

CENTER

Garbage to gardens: Compost grows poster

# WISCONSIN NATURAL RESOURCES

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## DEVIL'S LAKE delivers 100 YEARS of stories

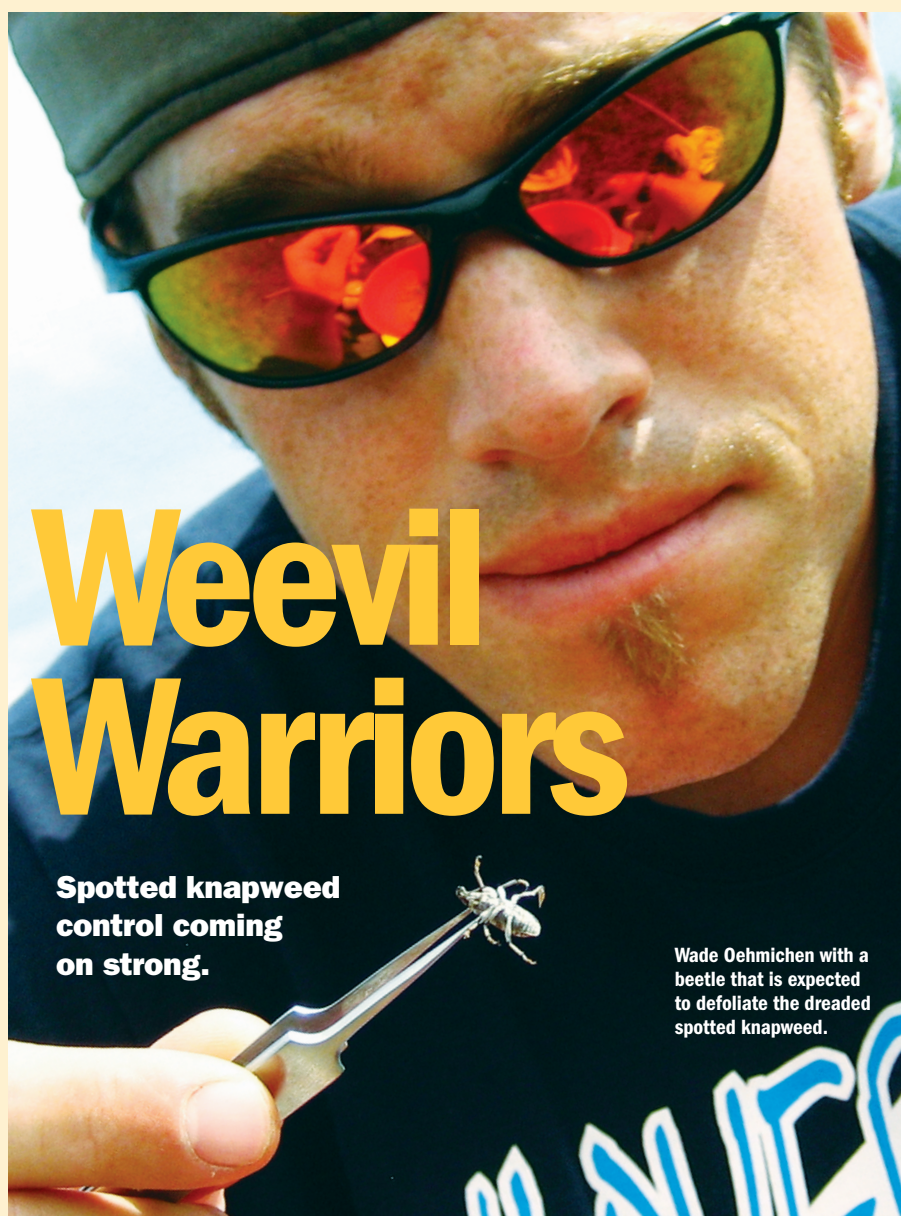
From seeds to a nursery centennial

A watershed year

Below the surface







# Weevil Warriors

**Spotted knapweed control coming on strong.**

Wade Oehmichen with a beetle that is expected to defoliate the dreaded spotted knapweed.

MATTHEW OEHMICHEN

Wade T. Oehmichen

Wisconsin is full of wonderful plants. This story isn't about one of them.

Spotted knapweed (*Centaurea stoebe* L. ssp. *micranthos* Gugler Hayek) is a ruthless native plant murderer in the form of a two- to three-foot tall perennial with pinkish purple flowers. It reproduces quickly by seed, produces a chemical that is toxic to other plants and, in Wisconsin, tends to be found in the well-drained soils that comprise about 65 percent of the state. Once established, spotted knapweed can take over large areas and reduce forage and wildlife habitat.



The plant produces thistle-like flower heads late June through August.

WADE OEHMICHEN

Spotted knapweed originated overseas in Asia Minor and was introduced to North America in 1883 as a seed contaminant from Turkmenistan. It then slowly spread into Wisconsin sometime

before 1915. For the next 76 years, knapweed enjoyed the easy life: lots of sunshine, plenty of open ground and a life free from predators.

