

Wisconsin Urban & Community Forests

A Quarterly Newsletter of the Wisconsin Department of Natural Resources, Forestry Division

GPS and GIS— What's the Difference and Can They Help?

by Felipe Avila
Urban Forestry Assistant
DNR Bureau of Forest Management

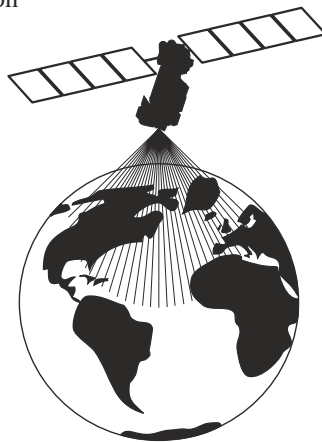
As the technology has become cheaper, more communities and private consultants are looking at how to use GPS (Global Positioning System) and GIS (Geographic Information Systems) as a resource in urban forest management. In a nutshell, GPS is a data collection technology and GIS is a data analysis technology. By looking at the basics of how GPS and GIS work, the reader will be able to make an informed decision before investing time and money in these technologies. In this article we will start with GPS and in an upcoming issue we'll cover GIS.

The Global Positioning System was created by the United States Military. A constellation of 24 satellites was launched and these satellites enable a person with a single GPS receiver to determine their location on the earth to within about 10 meters (30 feet). On board each satellite is a very precise atomic clock; your position with the receiver is determined by measuring the time it takes for a signal from the satellite to reach the receiver. The basic formula for this is $rate \times time = distance$. To determine your position the receiver must get a signal from at least 4 of the 24 satellites in orbit. Three of the satellites are used to determine your location on the earth and the fourth satellite corrects for clock error in the receiver. Because the receiver clock is not nearly as accurate as the atomic clock on the satellite, a significant amount of error in the receiver location will result unless it is accounted for. The fourth satellite accounts for this and makes the correction to give an accurate location.

It is possible to obtain more accurate position locations than within 10 meters. Differential GPS (DGPS) uses two receivers to eliminate errors

introduced by variations. These variations include uncertainties in satellite orbit position and the signal from the satellite slowing down when it enters the atmosphere. DGPS works by placing one receiver over a known location such as a surveyed benchmark and keeping it there as a base station. The other receiver acts as a rover and is used to go out and collect the location data. By placing the base station over a known point, you can check the accuracy of the readings by the receiver. From this information you can calculate the amount of error in the readings to the base station. Once the error is known, the readings from the rover can be corrected because the rate of error will be the same for both receivers. The corrected readings can provide accuracies to within a few meters, or even less than a meter if multiple observations are averaged and a higher-quality receiver is used. There are yet more precise GPS positioning techniques that give centimeter-level accuracy, but in general they are more expensive, more delicate and take longer.

Unfortunately DGPS cannot account for another source of error that will be problematic for urban forestry applications. In an ideal situation the signal from the satellite will come straight down to the receiver. In an urban environment the satellite signal may bounce off of buildings and, in our case, trees. Consequently more error is introduced. Errors of this type are called multipath. This is similar to ghost images that appear on TVs receiving their signal from an antenna. Multipath errors may be a problem depending on the kind of accuracy required. In a dense tree stand where the exact location of individual trees is needed, the error that comes from multipath will be too large. In a situation where you are looking to define boundaries, reduced accuracy will still be acceptable because you are mapping a



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Number 4

Winter
2002-03



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Community Profile

Tree City USA: since

1981

Population: 13,348

Street Tree Population:
5155

Street Miles: ~86

Number of Parks: 12,
including Irvine Park
and Zoo

Managed Park Acreage:
400

Primary Industries:

SGI (formerly Cray
Computers)

Jacob Leinenkugel
Brewing Co.

Mason Shoe Company

W.S. Darley Pumps

Chippewa Spring Water

Chippewa Valley
Technical College

Program Profile:

Staff:

Bill Faherty, Director of
Parks, Rec. and
Forestry

Tod Chwala, Forestry and
Parks Supervisor

Reed Dachenbach,
Horticulturist

Maintenance Staff –
Chuck Cyr

Adolf King

Paul Dachel

Terry Johnson

2 seasonal employees

Glen Zwiefelhofer, Street
Supt., and staff

Parks, Rec. & Forestry

Board:

Dave Grimmell, Council
President

Marie Canfield

Mitzi Crawford

James Eystad

Lori Geissler

Curt Stepanik

Gerald Zapp

Heavy Equipment
(Street Dept.):

aerial lift truck

compact loader

chipper

stump grinder

2-ton dump truck

2002 Forestry Budget:

\$25,300 plus salaries

Community Profile:

City of Chippewa Falls

by Cindy Casey

DNR West Central Region

Sharing a heritage with many northwest Wisconsin communities, the city of Chippewa Falls originated as a fur trading and logging settlement. With its choice location along the Chippewa River, the area attracted the Louis Demarais and Jean Brunet families who settled in the area in 1836. Within 20 years area sawmills were producing over 100,000 board feet of lumber a day. At one time the largest sawmill in the world under one roof existed in the vicinity. The area was also home to the Ojibwe people, who used the Chippewa River as a migration route, hunting deer in the area in the fall. The natural history of the region is prominently featured in the surrounding forests and rolling terrain, adding to the community's appeal as a place to live or visit. Two state parks—Lake Wissota and Brunet Island—are close by, and the 20-mile Old Abe State Trail runs right through the city and will eventually connect with the Red Cedar and Chippewa River Trails, creating a 70-mile system.

With forestry an important part of its heritage, Chippewa Falls's status as a 21-year Tree City USA is not at all surprising. Their forestry program took off in 1976 when the community recognized it needed someone to deal with tree issues and transferred forestry responsibilities to the parks and recreation director. In 1981, the city hired its first employee with responsibilities exclusive to forestry. Today, forestry in the city is accomplished through close cooperation between the parks and forestry department and the street department. With their specialized equipment,



Photo by C. Casey, WDNR

the street department is well equipped to handle aerial pruning, stump grinding and emergency storm response. Streets and parks crews both receive forestry training from Forestry and Parks Supervisor Tod Chwala, who was hired in 2000. The city contracts for large tree removal.

Joining the ranks of some 20 other western Wisconsin communities, Chippewa Falls recently participated in Xcel Energy's (formerly Northern States Power) Community Tree Renewal program, removing 144 trees from beneath overhead power lines, and replacing them with 90 short-stature trees. Chwala notes that the project was very well received overall, with over 95 percent of homeowners participating and only one threat of serious bodily injury!

Street-tree planting is normally done at the request of adjacent homeowners, and the city is now fairly well stocked with trees. "We really don't need to do any

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Published quarterly by the Wisconsin Department of Natural Resources, Forestry Division.

