



Weed Awareness

Controlling Canada Thistle in Urban Areas



Canada thistle is a deep-rooted perennial beginning spring growth each year as a cluster of leaves close to the ground (rosette) and has the typical prickly leaves characteristic of the thistles. If the plant is allowed to mature, it reaches a height of two to four feet, and has lavender blossoms similar in appearance to dandelion blossoms, but half again as large. Mowing or pulling is not effective because they grow again from vegetative buds on the roots. The roots can extend into the ground 10 feet or more, so cultivation in gardens and flowerbeds will not help to control this weed. In fact, cultivation can worsen a Canada thistle problem because when

roots are cut into pieces, pieces only one-half inch long can produce new plants from the countless vegetative buds in the root system.

Control
To manage Canada thistle, use herbicides that will not only kill foliage, but will also move down into the root system to kill the root buds. One herbicide is glyphosate (i.e. Roundup™, Kleenu™, and Mirage™). Glyphosate is relatively safe for both humans and the environment. It breaks down quickly in the soil, and does not leach through soil into groundwater. Because it is a non-selective herbicide, it will kill any plant it touches, including desirable species like grass and trees, so apply it very carefully touching only the plants you wish to control. One method is to dip a sponge secured on the end of a stick into a container of the premixed herbicide and selectively apply to each plant. You will need to apply this twice a year, once in early summer and again in fall to catch plants that have been produced by seed or rootstock.

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Managing Natural Areas in an Urban Setting

There is an increased emphasis on natural areas in and around Lincoln for drainage ways, green space, parks, residential landscaping etc. There are some basic concepts that need to be understood in managing natural areas in urban areas.

Most of our grass and/or wooded areas are not made up of predominately pre-settlement native plants. Most areas have been disturbed and/or invaded by non-native plants. Most sites will require restoration and management of a declining habitat.

All plant communities are undergoing a continual change. This change needs to be understood and management practices implemented to maintain and/or improve the plant community.

Disturbed areas with the undesirable vegetation will require many, many years to be restored by natural succession. These areas will require revegetation in order to meet your plant community objective in the near future.

Natural areas are subject to invading plants including noxious weeds. Existing undesirable invading plants and noxious weeds need to be identified and controlled. These plants along with any new invading plants will require an ongoing control effort.

All natural areas need to be managed to maintain a desirable complement of vegetation and to be neighbor friendly. Some invader plants such as ragweed contributes to allergy problems and tall mature plants may cause safety problems such as line of site obstruction for motorists or a possible fire hazard.

Site Evaluation
An inventory should be made of the site. This should include a listing of the current predominate vegetation.

Identify areas that are poorly vegetated that may be bare or have mostly weed vegetation. Determine the soil mapping units for the site from the Soil

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Technology in Lancaster County Weed Program

A weed program in a county with both significant rural and urban areas has several challenges that are not present in a rural only county. More people means more landowners. More landowners do not increase the acres of noxious weed infestations but does increase the number of infestations to be dealt with. As urban residents move to the country, more people need to be aware of the presence of, reasons for control, and the responsibilities to control noxious weeds. It requires a program that has strong awareness efforts and has a system for handling a large number of inspections directed at maximizing voluntary compliance. Five components have been helpful in effectively handling and managing the large number of inspections.

1. A computer database aids in managing the inspection data.
2. A geographic information system ties the spatial data to the inspection data.
3. A digital camera simplifies documentation, storage, and availability of photos.
4. Internet is used for awareness and information efforts.
5. And field digital entry is reducing office workload.

Inspections
Weed Authority made 4,500 inspections of 2,002 sites for noxious weeds, in 1999. We also administer the City of Lincoln's weed abatement program. This required 5,524 inspections on 2,385 sites, in 1999. The total 1999 inspection workload was 9,442 inspections of 4,387 sites on 34,743 acres. Each inspection triggered a data entry event.

Use of Technology
A computer database was first used to maintain inspection records and to generate forms, notifications, and reports, beginning in 1989. Weed Authority began using ArcView and Geographic Information System (GIS) and set up a homepage, in 1997. The database was converted to Oracle, in 1998, to be more compatible with ArcView and began using a digital camera. Weed Authority started using Palm Pilot 3X for field digital entry of inspections, in 2000. Noxious weed locations and selected attributes started to be made available to the public on the city/county web page, InterLinc.