A single spotted knapweed plant can produce 400 to 25,000 seeds that remain viable for eight or more years. Dispersal assistance could come in the form of a tiny ant carrying it away or a giant mower tossing the seed from its deck.

No matter how the seeds are moved, the plant's ability to establish in even the most pristine area without a prior disturbance is something to be feared. Spotted knapweed produces allelopathic chemicals (chemicals that inhibit growth of other plant species). Researchers have isolated the chemical, catechin, which is produced from knapweed roots and can be as effective as the herbicide 2, 4-D on some plants.

The spotted knapweed biological control program is one of the oldest in North America having started in the 1960s. In classical biological control, a natural plant pest is brought from a harmful plant's home range and released into the plant's introduced range. Extensive biological control candidate testing ensures that it is safe to release.

In 1991 the U.S. Department of Agriculture and the Wisconsin Department of Natural Resources released two biological control species, seedhead flies (*Urophora affinis* and *U. quadrifasciata*), in the state. While in their larval stage (called galls), the flies thrive in developing knapweed seedheads (florets). The galls drain nutrients from other parts of the plant, which results in less knapweed growth and fewer seeds. During their adult stage the flies disperse, mate and lay eggs into new seedheads.

Since 1991, five other spotted knapweed biological control agents have been used by the Wisconsin Department of Natural Resources.

During their adult stage, seedhead weevils (*Larinus minutus* and *L. obtusus*), defoliate the knapweed plant and lay eggs in the seedhead. The weevil larvae then feed on the knapweed's pappus hairs, seeds and receptacle. For the next four weeks the larvae construct pupal chambers inside the seedhead. The weevils reduce plant growth and destroy seeds in the seedhead. Collecting the weevils with sweep nets isn't difficult, but sorting them from all other invertebrates (specifically ants) is challenging. In 2010 the Department of Natural Re-



# WISCONSIN

## NATURAL RESOURCES

June 2011  
Volume 35, Number 3



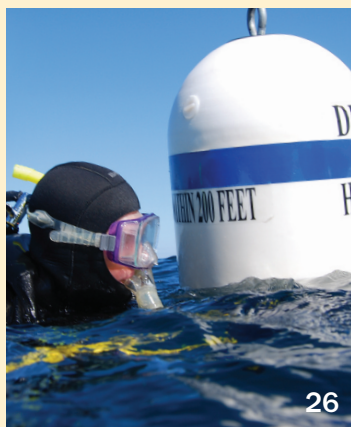
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DEAN TVEDT

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DNR FILE PHOTO

**BACK COVER:** Sandstone cliffs along Lake Superior at Apostle Islands Mawikwe Bay Cliffs in Bayfield County. **INSET:** Bird's-eye primrose (*Primula mistassinica*). For more information, or to order a guidebook to State Natural Areas for \$15.00 (postage paid), contact the State Natural Areas Program, Bureau of Endangered Resources, DNR, P.O. Box 7921, Madison, WI 53707 or visit [dnr.wi.gov/org/land/er/sna](http://dnr.wi.gov/org/land/er/sna)

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**Circulation Manager** Karen Ecklund  
**Art Direction** Thomas J. Senatori  
**Printing** Schumann Printers

*Wisconsin Natural Resources* magazine (USPS #34625000) is published bimonthly in February, April, June, August, October and December by the Wisconsin Department of Natural Resources, 101 S. Webster St., Madison, WI 53702. The magazine is sustained through paid subscriptions. No tax money or license fees are used. Preferred Periodicals postage paid at Madison, WI. POSTMASTER and readers: subscription questions and address changes should be sent to Wisconsin Natural Resources magazine, P.O. Box 7191, Madison, WI 53707. **Subscription rates are: \$8.97 for one year, \$15.97 for two years, \$21.97 for three years. Toll-free subscription inquiries will be answered at 1-800-678-9472.**

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Governor Scott Walker

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PUBL CE-012  
ISSN-0736-2277



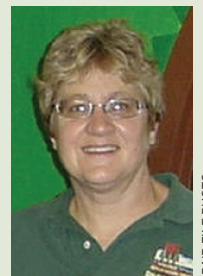
# 100 YEARS AND HUN



— Diane Pillsbury —

**I**t is a cold but sunny December morning as I sit down at Devil's Lake Nature Center to begin my day's work. How do I summarize 100 years of history of an area that seems older than history itself? My fingers are poised at the keyboard. I'm saved by a phone call.

A frequent park visitor, Kathy, calls wondering if today would be a good day to show her where the stone ring of William Canfield's early 20th Century "tree house" is located. I'm thinking that today might be the last chance for awhile if tonight's six-inch predicted snowfall materializes, plus it would give me a chance to check on some other historical sites I've been trying to locate. So, I agree to help her and her husband, Dave.

