

# Weed Awareness



Prepared by  
**Weed Control Authority**  
Lancaster County



The County Commissioners serve as the Lancaster County Weed Control Authority. Russell Shultz serves as the superintendent and supervises a seasonal staff of six weed inspectors with the assistance of Chief Inspector Barb Frazier and Linda Spilker, Account Clerk.

444 Cherrycreek Road, Bldg. 'B', Lincoln, NE 68528 • (402) 441-7817 • [www.ci.lincoln.ne.us/cnty/weeds](http://www.ci.lincoln.ne.us/cnty/weeds)

## Weed Control is Everyone's Business



Noxious weeds impact the economic and environmental well being of the community. Overgrown weeds in the City of Lincoln contribute to

health problems and the aesthetics and overall appearance of the City. Landowners need to be aware of their noxious weed control and weed abatement responsibilities. Others need to understand the importance of a strong weed program and provide public support.

Almost every ownership parcel outside of developed residential lots has or had one or more kinds of noxious weeds present. The key to noxious weed control is not allowing the plants to seed. This requires persistence and follow-up. Most of the public and private landowners understand this and are keeping their noxious weeds under control.

It is the job of noxious weed control authority staff to make landowners aware and to assist in the job of controlling noxious weeds. Many landowners are accomplishing control without any assistance or contact from the authority. The authority carries out a strong information and awareness program along with an extensive inspection program to encourage voluntary compliance of the Nebraska Noxious Weed Control Act.

The authority has also provided the inspection and administration of the City of Lincoln's weed abatement program since entering into an inter-local agreement with the City in 1996. Weed abatement is a part of the Health and Safety Chapter of the City Code dealing with uncontrolled or uncultivated growth of weeds, brush, vines, grasses or other vegetation which offer vector or rodent harborage, contribute noxious pollens to the atmosphere or unreasonably interfere with the use and enjoyment of abutting public or private property.

The measure of a successful weed control program is the acceptance and voluntary compliance of the landowners. There continues to be a high level of voluntary compliance with the Noxious Weed Control Act and the City of Lincoln's Weed Abatement Ordinance. This voluntary compliance was obtained with a decreased number of legal notifications.

Following is the Lancaster County Weed Control Authority's 2004 Annual Report.

—Russell Shultz  
Superintendent

## 2004 Annual Report

A noxious weed control plan was developed that guided the operations of the Weed Control Authority for the year. This plan was approved and supported by the Weed Control Authority. A summary of these activities follows.

### Inspection Activity

There were 6,592 inspections made of 3,029 sites on 20,829 acres during the year. We found 2,498 violations on 5,900 acres. Violations dropped 280 from last year.

### Lancaster County Noxious Weed Control Program

We found 1,067 infestations on 4,986 acres. The number of infestations found decreased by 119 and acres decreased by 1,708. There were 122 more purple loosestrife infestations found. The number of infestations found by noxious weed is shown below. Of these sites, 882 were controlled by landowners. The Authority controlled 30 sites on 112 acres.

### City of Lincoln Weed Abatement Program

We found 1,431 violations as a result of 1,681 complaints. This was 161 less violations and 239 less complaints than in 2004. Voluntary compliance of landowners remained at 93 percent. Forced cutting had to be performed on 109 sites at the cost of \$11,817. Of these, 88 sites had to be specially assessed for \$14,218.

