

Predictable and Preventable Losses:

Reducing Storm Damage to Landscape Trees

by Gary R. Johnson
 Associate Professor, Urban and Community Forestry
 University of Minnesota

Every year, somewhere in the Midwest, tornadoes, straight-line winds, hail or ice storms violently disrupt services and destroy property and trees. In 1998 alone, approximately 150,000 trees were damaged or destroyed in Minnesota's urban landscapes, and it's only a political boundary that separates Minnesota from Wisconsin. Most of the time, windstorms ignore political boundaries.

We can only speculate about the long-term damage to trees left standing that suffered broken or torn limbs, or the thousands of trees riddled with hail. Oaks damaged and wounded during spring months may be particularly vulnerable to oak wilt infections. Decay, initiated by ripped branches, severe pruning wounds and hail lesions, weakens surviving trees and leaves them more vulnerable to future storm damage. And since the presence of decay was one of the more common preexisting conditions found in storm-damaged trees, this is a very real concern.

Since 1995, the University of Minnesota, Department of Forest Resources has conducted extensive storm damage research. The university's research involved the examinations of individual trees that were damaged or lost. Were there any weaknesses in the trees or site conditions that may have encouraged catastrophic damage or losses? Or, were these storms just so severe that everything in or near their paths fell victim to their power?

DAMAGE CHARACTERISTICS

The most common type of damage was total tree failure; that is, the entire tree was uprooted or broken



Presence of decay is significantly related to stem failure.

Photo courtesy of USDA Forest Service

off at ground line. More than 59 percent of the trees examined were total failures. The second most common category was canopy damage—broken branches, ripped branches, split-out leaders—which accounted for approximately 29 percent of all surveyed trees.

The two most common preexisting conditions for all trees suffering any type of damage were presence of decay and stem girdling roots associated with deep planting conditions. Contrary to many popular articles in local newspapers, the two most commonly damaged tree size categories were the 10- to 15-inch dbh range (diameter at breast height; i.e., stem diameter measured

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Regional Councils a Solution?

by Cindy Marzofka
 Effective Communications/Dane County Tree Bd.

The Dane County Tree Board will host a regional meeting on Wednesday, September 13, from 10 AM to 1:30 PM at the UW—Extension office at One Fen Oak Court in Madison. Participants will discuss tree management issues and the potential for creating the first regional tree council in Wisconsin.

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Community Profile:

City of Waukesha



by John Van Ells
DNR Southeast Region

In 1869, Richard Dunbar installed waterworks that began an age unparalleled in its extravagance. In the forty years from 1870 to 1910, the village of Waukesha experienced drastic changes. It saw the installation of close to 50 different spring-related facilities including Bethesda, Silurian, Lethain, Horeb, Arcadian and White Rock Springs. (Unfortunately the historic bur oak that Colonel Dunbar sat underneath while sipping Bethesda spring water was destroyed by straight-line winds in 1991.) The city experienced visitors of fame and wealth from all over the union, enormous and ornate resorts, shipments of famous Waukesha water with destinations all over the world, shocking scandals and profitable entrepreneurs.

Waukesha became a national tourist attraction and resort location. Ladies in hoop dresses toting parasols were escorted down the streets and through the gardens of the city by men in frock coats and top hats. Fancy stagecoaches pulled by teams of horses pulled up to the many hotels.

Men and women arrived in the hundreds by train every day, and made their way to lounge on stone steps or on park benches where they could comfortably drink the healing waters and relax. Concerts, parades and dances were regular occasions, drawing crowds of people. Waukesha was gardens—with flowers of all colors, pools and streams, paths through groves of trees and shaded spring houses.

Though much of this notoriety is gone, Waukesha still values its parks and trees. Waukesha's well-regarded parks and recreation department has a \$7 million operating budget and 40 regular full-time employees. There are nine highly trained, educated and experienced arborists in the forestry division. The city of Waukesha is a growing, independent community with a population of over 63,000. The director of parks and recreation, under the direction of the city administrator, is responsible to direct, plan, coordinate and supervise the city's parks, recreational, and forestry activities, programs and operations. Responsibilities include maintenance of parks, recreational areas, public trees, related facilities and equipment. City Forester David Liska administers the city's tree management program.

The forestry division was active during its 42nd year of operation in 1999. During 1999, preparatory work was completed for the initiation of the fourth five-year street tree re-inventory. Currently 24,000 street trees and 5,000 park trees located within 800 acres of parkland are managed and maintained on a six-year pruning cycle. This includes a five-year training pruning program for the 1,000 new plantings that occur annually. Since 1980, all street trees have been inventoried and cataloged into a computerized street tree inventory program. This program was initially developed through a partnership with Dr. Robert Miller, UW—Stevens Point. Due to the rapid growth of the city, a new inventory program was devised and implemented in-house in 1993. In 1999, plant material was installed along the recently completed Fox River multi-use trail and around new restroom, playground

continued on next page

Community Profile:

- Tree City USA:**
21 years, plus one growth award
- Population:**
63,000
- Tree Population:**
24,000 street trees
5,000 park trees
- Street Miles:**
235 (22 sq. mile area)
- Number of Parks:** 40
- Park Acreage:**
800+
- Primary Industries:**
Wisconsin Centrifugal
Waukesha Engine
RTE
Navistar
UW—Waukesha
Carroll College

Program Profile:

- Parks and Recreation**
- Forestry Division**
- Staff:**
David Liska, City Forester
Dave Rauterberg, Forestry Crew Leader
8 arborists

Heavy Equipment:

- 3 aerial platforms
- 3 chippers with trucks
- 2 five-yard dumps
- 5-yard front-end loader
- 2-yard back hoe loader
- stump machine
- tree spade
- 4 pick-up trucks

2000 Forestry Budget: \$800,000



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Managing Editor: Dick Rideout
Contributing Editors:
 Cindy Casey Tracy Salisbury David Stephenson
 Don Kissinger Kim Sebastian John Van Ells
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Village Park Vegetation Management

by Cindy Casey
West Central Region

Are tree inventories and management plans relevant to small municipalities that don't have active street tree programs? The Polk County village of Clear Lake has found that they are. After a June 1998 windstorm caused heavy damage to the village's 200-acre park, officials and staff became concerned that past neglect and lack of planning had made this sizable tree resource vulnerable and that further deterioration was inevitable without active management.

With an urban forestry grant, the village hired a consulting firm to inventory the developed areas of the park and produce a management plan based on the inventory findings. Because the park contains a



Photo by Cindy Casey, WDNR

Trees with high-priority maintenance needs were marked with paint for easy identification.

campground, picnic shelter, picnic tables and several toilet facilities, the village was particularly interested in identifying and abating potential tree hazards. Additional vegetation management priorities of the village included tree planting, resource protection,



Photo by C. Casey, WDNR

Clear Lake's 200-acre village park is an important recreational and ecological resource.

retaining the predominantly white pine forest type and addressing other maintenance needs.