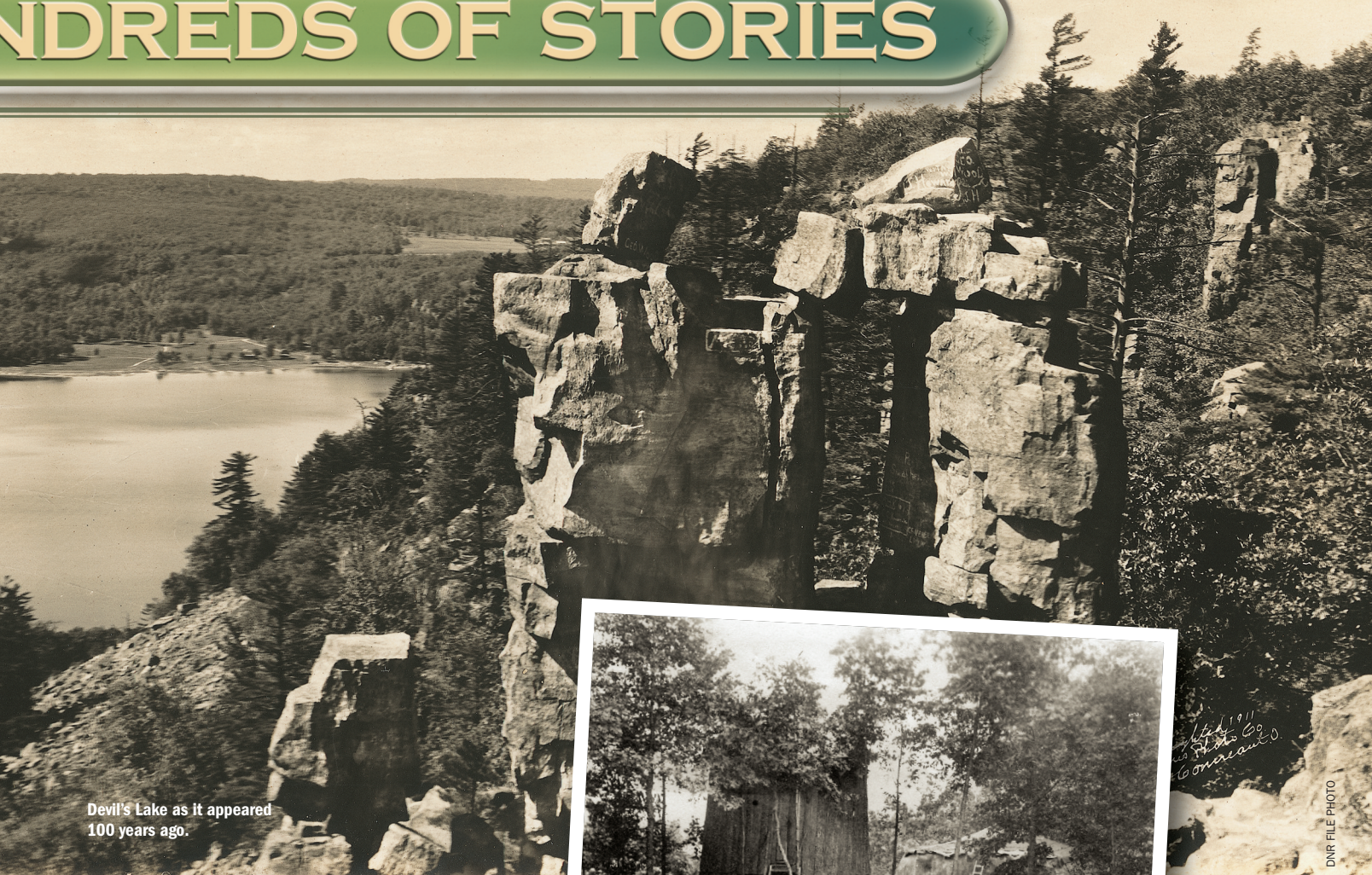


Diane Pillsbury

DNR FILE PHOTO



# HUNDREDS OF STORIES



Devil's Lake as it appeared  
100 years ago.

## Don't trip on the tree house

The first stop is William Canfield's tree house, a site that I only recently located. After parking the car and bush-whacking a short way, we arrive at the site at the southwest end of the park. We find a 15-foot diameter circle of rocks, which surrounded the tree house. Canfield, born in New York in 1819, was one of the earliest settlers to arrive in the area. He came from Madison in 1842 after following his way by marked trees. After living in a dry goods box for six weeks, Canfield and his wife settled in a log cabin near the park. He worked as a civil engineer, being Sauk County's surveyor for many years, and he was the local historian having written an early history of Sauk County.

Canfield was a guiding force in the formation of the "Old Settler's Association." He bought three acres southwest of the lake and built a log cabin assem-



William Canfield's tree house.

bly hall and a tree house where he lived for certain periods. The tree house floors were supported by timbers attached to the trees. It stood about 30 feet high. The state acquired the land and now all that remains to remind us of the presence of one of Sauk County's earliest and most colorful characters is the circular rock foundation of the old tree house.

