

Dane County Land and Water Resource Department Parks Division

Integrated Pest Management Plan



Volunteer Pesticide Training



Prescribed Fire



Planting



Cutting and Pulling



Seeding



Brushing

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Mission

A component of the Dane County Parks mission is to maintain and restore the county park lands. To do this the County Parks must control pests. Pests are identified by State and local laws, within best management guidelines developed by State and Federal Agencies and by conservation groups. Pests that are potentially harmful to the public's health and native habitats function and aesthetic value of the natural environment and park landscapes. Management of pests will be accomplished in a manner that is efficient, effective and environmentally responsible with the upmost care to the public, volunteers and staff. To manage for pests the county will use an Integrated Pest Management approach that utilized best management principles to minimize economic, health, and environmental risks.

Purpose

The purpose of this Integrated Pest Management (IPM) is to protect the county lands by controlling pests which includes controlling woody and herbaceous pests (mainly invasive species) and destructive insects in the most efficient and practical means available. The use of herbicides will be consistent with the 2006 Dane County Parks Herbicide Policy. The IPMP identifies various controls methods including cultural, physical, biological, and chemical means to reduce or eliminate pests. There has been very little negative public feedback from issues related to the cultural and physical control of pests within the county parks lands. There have been concerns with the use of both biological and chemical controls of pests. We rely on information from provided by both State and Federal Agencies for both biological and chemical controls. Biological controls have been used on a limited bases. An example of a biological control is the use of root-mining weevils that are propagated and released to control Purple Loosestrife, an exotic invader to our wetlands. The use of pesticides and herbicides in general can be controversial due to potential environmental and public health issues. In many instances pesticides and herbicides provide the most efficient and cost effective means to remove a pests. Dane County Parks is the coordinator of the Dane County Gypsy Moth Suppression Program and is working on plans and methods to reduce the impacts of the Emerald Ash Borer on county lands. The main focus of this IPM plan will be on the use of herbicides.

Dane County Parks

Dane County Parks is a growing park system having more than 12,000 acres of land under its management. These lands include Recreational Parks (4200 acres), Natural Resource Areas (3400 acres), Forests (180 acres), historic sites (116 acres) and Wildlife Areas (1500 acres). The park system began in 1935 with the first county park, Lake Park adjacent to the Village of Mt. Horeb; now know as Stewart Lake County Park. The parks system grew modestly up through the mid to late 1980's having just over 3,000 total acres. In the last 20 years 9,000 acres have been add to the system. Restoration and maintenance of these lands are a priority to the county. To manage these lands the county has a staff of 25 Full-time staff with an additional 20 seasonal staff. Plus there is a corps of volunteers that donate over 27,000 hours of time annually and an array of natural resource organizations that assist including: Eight County Park Friends Groups, farmers/adjacent property owners and nonprofit groups such as The Ice Age Trail Alliance and Prairie Enthusiasts. As outlined in the County's Park and Open Space Plan, restoration of native habitats and the maintenance of park lands are a top priority for the county.

Background

Parks utilizes an integrated approach to manage and restore its lands with a number of methods to including, mowing, hand pulling/digging, mulching, trimming, farming, burning and the use of

herbicides. In the very early 1980's Dane County Parks ended the general use of broadleaf herbicides to control broadleaf pests in park turf or lawn areas. The use of herbicides and fertilizers became project and site specific based on an integrated management approach. Parks does not treat for dandelions and other broadleaf plants within our lands unless it is for a new planting or site that will be converted for a public use or vegetation type.

Parks actively researched the latest studies and publications to better understand the short and long-term effects of certain herbicides. Parks has a long-standing tradition of using the safest and most environmentally sound herbicides available and has established itself as a leader when it comes to exploring more environmentally friendly alternatives to herbicide use. The County works closely with local municipalities, State and Federal Agencies and collaborates with other environmental agencies and non-profit organizations when selecting herbicides. Parks actively provides information and education to the public and its employees on the use of herbicides within parks and natural resource sites. Dane County Parks goes above and beyond State regulations to ensure the proper use of herbicides including requiring park employees and volunteers to become State Certified in the use of herbicides. Certified Applicators will provide guidance and oversee all handling of herbicides within the County Parks.

Pest Control Program

Set Action Thresholds

Before taking any pest control action, IPM first sets an action threshold, a point at which pest populations or environmental conditions indicate that pest control action must be taken. Sighting a single pest does not always mean control is needed. The level at which pests will either become an economic threat is critical to guide future pest control decisions.

