarity applied in the spring when flowers emerge can be effective. Sheep and goats have also been used successfully to control leafy spurge.

THINK SAFETY WHEN USING HERBICIDES!

- **Read and follow label instructions.**
- **Wear protective clothing and safety equipment as directed on the label and shower after applying herbicides.**
- **Properly dispose empty containers of herbicides.**
- **Exercise caution when applying herbicides. Know your legal responsibility as an herbicide applicator. You may be liable for injury or damage resulting from herbicide use.**