## Cottages and hotels — you're kidding!

As we walk along the roadside, we pass a stone pillar with "Wildwood"

marked on it. Dave mentions that when he was young, this site was a large summer house, one of many summer residences and cottages that dotted the lake and surrounding areas both before and during the early years of the park. While four cottages remain, there once were nearly 100 located within the park's boundaries. Most of the cottages were removed by the late 1960s.

Since we were so close to the location of Messenger Hotel, I thought that Kathy and Dave might like to see where the Messenger barn once stood



along Messenger Creek southwest of the lake. This is one of the few visible remnants of the “Grand Old Hotel Era” of Devil’s Lake.

The lake’s beauty, which includes imposing 500-foot bluffs on three sides, made it a popular destination for tourists seeking an escape from city life in the late 1800s and early 1900s. Four hotels sprang up along the shores of Devil’s Lake to provide a “place where tired brain workers may rest and get strong.”

The Minniwauken House, later known as the Cliff House, was the first to be built in 1866 at the northeast corner of Devil’s Lake, catering to the genteel. Three hotels, the Kirkland, Lake View and the Messenger, were built on the south shore to provide more modest but comfortable accommodations.

A letter from a former cottage resident in the area describes the Messenger Hotel as “built flat on ground with a porch around, two stories, bedrooms and a parlor on the ground floor. It had a lawn where people sat, played horse-shoes, lawn tennis and croquet.” Rates were \$1.50 a day or \$7 to \$8 a week.

The Messenger Hotel was sold to the state in 1910 and was used for a short time as a residence for the first park manager. In 1920 it became the site for the University of Wisconsin summer survey camp. As we walked about the site, we were able to find the foundations of the Messenger barn which became the camp’s classroom and mess hall, and we discovered several concrete slabs marking the trailers for instructors and other odds and ends of the surveying camp, which closed in 1956. Today, vegetation has reclaimed the site where hundreds of young men were trained as future engineers.

### A posh park project goes kaput

Kathy and Dave had to leave so, being reluctant to return to office work and keeping the upcoming snow in mind, I decide to head up the West Bluff Trail to find the remnants of what could have prevented a state park here: the Palisade Park project. Ken Lange, former Devil’s Lake naturalist, once wrote that, “Devil’s Lake would most likely

**Messenger Hotel barn as it once stood.**

be another private resort development, probably like Wisconsin Dells” had this project succeeded.

Palisade Park was Arthur Ziemer’s brainchild in 1893 when all of the land around the lake was privately owned. Ziemer was on a geology class trip to Devil’s Lake when he envisioned the possibilities for commercial development. The idea came from similar projects along the Hudson River in New York. After acquiring 90 acres in the summer of 1894, the area was plotted for over 200 lots, a road was built and a tower 85 feet high was constructed from which, “the dome of the capital building at Madison can be seen.” Ziemer’s cottage was built on the choicest lot overlooking the lake and several cottages were completed.

One could say that fate intervened when Ziemer died in 1895 of typhoid fever reportedly from drinking water from a nearby spring. The word was



DNR FILE PHOTO



DNR FILE PHOTO

**South Shore cottages. Most were removed in the 1960s.**

out and the area that was to become “the most prominent resort in the northwest” quickly became a ghost town. Afterwards, local boys would climb to the site to play in the abandoned cottages.

Arriving at the former location of Palisade Park, only the trees seem to mark the location, showing the resiliency of nature. It wasn’t too hard to find the remains of the observation tower: eight large rectangular stones arranged in a square. It was a little more difficult to find the concrete steps and the rubble of a chimney, which heated a





KATHY MAY

Messenger barn ruins as park visitors will see it today.

double cottage. Nature has quickly reclaimed the land as its own. I'm thankful that today, Devil's Lake is a land for all people and not just a rich person's paradise.

#### The glacier got its way

I stop for a break at one of the memorial benches that overlooks the lake. The cold December temperatures make the rest brief but the sun is shining and the lake commands a stunning view. It's hard to imagine that over 20,000 years ago, before the coming of the last glacier, I wouldn't have been seeing a lake but an ancient river coming from the north and taking a sharp bend to the southeast where the south beach is now located. And I wouldn't be looking 500 feet down to the water, but rather nearly 1,000 feet into a rather impressive canyon.

But 12,000 years ago, the Wisconsin glacier reached its maximum height. It came from the northeast creating a terminal moraine that blocked the north entrance of the river. It wasn't able to span the east bluffs so it wrapped itself around the back of the east bluffs coming in from the southeast leaving



Palisade Park's chimney, which used to heat a double cottage.

DNR FILE PHOTO





Outline of an Indian mound believed to be a lynx.

another terminal moraine to plug the river there.