Monitor and Identify Pests

Not all insects, weeds, and other living organisms require control. Many organisms are innocuous, and some are even beneficial. IPM programs work to monitor for pests and identify them accurately, so that appropriate control decisions can be made in conjunction with action thresholds. This monitoring and identification removes the possibility that herbicides will be used when they are not really needed or that the wrong kind of herbicide will be used.

Prevention

As a first line of pest control, IPM programs work to manage the crop, lawn, or indoor space to prevent pests from becoming a threat. In an agricultural crop, this may mean using cultural methods, such as rotating between different crops, selecting pest-resistant varieties, and planting pest-free rootstock. These control methods can be very effective and cost-efficient and present little to no risk to people or the environment.

Control

Once monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, IPM programs then evaluate the proper control method both for effectiveness and risk. Effective, less *risky* pest controls are chosen first, including highly targeted chemicals, such as pheromones to disrupt pest mating, or mechanical control, such as trapping or weeding. If further monitoring, identifications and action thresholds indicate that less risky controls are not working, then additional pest control methods would be employed, such

as targeted spraying of herbicides. Broadcast spraying of non-specific herbicides is a last resort.

Landscaped Areas

Planting Beds – Hand weeding and herbicide application are the most efficient method.
Asphalt Parking Lots – Vegetation coming up in cracks is treated with herbicide to extend the life of the parking lots and other paved areas.

Trees – A basal herbicide treatment for grasses may be completed prior to mulching around the base of a tree. A wood mulch bed 3-6 inches deep is then placed around the tree to prevent vegetation from growing near the base of the tree. This is done to reduce tree damages (girdling) caused by large mowers and trimmers.

Fences and Posts – Used to maintain grass and weeds around and under fences. Trimming is an alternative tool to combat long grass and weeds. However, trimming is time consuming and requires a regular schedule to manage vegetation. Trimming in certain conditions can cause damage to property or cause harm to the individual if not done properly.

Natural Resource Sites/ Vegetation Management

Restoration – Clearing unwanted ground cover to establish prairies.

Stump Treatments – direct application to undesirable tree stumps to prevent re-sprouting.

Basil Bark Treatments –direct application to the stem of wood vegetation – Normally late fall, winter early spring treatment.

Herbicide Use – For Dane County Parks

“Pesticides” is a broad term used to describe many different types of chemicals, which are used to control a variety of pests. Dane County Parks use what is considered pesticides for controlling some destructive insects, such as gypsy moth and emerald ash borers, however, the majority of chemicals used by the parks program are “herbicides”. The herbicides are utilized for specific vegetation management situations.

If the use of herbicides is warranted, the applicators will follow label directions and park policy when applying herbicide and posting herbicide treatment signs. Signs will be placed prior to treatment and left posted from the time of the application to sunset of the following day. Signs posted for the public will give the name of the herbicide used and the specific location of use. Dane County Parks will only use herbicides that have been approved for use by the Parks Director and identified in the Dane County Parks Integrated Pest Management Plan. Parks will not use any herbicides classified as “Restricted” by the Wisconsin Department of Agriculture Trade and Consumer Protection or the Federal Environmental Protection Agency (EPA). All herbicide applicators will be under the guidance of a Certified Herbicide Applicator or someone whom has completed a Herbicide Applicator Course. A herbicide application placard approved by state, like the one identified in the appendix of this manual, will be placed near the treated area and/or posted at public access point(s). Dane County Parks holds the right to close park areas undergoing herbicide treatment to reduce exposure to the public.

Goal

1. The goal of this plan is to maintain parklands in the most practical and efficient manner while providing good stewardship of the land. This will be accomplished by using Best Management Practices with the following objectives:

Evaluate potential alternative control methods, while trying to minimize herbicide use by implementing the Integrated Pest Management Plan. All pest control will use an IPM approach. IPM principles are more typically used to deal with rapidly fluctuating populations of insects and disease than weeds, but that is not always the case. A good example of a successful IPM approach to control a pest was a cooperative project between Dane County Parks and the Department of Agriculture, Trade, and Consumer Protection to combat leafy spurge (a noxious weed) by introducing the flea beetle to destroy the pest.