Database
The Rbase program was set, in 1989, to record and manage inspection information. It was set up so the county assessor's records of legal description, landowner's name and address could be imported by modem from the county's mainframe computer. This information was then used to prepare computer-generated notifications and mailing labels. Later, computer also could access the county register of deeds. The Rbase program had to have a separate file each year and could not be easily shared with ArcView. The database

was converted to ORACLE, in 1998. It was set to handle all inspections from 1994 to inspections into the future. Attributes from Oracle can be accessed from ArcView by using SQL connect. Prior to Oracle and ArcView, plat maps had to be maintained along with printouts of the tax code numbers for the 90,000 ownership parcels. The inspectors now identify the parcel ID number from ArcView or MapsObjects program and Oracle accesses owner name and address.

The Oracle database
1. Maintains a record of inspection information from 1994 on.
2. Generates all needed forms - letters, cards, legal notices and contracting forms.
3. Generates standard and customized reports.

Geographic Information System
Lancaster County started early in setting up a geographic information system. County Engineer updated the land survey by using a global positioning system in 1980. The planning department took the lead in using ArcInfo to set a GIS network server available to City of Lincoln and Lancaster County agencies and departments. Fiber

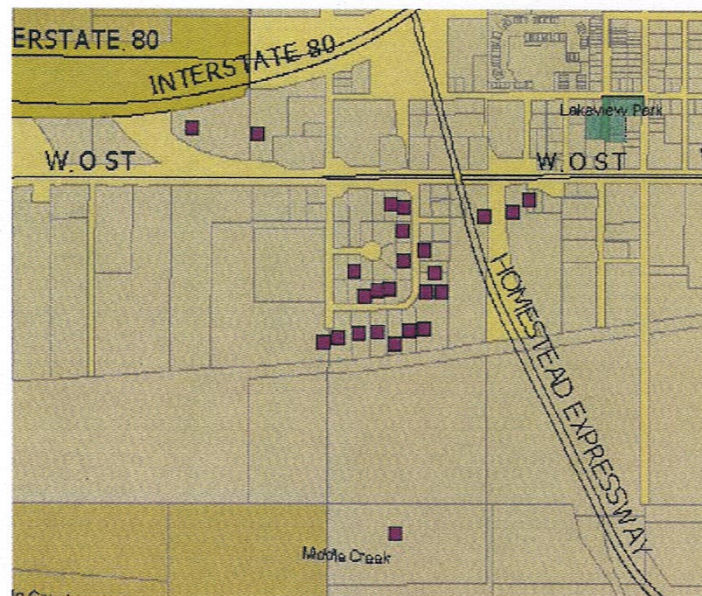
optic cable was installed to tie the offices together. The County Assessor had all the ownership parcels digitized and added as a data layer. Before ArcView inspectors made a photocopy of an aerial photo and added ownership lines and parcel number. Location of noxious weeds were entered on the photocopy and then on a master record of aerial photos in a three-ring binder. ArcView was programmed to bring up the data layers needed for the noxious weed program by entering the township, section, and parcel number. Aerial photos then are generated with parcel lines, parcel ID number,

connect.
Noxious Weed Data Layer
Noxious weed locations are being added as a GIS data layer. It was decided to use points rather than polygons to show the locations. Most of the infestations are small and, in most cases, would not be as large as the point on a small-scale map. It was decided not to locate them by GPS since they are easily located with acceptable accuracy on the computer generated aerial photos. A unique control number is assigned to each infestation. This allows the infestation to be monitored from year to year. By idling an infestation point the attributes of the infestation are shown. All or selected attributes may be placed in ArcView from the Oracle database.

Digital Camera
We began using a digital camera in 1998. This eliminated the cost of film and developing. It also allowed us to store pictures in the computer with the inspection information.

Palm Pilots
Over 4,000 sites are inspected for noxious weeds and for the City of Lincoln's weed abatement program each year. This has required almost 10,000 inspections. The inspectors would enter information on hard copy each time they made an inspection. Then digital entries were made in the office. This required hiring a seasonal clerk four to five months to handle the entry workload.

Beginning in 2000, inspectors began using Palm Pilots to enter inspection information. This reduced the office workload. The seasonal employee was not needed this year. We chose the Palm Pilot IIIx for this purpose. The Palm Pilots were programmed with an entry screen similar to the inspection form but with mostly



and past weed location. The current weed location is placed on the aerial photo and entered in ArcView. The master file for spatial data is now maintained in the computer with access to attributes in Oracle by SQL

drop-down menus for ease and speed of entry by stylus. Each day the Palm Pilots are hot-synced to the computer. Infor-

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