Over 1100 trees were inventoried on approximately 15 active-use acres in Clear Lake Park. Aided by GPS technology, the consultant produced maps showing locations of inventoried trees. Trees were numbered on the maps to correlate with a printout of maintenance needs. In addition to the maps, trees needing immediate attention—pruning or removal due to safety concerns—were field marked with paint. Beyond tree pruning and removal, the management plan includes recommendations for controlling specific insect and disease problems on site, controlling invasive species, regenerating white pine, managing overuse of certain areas, tree monitoring and, of particular significance, addressing the mower damage evident on trees throughout the park.

The management plan is already in use, with high-priority tree removals under way. The plan is proving especially useful because it includes a variety of practical, supporting information that small communities without trained forestry staff might otherwise lack. It contains lists of urban forestry

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Waukesha *continued from previous page*

and shelter facilities in the adjacent Fox River Parkway Park. A millennium park tree planting and Arbor Day 2000 program was planned. Finally, they continued their foray into the electronic era by creating a parks and recreation department web site (<http://www.ci.waukesha.wi.us/>) and by joining the DNR urban forestry e-mail network for southeast Wisconsin.

Waukesha County is a statewide leader in residential home development. Many of these new subdivisions are within the city of Waukesha. This puts ever-increasing demands on city forestry. New homeowners on wooded lots demand assistance on

maintaining their trees, while homeowners in subdivisions that were formerly cornfields are anxious to develop landscapes. Street trees are planted as the last public improvement in these areas. Planting follows final paving and is done on a first-paved, first-planted basis. Developers pay an impact fee to the city which provides funds for both parkland acquisition and facilities to meet the park and recreation needs of the neighborhood.

The forestry division cooperates intra-departmentally with engineering, public works and planning to manage its urban forest. In addition, forestry is heavily involved with capital programs, long range planning and parkland development and acquisition. 

Clear Lake *continued from page 3*

publications, agencies, web sites and training opportunities; a list of local contractors for tree work; product sources; and pamphlets and fact sheets on specific insect, disease and invasive species problems. The village intends to continue implementing recommendations throughout the five-year planning horizon and keep the inventory database current as maintenance activities take place.

The fact that Clear Lake places a high value on its village park isn't new. What is new is that the village has turned its concern for the park into a plan for active management that will help ensure the future health and well-being of this significant recreational and ecological resource. *For more information, contact Al Bannink, Village Clerk, at 715-263-2157.* 🐿

Tree wounds and associated decay were most often related to lawn mowing, gouging by vehicles, whittling from hatchets and knives, and woodpecker activity.



Photo by Cindy Casey, WDNR

Predictable and Preventable

Losses: *continued from page 1*

4.5 feet above ground) and those over 25 inches dbh, both about 23 percent of all trees lost or damaged. Trees in the 6- to 10-inch dbh range ranked third overall at 17 percent. So, it was hardly a situation of "ancient, 250-year-old giants" reaching a timely end.



Photo by Dick Rideout, WDNR

Girdling roots resulting from deep planting compress the trunk creating a common breaking point.

As interesting as the general information is, detailed analysis provided more specific and useful statistics...even to the point of dispelling some commonly held beliefs. In the "total failure" category, Colorado spruce ranked ahead of the ubiquitous green ash and littleleaf linden, and far, far outranked the humble silver maple. In the "canopy damage" category, green ash ranked number one in terms of damage frequency, but only slightly ahead of white/bur oak. And finally, in the "stem failure" category (i.e., trees that failed between the ground line and the first set of branches), hackberry dominated the list.

Seventy-three percent of the green ash that suffered stem failure and/or canopy damage had included bark

and decay as preexisting conditions. Seventy-three percent of the littleleaf lindens that suffered total failure were planted too deep, had stem compression from girdling roots and broke at the point of stem compression. And 82 percent of the Colorado spruce that suffered any category of damage had NO preexisting conditions that would signal a higher chance of failure! They looked perfectly healthy.

For all trees that failed totally, about 18 percent were planted too deep, had stem compression from girdling roots and failed at the compression point. For all trees that failed totally and were located outside of the storm's centers, more than 30 percent were planted too deep and had stem compression from girdling roots. There was no reason that these trees should have been lost.

For all trees that suffered canopy damage, 78 percent had included bark, codominant leaders, decay or some combination of these three factors!

Finally, for those lost boulevard trees, the majority were 6- to 10-inch dbh (28 percent) and over 25 inches (25.7 percent). Littleleaf lindens were the most common 6- to 10-inch dbh tree to suffer total failure in boulevards, and 50 percent of those failed due to girdling roots causing stem compression (also, all were planted too deep). Greater than 25 percent of all trees that were lost in the boulevards had stem compression from girdling roots and were planted too deep. Green ash was the most common species over 25 inches that suffered total failure.

PUTTING THE TREE SPECIES IN PERSPECTIVE

When the eight most common types of trees damaged in three Minnesota storms were further evaluated, three distinct conclusions were determined. These species were evaluated by comparing the percentage that they represented of all trees in an area with the percentage that they represented of all damaged trees

in those same areas. In other words, we were interested in whether or not they were the most commonly damaged trees simply because they were the most commonly planted trees. All but three tree species were actually underrepresented in the damaged tree categories.

Lindens and Colorado spruce were overrepresented in the “total failure” category. Greater than 73 percent of the lindens in this category broke below ground at compression points in their stems caused by stem girdling roots.

Colorado spruce were vulnerable to windthrow, not breaks at stem girdling root compression points. This was probably due less to the genetics of the species and more to the density of the spruce and the locations that they were planted. They have very dense foliage and a very dense shape that offers a lot of wind resistance. This factor combined with the fact that most were planted too close to sidewalks, driveways and buildings, which all restricted normal root development and spread. So, the lack of root space coupled with the density of the tree led to the high number of Colorado spruce windthrows.

Hackberries were very vulnerable to breakage at various points on their stems, and greater than 80 percent of the hackberries that suffered stem failures had columns of decay at the breaking point.

WHAT CAN YOU DO TO REDUCE FUTURE DAMAGE?

Best Planting Practices

Buy only quality nursery stock: straight stems, single leaders, no included bark in branch attachments, no wounds and make sure that the first branch roots are at the top of the soil ball or container, not buried by several inches of soil. Plant at the correct depth: roots should be at the soil surface and top-dressed with 2 to 4 inches of organic mulch. Prepare the planting site: loosen the soil, if it's compacted, to an area of at least 25 square feet (5 feet by 5 feet). Seventy-five to ninety square feet is even better on very compacted soils. And NEVER, EVER let the trees become water stressed (either too little or too much water).