Steps used to determine IPM approach:

- Identify the pest and the extent of infestation by comparing data to the tolerance
- Level, and/or previous populations of the pest.
- Consider physical, cultural pest control and biological treatments before the use of herbicides.
- Select the safest, most effective product that will control the pest.
- Determine the minimum area to be treated without causing migration to another area.
- Determine the minimum amount and concentration of the herbicide needed and do not over apply.
- Only apply herbicides to areas that have been deemed appropriate for treatment.

2. Herbicide use may be initiated:

- Monitoring has indicated that the pest will cause unacceptable health/safety hazards or unacceptable economic/aesthetic damage and,
- Evaluation of certain controlled alternatives, which indicate the need for herbicides while taking into consideration the toxicity, effectiveness and efficiency in using the herbicide.
- Use of Herbicides to protect and restore.

Herbicides may be used to protect human health and safety by applying herbicides to pests such as poison ivy, wild parsnip and other poisonous weeds. The park herbicide program is small but the economic benefit is very significant and a vital component of the overall restoration and maintenance program. Herbicides can be used to improve plant survival in ornamental plantings or to maintain natural resource sites such as prairies and oak savannas. When restoring prairies and maintaining landscapes, herbicides are used to reduce competition between vegetation to increase the survival of native plant communities and open the historic landscapes of southern Wisconsin. They are used as an alternative to mowing and trimming around trees to prevent damage and or destruction by girdling. It also can be used to prevent damage to fixed objects such as fences, buildings and other facilities. There are some situations where aesthetic considerations are a major reason for herbicide use, for example, maintaining a plant bed from invasive grasses or other invasive species. Treating weeds as they grow around building foundations, through cracks in asphalt parking lots, around fences and posts will help reduce damages caused by trimmers, extend the life of asphalt and concrete surfaces while providing well kept aesthetically pleasing facilities and grounds. The Parks Director must directly approve any project that involves the application of a herbicide adjacent to or in any areas where there is the potential that the herbicide may enter a body of water. Herbicides use in or near open water poses a high risk of entering the water way and small concentrations can

be very harmful to non-targeted plants and animals. Additionally permits and approvals may be required through the Wisconsin Department of Natural Resources for a project near a body of water.

3. Records

Parks will maintain appropriate records on herbicide purchases and applications. All herbicide applicators will utilize a "Herbicide Application Log" or "Stump Treatment Log" in their field kit or vehicle. The information from each herbicide application log will also be transferred annually to a Master log that will be kept at Dane County Park's main office. The Master log will contain an annual summary of herbicide applications for the previous year. An example of the herbicide application log and Master log can be found in the Appendix. The log will include the following:

- ❑ Name of the herbicide
- ❑ The name of the individual applicator and contact information
- ❑ Herbicide that was applied.
- ❑ The location of the herbicide on application site.
- ❑ The month, day, year, approximate starting and ending time of the herbicide application, and weather conditions.
- ❑ The brand or product name or common chemical name, and the federal environmental protection agency registration number of each herbicide applied.
- ❑ At least one of the following:
 - The concentration and total quantity of each herbicide applied
 - The amount of herbicide product applied per unit area and the total area treated.
- ❑ Each location, other than a business location licensed under s. ATCP 29.20, where the herbicide was mixed or loaded. Mixing and loading sites need not be identified if the herbicide is applied directly from a prepackaged retail container, or is applied with application equipment having a total capacity of not more than 5 gallon of liquid herbicide or 50 pounds dry herbicide.
- ❑ Records will be made available for inspection and copying upon request.

3. Certification

County staff and volunteers will be State Certified Herbicide Applicators if they are going to oversee the handling, applying, disposing of, or mixing of herbicides on county park lands. Government Employees or their agents do not need to be certified to treat public lands, but Dane County's policy will be that all employees applying herbicides should be certified or working under the direct supervision of a certified applicator. Exceptions to this can be found in Wisconsin Administrative Code ATCP 29.20. All employees and volunteers having involvement with herbicides will receive training in herbicide safety. A supervisor or a Certified Herbicide Applicator will make evaluations and decisions for application of herbicides.

- ❑ Definition of roles: Identify -
 - Who will do the pest monitoring?
 - Who will evaluate the control alternative to use?
 - Who will decide which control alternative to use?
 - Who will apply the herbicide, if necessary?