### Expanded Cooperation Efforts

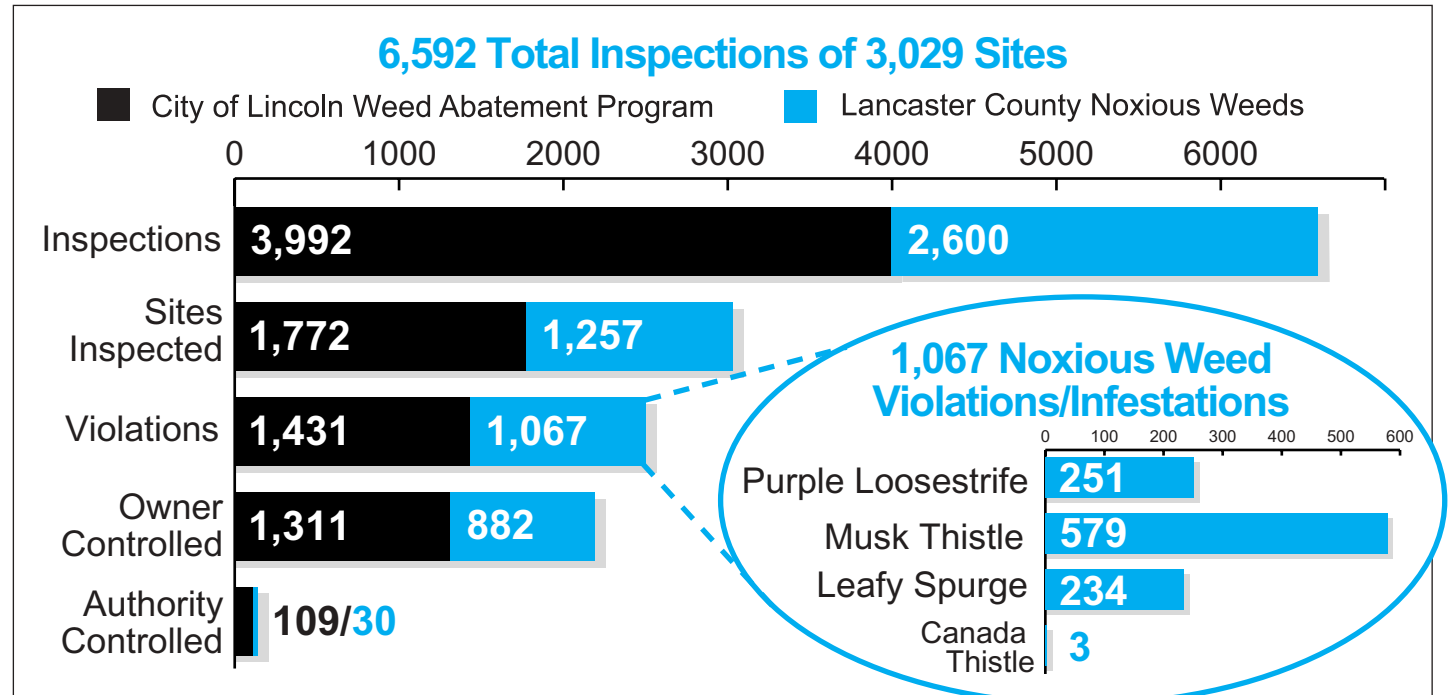
The Lancaster County Weed Control Authority joined with ten other counties in eastern Nebraska and other partners in forming the Lower Platte Weed Management Area to address the eight noxious weeds and other invading weeds. The first target effort is three weeds invading riparian areas along the Platte River and upstream. These three weeds are purple loosestrife, phragmites and salt cedar.

### Prevention Activities

Inspectors were trained to be alert to noxious weeds and potential noxious weeds. We made 15 weed-free forage inspections and certified as being noxious-weed free. This included Nebraska Game and Park's hay fields, straw that was going to be used for mulch on state roads and hay that was being transported for use to feed horses on a hunting trip.

### Awareness Activities

A Weed Awareness insert was published in the February issue of the Lancaster County Extension NEBLINE newsletter. The Authority Web site was maintained and updated. There were 40,814 hits, an increase of almost 14,000 hits from the previous year. Around 400 informational mailings were made to landowners in addition to the 2,500 violation notifications. An exhibit was displayed at the state fair and other locations.

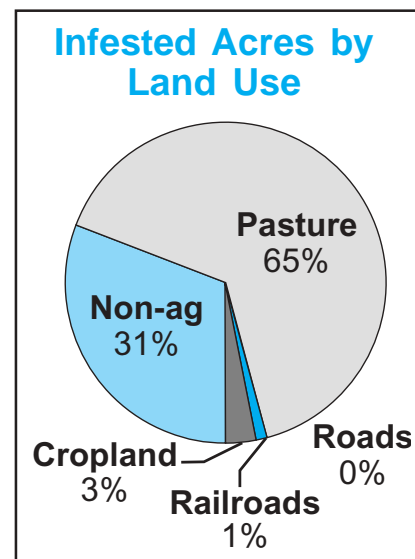


## Extent of Noxious Weeds in Lancaster County

Noxious weed acres in the county had been on a declining trend from 1993 to 2001. The major reason for this decline was the result of the control efforts of both public and private landowners. Weather conditions are also a factor such as 2000, 2001, 2003 and 2004. It was dry in the fall and spring of 2000 and 2001 when most of the musk thistle germinates. Moisture conditions were good in the fall and spring of 2003 and 2004 resulting in more noxious weeds germinating from the persistent seed bank in the soil and making control more difficult.