The cold weather makes it hard to imagine swimming the lake as I had many times this past summer training for an open water swim: 1.4 miles across and back again. But the lake has been tackled by many a distance swimmer. Friendly competition between the visitors of the Kirkland and the Messenger shores in the early 1900s involved seeing which patrons could swim across the southern end of the lake the fastest. One long-time park volunteer and former cottage resident reminisced to me earlier this year that, "one summer a good looking young man with an Irish brogue impressed us young girls by swimming all four corners of the lake in one shot!"

### Upper and lower worlds collide

I make it back to the nature center ready to get some work done. The phone rings again. A college professor returns my call for information regarding the Native Americans who built the mounds in the park and surrounding areas. He gives me some information and references on Devil's Lake mounds.

Native Americans have been at the park since the glaciers receded over 10,000 years ago. The Ho-Chunk name for the lake is Tawacunchukdah or Sacred Lake, which may have been mistaken for an evil connotation and translated as Devil's Lake. The Ho-Chunks maintain that the bluffs were created during a fierce battle between the thunderbirds and the water spirits.



Swimming has always been a favorite park activity.

Mound locations seem to confirm this belief. A 150-foot bird mound on the southeastern shore of the lake represents the upper world. Bear and panther mounds on the north end of the lake, represent the opposing lower world.

### Quarry stories

By now, it is late afternoon and my hope of completing desk work vanishes as the sun wanes on the western horizon. I decide to try to find one more location: the site of the quarry workers' homes on the southeast end of the park. A quarry originally existed on the north end of the east bluff from 1906 until it was ousted to outside park boundaries on the southeast end in 1922. I vaguely remember hiking the East Bluff Trail on my first camping trip to Devil's Lake as a child in 1965 and hearing quarry blasting booms in that area.

Once, a park volunteer told me stories of growing up in the quarry workers' homes. Her grandfather and father both worked at the quarry. One of my favorite stories was about a blasting that surprised one family when a huge boulder crashed through their living

The quarry which closed in 1967.

room window!

The quarry closed in 1967 when the park expanded its eastern boundaries, but remains of the quarry activities can still be found. I get into my car and drive along South Shore Road to an abandoned gated road in the former quarry area. The leafless trees and leaf littered ground make the walk pleasant. "Stick season" is what the Vermonters call the season of late fall and I really enjoy hiking during this time of the year. Perhaps it's because I can see the relief of the land so much better and get a good feeling for the terrain.

Fallen trees sidetrack me, allowing me to find the remains of the railroad spur to the quarry. Getting back on the old road, I find signs of the dump: bottles, tires and rusted cans. Finally I locate a house foundation, then another and several more as the road circles around a neighborhood. BINGO! Mission accomplished! And just in time as the sun sinks behind the bluffs and the light becomes more muted.

I briskly walk back to my car enjoying the quiet and solitude of the moment. I reach my car and just as I am about to get in, I glance down to find a rusty mailbox on the ground. It is a poignant reminder of the people who lived and visited here, and of the stories they have told and will continue to tell of this enchanting place known as Devil's Lake.

### 100 years in 360 minutes

Driving home along County Highway DL, part of the northern boundary of



the park, I pass the area called Steinke Basin. While it doesn't have the breathtaking view of the bluff and lake area, it nonetheless is one of my favorite parts of the park. Maybe it's because I cross-country ski here almost daily in the winter; maybe it's because so many signs of the last glacier: erratics, kettle ponds and terminal moraines to name a few, can be found here. Maybe it is because of the stories I have heard and read of the farmers of this area: the Johnson's, the Marquardt's, the McIntyre's, simple people making an honest living who have lived here for genera-

tions. Whatever the reason, the warm, red glow of the nearly setting sun further endears this area to me.

I think to myself how in about 360 minutes, I have gone through more than 100 years of history of Wisconsin's most visited state park, Devil's Lake. This year I invite you to take time to experience the park, participate in its centennial activities and make your contribution to 100 years and more of stories!

*Diane Pillsbury is an assistant naturalist at Devil's Lake State Park.*



## SHARE YOUR DEVIL'S LAKE PHOTOS

Have you enjoyed Devil's Lake State Park? Did you capture a great photo? Show off your best photographs in the Devil's Lake Photo Contest.

Categories are:

- Plants
- Wildlife
- Activities
- Vistas and landscapes
- Winter
- Youth photographer

All photos must be original works taken by the photographer within the boundaries of Devil's Lake State Park between March 1, 2010 and September 1, 2011.

Photos should be submitted, unmounted as a 5x7-inch or 4x6-inch print. Label each photo on the back with name, phone number, if youth your age, address, category, and approximate location and date of the photograph.

A JPEG digital copy must be available on request. Photos may be black and white or color. There is a maximum entry of two photos per category per photographer.

Photos will not be returned and will become the property of the Wisconsin Department of Natural Resources. Submission of a photo constitutes permission to the DNR to use the photo as desired including on websites, promotions, publications and public displays.