Address inquiries to Dick Rideout, Wisconsin Department of Natural Resources, PO Box 7921, Madison, WI 53707

Editor: Dick Rideout

Contributors: Cindy Casey, Nathan Eisner, Don Kissinger, Tracy Salisbury, Kim Sebastian, Jessica Schmidt, John Van Ells



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Lets Make a Deal...Intergovernmental Agreement Benefits Two Northeastern Communities

*by Timothy Bauknecht, Village Forester
Village of Ashwaubenon*

Over the past year, the media have given much attention to the uncertain future of shared revenue in Wisconsin. At best, the future of shared revenue as a reliable funding source is uncertain, leaving town, village, city and county governments looking for new, innovative ways to do more with less. Two available options are drastic cuts in services and contractual services. Drastic cuts in services, a logical option, typically are not popular with taxpayers once they get accustomed to the level of service that some communities provide. Contractual services are an option that has and will continue to be a common means to get the most out of each tax dollar. Contracted services rely upon competition in the marketplace to achieve the best possible price on services such as solid waste collection, road construction and maintenance, and even tree planting and pruning.

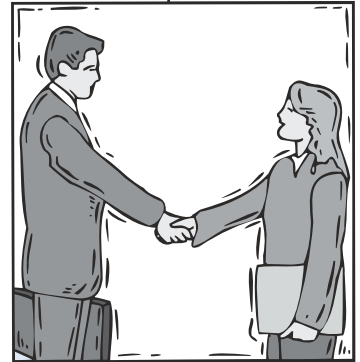
A third option is the consolidation of services. The state of Wisconsin's recent promotion of intergovernmental cooperation has spurred conversations and meetings throughout the state to at least explore options to enhance or foster working relationships between governmental bodies. Oftentimes, well-intentioned ideas never get beyond the discussion stage due to the inherent complexities of modern government and local politics. Fortunately, examples of governments working together towards some level of consolidation of services have been—and continue to be—successful. Examples can be seen throughout the state in solid waste collection and disposal, sewage treatment, police and fire protection, personnel and administration to name just a few.

The villages of Ashwaubenon and Howard, two neighboring northeastern Wisconsin communities, have successfully consolidated services over the years. As early as 1997, they received a DNR urban forestry grant to hire a consultant to serve as a joint forester for the two communities. (This project was highlighted in the Autumn 1998 issue of this newsletter.) That project proved to be mutually beneficial and provided a stepping-stone for both communities to establish forestry budgets with full-fledged forestry programs. The most recent venture is an agreement that maximizes equipment use and reduces costs to residents by sharing equipment.

Searching for a means to maximize our forestry operations, Richard Vinz, Howard village forester,

and I continually share ideas, problems and solutions while comparing the issues we currently are dealing with. The topic of equipment kept surfacing. Each community owned equipment the other had demonstrated a need for, but had not been able to purchase. Howard, being a progressive, rapidly growing community, had purchased its own GPS equipment to update its extensive inventory of roadways, utilities, signs, etc. They also have a skidsteer-mounted tree spade used for digging balled-and-burlapped trees. Ashwaubenon was able to purchase a 55-foot bucket truck (due in large part to the joint forester project) for use in pruning large trees, maintaining athletic field lights, and hanging Christmas decorations and flags. A 44-inch, trailer-mounted tree spade also was added to the list of equipment Ashwaubenon would share with its neighbor.

With a demonstrated mutual need to pursue this proposal further, the attorney (both Howard and Ashwaubenon use the services of the same one) drafted a formal agreement to clarify responsibilities and expectations of each party and minimize exposure to liability. (Could this be the first time lawyers representing two parties could agree on something?) The agreement states that each community is responsible for its own supervision and training, routine maintenance on its own equipment, and damages resulting from reckless and improper use of the rented equipment. After checking with our insurance carriers, each community's policy would cover general liability and property damages while in possession of rented equipment. An indemnification and hold harmless clause ensures that neither community is exposed to unnecessary liability from a relationship that is beneficial to both parties. Finally, rental rates for each piece of equipment were established through discovery in the marketplace and included in an attachment that can easily be updated to reflect future changes in the agreement. Annually, equipment use is tabulated, costs for each community's use determined, bills paid and equipment use charges adjusted as necessary for the following year.



Beyond Beautification: Social and Psychological Benefits of Community Trees

by Tracy Salisbury
DNR Northeast Region

Robert Louis Stevenson once wrote, "It is not so much for its beauty that the forest makes a claim upon men's hearts, as for that subtle something, that quality of air that emanates from old trees, that so wonderfully changes and renews a weary spirit."

Have you ever stopped to think how trees affect us? Not economically or environmentally, but how they affect us socially and psychologically? Trees and greenspace have an influence on our emotional and physical health and even on our behavior. Trees affect our well-being in ways that are seldom understood and often underestimated.

Increased Health Benefits

Research has proven that trees have a positive effect on our health. They seem to relax and calm us. University of Delaware professor Roger Ulrich has shown that when people view images of trees and other vegetation, they respond by having slower heartbeats, lower blood pressure and more relaxed brain wave patterns than people who view urban scenes without vegetation.

Ulrich also discovered that trees have a profound effect on hospital patients recovering from surgery. Patients who could view a grove of trees through their windows required fewer strong pain relievers, experienced fewer complications and were released from the hospital sooner than similar patients who had a view of a brick wall.

We have only begun to explore the health benefits we receive from trees. A current study by the Centers for Disease Control is looking at nature as a way to promote exercise and fight childhood obesity.

Effects on Concentration and Self-discipline

Trees can even affect our ability to concentrate, thus increasing our capacity to learn. Children with Attention Deficit Disorder have poor concentration, impulsive behavior and aggression. There are medications that help relieve ADD symptoms, but there are side effects. A study by University of Illinois researchers Andrea Faber Taylor, Frances E. Kuo and William C. Sullivan has found that when children with ADD played outside in a green environment, their symptoms were relieved. These children were able to concentrate, complete tasks and follow

directions. The greener the setting, the more dramatic the improvement. Trees can provide a treatment that has virtually no cost or side effects.

Another study by Taylor, Kuo and Sullivan revealed that girls with a view of nature at home scored higher on tests of self-discipline compared to similar girls with views of manmade settings. It is believed that the better a girl's self-discipline, the better able she is to avoid dangerous, unhealthy or problem behaviors. For girls, viewing trees and greenspace on a regular basis may boost their chances for success in life.

Lower Incidence of Crime and Violence

It was once believed that trees and shrubbery should be removed from areas to reduce the incidence of crime, but a study in a Chicago urban neighborhood suggests just the opposite. Frances E. Kuo and William C. Sullivan compared crime rates for inner city apartment buildings with varying amounts of vegetation and found that the greener the surroundings, the fewer crimes occurred against people and property. Buildings with high levels of greenery had 52 percent fewer total crimes than apartment buildings with little or no greenery and buildings with medium amounts of greenery had 42 percent fewer total crimes. (See Research Notes on page 11.)