- ❑ Pest management objectives identifying the criteria (i.e. pest population levels) to be used when deciding what action should be taken to control a pest problem.
- ❑ A method for monitoring for a pest and their rate of recurrence for a specific area would need to be developed with a description of how the monitoring will be done.
- ❑ The supervisor or Certified Applicator will control decisions pertaining to treatment and will follow the steps outlined in the IPM and Best Management Practices.

4. Posting Notification: includes the following:

- ❑ Sign – Specified by the State of Wisconsin.
- ❑ It will be posted until sunset the day following application.

Landscaped Areas: At the time of any herbicide application, an information placard will be posted at the site along with all other information deemed appropriate. The placard will be posted at access point(s) to the site, readily visible and will remain posted until sunset of the next day. The posting time may be extended based on health/safety concerns and/or label directions of a specific herbicide being used.

In the following situations a reasonable effort will be made to post treatment Areas:

- a. Areas that have heavy public use or used by the same people on a daily basis.
- b. Areas where users would be in direct contact with treated areas.
- c. Areas where users do not have an alternate untreated site to use within the park.

Dane County does not treat its general parklands, most applications are spot treatments that do not meet those criteria. Signs will be posted prior to treatment at entrances of the park to allow people to avoid contact of treated areas. Dane County Parks also recognizes that some areas such as golf courses and recreational fields take special attention and a higher level of herbicide/fertilizer use. Dane County Parks presently does not have highly groomed areas and grounds, such as golf courses, where herbicides are used heavily. It recognizes that a more detailed plan specific to each area would need to be developed for those facilities.

Natural Resource Sites (Land Management): Herbicide application (outside of the normal park use area or landscaped area) will be posted according to state regulations. If there is a short REI, such as using Glyphosate herbicide (which has a one-hour REI), no placard may be necessary as long as staff or the person applying the herbicide is on site to inform the public.

- ❑ Any complaints regarding health effects possibly related to herbicide applications should be directed to the Operations Manager.
- ❑ Also any unusual amount of herbicide used due to unusual circumstances should be reported to the Operations Manager.
- ❑ All departments storing, using and disposing of herbicides and herbicide containers will do so safely, according to label directions and any State and Federal regulations where applicable.
- ❑ This policy is not intended to apply to germicides, sanitizers or disinfectants that are used in routine maintenance within Dane County Park's facilities.
- ❑ Any use of a herbicide restricted under EPA special review is prohibited.

5. Contractors

Dane County may contract with outside experts to develop and implement vegetation restoration plans and for controlling insect pests. All outside contractors will be required to meet all Department of Agriculture, Trade and Consumer Protection requirements for the use of a pesticide. The Contractor will be required to meet all Dane County Parks signing and notification requirements and provide Dane County will all records related to tracking the work that was done.

*For further information in regards to IPM and BMP contact Dane County Parks Main Office (608) 224-2730.

INTEGRATED PEST MANAGEMENT PROGRAM

TRAILS AND GROUNDS MAINTENANCE

Grounds Maintenance: All public use areas including open space, turf areas, trails and planting beds that are actively maintained for public use.

Methods of Pest Control:

- ❑ Mowing (height at 3 > inches to discourage broadleaf growth)
- ❑ Weed trimming
- ❑ Mulching 3-6 inches in depth around trees, fence posts, and other objects.
- ❑ Herbicide use. (foundations, parking lots, trees)

* String trimmers are used most frequently, but are considered to be the most time consuming. If herbicides were not used to combat unwanted vegetation the grounds-crew would spend all their time catching up with trimming efforts. The blades on the mowers are raised to 3”> this helps discourage the growth of broadleaf species by maintaining higher amounts of vigorous grass and moisture.

Prescription

Mowing is the main practice used to maintain all areas, followed by trimming, brushing, weed pulling and mulching. Trimming weeds and mulching are the methods used that most extensively maintain weed growth. Glyphosate herbicide may be used around the trees, fences, signposts, parking lots, and buildings. The main reason for using Glyphosate is to reduce the amount of labor time spent weed trimming and to help prevent mower and trimmer damage to trees and facilities. Economically, the parks do not have enough staff or volunteers to trim and remove weeds and vegetation in these areas.

Herbicides Used:

Glyphosate is the herbicide most used in the Parks. Use is usually limited to landscaped areas, which include mulched areas, trees, fences, posts, foundations and parking lots. It is the policy of Dane County Parks to not use any herbicides in the proximity of water resources.