Best Maintenance Practices

Monitor for structural integrity, that is, watch the trees closely over their entire life for signs of weakly attached branches or multiple leaders. Remove codominant leaders and branches with included bark when they are small (less than 4 inches in diameter). Remove branches or trees with columns of decay present if there are targets (buildings, sidewalks, play areas) in the area. Mulch around your trees (but don't pile the mulch against the stems) to hold soil moisture and keep mowers and string trimmers at bay. Publicly reprimand anyone who staples or nails signs on trees, performs flush cuts or tops trees. All of these

practices promote decay and increase the likelihood of failures in storms.

Replant with Logic

Don't plant all the trees that you can get...plant what you can maintain! Avoid planting trees with high degrees of wind resistance (e.g., Colorado spruce, littleleaf linden, Norway maple) in areas that are traditionally windy or have confined root spaces. Use smaller maturing trees in narrow (less than 10 feet wide) boulevards (e.g., crabapples, Japanese tree lilac, Amur maple), or obtain “green easements” so the trees can be planted in more expansive private property (front lawns).



Photo courtesy of USDA Forest Service

Windthrow is most common in trees having dense crowns and restricted root zones.

Not all storm-related damage to trees is either predictable or preventable. However, recent research has revealed that the majority of damage to urban trees has been unnecessary. Prediction requires that trees and their growing sites be regularly monitored for signals of potential problems. Prevention requires a long-term commitment to planting only healthy plants in suitably prepared sites, best planting practices and best maintenance practices. It doesn't take that much longer to plant and maintain trees correctly, and that investment of time pales in comparison to the costs associated with unnecessary, catastrophic tree losses during wind and ice storms. 🌿

Deadlines and Datelines

National Arbor Day Foundation Award nomination cards are due September 1, 2000. These international awards recognize outstanding accomplishments in tree planting, care, conservation and environmental stewardship. A number of individuals and organizations from Wisconsin have received one these prestigious awards. Nomination requires only a simple post card. For information visit the NADF website, <http://www.arborday.org>, call them at 402-474-5655 or contact your regional urban forestry coordinator (see p. 16).

Wisconsin DNR 2001 Urban Forestry Grant Application packets will be mailed out in early August to everyone who submitted an Intent to Apply form. If you've got questions or would like a review of your application before you submit it, contact your regional urban forestry coordinator (see p. 16) for assistance. **Final grant application deadline is November 1, 2000.** 🌿

Concolor or White Fir (*Abies concolor*)

By Laura G. Jull
Dept. of Horticulture
University of Wisconsin–Madison

Native To: Southwestern US to northern Mexico

Mature Height: 30' to 50' or more

Spread: 15' to 30'

Form: Pyramidal, rigid form with branches to the base, medium texture

Growth Rate: Slow to moderate

Foliage: Evergreen, soft, silvery bluish-green needles borne on upper part of branch and curving upwards. Needles are flattened, 1½" to 2½" long, glaucous on both sides, and smell like tangerines when crushed.

Cones: Borne erect on top of branches, 3½" to 5" long, cylindrical. Cone disintegrates directly on plant before falling to ground, with the central axis remaining.

Bark: Smooth and light gray on young stems becoming thicker and ridged and furrowed on older trunks; ashy gray in color.

Site Requirements: Prefers full sun and a moist, well-drained, sandy loam soil; dislikes heavy clay. Will tolerate drier conditions and heat better than other firs.

Hardiness Zone: 4a to 7

Insect & Disease Problems: None serious

Suggested Applications: Concolor fir is an excellent large evergreen tree that can be used as a specimen in residential landscapes and as a replacement for the pest prone Colorado blue spruce. It can also be used as a screen or as a Christmas tree.

Limitations: Dislikes poorly drained, heavy clay soils; not very urban tolerant.

Comments: Its soft, bluish-gray foliage to the ground, pyramidal form, and greater pest resistance provide for a low maintenance, multi-season-interest tree.

Common Cultivars:

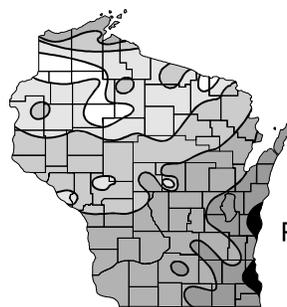
'Candicans' – Has longer, bright, silver-blue needles and narrow, upright form.

'Compacta' – Has an irregular, dwarf, compact, globular to pyramidal form; silver-blue needles; only grows 6' to 10' tall.



Photo by Dr. Laura Jull, UW–Madison

White fir's pyramidal form.



3a 3b 4a 4b 5a 5b

Plant Hardiness Zones for Wisconsin

* Urban tree size and growth rate vary considerably and are strongly controlled by site conditions.

References:

Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses, by Michael A. Dirr, Stipes Publishing, Champaign, IL.

Landscape Plants for Eastern North America, 2nd ed., by Harrison L. Flint, John Wiley and Sons, Inc., New York.

Manual of Cultivated Conifers, by Gerd Krüssmann, Timber Press, Portland, OR.

The Right Tree Handbook, by Harold Pellett, Nancy Rose and Mervin Eisel, University of Minnesota Extension Service, St. Paul, MN.

Photo by Dr. Ed Hasselkus, UW–Madison



The upturned needles of white fir.

Phomopsis Blight of Douglas-fir

by Glen R. Stanosz^{1,2}, Ph.D., and Jennifer E. Kidder,
Student Researcher¹,
Departments of ¹Plant Pathology and ²Forest
Ecology and Management,
University of Wisconsin–Madison

The cause of a disease of Douglas-fir, which is increasingly grown as an ornamental conifer in Wisconsin, recently was studied in the Department of Plant Pathology at the UW–Madison. Students in the course “Diseases of Landscape Trees and Shrubs” observed trees on campus with dead and dying shoot tips during the fall of 1999. Fungal fruiting bodies were observed on dead stems and needles, and a suspected pathogen was isolated in pure culture. Inoculation of Douglas-fir seedlings in the greenhouse resulted in development of symptoms identical to those observed on the diseased campus trees, and that fungus was reisolated from these inoculated trees. Thus, the fungus *Phomopsis occulta* has for the first time been proven to be a pathogen of Douglas-fir.

Phomopsis occulta is a widely distributed fungus found on dead tissues of many hardwood and conifer trees, but until recently was considered only to be “saprobic.” In other words, this fungus was thought only to colonize dead plant parts, and was not known to be a pathogen. Several years ago, however, former department of plant pathology graduate student Peter Sanderson and Professor Emeritus Gayle Worf associated the fungus with blighted shoots on Colorado blue spruce in Wisconsin. Their inoculation trials proved that this fungus can be a potent pathogen of blue spruce, and that it also can cause symptoms on black, white and Norway spruces. Balsam and white firs (“true” firs, in the genus *Abies*) appeared to be unaffected.