All identifiable people in the photo must sign a model release giving permission for their photo to be used. This contest is open to any amateur photographer except contest judges, park employees and friends group members.

The top three winners in each of the six categories will be awarded Baraboo Chamber of Commerce "Bucks" prizes with first place \$25, second place \$10 and third place \$5.

Award winning photos will be displayed at the park and on the Devil's Lake's website. Other photos may also be displayed or published.

Mail your photo to:

Photo Contest

Devil's Lake State Park

S 5975 Park Road

Baraboo, WI 53913

Entries must be received by the park Visitor Center by 4 p.m. on September 1.

For more information visit: [dnr.wi.gov/org/land/parks/specific/devillake/photocontest.html](http://dnr.wi.gov/org/land/parks/specific/devillake/photocontest.html)

## PLAN A CENTENNIAL VISIT



View from the west bluff.

Park staff, the Friends of Devil's Lake State Park and the surrounding community have special events planned to celebrate Devil's Lake's 100th anniversary this season. Check out the park's website [devillakewisconsin.com/events](http://devillakewisconsin.com/events) to help plan your visit.

You'll find a listing of current activities and dates for centennial events such as the June 25 official opening day celebration, period dance at the Chateau on July 23, and an ice cream social on August 28. Special ongoing events include 100 Years of Stories geocache with write-ups of park history stashed away in key locations throughout the park and the Devil's Lake 100 Club for those who can earn a shield for hiking, biking, skiing and/or snowshoeing 100 miles in the park during this anniversary year. Historical programs offered during the 2011 season include Archaeology Day, Devil's Lake CCC Camp, Observations from an Old Settler and more!

For those who would like to collect more than memories from their park visits, the concession and Friends of Devil's Lake offer a variety of mementos to remember this centennial. Collectibles such as patches, magnets, mugs and glasses emblazoned with the centennial logo are available for purchase. If you want to show your support, an array of shirts, sweatshirts and hats is also for sale.

A special Devil's Lake Centennial art print created by area artist Todd Persche will be available for purchase.

To learn more about the geologic, natural and human history of the park, the following books by former naturalist Ken Lange can be purchased: *Ancient Rocks and Vanished Glaciers: A Natural History of Devil's Lake* (\$24.00), *A Naturalist's Journey* (\$24.00) and, co-authored with Ralph T. Tuttle, *A Lake Where Spirits Live* (\$8.50) as well as *Ice Age Geology of Devil's Lake State Park* (\$5.50) by John W. Attig, Lee Clayton and Ken Lange.

The Sauk County Historical Museum in Baraboo will have a special centennial exhibit of Devil's Lake State Park.

For 2011 centennial events visit: [dnr.wi.gov/org/land/parks/specific/devillake/](http://dnr.wi.gov/org/land/parks/specific/devillake/) or [devillakewisconsin.com](http://devillakewisconsin.com)

## PODCAST TOUR



Listen to a podcast tour of Devil's Lake State Park by visiting [wnrmag.com](http://wnrmag.com) and looking for the story on Devil's Lake.



A photograph of a person wearing sunglasses and a plaid shirt, holding a young evergreen tree. The tree has green needles and small brown cones. The background is a clear blue sky.

# The state nursery system turns 100.

# Growing up

*Story by Jeremiah Auer • Photos by Robert Queen*

**S**ince 1911, the state nursery system has provided a consistent supply of high quality seedlings of desirable forest species, at an economical price, to encourage reforestation in Wisconsin. This is a lofty goal. It takes nursery workers, foresters and landowners, all working together, to meet this goal in the limited time available each spring.







Tree pulling at the Hayward Nursery for delivery to landowners.

"Okay, let's go!" calls Kenny Anderson to the Griffith State Nursery tree lifting crew. It's 7:45 a.m. on a cool, damp April morning in Wisconsin Rapids and the longtime leader is anxious to get the crew to the field. The tractor snorts and chugs down the gravel road into the heart of the nursery.

Chris Biedenbender, another nursery technician, already started the AGCO RT100 and began dragging the seedling lifter under neatly managed rows of



Tree pulling at the Boscobel Nursery.

white pine seedlings. The seedlings' tiny roots are delicate; it takes an experienced operator to carefully negotiate the row and tenderly lift the trees from the soil, setting them gently on the surface. Other crew members then shake the seedlings by hand to remove excess soil and pack them into large bins for transport to the sorting shed.

These seedlings have been growing in the nursery beds for up to three years, but their lives began a number of years earlier in another corner of the state.

#### All in the family

In early September 2007 the Kalkofen family of Crandon was busy. Steve, Amy, Austin and Ryan started scouting pine trees near their home, looking for maturing cones. They knew the state nursery program needed conifer cones and the family wanted to earn a little extra money and to spend more time together outside that fall.