RoundUp

RoundUp (1% to 2% solution)- An example of a 2.5% Round-up solution would be 2.56 ounces of RoundUp concentrate + 125.44 ounces of water = 128 ounces (or 1 gallon) of solution. In actual practice this will be rounded off to 2.5 ounces concentration to (1) gallon water. RoundUp is a non-restrictive use herbicide, which means that this chemical does not require a herbicide applicator’s certification when applied by a commercial applicator not for hire, however Dane County Parks requires their employees to become certified or be accompanied/trained by a certified applicator. Broadleaf plants and grasses absorb RoundUp

upon contact. After this absorption, the plant(s) become brown and die. Roundup has no long-term residue in the soil. RoundUp has a low toxicity. It is only slightly toxic and slightly irritating in regards to skin contact and ingestion. Use of Glyphosate (generic name) may be a higher percent in solution.

Informing the Public

The public is made aware of the management being done in a particular park by signs and by the volunteers and ground's maintenance staff informing the park visitors. (See placard placement on BMP)

Certification

Governmental employees are not required to be certified, however it is the policy of our department that education is important, and certification is an efficient method to educate staff about herbicides. Dane County Parks requires certain positions in the Division to become certified. Others staff may provide herbicides if under the guidance of these park staff.

Herbicide Applicators:

The following park employees and volunteers under the guidance of Park Naturalist, Parks Operations Manager and the Grounds and Trails Park Maintenance Technician and Park Laborers

LAND MANAGEMENT

Land Management (Natural Areas) is under the direction of the Park Naturalist, who manages the Natural Resource Sites and works to restore natural areas into the highly diverse area of our parks including prairies, wetlands, and forests.

Methods of Vegetation Control:

- Farming (intensive tilling and cropping)
- Pulling/Digging species by hand
- Mowing
- Girdling undesirable tree species
- Prescribed burns
- Herbicide use.
- Direct applications for stump treatments and poison ivy.

Prescription

The prescription used to manage Natural Resource Sites is unique to each area. Park Staff use technical resource books, advice from university professionals in ecology, and advice from DNR staff to decide how to manage specific Natural Resource Sites to resemble to the diversity that was present in pre-settlement times.

The ideal situation for maintaining a Natural Areas is to get the vegetation to the point where it can be maintained through the use of fire and mowing. Herbicides are used as remove invasive species for restoration and as a limited maintenance tool.

Generally herbicides cannot be used in managing Natural Resource Sites because there may only be one or two species eliminated from a diverse mix of 50 to 75 species. Therefore the unwanted

plants must either be dug out one at a time or we need to manage the area in such a way that the competitive balance is tipped in favor of the desirable native plants.

Volunteers who apply herbicides (herbicides) for Dane County Parks are required to pass the state's Herbicide Applicator Certification exam or be accompanied by a Certified Applicator. This requirement is for the purpose of training in technique, safety and environmental awareness. Certified volunteers will be registered as ACT volunteers and will provide the ACT manager with copies of their certifications, front and back. The naturalist provides the materials and instructions on herbicide use in the parks. Certified Pesticide Applicators may supervise and work with non-certified volunteer applicators by following these guidelines:

- ◆ The certified volunteer must request permission in writing to work with uncertified volunteers and inform their supervisor on which specific projects they expect to work with uncertified volunteers.
- ◆ Certified applicators that are supervising uncertified volunteers will be provided with instructions on how to work with volunteers and be given written guidelines highlighting important information for volunteers. They will be provided with a checklist that the volunteer will sign to indicate that she/he has received the information. The certified volunteer will also sign the checklist to indicate that safety information has been provided.
- ◆ A certified applicator must be present to supervise uncertified volunteers, and will instruct the volunteers on proper techniques of safety handling, application and environmental awareness. The certified volunteers will closely supervise volunteers. Under no circumstance should uncertified volunteers apply herbicide if the certified applicator is not present or actively supervising.
- ◆ The certified applicator should ensure that volunteers have signed the standard ACT waiver.
- ◆ A Material Safety Data Sheet (MSDS) and herbicide label will be provided to the certified applicator. This information should be reviewed by the certified applicator with uncertified volunteers before application begins. Copies should be available upon request.
- ◆ No one under the age of 18 will apply herbicides or assist in any way with the process.
- ◆ Only certified applicators will mix and/or pour the chemicals all safety guidelines provided on the product label shall be followed including the wearing of chemical splash goggles during these procedures.
- ◆ All volunteer applicators should wear appropriate safety gear including gloves, long-sleeve shirt, long pants and shoes plus socks and protective eyewear. Protective eyewear and gloves are available from the ACT manager.
- ◆ Clean up supplies such as soap and water should be provided to the certified applicator and be available on site.
- ◆ In the event of an accident or spill, an Incident Report should be completed and forwarded to the Dane County Parks Operation Manager. Copies of records will be sent to the County Risk Manager.