Control efforts of landowners have remained strong during this period. The infestations on roadsides and railroads have been on a steady decline. Less than five percent of the infestations have been allowed to go to seed. There are many seeds dormant in the soil and will germinate when conditions are right. The key to long term control is to prevent seeding that will add to the seed bank.

All land uses have infestations of noxious weeds. Approximately 13.5 percent of the pastureland acres are infested. Non-ag land, which includes the City of Lincoln and rural lots, is second in the amount of noxious weed infestations with over six percent of the acres infested. Cropland infestations are found mostly in alfalfa fields and idle cropland. The most visible infestations are on roadsides and railroads. Yet they have less than one percent of the total infested acres. There has been an aggressive control effort on these transportation corridors resulting in a sharp drop in the acres



infested. About four percent of the land area is infested with noxious weeds. Musk thistle makes up 94 percent of the noxious weed infested area. Musk thistle has been found in almost all the sections in the county. Leafy Spurge does not cover a lot of acres, but it has been found on over 400 sites and in one out of seven sections.

Plumeless Thistle and Canada Thistle are about one percent of the infestations each. There are a significant number of purple loosestrife infestations but they make up only 15 acres, a very small part of the total infested acres.

# Weed Awareness

## Learn to Recognize Nebraska's Noxious Weeds

The Nebraska Noxious Weed Control Act states it is the duty of each person who owns or controls land to effectively control noxious weeds on such land. Pictured are Nebraska's noxious weeds which can be found in Lancaster County.\*



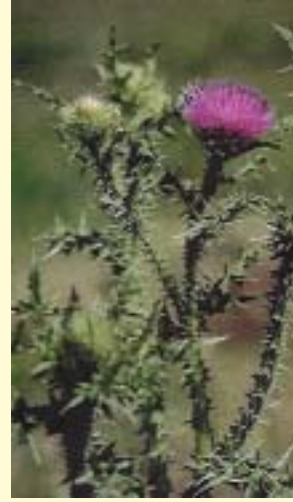
Musk Thistle  
(579 reported infestations in 2004)



Purple Loosestrife  
(251 reported infestations in 2004)



Leafy Spurge  
(234 reported infestations in 2004)



Plumeless Thistle  
(5 reported infestations in 2004)



Canada Thistle  
(3 reported infestations in 2004)



Saltcedar  
(2 known infestations in 2004)

Noxious weed is a legal term used to denote a destructive or harmful weed for the purpose of regulation. The Director of Agriculture establishes which plants are noxious. These non-native plants compete aggressively with desirable plants and vegetation. Failure to control noxious weeds in this state is a serious problem which is detrimental to the production of crops and livestock and to the welfare of residents of this state. Noxious weeds may also devalue land and reduce tax revenue.

*\*Nebraska's noxious weeds Spotted and Diffuse Knapweeds have not be found in Lancaster County*

## Saltcedar Added to Nebraska's Noxious Weed List

In order to protect Nebraska's economy and the quality of its land, Nebraska Department of Agriculture Director Merlyn Carlson found it necessary to designate saltcedar as a noxious weed in Nebraska. The designation took effect on January 1, 2005.

Saltcedar is a dense, deciduous shrub or small tree that has the potential to significantly affect native vegetation throughout much of Nebraska. A native of Eurasia and north Africa, it was introduced into the United States as an ornamental.

### Ornamental Plantings

Saltcedar has been sold for many years as various tamarisk species, also called tamarix. Seeds of 'Pink Cascade' and other selections of Tamarix can escape to waterways in the state. It is no longer legal to sell the seeds or plants of tamarix in Nebraska since it was designated a noxious weed. Existing plantings are also considered illegal and need to be removed.

### Identification

Saltcedar is a deciduous tree (or shrub) with long slender branches and deep pink



*Saltcedar, or tamarisk*

flowers. It grows to 6–26 feet tall. The branches often form thickets many feet wide. The narrow leaves are small and grayish green, often overlapping and crowding on the stems. Although the leaves have the appearance of an evergreen, they are actually deciduous.

The deep pink to almost white flowers crowd in many slender spikes, forming dense masses at the top of the branches. The flowers are about 1.5mm across, and have

five petals. The seedpods are pinkish red to greenish yellow and will break into three to five parts when mature. A tuft of fine silky hairs adorns the tip of the tiny seeds.

The saltcedar's bark is a reddish brown while the wood is soft and white. The smooth bark ridges and furrows with age. Tamarix have a deep taproot and extensive lateral rhizomes, which profusely branch upon contact with water.