The white pine boughs had not hung this heavy with the weight of bunches of purplish-green, pine-scented "bananas" for many years. The cones carry tiny, winged seeds, hidden safely beneath a woody scale, the capsule of life for the white pine that begins a new generation.

The family raked the forest floor, stripped branches and searched for squirrel caches (One cache provided almost 2 ½ bushels of cones!). And the family's search left some angry red



Mechanically picking up acorns.



Tiny, winged seeds springing from cones.





Planting tree seeds is a reforestation alternative to planting seedlings on some sites.

squirrels, indeed. The Kalkofens hauled the cones to the Rhinelander Ranger Station where forest technician Phil Puestow purchased cones on behalf of the state nurseries. A bushel of closed cones garnered \$20 that year.

The station was just one of a handful of collection sites scattered around the Northwoods and all were very active this fall. The family's efforts, along with many others spread out across Wisconsin, combined to generate over 3,000 bushels of white pine cones, equivalent to almost 3,000 pounds of seed!

This statewide bounty was shipped to the Hayward nursery and spread

over the floor of a large shed to dry. In the winter the cones were loaded into a seed extractor: a giant, antique conveyor belt/oven that slowly warmed, turned and shook the cones until they opened and released small auburn seeds. These seeds, along with the seeds and fruits of many other conifers, hardwoods and shrubs were then cleaned, sorted and stored in a refrigerated facility until called on to grow into the future seedlings of the Wisconsin landscape.

### Back to work on seedlings

This is how the seedlings being lifted from the Griffith beds began life. Grif-



More modern methods in planting at the Griffith State Nursery in Wisconsin Rapids.



Seeds sprouting at the Hayward Nursery, a former federal nursery.





Grading seedlings at the Boscobel Nursery.



Watering seedlings for shipping.



Landowners picking up seedlings to plant to meet their property goals.

fifth Nursery manager, Jim Storandt, picked up some seed in late summer 2007 and brought it back to the nursery. This seed was planted into finely tilled soil. For the next three years, the nursery staff weeded, fertilized, irrigated, cultivated, protected and pruned the pine, along with a few million other seedlings of various conifer, hardwood and shrub species. The painstaking time, energy and resources were worth it. The tree seedlings are lush, green, healthy and strong.

It is now mid-afternoon. Seedlings have been coming into the Griffith Nursery packing shed from the field all morning. Tractor drivers continually deliver bins of seedlings and return to the fields for more. Other nursery staff moisten the seedlings and move the bins into coolers, protecting the delicate roots from sun and heat.

The nursery stock is then sorted by hardy souls positioned along a grading belt. Workers steadily sort through the seedlings, and remove undersized, damaged or diseased seedlings. Only the best will do for Wisconsin landowners! On a good day, these folks can sort 75,000 to 85,000 seedlings, which are then counted and packed into waxed boxes and stored in a large cooler. Here they will wait until landowners stop by the nursery and receive fresh, vibrant seedlings to plant on their property to provide future forest products, wildlife habitat, erosion control and aesthetic beauty.

The nursery crew has done a good job. Sore muscles and tanned necks are the prices they've paid to pull almost 200,000 trees out of the nursery soil today.

#### A species for every use

Early on, when growing trees was still a unique idea, Norway spruce, red pine, white pine, European larch, Scotch pine and black locust dominated the distribution. Shrubs and hardwoods became important as landowner interest turned to wildlife habitat. A focus on producing endemic trees led to the current interest in native Wisconsin species.

Conifers have always been the most sought after seedlings by both private and public landowners. Red pine, white pine, jack pine and white spruce are the most popular choices for windbreaks, pulp, fiber and lumber. Tama-

rack, hemlock, black spruce and white cedar have never been largely important for wood products, other than for posts, poles, shingles or some pulp, but they have grown more important as interest turns to recovering former wetland forest sites. Conifers also provide feeding, nesting and winter cover for invertebrates, songbirds, and small and large mammals.

Hardwoods make up a smaller portion of tree orders. The reasons to plant them vary from landowner to landowner. Bigtooth and quaking aspen, and cottonwood are fast growing trees that provide wildlife browse, and pulp and paper fiber. Yellow and white birch, black cherry, red oak, sugar maple and walnut have beautiful grains that can be used for veneer, flooring, finish work and gun stocks. The white, bur and swamp white oaks, hickory, hackberry and basswood provide lumber for finish work and flooring, but they also supply railroad ties, tool handles and furniture.

Another use, becoming more important, is fuel wood. All wood can be burned, but some species, especially oaks, hard maple, hickory and cherry provide higher BTU's than most. Many of these hardwoods also provide wildlife cover and food. Acorns, hickory nuts, walnuts and cherries fill many bellies. And some of the more overlooked, but important aspects of hardwoods, are the aesthetic qualities they provide. It is a special experience to walk through a hardwood forest in mid-autumn when the canopy is in brilliant color.