Sullivan and Kuo also conducted a survey of households in Chicago's public housing to explore how trees affect the interaction of people with one another. The nearly identical apartment buildings differed only in the amount of greenery growing around them. Residents living in buildings with trees reported using more constructive, less violent methods to deal with conflict compared to those living in buildings without trees.

Effects on Shopping and Spending Behavior

Business owners take note: Did you know that consumers would be willing to pay, on average, 11 percent higher prices for products in districts with trees? A recent study by Kathleen L. Wolf, University of Washington, showed that trees and other vegetation send positive messages about the appeal of a business district, the quality of products there and what customer service a consumer can expect. So before you have that tree removed in front of your store because it is blocking your sign, you might want to give that decision a little more thought. Having more green on the outside can translate into more green (dollars) on the inside. Trees can be good for business.

Photo by Dick Rideout,
WDNR



Trees in cities evoke the "relaxation response."



Trees in business areas persuade people to linger.

Increased Work Productivity and Job Satisfaction

Trees can even improve the workplace. A study by Dr. Rachel Kaplan showed that views of nature have positive effects on employees and productivity. Desk workers without views of nature were ill more often than workers with a view. Employees with a view found their job more challenging, were less frustrated about tasks, felt greater enthusiasm for their job and reported better overall health.

Reduced Commuting Stress

Every year Americans spend more time in their cars. In recent decades, trips and mileage have increased by up to 85 percent. Commuting is stressful and it can lead to lower job satisfaction, higher illness rates, absenteeism and lower performance on various cognitive tasks. In a recent study on commuting stress, it was discovered that trees along the roadside cause an “immunization effect”—the degree of negative response to a stressful experience is less if a view of nature preceded the stressful situation. So the more nature you see during your commute, the less stress you experience.

So, what does all this mean? There is something innate about our relationship with trees. They make us feel good. How trees accomplish this we may never know. Maybe someday doctors will prescribe a walk in the park to help lower blood pressure or more offices will have a view of nature to help increase worker productivity. Just remember, when life has you feeling a little stressed-out go visit your favorite tree—it may help “change and renew your weary spirit.”

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GPS and GIS— What’s the Difference and Can They Help?

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larger area. In some cases forest canopy may completely block the signal from the satellite. The signal from the satellite is relatively low power and it cannot penetrate buildings or dense foliage. If this occurs you would get no reading at all.

In general, the accuracy of a receiver increases as its cost increases. The amount to spend on a receiver depends on the kind of work to be done. Tasks that require a high degree of accuracy will need a more expensive, high-quality receiver. For tasks where “close enough” is adequate, you do not have to spend

as much on the receiver. When working with objects as large as trees, a location within a few feet is acceptable—finding a 30-foot-high tree is pretty easy even if it is not quite where the receiver says it should be. In addition, field notes that give tree species, size and condition will make locating an individual tree fairly simple. GPS technology is not perfect and that should be kept in mind when using it. It offers the ability to get fairly accurate locational information which has a practical use with geographic information systems (GIS), which will be discussed in part two. ♣

Community Tree Profile:

6

Douglas-fir

(*Pseudotsuga menziesii*)

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

Native To: Rocky Mountains down to northern Mexico and along the Pacific Northwest coast

Mature Height: 40' to 80'; grows much taller in its native environment

Spread: 20' to 30'

Form: Large evergreen tree with dense, pyramidal form when young; developing drooping lower branches, ascending upper branches and more open form with age

Growth Rate: Moderate

Foliage: Evergreen leaves are needle-like, linear, flattened, soft, flexible, 1–1½" long, borne singly and spirally arranged on the stem; green to blue-green above the needles with two white stomatal bands on the undersides of the needles, with a prominent midvein; fragrant when crushed. Leaves remain on the tree for 5–8 years before they are shed.

Buds and Stems: Buds are distinct, sharply pointed, shiny, red-brown in color, ¼" long, resembling a beech bud (*Fagus* spp.). Buds are borne at the ends of gray to brown stems or laterally along the stems.

Fall Color: None, evergreen species

Cones: Monoecious (separate male and female strobili borne on one tree); 2–4" long, 1½–2" wide, pendulous, conical to oval cones with spirally arranged flat cone scales. Cones have distinct, three-pronged or pitchfork-shaped bracts that extend past the end of the cone scales. The bracts tend to curve backwards on the *P. menziesii* var. *glauca* cones. Cones are persistent on the tree, then eventually fall to the ground intact.

Bark: When young, bark is smooth, except for numerous resin blisters on the trunk. As the tree matures, the bark becomes thicker, divided into thick, dark brown ridges, separated by deep fissures.

Site Requirements: Prefers deep, moist, well-drained, rich, loamy, neutral to slightly acidic soils. Douglas-fir does not tolerate heat, drought, poor soils, high pH or compaction. The species prefers

high humidity environments and protection from high winter winds. Prefers full sun.

Hardiness Zone: 4a–6b depending on provenance (geographic seed source); *P. menziesii* var. *glauca* (Rocky Mountain strain) is cold hardy to zone 4a whereas *P. menziesii* var. *menziesii* (Coastal region of Pacific Northwest strain) is only cold hardy to zone 6.

Insect & Disease Problems: Cankers; alternate host for Cooley spruce gall adelgid, so do not plant Douglas-fir near Colorado blue spruce; needle casts, needle and twig blights, aphids, bark beetles, scale, spruce budworm, Zimmerman pine moth, tussock moth, gypsy moth, root weevils. Root rot can occur in poorly drained soils.

Suggested Applications: Douglas-fir can be an excellent specimen tree that can also be used in masses or for screening areas. Douglas-fir also makes an excellent Christmas tree. Very ornamental landscape tree when site conditions are suitable.

Limitations: Does not make a good windbreak as it is subject to high wind damage. Douglas-fir is also not tolerant of hot, dry winds or drought.

Comments: Douglas-fir is a beautiful evergreen tree for landscaping in residential and commercial landscapes where the soil is suitable for its growth. It is also an important timber species out west and as a Christmas tree, as the needles do not fall off easily.