### Detrimental Impacts

Saltcedar has invaded riparian areas throughout the West. As an aggressive colonizer able to survive in a wide variety of habitats, saltcedar often forms monotypic stands, replacing willows, cottonwoods and other native riparian vegetation.

The stems and leaves of mature plants secrete salt, forming a crust above and below ground that inhibits other plants. Saltcedar has a long taproot that allows it to access deep water tables and interfere with natural aquatic systems.

Saltcedar is an enormous water consumer. A single large plant can absorb 200 gallons of water a day. Saltcedar's high water consumption further

stresses native vegetation by lowering ground water levels and can also dry up springs and marshy areas.

Infestations also have detrimental impacts on wildlife. Saltcedar seeds have almost no protein and are too small to be eaten by most animals. In addition, its scale-like leaves offer little suitable forage for browsing animals. Studies indicate saltcedar is not favored bird habitat.

A single mature saltcedar may produce hundreds of thousands of seeds between April and October. The seeds are then dispersed by wind and water throughout the growing season. The seedlings are tolerant of water, saline soils and drought and may grow as much as a foot a month.

What makes non-native invasive plants such as saltcedar different from other introduced species is their ability to take advantage of disturbances to the native plant community to expand their limits. Once established, non-native invasive plants can spread rapidly because of the lack of natural enemies that keep plant populations balanced in their native range.

### Foothold in Nebraska

Saltcedar has been documented throughout Nebraska. Infestations have been found along the Platte River from

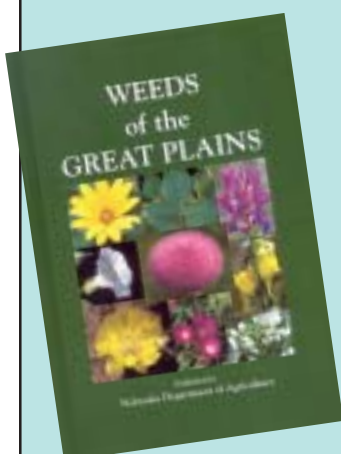
Wyoming to the Missouri River. Also, saltcedar is found along many of Nebraska's southwest reservoirs as well as Lake McConaughy. Smaller infestations have been found on the Republican and Missouri Rivers.

Only two infestations are known in Lancaster County. Undoubtedly this number will increase as more monitoring is done and the public becomes more aware. A few ornamental plantings have been observed in Lincoln. Any sightings of saltcedar (ornamental or wild) should be reported to the Weed Control Authority at 441-7817.

### Removal of Ornamental Plantings

The most effective control method is cutting down the shrub or tree and painting the stump surface immediately afterward with an herbicide (cut stump treatment). Herbicide must be applied within 10–15 minutes of cutting to prevent excessive resprouting from the stump. Follow up herbicide application is needed to treat sprouts from the root system. This usually will only be necessary for 2–4 years. All branches and trunk pieces must be removed from the site to prevent sprouting. Tamarisk branches touching wet ground have been known to sprout and send down new roots.

## Nebraska Weed Resources



*Weeds of the Great Plains* — this hardbound book is a collaborative effort between the University of Nebraska and the Nebraska Department of Agriculture. It helps farmers, ranchers and homeowners, as well as the more technical expectations of botanists, to accurately identify weeds and common plants in the great plains. The price of this book is \$25 — credit card orders may be placed by calling 471-2394. The book may be purchased at the Department of Agriculture's Lincoln office, 301 Centennial Mall South, for a cost of \$22.50.

*2005 Guide for Weed Management in Nebraska* — this 168-page University of Nebraska Cooperative Extension publication (EC04-130-D) is available online at <http://ianrpubs.unl.edu/fieldcrops/ec130.htm> or may be purchased for \$3 at the Lancaster County Cooperative Extension office. The guide deals principally with herbicides as an aid for crop protection. This year's additions and improvements include a section on nonchemical weed control and "Noxious Weeds" has its own section.