- ◆ A report of herbicide application by volunteers will be kept on file at Dane County parks. Certified applicators will provide Dane County Parks with a list of uncertified volunteer applicators who apply herbicides for each specific workday: Date, time of application, location and the total amount of herbicide applied will be included.

Management

Restoration of a site requires the removal of the competition of the existing vegetation before reseeding. One-way to do this is to lease the land to area farmers for a couple of years, which, not only eliminates the existing vegetation, but also reduces the seed bank of such problem species as smooth brome and red clover. Other species such as leafy spurge cannot be controlled without extensive tilling and competition provided by a cropping program.

Woody invasive species are an acute situation in marshes, prairies, and woodlands for maintain the health of the habitat. Historically these areas were kept open by frequent fires and with the end of periodic fires after European settlement, trees and brush have moved into the areas forcing out many native species. The brush and tree species that are controlled depend on the location and situation. They include but are not limited to: buckthorn, honeysuckle, boxelder, multi-flora, rose, glossy buckthorne, black locust, cottonwood, aspen, autumn olive, Russian olive, black cherry, mulberry, catalpa, walnut, and red osier dogwood. Note that some of these species we control are native, but their population levels are putting the biological community out of balance.

One method used is called a stump treatment where the woody plant is cut and the stump or stem is directly treated with a herbicide. This treatment prevents the re-sprouting of aggressive and non-native species and aids in the restoration and improvement of habitat. Stumps must be treated within 48 hours to prevent re-sprouting. The volume of work is huge and having volunteers treat stumps facilitates timely and effective treatments.

Herbicides used

The following list of herbicides has been identified for potential use in Dane County Natural Areas in 2011.

Trade Names

Round Up

Garlon4

Bark oil blue

Krenite

Transline

Milestone

Escort

Trimec

Choice Water Conditioning Agent (ammonium sulfate & ammoniacal nitrogen

MISO, a methylated seed oil

Purpose or Uses

Round-up

The main use of Round Up in natural resource areas is as a cut stump treatment applied 1:1 mix in water with a dye added. It is also used to prepare sites for prairie restoration because it kills grasses as well as forbs.

Garlon4

Garlon4 is an oil-based herbicide mixed 1:5 in Bark Oil Blue and used to treat cut stumps of species resistant to Round Up. Examples include green ash, gray dogwood, red osier dogwood, black locust, and aspen. In addition, Garlon4 can control most woody species invading prairie areas by application to the bark (basal bark treatment) eliminating the need to cut the saplings down. Not having to use a pruner increases efficiency on large prairies. When mixed in 2% with water and surfactant it is a foliar treatment for dense stands of buckthorn seedlings and poison ivy.

Bark Oil Blue

This is light oil designed for use with Garlon4 for basal bark applications to saplings and cut stump treatment.

Krenite

Krenite is a bud inhibitor used in natural area savanna restorations. It is applied as a foliar spray to the seedlings and small saplings of buckthorn and honeysuckle and has minimal effect on the flowers and grasses. It is also used to control leafy spurge.

MilestoneVM

It is used primarily to control Japanese knotweed (*Polygonum cuspidatum*) and invasive members of the clover family. It provides extremely good control of invasive legumes with a very low application rate of ¼% or less. It is the only herbicide known to control Mexican Knotweed with fall application. It controls black locust sprouts, crown vetch and birdsfoot trefoil. For spot treatment, we mix approximately ¼ ounce MilestoneVM per gallon of water with ¼ ounce of surfactant.

Transline

Used primarily to control crown vetch and birds foot trefoil in prairie restorations. All grasses and many broad leaf flowers are not impacted by this selective herbicide so the surviving prairie flowers expand and compete with the invasive legumes.