Common Cultivars or Selections: There are other geographic varieties and numerous cultivars, most of which are not commercially available.

var. *glauca* – Rocky Mountain Douglas-fir: slower growing, not as long-lived, more compact form, slightly more ascending branches than the other variety, bluish-green leaves, bracts from cones tend to curl backwards, cold hardy to zone 4, suitable for use in Wisconsin

var. *menziesii* – Coastal Douglas-fir: faster growing, long-lived, green to yellow-green leaves, bracts from cones are straighter and tend to point down and are pressed against the cone scales, cold hardy to zone 6, not suitable for Wisconsin

'Fastigiata': narrow, upright form with ascending branches, spire-like form

'Fletcheri': dwarf conifer shrub, blue-green leaves; spreading, flat-topped form; compact, 3–6' tall

'Glauca Pendula': glaucous, blue-green needles; weeping branches and branchlets that are held close to the stem

References:

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



Form of a young Douglas-fir

Photo by Ed Hasselkus,
UW-Madison

Maple Tar Spots

by Glen R. Stanosz, Ph.D., Associate Professor
Departments of Plant Pathology and Forest Ecology and
Management, University of Wisconsin–Madison

Some tree diseases, including tar spots, may develop explosively and be visually dramatic. They attract the attention of landscape managers and homeowners, and can generate many desperate pleas for action. Appearance of tar spots, however, is not a cause for alarm. Tar spots are diseases that can certainly look worse than their actual effect on tree health.

In Wisconsin tar spot fungi in the genus *Rhytisma* disfigure leaves of maple trees (*Acer* species), including Norway, red, sugar and silver maples and boxelder. These fungi overwinter in fallen leaves, and fruiting bodies formed in these leaves release spores in spring and early summer. Spores are carried to leaves where they germinate, followed by infection. The first symptoms that develop are light green to yellow spots on leaves. As summer progresses, thickened, tar-like fungal structures called stromata (the plural of stroma) develop in these spots (Figure 1).



Figure 1. Large “tar spots” on silver maple leaves.

Two different maple tar spot diseases are differentiated by characteristics of their stromata. Large tar spots, caused by the pathogen *Rhytisma acerinum*, have a sinuous surface (with winding ridges and valleys). Large tar spots are typically $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter (Figure 2, left). Small tar spots, caused by *Rhytisma punctatum*, are individually much smaller, and may be less than $\frac{1}{16}$ inch in diameter. Small tar spots usually form in clusters of several to more than a hundred or more (Figure 2, right).

Maple tar spots occur sporadically, and damage is rarely severe. Tar spots are usually abundant only following very wet springs and are unlikely to be frequent year after year. And by the time tar spots are observed during summer, all infections have likely occurred (it is too late for preventative sprays).

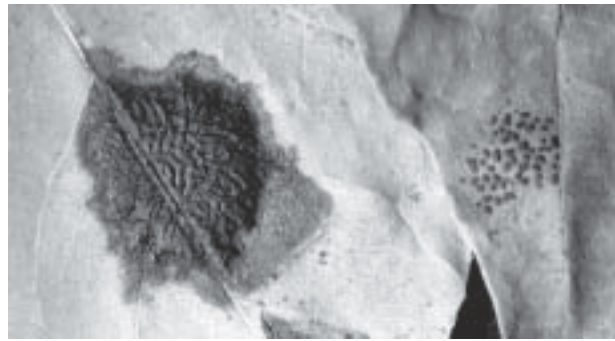


Figure 2. Close-up of sinuous stroma of a large tar spot (left) and many small stromata of small tar spots (right) on two different maple leaves.

Subsequent sprays during the summer are not needed, because tar spots on leaves produce no infectious spores during the growing season. In other words, tar spot fungi cannot spread from leaf to leaf as summer progresses.

In unusually wet years, large numbers of tar spots may lead to yellowing and premature drop of some maple leaves. Defoliation by tar spots and other maple leaf pests, perhaps acting concurrently or in succession, could justify measures to maintain tree health. Mulching, supplemental watering as needed and balanced fertilization may help trees retain their vigor. Scrupulous sanitation—raking and removal or destruction of leaves—will reduce availability of inoculum the following spring.✿

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What Damaged This Tree?



Hint: This is a silver maple with bark exfoliating from the limbs and bole, between 4' and 9' up. This tree is on a residential lot and these marks recur throughout the year at no regular interval.

Photo by Paul Fliss,
Green Leaves
Landscapes

Turn to page 15 to find out...

Congratulations to Wisconsin's 2002 Tree Cities!

The following 143 communities achieved Tree City USA status for their 2002 urban forestry programs. This reflects a net increase of 4 communities over Wisconsin's 2001 total. Though the numbers aren't in nationwide, Wisconsin ranked third in the nation for the number of Tree Cities in 2000 and 2001, and is on pace to meet or exceed that ranking again this year! Is your community listed? If not, contact your community leaders and ask them to get involved! Communities awarded Tree City USA in 2002 have been invited to a special recognition banquet on March 27, 2003, in Madison. For more information about the Tree City USA program, visit our DNR urban forestry Web site or contact your regional urban forestry coordinator (see page 16).

* = First-time TCUSA for 2002 **Bold** = Growth Award for 2002

Adams	De Pere	Horicon	Middleton
Algoma	Dodgeville	Howard	Milwaukee
Allouez	Eau Claire	Iola	Monona
Amherst	Edgar	Jackson	Monroe
Antigo	Elkhart Lake	Jefferson	Monticello
Appleton	Elm Grove	Kaukauna	Mount Horeb
Ashwaubenon	Evansville	Kenosha	Muskego
Baraboo	Fitchburg	Kewaunee *	Neenah
Bayfield	Fond du Lac	Kimberly	New Berlin *
Beaver Dam	Fontana	La Crosse	New Glarus
Beloit	Fort Atkinson	Lake Geneva	New Holstein *
Bloomer	Fort McCoy	Lake Mills	New London
Brillion	Fox Point	Lawrence	Oak Creek
Brookfield	Franklin	Little Chute	Oconomowoc
Brown Deer	Fredonia	Lodi	Oconto
Cambria	Fremont	Madison	Onalaska
Cedarburg	Gilman	Madison Township	Oshkosh
Chenequa	Glendale	(Dane Co.)	Pittsville
Chilton	Grafton	Manitowoc	Plover
Chippewa Falls	Green Bay	Maple Bluff *	Plymouth
Clintonville	Greendale	Marinette	Port Washington
Columbus	Greenfield	Marion	Portage
Combined Locks	Greenville	Marshfield	Rice Lake
Cottage Grove	Hales Corners	Medford	Richland Center
Cudahy	Hartford	Menasha	Ripon
Delafield	Hillsboro	Menomonee Falls	Rosendale
Delavan	Hobart Township	Menomonie	Rothschild *
Denmark *	(Brown Co.)	Mequon	Saukville



TREE CITY USA.



Coming Events

March 11–13, 2003 — *Trees and Utilities National Conference*, Arbor Day Farm/Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation at 402-474-5655, www.arborday.org/programs/Conferences.html or conferences@arborday.org.

March 12, 2003 — *Marketing Urban Wood Workshop*, Havenwoods State Forest, Milwaukee, WI. Contact Sue Fabera, Lumberjack RC&D, at 715-453-1253 or sfabera@newnorth.net.