# Weed Awareness

## Purple Loosestrife is Invading Lincoln's Streams

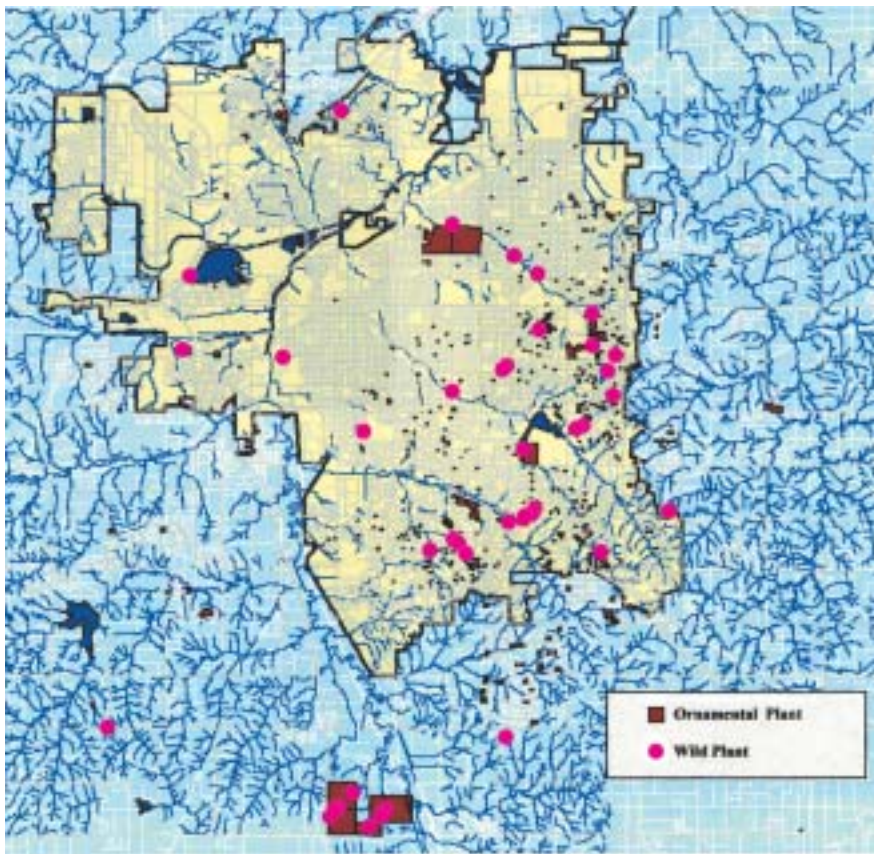
Purple loosestrife infestations in Lancaster County nearly doubled last year, from 129 to 251. It is a serious threat to Nebraska's wetlands and waterways.

Displacing native wetland vegetation, purple loosestrife degrades wildlife habitat, displaces rare plants and animals and chokes waterways. As native vegetation is displaced, rare plants are often the first species to disappear.

Prior to 2001, when purple loosestrife was designated a noxious weed in Nebraska, ornamental purple loosestrife (Lythrum) had been planted in many local yards. Recent studies prove ornamental Lythrum cultivars, which were once thought to be sterile, **can** and **do** produce viable seed.

A mature purple loosestrife plant can produce over two million seeds. The seeds are so small they are readily transported by rain runoff to drainages and streams where they will germinate in a saturated soil condition. In nearly all cases, Lythrum spreads via pollen and seed transfer without the gardener's knowledge.

Wild purple loosestrife plants have been found in many of the Lincoln streams downstream from ornamental plantings. This includes Dead Man's Run, Antelope Creek, Beal Slough and their tributaries. To date, wild plants have not been found in Salt Creek. These wild plants need to be



Wild purple loosestrife plants have been found in many of the Lincoln streams downstream from ornamental plantings. This includes Dead Man's Run, Antelope Creek, Beal Slough and their tributaries.



Taylor Park



Above Holmes Lake

found and controlled before their populations explode and they form solid dense stands of purple loosestrife in the Salt Creek system.

When seed from domestic plants find its way into natural and agricultural areas, new stands of wild purple loosestrife sprout. Any sunny or partly shaded wetland or riparian area is susceptible to purple loosestrife invasion. The seeds will not probably germinate in a yard unless there are areas that are excessively wet such as around a pond on an acreage.

Many Lincoln homeowners have removed lythrum plantings from their yards. The Lancaster County Weed Control Authority has notified almost 1,000 homeowners they need to remove their ornamental purple loosestrife plantings. These homeowners and many others have voluntarily done so.

Even though we think most of the ornamental plants have been removed, a plentiful supply of seeds have been transported to low lying areas and will remain in the soil until conditions are right for them to germinate.

## Homeowners Need to Remove Lythrum Plants

As of 2001, state law bans the sale, offering for sale, distribution, planting or cultivation of purple loosestrife. This ban covers both *Lythrum salicaria* and *L. virgatum*. There are no exceptions for cultivars, hybrids or so-called sterile varieties. Sale violations of purple loosestrife should be reported to the Department of Agriculture.

Plants may have been purchased and planted legally before 2001, but are now illegal and should be removed.