Symptoms on Douglas-fir include discoloration and death of shoot tips produced during the most recent season of growth. Needles on affected shoots collected from campus trees were purple to brown and almost fully elongated, indicating that death probably did not occur before early summer. Dead shoots were curled or drooped down (see figure). Because the discolored, dead foliage is retained (i.e., it is not “cast”), the disease symptoms are characteristic of a “blight.” Identification of *Phomopsis occulta* as the cause of this disease requires recognition of two distinct types of spores produced in tiny fruiting bodies on the blighted shoots. Diagnostic assistance



Photo by Glen Stanosz, UW–Madison

Phomopsis shoot blight of Douglas-fir is characterized by rapid killing of current-year shoot tips, which turn purple to brown and are retained on the tree.

can be provided by Dr. Brian Hudelson, director of the Plant Disease Diagnostics Clinic in the Department of Plant Pathology, 608-262-2863, bdh@plantpath.wisc.edu.

In addition to confirming Douglas-fir as a host of *Phomopsis occulta*, our recent greenhouse inoculation trials revealed interesting aspects of disease biology that previously had been unknown. First,

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What Damaged This Tree?

by Kim Sebastian
DNR Southeast Region



Photo by David Stephenson, WDNR

Turn to page 15 to find out...

Guidelines for Successful Grant Writing

by Janette Monear
Twin Cities Tree Trust

Adapted for Wisconsin
by Don Kissinger
DNR West Central Region

It's that time of year again when many communities and nonprofits will be filling out a Wisconsin DNR urban forestry grant application by the November 1, 2000 deadline. Whether applying for urban forestry funds, or a grant from some other governmental program or private foundation, there are basic tenets to adhere to.

PROPOSAL CHECKLIST

Knowing how to write a good proposal is important in getting projects funded. The process of writing a good proposal takes time, but it helps you to organize thoughts and prepares you to raise funds, write media stories and document the project. A proposal is nothing more than stating your case and doing it better than others who are doing the same. Here's how to produce that winning application or proposal:

Summary – Clearly and concisely summarize the request and catch the interest of the reviewer.

Introduction – Describe the applicant's agency, its qualifications and credibility.

- ❖ Position yourself as a success.
- ❖ Make it clear why you are the logical agency, nonprofit or community to receive funding and that you are capable of successfully completing the project.

Problem Statement/Needs Assessment

- ❖ Explain why the reviewer should care about your project.
- ❖ Explain the current status of the situation and its effect on the local and larger community, if appropriate.

Program Objectives – Describe the outcomes of the grant in measurable terms.

- ❖ Submit measurable objectives (i.e., it is not enough to say you will establish a tree planting program— say you will plant a certain number of trees of a certain species, in a certain area). Be specific.

Methods – Describe the activities to be conducted to achieve the desired objectives.

- ❖ Be logical and tie it to the problem or project goal. Answer the question, “Why and how will my project help?”
- ❖ Be innovative and interesting, but stick to the facts.

Evaluation – Present a plan for determining the degree to which objectives are met and which methods are followed.

- ❖ Have a good evaluation plan—it will force you to have clear objectives.
- ❖ Allow for program modifications.
- ❖ Know who evaluates what criteria and when this will be done.
- ❖ A good evaluation process will help define your program's parameters. This is good management.

Future of the Project – Don't let the grantor think that you will be coming back for funding on a continual basis or that the program will be short-lived.

Coming Events

August 29 – *Building with Trees seminar*. Olbrich Botanical Gardens, Madison, WI. Contact the National Arbor Day Foundation, 402-474-5655 or conferences@arborday.org.

September 9-12 – *Grassroots Summit 2000*. Lied Conference Center, Nebraska City NE. Contact: Kathy Sevebeck, Summit Chair, 540-231-2411 or vufc@vt.edu.

September 13 – *Developing a Regional Urban Forestry Council*. Dane County UW Extension Office, Madison, WI. Contact Tom Krull 608-252-7265, tkrull@mge.com or Cindy Marzofka 608-246-0333, cindy@effective1.com.

September 20 – *Urban Canada Goose Workshop*. Havenwoods Environmental Center, Milwaukee, WI. Contact Ricky Lien, 414-263-8622, lienr@dnr.state.wi.us.

September 26-27 – *Trees, People and the Law National Conference*. Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation, 402-474-5655 or conferences@arborday.org.

September 28-30 – *Community Forestry at its Best, a Tree City USA National Conference*. Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation, 402-474-5655 or conferences@arborday.org.



Budget

- ❖ Define clearly the costs of the program, which may include personnel, facilities, equipment, supplies and contracted services.
- ❖ Clearly define costs to be met by the funding source and those provided by other parties.

GUIDELINES

- ❖ Read the proposal or application carefully. Know the funding guidelines and stay within them.
- ❖ Match your organization's abilities and priorities with the interest of the funding source.
- ❖ Keep the proposal to a maximum of two to three pages in length. Be concise.
- ❖ Submit the proposal before the deadline, hand deliver if necessary. Know the deadline postmark date.
- ❖ Have someone unfamiliar with the project read the application/proposal for content, clarity and errors.
- ❖ Develop an accurate budget and make sure the grantor will cover the costs you are requesting.
- ❖ Focus on the organization's goals and stick to them.
- ❖ If the proposal is rejected, ask why it was turned down. Use this information to enhance the proposal and resubmit at the next opportunity.
- ❖ If questions arise when writing the proposal, call the granting agency or person who will be rating the application asking for clarification.
- ❖ Follow up applications with a telephone call.
- ❖ Secure multiple partners who will write a letter of support.
- ❖ Identify all "in-kind," "force account" or donated labor and materials (things other than cash) that can count as matching funds.

- ❖ Don't make reviewers come to you for additional information.

SOURCES FOR MORE FUNDING INFORMATION

The Foundation Center

Wisconsin has three of the 200 nationwide collections affiliated with the Foundation Center in New York. The Foundation Center, established in 1956, gathers and provides information on private foundations and philanthropy in the United States. Resources include current and comprehensive information about foundations, corporate and federal funding agencies, fundraising for nonprofit organizations and proposal writing.

The collection contains:

- ❖ directories of public, private and corporate funding
- ❖ specialized directories which give information on particular subjects or specialized populations
- ❖ reference books on grantsmanship
- ❖ periodicals and newsletters about philanthropy
- ❖ data bases including a comprehensive directory of all private US foundations and all grant-making foundations in Wisconsin

Foundation collection materials are available for use only in the library. Photocopies from books or printing from computer programs is provided at a nominal cost, and downloading information to a disk is permissible. Staff are available at each library to assist in formulating a search strategy to find the best potential funding sources.

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Events, cont.