March 13, 2003 — *Marketing Urban Wood Workshop*, Ag and Extension Center, Green Bay, WI. Contact Sue Fabera, Lumberjack RC&D, at 715-453-1253 or sfabera@newnorth.net.

March 25–26, 2003 — *Minnesota Shade Tree Short Course*, Bethel College and Seminary, Arden Hills, MN. Contact Kay Syme at 612-624-4938, ksyme@cce.umn.edu or www.cce.umn.edu/ag/shade_tree.shtml.

March 27, 2003 — *Tree City/Tree Line USA Recognition Banquet*, Monona Terrace Convention Center, Madison, WI. Contact Dick Rideout at 608-267-0843 or richard.rideout@dnr.state.wi.us.

Shawano	Waterford
Sheboygan	Waterloo
Sherwood	Watertown
Shorewood	Waukesha
Shorewood Hills *	Waunakee *
Sparta	Waupaca
Stevens Point	Wausau
Stoughton	Wautoma
Sturgeon Bay	Wauwatosa
Sun Prairie	West Allis
Superior	West Bend
Theresa	Weyauwega
Thorp	Whitefish Bay
Tomahawk	Whitewater
Two Rivers	Williams Bay
Valders	Wisconsin Rapids
Verona	

2002 TCUSA Growth Awards

Twenty-six of Wisconsin's Tree Cities achieved the Tree City USA Growth Award, four for the first time! The Growth Award recognizes communities that have gone above and beyond the four standards of the Tree City USA certification. Congratulations to:

Algoma	Jefferson
Allouez	Lodi
Appleton	Marinette
Bayfield	Middleton
Cedarburg	Milwaukee
Chilton	Monroe
De Pere	Muskego
Elkhart Lake	Oak Creek
Fort Atkinson	Oconto
Gilman	Richland Center
Greenfield	Rosendale
Greenville	Stevens Point
Howard	Stoughton

First-time TCUSAs in 2002

Eight Wisconsin communities achieved Tree City USA for the first time in 2002! Congratulations to:

Denmark
Kewaunee
Maple Bluff
New Berlin
New Holstein
Rothschild
Shorewood Hills
Waunakee 🌳



Douglas-fir

continued from page 6

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

Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses, 5th ed. 1998, by Michael A. Dirr, Stipes Publishing, Champaign, IL.

North American Landscape Trees, 1996, by Arthur Lee Jacobson, Ten Speed Press, Berkeley, CA.

The Right Tree Handbook, 1991, by Harold Pellett, Nancy Rose, and Mervin Eisel, University of Minnesota Extension Service, St. Paul, MN.

Trees for Urban and Suburban Landscapes, 1997, by Edward F. Gilman, Delmar Publishers, Albany, NY.

Trees of the Northern United States and Canada, 1995, by John L. Farrar, Iowa State Univ. Press, Ames, IA. 🌳

April 2003, date TBA — *UWEX Landscape Workshop: Identification and Control of Invasive Plant Species*, Madison, WI. Contact Mike Maddox at 608-224-3715 or mike.maddox@ces.uwex.edu.

May 5-7, 2003 — *Urban Wildlife National Conference*, Arbor Day Farm/Lied Conference Center, Nebraska City, NE. Contact the National Arbor Day Foundation at 402-474-5655, www.arborday.org/programs/Conferences.html or conferences@arborday.org.

August 3-6, 2003 — *International Society of Arboriculture Annual Conference*, Montreal, Quebec, Canada. Contact ISA at 217-355-9411, isa@isa-arbor.com or www.isa-arbor.com.

September 17-20, 2003 — *National Urban Forestry Conference*, Adams Mark Hotel, San Antonio, TX. Contact Donna Tschiffely at 703-904-6932 or donna@amfor.org or visit www.americanforests.org/graytgreen/conference/. 🌳

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.

Managed Cat Colonies

by Ricky Lien, Urban Wildlife Specialist
DNR Bureau of Wildlife

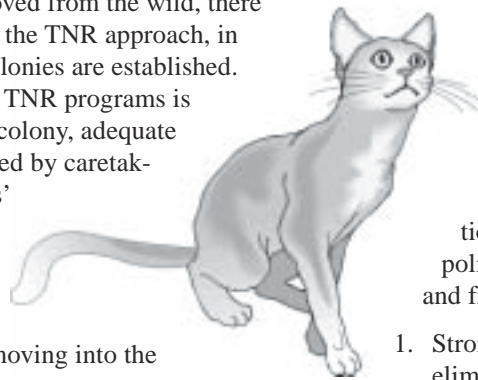
I'm one of those people who usually sees issues I encounter in shades of gray. I don't know if I admire or question those who come down so stridently on one side or the other of a particular issue. But I've finally stumbled across a topic on which I firmly and completely take a stand—*managed cat colonies are a dumb, bad, nonsensical, silly, wasteful idea!* (I don't think there's any hint of gray in that statement.) While there are variations in the programs that have been implemented, the basic managed cat colony program involves trapping stray cats from the wild, neutering or spaying them, possibly vaccinating them, then turning them loose back in the wild with food and water provided daily (a.k.a. "TNR"—Trap/Neuter/Release).

In a position paper on the topic of feral and free-ranging cats, The Wildlife Society says that perhaps no issue has captured more of the challenges for contemporary wildlife management than the impacts of feral human-companion or domestic animals. Nobody really knows how many homeless domestic cats there are in the United States. An estimate listed on the American Bird Conservancy Web page on managed cat colonies (www.abcbirds.org) says that cat population estimates range from 60 to 100 million! And it goes on to state that "these non-native predators often lead short, miserable lives, and can wreak havoc for populations of birds and other wildlife already under siege from many other threats."

While many conservation organizations and humane groups agree that homeless cats should be humanely and permanently removed from the wild, there are some advocates of the TNR approach, in which managed cat colonies are established. The theory behind the TNR programs is that in a managed cat colony, adequate food and water provided by caretakers will curtail the cats' need to hunt wildlife. Plus, the theory goes on, the neutered cat colony will exclude other feral cats from moving into the area.

But what really happens? Again referring to the American Bird Conservancy Web site and an article there by Linda Winter, director of Cats Indoors!:

- Cat colonies don't just die out in a short period. Although promoters of TNR often claim their



colonies die out from natural attrition over just a few years, there's little evidence to support this. It can be difficult to trap all the cats, the cat food provided to the colony can attract other cats, and cat colonies can become dumping grounds for unwanted pets.