Lythrum plants have many horticultural names, some of which are:

- Rose Queen
- The Rocket
- Morden Pink or Rose
- Morden's Gleam
- Dropmore Purple
- Columbia Pink
- The Beacon
- Fire Candle
- Atropurpureum
- Happy
- Roseum Superbum
- Purple Spire
- Mr. Robert's or Robert's
- Lady Sackville

Currently, about 31 states have laws prohibiting Lythrum importation or distribution because of its aggressively invasive characteristics.

### Control Methods

Any control method you select should be repeated for several years to catch missed plants and those reestablishing from seed or regrowth from root parts.

### Hand Pulling/Digging

Small young plants can be hand pulled, especially those rooted in loose soil. Be sure to get the entire root.



Ornamental purple loosestrife (*Lythrum*) in a landscape.

Roots left behind will resprout. Older plants are generally too big for pulling and are difficult to dig up. Avoid excessive soil disturbance. If this is unavoidable, consider chemical methods. Handle plants prior to the onset of seeds (which begins in early August), or cut and bag the seed heads to avoid spreading seeds. Removed plant parts should be placed in a garbage bag and put out for garbage pickup. Don't throw them in your compost pile.

### Herbicide Application

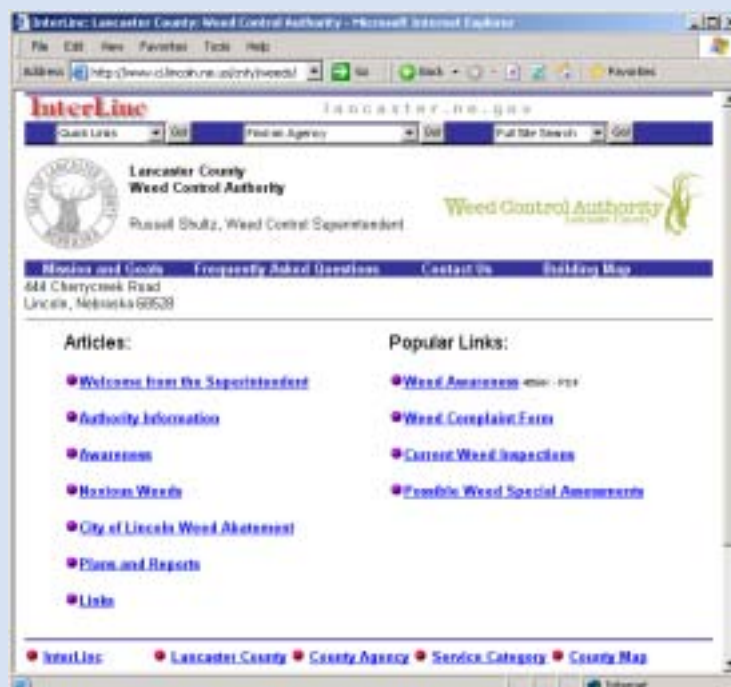
Careful use of herbicide is the most effective, efficient and least destructive means of removing large purple loosestrife plants. Currently glyphosate is the most effective active ingredient for killing loosestrife. It comes in two forms: (1) "Roundup" for use on dry sites and (2) "Rodeo" for use on wet or standing water sites. Glyphosate must be applied in late July or August to be most effective. It can be sprayed onto loosestrife foliage in a one percent solution. Glyphosate is a nonselective herbicide, however, and will kill any green foliage that it comes in contact with. Great care must be taken to avoid treating non-target plants. Follow all label instructions when using herbicides.

## Lancaster County Weed Control Web site

The Lancaster County Weed Control Authority Web site at [www.ci.lincoln.ne.us/cnty/weeds](http://www.ci.lincoln.ne.us/cnty/weeds) provides very useful information about the Authority's program and activities and about weed control and management. The site is continually being updated.

Via the Web site, you can:

- Contact the Weed Control Authority.
- Make a weed complaint.
- Make a real-time search of current weed inspections.
- Look at a map of noxious weed locations in the county.
- See the latest listing of possible weed special assessments.
- Study noxious weed and weed abatement laws and regulations.
- Learn about noxious weed identification.
- Read about the County Noxious Weed and City Weed Abatement Programs.
- See plans and reports.
- Check on noxious weed controls.
- Learn about managing natural areas in an urban setting.
- Test your knowledge about Nebraska weeds.
- Link to other weed control Web sites



### Current Weed Inspections Search

You may access information on the Web site about any active inspection made by the authority.