October 1-4 – Society of Municipal Arborists Annual Conference. Holiday Inn South, Lansing, MI. Contact: 517-482-5530 or ashby.ann@acd.net or <http://forestry.msu.edu/mfpa/index.htm>.

October 6-8 – 2000 Student Society of Arboriculture Annual Conference and Job Fair. Camp Tahigwa, Iowa, Contact Tim Walsh, 715-346-4211, twalsh@uwsp.edu or visit the SSA website at <http://www.uwsp.edu/stuorg/ssa/>.

October 18 – Wisconsin Urban Forestry Council quarterly meeting. Madison, WI. Contact Ryan Baker, 608-261-8455, bakerr@dnr.state.wi.us.

November 9-10 – 2000 ESRI Wisconsin User Group conference. Radisson Inn, Green Bay, WI, highlighting the city of New Berlin urban forestry GIS project. Contact Greg Kessler, New Berlin Planning Department, 262-797-2445, gkessler@newberlin.org or the EWUG website at: <http://www.ewug.org>.

November 9-11 – Tree Care Industry (TCI) Expo. Charlotte, NC. Contact Carol Crossland, National Arborist Association, 800-733-2622 ext. 106 or Crossland@natlarb.com.

February 6-8, 2001 – Trees & Utilities National Conference. Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation, 402-474-5655 or conferences@arborday.org.

If there is a meeting, conference, workshop or other event you would like listed here, please contact Dick Rideout at 608-267-0843 with the information.

Urban Canada Goose Management in Wisconsin

by Ricky Lien
DNR Urban Wildlife Specialist

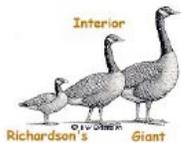


Photo by Ricky Lien, WDNR

Urban geese in Milwaukee County's Lincoln Park

When I was appointed to the position of Urban Wildlife Specialist, I, like many Wisconsin DNR employees, got an extensive position description that listed all the different activities I was expected to perform and what percentage of time it was thought I'd spend on each. Whoever put that list together could have saved some time by just listing: Urban deer—49 percent; Urban Canada geese—49 percent; everything else—2 percent.

In my last article I talked about some of the issues related to how we're dealing with urban white-tailed deer. In many respects, urban Canada goose management, more specifically the management of the Canada goose subspecies we refer to as "giant," is evolving into a parallel program with many similarities to urban deer management. Other aspects of deer and giant Canada geese are also surprisingly similar. Both species rebounded from low populations in the last century and have recovered to the point where we now struggle with how to control their numbers. Both are adept at living in urban environments. And both evoke strong and diverse emotions from people who come into contact with them. Before we can discuss management of urban Canada geese, it's useful to review some of its history and basic biology.



While to the casual observer one Canada goose may look like the next, there are actually 11 subspecies in North America. In Wisconsin the vast majority of Canada geese that people see are one of two subspecies, *Branta canadensis interior* and *B. c. maxima*. Of these two, the former, *B. c. interior*, makes up the Mississippi Valley Population (MVP) of geese and these are the birds people often associate with Horicon Marsh and dramatic fall and spring migrations. MVP geese are the driving force for Wisconsin's regular season goose hunt. Our waterfowl hunting regulations are designed to prevent an overharvest of these birds, for without these restrictive regulations, MVP geese could easily be overharvested.

While MVP geese are in the state during spring and fall migrations, and can even overwinter here depending on the winter weather conditions, the adult birds return to their Canadian breeding grounds every spring and stay there through the summer. Therefore,

if you see a Canada goose between early May and early September you're looking at the other subspecies that occurs in Wisconsin, *B. c. maxima*, also commonly called "giants" or "resident geese." The nickname resident, while commonly used, is actually a bit of a misnomer. These birds can migrate, they just don't go on the big flights as do their cousins in the MVP flock. If they do migrate, they typically just go for a short distance. And they are often content to stay in the same area year-round. The distinguishing feature of giant Canada geese, aside from their larger size, is the fact that they breed and nest in the state.

Originally a prairie bird, early immigrants to Wisconsin found plentiful numbers of giants. Unfortunately, unrestricted hunting, habitat loss and egg collection by those immigrants and their descendants resulted in the disappearance of giants from Wisconsin by the 1930s. In fact, the giant subspecies was thought by many to be completely extinct until the early 1960s at which time geese that were overwintering in Rochester, Minnesota were found to be giants. Other remnant flocks were subsequently found and many states began efforts to restore these birds to their native areas. Wisconsin's resident geese of today are thought to be descendants of giants imported from Nebraska, Minnesota and Manitoba, and from colonizing, free-flying offspring of captive flocks once held by private game farms. A major stocking effort took place in the 1980s with geese transplanted to 19 sites around the state. And the results?

Year	Estimated WI Resident Goose Population
1970	1,600
1980	4,200
1990	40,400
1999	79,000

As stated in the *Giant Canada Goose Management Plan*, the document guiding Wisconsin DNR management efforts, "Resident giant Canada goose restoration efforts in Wisconsin have worked better than almost anybody could have anticipated." And as the population has increased, so have complaints about giant Canada geese in urban areas.

While preferring to nest on islands or in water, giant Canada geese are not fussy. Urban areas are more than satisfactory for nesting, and parks, golf courses and other areas of well-maintained lawns are very attractive to geese for grazing, loafing and raising their young. Large flocks of geese can result in complaints about overgrazing, waste accumulation on land and water, noise, traffic interference, hazards at airports and even attacks on people.

As with all nuisance wildlife problems, our first recommendation is for people to call USDA Wildlife Services, the technical experts in dealing with nuisance problems (800-433-0688—Waupun; 800-228-1368—Rhinelander). They can provide information on abatement techniques to help alleviate the nuisance goose problems. These abatement techniques can include scare tactics (flagging, noisemakers), barriers (wire fences, rip-rap) and habitat modification (plants unattractive to geese, landscaping). They can also provide information on the use of dogs to chase away geese and chemical applications to lawns that geese find distasteful. Both these activities require permits from the DNR.

But these abatement techniques do nothing to slow or halt the ever-growing population of resident Canada geese. And as populations grow, abatement techniques can lose their effectiveness or only serve to move nuisance geese to a new area at which they become a nuisance. In an effort to slow the growth of the resident goose population in the state the Wisconsin DNR in 1990 instituted an Early September Canada Goose Hunt. This liberal two-week hunt was timed to harvest resident Canada geese prior to the arrival of the fall migration of the MVP birds. This hunt, while slowing the growth of the state's population of resident geese, has not been the final answer, as evidenced by the chart above that shows that the population has still doubled in the years since the early goose hunt was established.

And, just as with our urban deer problems, while we'd like to use hunters to get at overabundant populations in municipalities, that often isn't possible due to gun discharge ordinances and access problems. As of now there are three more options besides hunting for municipalities looking to control goose populations they view as excessive.