Escort

Used primarily to control multiflora rose, honeysuckle, and parsnip at rates as low as 0.6 grams per gallon of water. It is the only herbicide that kills multiflora rose with July, August, & September treatments.

Trimec

The non-volatile amine version of Trimec is used as a cost effective method to clear out weedy seedlings of woody and non-woody broad leaf vegetation and prepare areas for restoration with native plants or restore open grassland habitat in remote portions of highly degraded natural areas

MSO, a methylated seed oil

Increases herbicide penetration on plants with waxy leaf coating

Choice Water Conditioning Agent (ammonium sulfate & ammoniacal nitrogen)

Acidifies high calcium water and improves uptake in some species. Alkaline water reduces the effectiveness of several of the herbicides we use.

Chemical Use

Dane County Parks uses as little chemicals as possible to accomplish the prescribed goals. We also try to head off problems in the early stages; for example, before trying to plant a 40-acre prairie, we first eliminate the invasive woody species in the fence lines around the boundary. This eliminates the potential invasion by tens of thousands of seedlings of woody species in a new prairie.

Some chemicals are needed on a very selective basis to manage Natural Resource Area Sites. To summarize we use chemicals to remove inappropriate vegetation that out competes native species that we are trying to establish or maintain. We occasionally use chemicals to prepare a site for prairie wildflower plantings.

Prescribed Burns

Fire(s) are used to kill seedlings of woody species in prairie and woodland restorations. When possible, mowing attempts to kill woody species, although more research is needed in this area to indicate the best times to mow and what species are sensitive.

Certification

Governmental employees are not required to be certified, however it is the policy of Dane County Parks that education is important, and certification is an efficient method to educate staff about herbicides. According to State Guidelines municipal workers and volunteers are not required to be certified applicators.

Alternatives to Chemicals

We use mowing and fire to kill woody species when they are small and young enough to be killed by this method. When we need to eliminate aspens, it is possible to correctly girdle the trees if we do the entire stand. When planting prairies, it is theoretically possible to prepare a site by tilling the area every 10 days to 2 weeks throughout the growing season, however this is not practical with the type of sites we work on and with our limited access to equipment and labor.

Informing the Public

The public is informed through placards and signs erected on the site where required, staff post on site. Through our newsletters, at conferences, through slide programs presented to service organizations, by talking with people using area when we are managing them, and by responding to phone inquiries.

FORESTRY

Forestry: The Arborist manages landscaped trees, tree nurseries and the forested areas, and tries to create a healthy environment for the forested areas. Includes all landscape trees, tree nurseries, and forested lands.

Methods of Pest Control:

- ❑ Mulching around landscape trees enhance the health and growth of the tree.
- ❑ Mowing around trees in parklands and nurseries to reduce vegetation competition.
- ❑ Vertical aeration of compacted soils
- ❑ Tree tubes made of foam or plastic can be used around the base and trunk of young trees to prevent or reduce damage caused by rodents or other animals.
- ❑ Choice of tree species
- ❑ Weed trimming.
- ❑ Weed control mats/weed barrier fabric
- ❑ Herbicides.
- ❑ Pesticides

Prescription – Non-Landscaped Area

Weed control is the single most important factor that determines the success of new nursery plantings. Animal browsing control, proper planting, and bed preparation are all very important to healthy stands of forest.

Weed Control- leaving out any of these steps will result in the plantings success to deteriorate. Prior to planting year- mow determined areas and treat with Roundup to remove the competing vegetation along a 3' wide planting strip.

First year- install tree tubes for browsing and insect control, prevent weeds in planting strips with Surflan emergent herbicide, spot treat break through weeds with Roundup, mow between rows of seedlings monthly.

Second-fifth year- Treat established trees with long residual herbicide early spring, and continue mowing between rows. Physical damage, such as, gnawing by rodents is reduced by placing plastic tubes around the young trees.

Chemical Use – Landscaped Areas

Weed competition is reduced by applying herbicide in an approximately 18" diameter circle around the tree base. RoundUp a non-specific vegetation control herbicide (spot treatment) is applied by itself or with mulching. For seedling trees Bark Oil Blue, an ornamental landscaping herbicide, is applied before weed germination in spring. Herbicides are only applied to the area immediate to the trees and not in between the trees or rows.