- TNR is not meant to eliminate colonies of cats. The purpose of TNR is not to eliminate cat colonies, but to perpetuate them.
- Cat colonies attract other predators. Cat food left at managed cat colonies attracts other animals such as raccoons, skunks, opossums, fox, coyotes and rats.
- The cats are not always tested or vaccinated for fatal feline diseases. Some feral cat advocacy groups do not follow American Veterinary Medical Association guidelines regarding cats with infectious diseases.
- Domestic cats are not strictly territorial. Managed cat colony advocates often defend TNR programs by claiming that the managed cats will exclude other feral cats. There is scant scientific evidenced to support this. It is known that the home ranges of domestic cats overlap.
- Well-fed, altered cats still kill birds and can impact wildlife populations. It has been extensively documented that cats can



have extreme negative impacts on wildlife populations and even well-fed cats still kill wildlife.

Consider the considerable opposition to TNR. The American Bird Conservancy, American Association of Wildlife Veterinarians, The American Ornithologists' Union, The Cooper Ornithological Society, National Association of State Public Health Veterinarians and The Wildlife Society all have resolutions in opposition.

What should local officials and park managers, who have an admittedly difficult task in finding solutions to cat overpopulation, do? Some sound advice comes from the policy of The Wildlife Society in regards to feral and free-ranging cats:

1. Strongly support and encourage the humane elimination of feral cat colonies.
2. Support the passage and enforcement of local and state ordinances prohibiting the public feeding of feral cats, especially on public lands, and releasing of unwanted pet or feral cats into the wild.
3. Strongly support educational programs and

Green Streets, Not Mean Streets —Vegetation May Cut Crime in the Inner City

A study of a Chicago public housing development by University of Illinois researchers Frances E. Kuo and William C. Sullivan has found that apartment buildings surrounded by trees and greenery are dramatically safer than buildings devoid of green. The greener the surroundings, the fewer crimes occur against people and property.

Compared with apartment buildings that had little or no vegetation, buildings with high levels of greenery had 52 percent fewer total crimes, including 48 percent fewer property crimes and 56 percent fewer violent crimes. Even modest amounts of greenery were associated with lower crime rates. Several factors combine to explain why this is so.

Greenery helps people to relax and renew, reducing aggression. Green spaces bring people together outdoors. Their presence increases surveillance and discourages criminals. The green and groomed appearance of an apartment building is a cue that owners and residents care about a property, and watch over it and each other.

The information in this research summary is from “Environment and Crime in the Inner City: Does Vegetation Reduce Crime?” *Environment and Behavior*. Volume 33, Number 3, May 2001, pages 343–367, and is reprinted with permission from the author. For more information about this topic, please check out the Human–Environment Research Laboratory Web site at www.herl.uiuc.edu. 🌿

Chippewa Falls

continued from page 2

more planting,” says Chwala. “What we need to focus on now is removals.” Toward that end, Chwala is eagerly awaiting reports from their newly completed, grant-funded tree inventory. “The inventory will help sell the need to change our direction,” says Chwala. The city hired Stratapoint Forestry in 2002 to collect GIS-based inventory data. Stratapoint’s software was particularly appealing to the city because of its capability to include maintenance data for parks and athletic fields, enabling the parks and forestry department to track its irrigation and fertilizing program. To make sure the inventory is used to full advantage, Chwala plans to work closely with Stratapoint, using the inventory reports to shape a management plan that will reflect the city’s needs and circumstances.

Chwala sees other benefits to the inventory. “With the budget constraints we’re facing now, we need to make sure our program gets its just due. We can use the inventory to show the value of our tree resource and be able to compete with other programs for funding. It will add instant credibility,” he says. Chwala also foresees that the inventory and management plan will help guide needed language changes in the city’s outdated tree ordinance and will dovetail with public works’ plans for infrastructure improvements. “It will lead to better tree protection, and in those cases where trees have to go because of a pending project,



Within the city lies 318-acre Irvine Park—an outstanding recreational and environmental resource.

*Photo by C. Casey,
WDNR*

it will allow us to be more efficient. We’ll be able to say, ‘Don’t bother pruning that one—it’s going to be removed anyway.’ The inventory and management plan will help the street department as well as the forestry department get work done.”

Among Wisconsin communities, tree care in Chippewa Falls has had a lengthy history. Recent program refinements and some new management tools will go a long way toward continuing an effective, efficient and sustainable forestry program. 🌿

Organization Profile:

Wisconsin Master Gardener Program

by Kim Sebastian
DNR Southeast Region

The University of Wisconsin–Extension implemented a Master Gardener program in Wisconsin in 1980. The purpose of the program is to train volunteers to help county UW–Extension horticultural staff reach out to more people who are interested in or have questions about gardening than the Extension staff can manage alone.

Any resident of Wisconsin 18 years or older is eligible to be a master gardener. Potential master gardeners should be interested in horticulture (but a formal degree is not necessary), willing to help people with horticultural concerns, dependable, unbiased and open-minded, and willing to provide volunteer service to their community. The program is offered in almost all counties in the state.

In 1991, master gardeners from around the state formed the Wisconsin Master Gardeners Association. The mission of this state association is to support and provide leadership to individuals and local organizations in their mission to assist University of Wisconsin–Extension in community horticultural programs through volunteerism, education and environmental stewardship. WIMGA is the communication link between MGs throughout the state and a voice for

ideas and issues relating to the MG program. WIMGA publishes a quarterly newsletter that is sent to all members in good standing.

There are 34 local master gardener associations affiliated with WIMGA. Most are in individual counties, but a few are regional organizations. Each group is involved in many different projects in the areas of youth education, community education and support services such as beautification projects, answering telephone inquiries for horticultural information, etc.

To participate in master gardener training, it is necessary to fill out a registration form at a county extension office offering the program. University personnel—including extension specialists from the departments of Horticulture, Plant Pathology and Entomology—horticulture educators, extension agents and other qualified professionals teach the classes.

Students receive a minimum of 36 hours of in-depth classroom training on a variety of horticulture topics including soils, botany, entomology, plant pathology, houseplants, landscaping, turf, vegetables, fruits and ornamental plants. General training classes primarily use a video format for teaching, with the addition of local customized presentations. Some programs—including floriculture, vegetable and fruit production, ornamentals and turf management—are offered only in selected counties.

General training consists of twelve weekly classes held on Tuesday evenings from 6:00 to 9:00 PM. Sessions are offered in fall (September–November) and spring (January–March). Specialized training classes are usually held during the day, but the day of the week differs in each county offering the program. In both the general and specialized training programs, attendance is required at all the classes. An open-book final exam is given at the end of each training program. Students must pass this exam with a minimum score of 70 percent to become certified. At least 36 hours of volunteer service must be completed within one year of training. At the completion of all the requirements, students receive an official Master Gardener certificate and name badge. Re-certification is required annually to remain a master gardener in good standing. To recertify, master gardeners must attend 10 hours of professional development and provide 10 hours of volunteer service.

For additional information, contact your county extension office or check out the Master Gardener Web site at www.hort.wisc.edu/mastergardener/MG_Front_Page.htm.

This information was adapted from the Wisconsin Master Gardener Program Web site. 🌿

Photo by Kim Sebastian, WDNR



Master Gardeners receive specialized training in tree care during this training session.