[Note: Canada geese are federally protected animals. None of the following options may be undertaken by anyone without obtaining a permit from the US Fish and Wildlife Service. USDA Wildlife Services, whose phone numbers were given earlier, can provide information about the suitability of these methods, guidelines for their use and how to obtain the required permits]

- **Egg addling** – Egg addling includes all those methods by which eggs laid by Canada geese are

made inviable. These methods include shaking, puncturing and oiling. While egg addling won't lower the population of adult geese in the short-term, it can slow a population's growth. Also, the actual act of egg addling is relatively simple to do. However, it can be difficult to find the nests of enough birds to make a significant impact to the growth rate of the population. And care must be taken to conduct this activity in such a manner as to minimize harm to the nesting adults and to prevent them from re-nesting.

- **Relocation of juveniles** – It's relatively easy to round up Canada geese during a short period in the summer when they've molted their flight feathers. Biologists have done this for years in order to put markers on the birds to help with population studies. Some communities have taken advantage of the round-ups to have juvenile birds hauled away to areas where they won't be a nuisance. Studies have shown that adult birds that are translocated to new areas tend to return to the places from which they were removed. Juvenile birds, however, if taken far enough away tend to remain in the area to which they've been taken. As you can imagine, there aren't many areas left in Wisconsin to which we could relocate additional birds. Care must be taken not to put birds into areas where they might become a nuisance for new sets of people.
- **Food pantry** – Again, undertaken during a summer roundup of birds that have molted their flight feathers, the food pantry program, as it's come to be known, involves taking captured birds to a poultry processor who cleans and dresses the geese and they are subsequently donated to a charitable organization such as a food pantry. Minnesota—specifically municipalities in the Minneapolis–St. Paul area—has done this for

continued on page 14

Urban Canada Goose Workshop

Wednesday, September 20, 2000

A free workshop designed for county and municipal administrators, park directors and elected officials who are struggling with nuisance Canada goose issues.

Issues to be covered include Canada goose biology, management, regulations, abatement techniques and other topics to help municipalities live with and make intelligent choices about Canada geese that reside in their communities. The workshop will be held at Havenwoods Environmental Center in Milwaukee, WI.

Workshop sponsors

Wisconsin Department of Natural Resources

USDA Wildlife Services

US Fish and Wildlife Service

UW–Extension, Department of Wildlife Ecology

For more information or to get registration materials contact Ricky Lien at 414-263-8622.

Organization Profile:

Student Society of Arboriculture (SSA)

"The Future of the Profession"

by Tim Walsh, Director
Student Society of Arboriculture

The Student Society of Arboriculture is one of five professional affiliations of the International Society of Arboriculture. The SSA represents all student members of the ISA, but there are branches within the SSA that represent specific colleges, universities or geographical regions.

The SSA was created in 1981 at the University of Wisconsin-Stevens Point. The elected student officials of the Stevens Point branch served as the representatives for all student members of the ISA. Stevens Point remained the only branch until 1997 when three new branches formed—University of Minnesota/Hennepin Technical College, Western Illinois University and Northeast Iowa Community College. As of June 2000, there were about 50 potential new branches working towards official recognition. About 175 universities, colleges and tech schools have programs that relate to arboriculture and so are potential SSA branches.

The SSA serves to link students to the field of arboriculture, offering students interaction with members of the profession as well as academia. The SSA branches work closely with their local ISA chapter assisting at conferences and workshops, and receiving reduced registration rates and lodging. This has created a strong connection between the Stevens Point branch and Wisconsin's ISA chapter, the Wisconsin Arborist Association. Approximately 15 percent of the current WAA membership were members of the SSA. A number of the past presidents and other leaders of the WAA were SSA officers while in school. Other ISA chapters have former SSA members in leadership positions.

As the SSA has grown it has changed, and continues to change, to meet the needs of the students and the profession. In 1997 the first SSA conference was held at Stevens Point. About 90 students from 13 different academic institutions participated in a weekend conference that featured Dr. Alex Shigo and Ken Palmer. The first Collegiate ArborMaster Training took place in 1998. This four-day program was offered only to SSA branches. The first Collegiate



ArborMaster Championships was held at the third SSA conference in April 1999.

The SSA is currently busy with several other projects. The SSA runs the kids climb at the annual ISA conference. We are working on a USDA Forest Service grant to create an arboriculture curriculum at the high school level. We have now hosted our third student-only session with Dr. Shigo. There is more in the works too.

Why should students become involved with the SSA? The opportunities and experiences are endless. The green industry's events throughout the year are beneficial to the students. The conferences and trade shows provide an atmosphere where the students and professional can mix and mingle. Job opportunities, internships, discussion of current research or practices, and issues such as ethics can all be found.

The SSA opens doors for students into the field of arboriculture. It complements and supplements the student's higher education, allowing them to get a better feel for the green industry.

We are planning for and seeking sponsorship for the fifth SSA Conference and Job Fair, October 6–8, 2000. For details about sponsorship or for more information about SSA, visit the SSA website at: <http://www.uwsp.edu/stuorg/ssa/>, or contact Tim Walsh, Director, 1900 Franklin St., Room 377 CNR, Stevens Point, WI 54481, USA. Phone: 715-346-4211; Fax: 715-346-3624; e-mail: twalsh@uwsp.edu.

Grant Writing *continued from page 9*

Wisconsin Collection Locations

- ❖ Marquette University Memorial Library, contact Mary Frenn at 414-288-1515
- ❖ UW-Madison Memorial Library, contact Elizabeth Breed at 608-262-3242, breed@library.wisc.edu
- ❖ UW-Stevens Point Library, contact Kathy Heuvelman at 715-346-4204, kheuvelm@uwsp.edu

The Foundation Center collections website can be accessed at <http://fdncenter.org/collections> then scroll down to the desired state and click. All the collections in each state are listed with a link to each center with its specific information provided.



The Idea Exchange...

Compiled by John Van Ells
DNR Southeast Region

Prisoner Partnership

How does a small community of 2,000 with a team of four public works employees and a tree board of five, all of whom saw their 35th birthday years ago, dig good, big holes for 75–100 B&B trees annually? The answer is to establish a partnership with a group of generally under 35-year-old, strong men, who look forward to working outside on a community service project and don't charge for their services.

The **City of Wautoma Tree Board** found that help from the Winnebago County Department of Corrections in Oshkosh. In 1999, Victims Awareness Week and Arbor Day landed in the same week. The corrections facility was looking for a community service project to remember victims of crime. The Wautoma tree board chairwoman and the corrections facility outreach coordinator were put together by a clever assistant in the Wautoma local district attorney's office. This relationship has turned out to be a "win-win" situation for all parties involved. The inmates, who volunteered for the project, had a wonderful positive attitude, came with a Department of Corrections supervisor, their own van and lunches. Who could ask for more?