All inspections are shown for sites with infestations not yet under control. You may search for individual sites by entering the address of the parcel, the parcel ID number or the owner's name. You may also look at all the inspections for a weed problem: musk thistle, plumeless thistle, Canada thistle, leafy spurge, purple loosestrife or weed abatement in Lincoln.

# Weed Awareness

## New Weed Control Legislation

### Federal Act Establishes a Weed Grant Program

The Noxious Weed Control and Eradication Act of 2004 amends the Plant Protection Act to direct the Secretary of Agriculture to establish a grant program to provide financial and technical assistance to weed management entities to control or eradicate noxious weeds. It also:

- Sets forth criteria for making grants to weed management entities and for the selection for funding of weed eradication projects. Directs the secretary to give special consideration to states with approved weed management entities established by Indian tribes.
- Authorizes the secretary to enter into agreements with weed management entities for funding of weed eradication activities that take into consideration various factors, including: (1) the severity of the noxious weeds problem or potential problem; (2) the likelihood that the activities will prevent or resolve the weed problem or increase knowledge about resolving similar problems; (3) the extent to which the activities will provide a comprehensive approach to the control or eradication of noxious weeds; (4) the extent to which the activities will improve the overall capacity of the United States to address noxious weed problems; and (5) the extent to which the activities promote cooperation and participation between States that have a common interest in controlling and eradicating noxious weeds.
- Authorizes the secretary to enter into a cooperative agreement with weed management entities to enable rapid response to outbreaks of noxious weeds.
- States the assistance authorized under this Act is meant to supplement, and not replace, other assistance available for control or eradication of harmful, invasive weeds on public and private lands.
- Authorizes appropriations for fiscal year 2005 through 2009. Limits funding for administrative costs to five percent of available funds.

### Nebraska Act Creates Grant Eligibility

The 2004 Unicameral amended the Nebraska Noxious Weed Control Act. The amendment provides additional cash fund support for the Nebraska Department of Agriculture's (NDA) responsibilities under the Noxious Weed Control Act. This is done by providing a series of transfers from the Weed and Insect Book Cash Fund to the Noxious Weed Control Cash Fund and directs a portion of revenues from future sales of the weed book to the noxious weed program.

Additionally, the amendment assigns two new weed management authorities to the NDA to enhance tools for responding to noxious weeds and invasive plants. Specifically, the amended act authorizes the director to 1) temporarily designate plants as noxious weeds and 2) to administer a grant program to encourage the formation of multi-stakeholder weed management entities and other types of projects led by local weed control authorities to proactively address noxious weed control concerns and emerging invasive plant problems. The grant program is not specifically funded but the director is authorized to seek grants and other revenue sources. The amendment was also intended to coordinate with the then pending federal legislation that would provide federal pass-through funds to encourage eligible projects similar to those enumerated in the bill.

#### Environmental Trust Fund Grant

*Just announced!* The Nebraska Environmental Trust Fund has awarded a \$250,000 grant (for a three-year period) to the Nebraska Department of Agriculture for its Nebraska Noxious and Invasive Weed program.

## How to Control Musk Thistle

When attempting to control musk thistle or plumeless thistle, it is imperative to prevent seed production. They are biennial weeds that reproduce only by seed. Each plant is capable of producing up to 20,000 seeds. The key to managing musk thistle is to prevent all plants from going to seed. Infestations occur in the same sites year after year but size of the infestations vary considerably due to climatic conditions. Good moisture conditions in the fall, like we received in the fall of 2004, favor the germination of musk thistle seeds near the soil surface at these sites. These plants will flower the next spring if the plants are not controlled that fall or the next spring.

### Control Steps

1) Scout the areas with past infestations in March and April for seedlings and rosettes. A seed bank has built up in the soil at these sites. These seeds will remain viable for eight or more years waiting for the right conditions to germinate.



*Musk thistle rosette*

2) It is most effective to treat the entire area with herbicides in order to control all the small seedlings and rosettes and seedlings that have not emerged. Spot control of these sites usually results in a lot of escapes since not all the plants are observed and some plants germinate later.

3) Use 2,4-D as a contact herbicide along with a herbicide that will add to the effectiveness of killing the plants present but also have residual to kill later germinating plants. Some of the herbicides that will provide residual control

are Escort, Tordon 22K and Telar. Grazon P+D, a combination of Tordon and 2,4-D, also may be used. Follow label directions.

4) Provide control prior to bolting of the flower stem in May. Use 2,4-D along with a residual herbicide.

5) Scout these areas weekly and provide needed follow-up control until July. Be alert to the musk thistle plants acting as annuals due to a cool spring.