The Idea Exchange...

compiled by Jessica Schmidt
DNR Northeast Region

Poplars Can Improve Water Quality

Fast-growing trees such as hybrid poplars are being used as a natural alternative for nutrient uptake and pesticide reduction from livestock and farm operations, municipalities and industry. Wastes from these sources include nutrients that can be used by trees. Poplar plantations can often be substituted for more costly engineering practices. A plantation of trees near these areas will take up excess nutrients, break down hazardous pesticides, decrease erosion, enhance the landscape and can generate income from the production of wood products. Fast-growing trees work best in these areas. Successful breeding programs have produced poplar clones that grow extremely fast, resist disease, root easily and do not flower. Studies have shown that a buffer strip of poplar trees can retain as much as 68 to 99 percent of nitrates and 75 percent of sediments from runoff when compared to unbuffered watersheds.

Info: University of Wisconsin–Madison, Dept. of Forest Ecology & Management, grs@plantpath.wisc.edu or USDA National Agroforestry Center, www.unl.edu/nac.

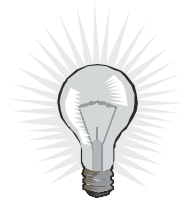
Citizen Pruners Can Work for You!

Does your community have a large number of small trees? Do you have trouble finding time to complete pruning cycles? Are the citizens in your community dedicated to improving the urban forest? If you can

answer yes to any of these questions, a citizen pruning program may work for you. The city of Ithaca, New York, uses citizen pruners in a unique partnership between the city of Ithaca, Cornell Cooperative Extension of Tompkins County and the Urban Horticulture Institute of Cornell University. Funding for this program is provided by the city of Ithaca. The Citizen Pruners of Ithaca are volunteers who have completed a training course sponsored by Cornell Cooperative Extension and are then certified by the city of Ithaca to work on public trees, shrubs and other beautification projects throughout the city. The pruning season runs from April through October with two pruning sessions each week that last two to three hours each. Each volunteer is expected to contribute six to eight hours per month during the pruning season. The mission of the volunteers is to remove diseased, dying, and damaged branches, remove suckers and perform corrective/training pruning. All of the pruning is performed from the ground and no power tools are used. The city provides the volunteers with hand pruners, handsaws and a pole pruner to use during the season. Keeping track of the tools has not been a problem. The brush is piled on the terrace for public works to pick up; any pruning that must be done higher in the tree is noted and also sent to public works. This program allows the city to spend less time and money on tree care while the volunteers improve the quality of the urban forest and gain a strong sense of community.

Info: www.treesny.com, www.cce.cornell.edu/tompkins or contact Monika Roth, Extension Educator at mr55@cornell.edu, 607-272-2292. 🌿

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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.

Managed Cat Colonies

continued from page 10

- materials that call for all pet cats to be kept indoors, in outdoor enclosures or on a leash.
- Support programs to educate and encourage pet owners to neuter or spay their cats, and encourage all pet adoption programs to require potential owners to spay or neuter their pet.
- Support the development and dissemination of sound, helpful information on what individual cat-owners can do to minimize predation by free-ranging cats.
- Pledge to work with the conservation and animal welfare communities to educate the public about the negative impact of free-ranging and feral cats on native wildlife, including birds, small mammals, reptiles, amphibians and endangered species.
- Support educational efforts to encourage the agricultural community to keep farm cat numbers at low, manageable levels and use alternative, environmentally safe rodent control methods.
- Encourage researchers to develop better information on the impacts of feral and free-ranging cats on native wildlife populations.
- Recognize that cats as pets have a long association with humans, and that responsible cat owners are to be encouraged to continue caring for the animals under their control.
- Oppose the passage of any local or state ordinances that legalize the maintenance of “managed” (trap/neuter/release) free-ranging cat colonies. 🌿

Tree City and Tree Line USA to be Celebrated

*by Jeff Edgar, Chair
Wisconsin Urban Forestry Council*



*Council Chair
Jeff Edgar*

*Photo by Silver Creek
Nurseries*

Time sure goes by when you're having fun! It seems like just yesterday when the members of the Urban Forestry Council, volunteers from the Dane County Tree Board and many others sighed in collective relief as we closed the curtain on Wisconsin's first Tree City–Tree Line USA Award Banquet. That was three years ago and the evening turned out wonderfully.

In 2000, there were over 350 people in attendance, representing communities and utility companies around Wisconsin. If I understand correctly, there may be 100 or so more people attending this year. Besides receiving an award for meeting the requirements of Tree City or Tree Line USA, there are awards for growth of forestry programs among Tree Cities. The National Arbor Day Foundation sponsors the award program in cooperation with the National Association of State Foresters, USDA Forest Service, US Conference of Mayors and National League of Cities. The DNR Division of Forestry administers the Tree City and Tree Line USA programs in Wisconsin.

As I'm writing this message, committee chair Roald Evensen and others from the council are putting the

finishing touches on the second award banquet, scheduled for this March 27. The program will again be held at the beautiful Monona Terrace in Madison. Besides the award ceremony and networking with the various attendees, this year offers three educational seminars to help further the ideals of urban forestry.

The purpose of the Tree City–Tree Line Award banquet is not just to hand out awards and have a good time. The program also serves a public relations and educational benefit for the entire urban forestry program. In its own little way, this banquet has led to a greater understanding and networking opportunity for the whole idea of urban forestry, which in turn raises the quality of our lives and the life of the land we live on.

Here's to the people at The National Arbor Day Foundation who started this program, for the participants of this program, and all those that put the two together for an evening.

For further information on the Tree City and Tree Line USA Award programs, visit The National Arbor Day Foundation's Web site, www.arborday.org. ♻️

Two Wisconsinites Appointed to NUCFAC

*by Kelli Tuttle
Bluestem Forestry Consulting, Inc.*

Over the past months, Agriculture Secretary Ann M. Veneman has selected eight members for the USDA's National Urban and Community Forestry Advisory Council. Two of these new NUCFAC members are from Wisconsin—Kelli Tuttle of Bluestem Forestry Consulting, Inc. of Argonne, in Forest County, and Joe Wilson, Executive Director of Greening Milwaukee, Franklin, Wisconsin.

Joe, who was just appointed in February, will bring the perspective of the local nonprofit tree organization to the committee. In addition, Joe serves on the Wisconsin Urban Forestry Council and will be a valuable link in keeping Wisconsin connected to the national scene and sharing a state council's view with the federal administration.

Kelli, appointed last year, works with smaller communities throughout Wisconsin completing tree inventories, management plans, ordinances, planting projects etc. Her goal and reason for applying to the

committee was to bring an active voice to the business professionals and smaller communities she works with. Oftentimes it feels like the small communities and small businesses get overlooked, but not anymore!