This year the inmates will again dig tree holes and the Wautoma tree board and public works department hope this can be an annual affair. *Info: Linda Warsek, Wautoma Tree Board, 920-787-1445.*

Home Depot Environmental Research/Education Grants

The world's largest do-it-yourself retailer and largest single retailer of lumber in the world awards grants in the following areas where it thinks it can have the

most environmental impact: *Sustainable and Green Building Practices, Forestry and Ecology, Clean-up and Recycling and Lead Poisoning Prevention.* Total grants awarded by Home Depot since 1995 total in the millions of dollars.

Applications from 501(c)(3) nonprofit organizations are accepted annually between November 1 and December 15. Requests can be for any dollar amount. No application form.

Info: <http://www.homedepot.com/>. Type "Environment" into the search box, click on GO and then choose "Outreach and Grants" on the results page.

Tree Care Information Packet

Tree Line USA promotes the dual goals of dependable utility service and abundant, healthy trees in America's communities. Tree Line USA, sponsored by **The National Arbor Day Foundation**, recognizes municipal and investor-owned utilities across the nation that demonstrate practices that protect and enhance America's urban forests. To help meet program goals, NADF and the USDA Forest Service produced a new tree care information media packet designed for municipal and large utility companies to use in their customer newsletters and other communications. The media packet is now being sent to each of the utilities throughout Wisconsin and to members of the Utility Arborists Association.

The kit contains tree planting and care information for utility customers on the following topics: Plant the Right Tree in the Right Place, Plant Trees to Conserve Energy, Storms, Tree and Utility Lines, Don't Top Trees, Trees and Underground Utility Lines, Tree Planting and Care, Your Street Trees May Be Public Trees, and Celebrate Arbor Day. *Info: Mary Yager, National Arbor Day Foundation, 402-474-5655.* 🌿

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Does your community or organization have an idea, project or information that may be beneficial to others? Please let your regional urban forestry coordinator know. We will print as many of these as we can.

If you see ideas you like here, give the contact person a call. They may be able to help you in your urban forestry efforts.

Regional Councils *continued from page 1*

The need for regional councils has been expressed over the last two years by people participating in statewide forestry meetings, according to Dane County Tree Board Chair Tom Krull.

"Urban forestry professionals have asked for an easier way to learn from each other so they don't need to 'reinvent the wheel' each time they face a new challenge," Krull said. "In September, we'll share ideas and explore the possibility of creating a regional network that could expand communication and help standardize urban forestry practices."

Members of village and city tree boards or commissions are invited to attend, along with any other interested individuals.

If you'd like more information about the meeting or plan to attend, please contact Tom Krull, 608-252-7265, tkrull@mge.com or Cindy Marzofka, meeting facilitator, 608-246-0333, cindy@effective1.com. 🌿



Introducing Chris Giese

by Roald Evensen, Chair
Wisconsin Urban Forestry Council

This is my last column as chair of the Wisconsin Urban Forestry Council, and I'd like to use it to introduce the next chair, Ms. Christine Giese.



Wisconsin Urban Forestry Council Chair Chris Giese

Chris is the village president of Theresa, in which capacity she has provided the leadership to grow the Theresa urban forestry program. Chris's urban forestry activities began in Theresa in 1995. She provided the impetus for the establishment of a village tree board, a tree inventory was completed and a village forestry management plan was developed. She won the enthusiastic approval and support of her village board for these activities, including endorsement of the necessary budget requests to forward her vision for a comprehensive

community forestry program. She has made good use of partners whenever possible, arranging, for example, for the participation of the Wisconsin Conservation Corps and the Theresa Community Development Corporation in the early stages of the village program.

Under Chris's leadership, Theresa received its first Tree City USA Award in 1995, and has received a growth award each year since then. Chris understands the critical importance of public relations efforts in moving Theresa's program forward. She has involved local schools in Arbor Day activities and arranged for area residents to plant trees in memory of their loved ones. She has written newspaper articles to describe the future of the Theresa urban forest and encourage residents to be an active part of that future. As a certified arborist, Chris has also developed and presented a tree care workshop for village residents.

The Wisconsin Urban Forestry Council has benefited from a variety of leaders over the years. Chris will bring yet another perspective to the council and the DNR urban forestry program, one formed from her experience in motivating an entire community to care for its trees. I'm looking forward to the sound leadership she will bring to urban forestry efforts in our state. 🌿

Urban Geese *continued from page 11*

about five years. In 1999, 2,000 of Minnesota's resident Canada geese were donated to charities for use as food. As of the writing of this article, no Wisconsin municipality has undertaken this method, though there is interest.

In my last article on urban deer management, I discussed some guiding principles developed to help DNR work with communities. Those guidelines are also relevant in urban goose management:

- **What's the right number?** – The number of Canada geese that a community wants is a community decision. There is no biologically right number. In fact, the biological carrying capacity of many urban areas is unbelievably high. More important is the *social* carrying capacity and the citizens of a community determine that.
- **Bigger is better** – Just like in urban deer management, while we can work with an individual landowner or in an individual park, what we would prefer to do is work with as large an area as possible. Usually, in an urban setting, this means we want to work with a city, town or village administration.
- **Zero is not an option** – No municipality that

undertakes a program to reduce its goose population will be allowed to try get rid of all the geese. Canada geese are a part of the natural community, even if it's an urban community. While there can certainly be too many Canada geese and we're willing to let communities work to reduce their numbers or abate their damage, they do in fact belong there.

- **Commitment to long-term** – Sorry, there is no quick fix to Canada goose population problems!
- **Funding** – The municipality has to foot the bill for its Canada goose management program.

I began this article by pointing out some parallels between urban deer and urban Canada geese. They both adapt readily to urban environments. Hunting statewide is our management tool of choice, but it doesn't work well in many urban areas. And we use some of the same guidelines to direct our management of both deer and geese in the urban setting. But, dealing with urban Canada goose issues is in some respects much more complicated, and yes, frustrating, than deer, mostly because of two factors.

First, while white-tailed deer in Wisconsin are managed by the Wisconsin DNR, Canada geese are a federally protected species. This means that federal agencies get involved with management activities and

continued on next page

Urban Forestry Resources:

Compiled by Cindy Casey
DNR West Central Region

Storms over the Urban Forest, 2nd ed., by
L.L. Burban and J.W. Andresen, 1994.

This manual is designed to help communities plan for, and respond to, natural disasters as they pertain to

Phomopsis *continued from page 7*

only shoots that were wounded (by pricking stems with a pin before inoculation) developed symptoms and died. Although this does not eliminate the potential for infection of intact shoots, it certainly demonstrates the exploitation of wounded tissues by the fungus. Surprisingly, the fungus also was reisolated after inoculation from shoots that never developed symptoms, as well as those which died. Isolation from asymptomatic shoots seems to indicate that the fungus can survive, perhaps for long periods, in association with Douglas-fir shoots without causing noticeable damage. Thus, maintaining trees in good condition and avoiding unnecessary wounding of growing shoots may be important for minimizing occurrence of *Phomopsis* shoot blight.