### Mechanical Control

Severing the root of musk thistle a couple of inches below the soil surface will kill the plant. The entire root does not have to be removed. Hand cutting or mowing has to be done at weekly intervals to be effective. Fire has not proven to provide effective control. The plants survive prescribed burning, but can be easily found and controlled by other means after the burn.

Maintaining a good, healthy stand of grass is very effective prevention.

## How to Control Leafy Spurge

Leafy spurge (*Euphorbia esula*) is a perennial plant ranging in size from 6-36 inches in height. A native of Europe and Asia, leafy spurge emerges early in the spring and gets a head start on other vegetation in a race for space, sunlight, nutrients and water. Prolific seed production and an extensive root system give the plant a huge competitive advantage and make consistent, long-term control difficult.

Monitoring of areas with known or potential leafy spurge infestations is critical; adequate control is possible if management procedures are implemented in the early stages of infestation, before the root system gets fully established. You can rarely achieve 100 percent eradication of spurge, but infestations can be reduced to manageable levels with the use of herbicides.

### Strategy

The control of well-established leafy spurge stands must be considered a long-term management program. A landowner must develop a persistent annual program to prevent the spread of larger stands, eliminate smaller infestations and prevent the spread of leafy spurge to uninfested areas. The extensive leafy spurge root system allows the plant to regrow from depths of 15 feet or more for several years. No single treatment will eradicate this weed. A consistent annual treatment program can provide long-term control.

Once you have achieved a high level of control, remaining isolated patches can be spot-treated, resulting in a less costly control program. This plant spreads by underground roots and there is always a fringe area of younger plants that do not bloom.



There are also roots underground that extend laterally beyond the younger plants. A 15-foot perimeter should be treated around leafy spurge patches to control seedlings and spreading roots. Treated patches should be watched carefully for any regrowth and/or seedlings and retreated.

### Chemical Control

Currently, the three most effective herbicides are Tordon 22K, Plateau and Glyphosate (Roundup and others). Before using any herbicide, always read and follow label directions. Check label for permitted uses on your site.

#### Tordon (picloram)

Tordon has been an effective herbicide for controlling leafy spurge. Tordon applied at two quarts per acre during flowering or fall regrowth can give 75 percent or more leafy spurge control the first year after treatment. A less expensive option for leafy spurge control is repeated annual treatments of Tordon at one to two pints per acre plus 2,4-D at one quart (four pounds per gallon concentrate) applied in June, during flowering, can be quite effective. Tordon is a restricted-use pesticide requiring an application license to apply. Note label precautions. Overdrive herbicide from BASF can be tank-mixed with Tordon to offer improved control. A unique formulation of diflufenzopyr and dicamba, Overdrive enhances and complements the activity of picloram, reducing the total amount of needed active ingredient, while improving long-term control of leafy spurge. Plot studies (1) show a 4-6 ounce per acre application of Overdrive mixed with 8-16 ounces per acre of picloram results in improved leafy spurge control.

#### Plateau (imazapic)

Plateau applied in the fall at 8-12 ounces per acre can provide up to 90 percent leafy spurge control one year after treatment. The label recommends application from late-August to mid-October, but prior to a killing frost. Plateau should be applied with a methylated seed oil, (MSO), at one quart per acre. The addition of 28 percent UAN liquid fertilizer to Plateau plus the MSO has occasionally increased long-term leafy spurge control. Plateau is safe to use around a variety of trees, many wildflowers and legumes. Plateau is only available through county weed control authorities that have herbicides for sale. The closest county authority that has it available is Jefferson County Weed Control Authority, John McKee, Superintendent, 313 South K Street, Fairbury, NE. 68352, (402) 729-3602, jeffcoweed@diodecom.net

#### Glyphosate (e.g. Roundup)

Glyphosate (e.g. Roundup) applied at a rate of one quart per acre from mid-July to mid-September can result in 80.90 percent control of leafy spurge. Note that glyphosate is a non-selective herbicide and it will kill grasses and other desirable plants. A follow-up treatment with 2,4-D at one pint (four pounds per gallon concentrate) the following year, (mid-June to mid-July) is necessary to prevent seedling reinfestation.

### Prevention

Infestations occur where there is a seed bank in the soil and the conditions are right for germination and survival. Healthy vegetation provides competition and minimizes the survival of musk thistle seedlings. Care should be taken not to spread seeds from infested sites or to use forage or seeds contaminated with noxious weed seeds. Equipment should be cleaned before leaving an infested site if it is possibly contaminated. Only weed-free certified forage and seed should be used.