NUCFAC advises the US Secretary of Agriculture on the care and management of trees, forests and related natural resources in urban and community settings. The council also works with federal and state agencies along with other partners to share information and technical assistance. NUCFAC awards and administers approximately \$1 million annually towards competitive cost-share grants that advance the science and practice of urban forestry on a region-wide scale.

The council is composed of 15 individuals representing different disciplines within urban forestry. Each term runs three years and the council meets three times annually. The positions include:

- 2 members from a national nonprofit citizen forestry organization

Urban Forestry Resources:

*compiled by Cindy Casey
DNR West Central Region*

Six new technical bulletins developed through the Human-Environment Research Laboratory of the University of Illinois at Urbana-Champaign are now available. The bulletins are designed to introduce the reader to specific studies undertaken and completed through HERL. The focus of the research is to consider the impact of nature in urban areas on human health and well-being.

Bulletin Titles and Volumes:

- Girls & Greenery – Views of Green Help Girls Succeed
- Green Streets, Not Mean Streets – Vegetation May Cut Crime in the Inner City
- Go Out and Play – Nature Adds Up for Kids with ADD
- Nice to See You – How Trees Build a Neighborhood
- Green Relief – Trees Ease Poverty’s Burden in Inner City Neighborhoods
- Cooler in the Shade – Aggression and Violence are Reduced with Nature Nearby

The bulletins were made possible through a grant from the USDA Forest Service at the recommendation of the National Urban and Community Forestry Advisory Council. The bulletins can be accessed on the HERL Web site at: www.herl.uiuc.edu. ✻

- 1 member representing urban forestry, landscape and design consultants
- 3 members, one each representing state, county and city/town governments
- 1 member representing the forest products, nursery or related industry
- 2 members from academic institutions with urban forestry programs
- 1 member representing state forestry agencies
- 1 member representing a natural resource or arboricultural society
- 1 member from the Extension Service
- 1 member from the Forest Service
- 2 members who are not employees of any governmental agency and who are active in their local urban forest, one from a city with a population of less than 50,000 residents and one over 50,000.

The council has representation from Kansas, Washington DC, Virginia, California, Hawaii, Louisiana, South Dakota, Idaho, New Jersey, Washington, Indiana and now Wisconsin.

At its most recent meeting in October, the council had the opportunity to speak with some important folks on the urban forestry front: Joel Holtrop, Director of State and Private Forestry for the USDA Forest Service, Teresa McWhirt, the then-acting director of Urban and Community Forestry for the Forest Service and Mark Rey, undersecretary to Ann Veneman.

To find out more about NUCFAC or its Challenge Cost-share Grant Program, contact Kelli Tuttle, Bluestem Forestry Consultants, Inc., PO Box 52, Armstrong Creek, WI 54103, 715-499-5538, bluestem@newnorth.net; or Joe Wilson, Greening Milwaukee, 841 N. Broadway, Room 619, Milwaukee, WI 53202, 414-286-5579, jwilso@mpw.net. ✻

Intergovernmental Agreement Benefits Two Northeastern Communities

continued from page 3

Only in its second year, the long-term benefits of promoting efficient use of available resources and equipment have yet to be fully realized. The intergovernmental agreement between the villages of Ashwaubenon and Howard has cultivated a mutually advantageous arrangement for each community’s forestry program. With the uncertainty of future revenue for municipal programs, is a similar arrangement a feasible alternative to enhance the programs and services of your community? For further information, contact Timothy Bauknecht, Ashwaubenon Village Forester, 920-492-2331, or Richard Vinz, Howard Village Forester, 920-434-4640. ✻

From page 7.

What Damaged This Tree?

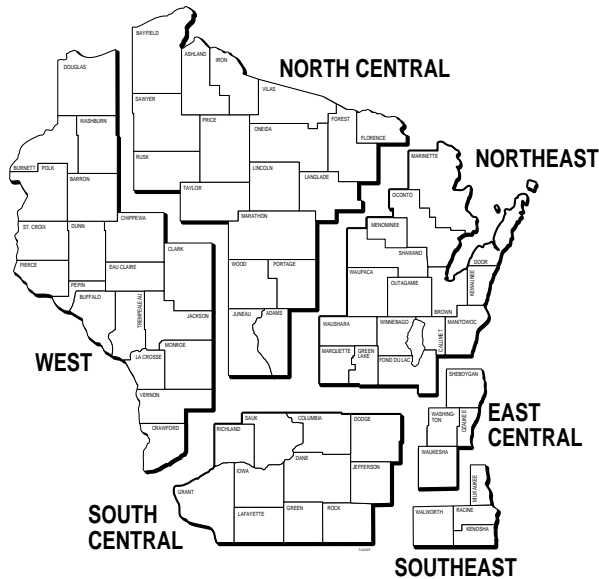
Answer: This picture says it all! Four-year-old Onyx is 125 pounds and is 33" at the shoulder



Photo by Paul Fliss, Green Leaves Landscapes

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!

Wisconsin DNR Urban and Community Forestry Contacts



World Wide Web Site: www.dnr.state.wi.us/org/land/forestry/uf/

West

Cindy Casey
Regional Urban Forestry Coord.
1300 West Clairmont Ave.
Box 4001
Eau Claire, WI 54702
Phone: (715) 839-1606
Fax: (715) 839-6076
e-mail: Cynthia.Casey-Widstrand@dnr.state.wi.us

North Central

Don Kissinger
Regional Urban Forestry Coord.
5301 Rib Mountain Drive
Wausau, WI 54401
Phone: (715) 359-5793
Fax: (715) 355-5253
e-mail: Don.Kissinger@dnr.state.wi.us

South Central

Nathan Eisner
Regional Urban Forestry Assist.
3911 Fish Hatchery Road
Fitchburg, WI 53711
Phone: (608) 275-3227
Fax: (608) 275-3236
e-mail: Nathan.Eisner@dnr.state.wi.us

State Coordinator

Dick Rideout
State Urban Forestry Coord.
101 S Webster St
PO Box 7921
Madison WI 53707
Phone: (608) 267-0843
Fax: (608) 266-8576
e-mail: Richard.Rideout@dnr.state.wi.us



Northeast

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: Tracy.Salisbury@dnr.state.wi.us

East Central

John Van Ells
Regional Urban Forestry Coord.
Pike Lake State Park
3544 Kettle Moraine Road
Hartford, WI 53027
Phone: (262) 670-3405
Fax: (262) 670-3411
e-mail: John.VanElls@dnr.state.wi.us

Southeast

Kim Sebastian
Regional Urban Forestry Coord.
2300 N. Martin Luther King Jr. Dr.
Milwaukee, WI 53212
Phone: (414) 263-8602
Fax: (414) 263-8661
e-mail: Kim.Sebastian@dnr.state.wi.us



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