Little additional information is available regarding incidence of this disease in the landscape or its management. Although there is some evidence that fungicides containing chlorothalonil might be useful, their use on ornamental Douglas-fir trees for the prevention of *Phomopsis* shoot blight has never been tested. Appropriate rates and the timing and required frequency of application are unknown. A better understanding of the disease cycle of *Phomopsis*

Urban Geese *continued from previous page*

federal regulations and international treaties govern what can and cannot occur. I recently spent two weeks in Washington, DC working with USFWS biologists as they also struggle with trying to figure out what approaches to take in dealing with nuisance resident Canada geese on a nationwide basis as more and more states come forward with complaints.

Secondly, I came into my job and inherited an urban deer management program that had in large part already been established. Management activities and guiding policies had already been tested, debated, modified and implemented before I arrived on the scene. Urban Canada goose management, especially population control outside of traditional hunting, is a whole new ball game and the players and rules are still being worked out, not only in Wisconsin, but in states across the country. Stay tuned . . .

protection and recovery of woody vegetation. The guide draws on insights from past experience with tornadoes, floods, hurricanes and forest fires. Planning models for small, medium and large communities are proposed. The guide also contains recommendations for working with disaster relief organizations and for community greening. Published by USDA Forest Service, Northeastern Area, St. Paul, MN. 152p. The publication is free of charge. Single copies may be requested by contacting USDA Forest Service, 1992 Folwell Ave., St. Paul, MN 55108; 651-649-5262.

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shoot blight, including how the pathogen survives, when and where inoculum is produced, how inoculum is disseminated, when and where infection occurs and the potential for host resistance are subjects that need to be understood. Only with support from the nursery and landscape plant community, will this and other information needed to develop biologically rational strategies for management be obtained.

Authors' note: Jennifer Kidder conducted the described greenhouse inoculation trials as part of an unpaid, independent study project. The provision of Douglas-fir seedlings by McKay Nursery Company is gratefully acknowledged.

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From page 7 -

What Damaged This Tree?

by Kim Sebastian
DNR Southeast Region

Answer: Oak wilt is a fungal disease that causes the water-conducting vessels in oak trees to become plugged. Once the vessels are plugged, water movement within the trees stops, causing leaves to wilt and fall from the tree.

Red, black and pin oaks are highly susceptible to oak wilt. Once infected, they can die within a few weeks. White and bur oaks are much less susceptible. If infected, they can take months or years to die, or they may even recover.

Oak wilt spreads in two ways: *over land* by sap-feeding beetles that carry the fungal spores from infected oaks to fresh wounds on healthy oaks; AND, *under ground* from infected oaks to nearby healthy oaks through grafted, or interconnected, root systems.

Oak wilt prevention is easy and effective. **Do not cut, prune or otherwise wound oaks in the spring and early summer, generally from April 15 - July 1.**

Do you have pictures of tree damage others ought to know about? Send them to Kim Sebastian (address on page 16) and we'll print them here!

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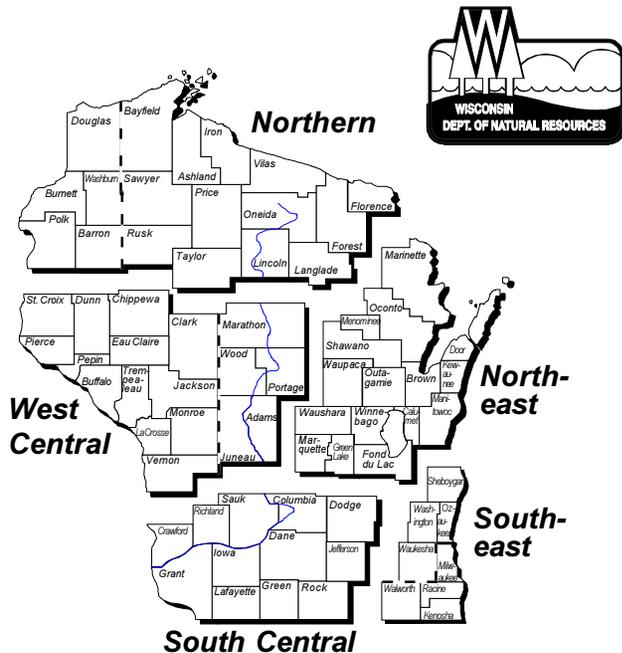
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Wisconsin
DNR Urban
and
Community
Forestry
Contacts



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West Central Region - W $\frac{1}{2}$
Northern Region - W $\frac{1}{2}$
Cindy Casey
Regional Urban Forestry Coord.
1300 West Clairemont Ave.,
Box 4001
Eau Claire, WI 54702
Phone: (715) 839-1606
Fax: (715) 839-6076
e-mail: caseyc@dnr.state.wi.us

West Central Region - E $\frac{1}{2}$
Northern Region - E $\frac{1}{2}$
Don Kissinger
Regional Urban Forestry Coord.
5301 Rib Mountain Drive
Wausau, WI 54401
Phone: (715) 359-5793
Fax: (715) 355-5253
e-mail: kissid@dnr.state.wi.us

South Central Region -
David Stephenson
Regional Urban Forestry Coord.
3911 Fish Hatchery Road
Fitchburg, WI 53711
Phone: (608) 275-3227
Fax: (608) 275-3236
e-mail: stephd@dnr.state.wi.us

Statewide -
Richard Rideout
State Urban Forestry Coord.
Wisconsin DNR
P.O. Box 7921
Madison, WI 53707
Phone: (608) 267-0843
Fax: (608) 266-8576
e-mail: rideor@dnr.state.wi.us

Northeast Region -
Tracy Salisbury
Regional Urban Forestry Coord.
1125 N. Military Ave.
P.O. Box 10448
Green Bay, WI 54307
Phone: (920) 492-5950
Fax: (920) 492-5913
e-mail: salist@dnr.state.wi.us

Southeast Region -
Kim Sebastian
Regional Urban Forestry Coord.
2300 N. Martin Luther King Jr. Dr.
Milwaukee, WI 53212
Phone: (414) 263-8602
Fax: (414) 263-8483
e-mail: sebas@dnr.state.wi.us

Southeast Region - North $\frac{1}{2}$
John Van Ells
Urban Forestry Coord.
Pike Lake State Park
3544 Kettle Moraine Road
Hartford, WI 53027
Phone: (262) 670-3405
Fax: (262) 670-3411
e-mail: vanelj@dnr.state.wi.us
(Sheboygan, Washington,
Ozaukee & Waukesha Counties)



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