Herbicides Used:

Garlon 4

This product is used for timed foliar or basal bark applications in the fall or on cut stumps throughout the year. It does not freeze in cold weather during transport or in storage and is cost effective. This product is toxic to fish and therefore is not applied in or near any body of water. This herbicide has relatively low toxicity and the chance of injury in humans and animals is unlikely from this chemical from limited or even prolonged exposure.

Garlon 3A

This product is intended for areas to be treated that are near or have the potential for run off into bodies of water. Its use would be similar to that of Garlon 4 with the exception of its water solubility and significantly lower toxicity to aquatic animals.

Use of this herbicide is used to promote the growth of seedlings and prevent overcrowding by other plants. In a nursery situation we don't want grass to stifle seedlings and young trees. These nurseries are located outside of public use areas and usually are in converted farm fields. Signs are posted at these nursery locations to inform the public of nursery management practices.

Alternatives to Chemicals

Mulching is done mainly to reduce the competition for water and nutrients in the root zone area. Mulch will also increase the nutrients available for growth, as the mulch breaks down. Mulching will also prevent lawn mower and weed eater damage.

Insect management

This is an extraordinarily difficult time for pest management, with the threat of Emerald Ash Borer, Asian Long Horn Beetle, and 1000 cankers disease, and the increasing pressure of Two-line Chestnut borer, we are at risk for a significant loss to our native tree populations. It will require a diverse and multifaceted approach to provide an economical, aesthetic, safe and sustainable solution to our current and future needs.

Soil management

A healthy and vigorous tree is less likely to be affected by an insect pest, and a healthy tree normally starts with the soil. By keeping bulk density of soil down through vertical aeration using an air spade, and incorporating compost in poor soils we can ensure vigorous growth and less likelihood of pest infestations.

Tree selection

We will need to increase our diversity of trees in our parks, to limit ourselves from taking to heavy of a loss in the event of an infestation. We will diversify through using more hybrids of native species, increasing the diversity in particular plantings, and if necessary using non-natives where applicable. If an infestation does occur we will remove low vigor, declining, or moderately infected trees, and replace with a separate genus of tree

Pesticides

When we do get an infestation of insect pests that will kill trees, that we cant control solely by using the cultural methods listed above we will need to use chemical controls to effectively minimize the damage to our managed properties.

Pesticides Used

Imidacloprid (Mallet 2f)

Originally extremely expensive, the price has come down to be very economical in recent years. It functions as a systemic insecticide providing yearlong protection for all boring and most chewing sucking insects. It has a good efficacy rating for prevention of borer infestation; between 85 and 92% it is applied through soil drenches, with virtually no possibility of drift, and low possibility for runoff. It requires minimal equipment and has

relatively low toxicity and the chance of injury in humans or higher order animals is unlikely from this chemical from limited or even prolonged exposure. It is however extremely toxic to honey bees, when used on crops and wildflowers. By limiting its use to only trees under extreme insect pressure, and only using soil drenching we minimize our impact on the honeybee population. Our primary target for Imidacloprid treatments will be borers, in larger harder to replace trees

Management

Provide healthy, economical, safe, and esthetically pleasing forested areas. Concentrate on healthier trees growing in desirable locations. Efforts will be made to preserve desirable tree populations. There will be a timely removal of deceased and declining trees will also be a priority. Only in extraordinary situations would chemicals be used to control products to stop insect activity.

Informing the Public

Signs are posted at the time of application and at all public access points.

Certification

Arborist and Forestry Worker are State of Wisconsin Certified Herbicide Applicators, in the 003.0 category, turf and landscape.

References

1. Dane County Parks Employee Surveys
2. Department of Agriculture, Trade and Consumer Protection
3. Material Safety Data Sheets – References are included in the Herbicides Handbook Section II - Plan Binder
4. Herbicide Applicator Training Video and Workbook- U.W. Extension
5. University of Wisconsin-Extension, Integrated Pest Management Manual
6. 2000 Parks Division Herbicide Policy, Madison City Parks.
7. Chapter ATCP 29 “Herbicide Use and Control.” Wisconsin Administrative Code.
8. Smith, Guy. “Best Management Practices.” Dane County Parks. 2001.

Reviewed by David Fisher, UW – Extension Crop Soil Specialist, February 2010

Updates included:

- 1) The use of Glyphosate Vs. Commercial product Roundup Herbicide and solution concentrations.
- 2) Mulching Depth
- 3) Safety Training
- 4) County Park IPMP policy goes above and beyond the requirements required by State.