Shrubs have long provided landowners with another planting option. American plum, hazelnut and Juneberry provide wildlife food. Red-osier and silky dogwoods produce browse for deer and rabbits. Hawthorn, highbush cranberry, ninebark, prairie crab and common winterberry supply some mast, but also nesting and feeding cover for small mammals and songbirds.

All species grown by the state nurseries are important and fill a niche. It is up to landowners to determine their property goals and how to best reach those goals through tree planting. ▀

*Jeremiah Auer is assistant manager of the Griffith State Nursery.*



# A slice of nursery system history

The nursery system is 100 and throughout the century, several people have provided strong leadership as nursery managers. Traditionally, nursery managers summarized the year's events at their respective nurseries.

These narratives provide great insight into the nurseries' trials and tribulations. The following is an excerpt from the 1944 narrative, written by William H. Brener who was the original Central (Griffith) State Nursery manager and later a leader in the Wisconsin Conservation Department during a career lasting from 1932 to the early 1960s.



JIM TAYLOR

A 1960 photo of William Brener holding a pine graft seedling in Wisconsin Rapids.

## The system becomes rooted

As we look back over the record, the first appreciable amount of tree planting done under Wisconsin Conservation Department guidance took place in 1911. At this time 192,000 trees were planted on state land. The stock was secured from Michigan State College and planted in the Trout Lake vicinity in Vilas County. The next year, 18,000 additional trees were purchased and planted. Meanwhile a nursery was started at Trout Lake, and in 1913 the nursery's first production of 68,500 trees was added to the state plantations.

## First expansion and 1915 setback

The period from 1911 to 1915 was an active one in forestry work, and one filled with much hope. Besides the passage of favorable legislation and the acquisition of state forest lands, the nursery at Trout Lake was further developed until, in the year 1914, its output had reached approximately one half million trees. This amount was recognized in those pioneer days of forestry and reforestation as a considerable number.

However, while the people as a whole (as far as their votes were concerned) were in favor of this activity, opposition developed and culminated in 1915 when the question of forestry was presented to the state Supreme Court in a friendly suit to determine the exact status of the forestry work and of the legal structure supporting such work. The court rendered an opinion declaring forestry work illegal and in conflict with the state Constitution. This decision practically nullified the reforestation program. In 1915 only 77,400 trees were distributed from the state nursery.



LEO FAULK

Brener walking between seed beds in Wisconsin Rapids in 1938.

## Interest in reforestation revived

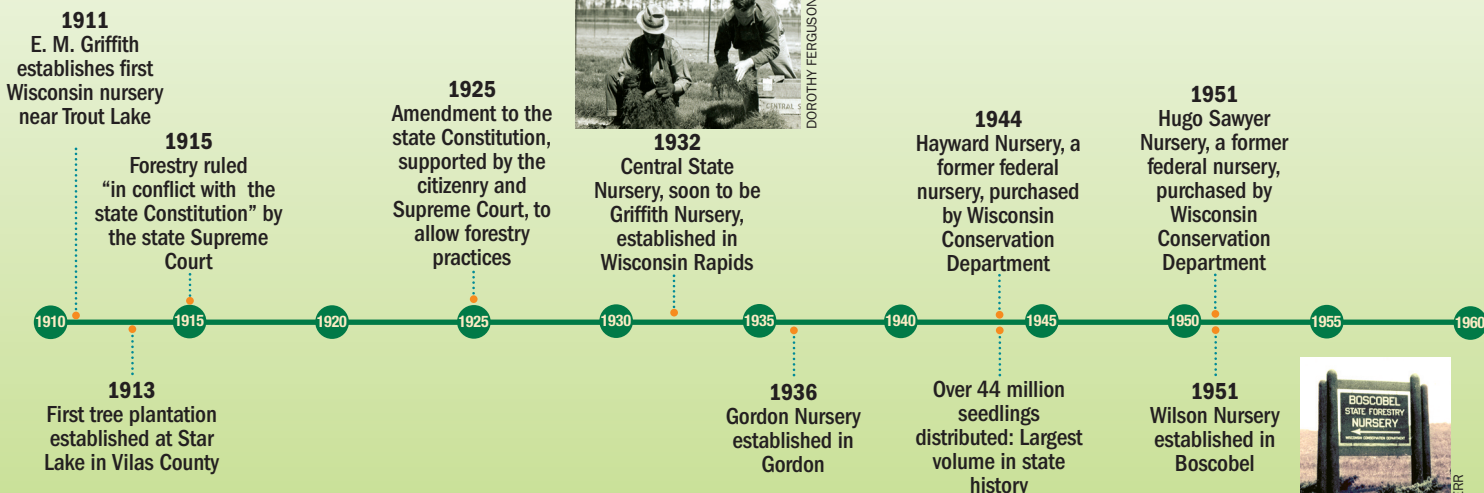
The 1915 decision was an important milestone in the history and development of reforestation in the state. It was a great shock to those who were interested in the forestry movement in Wisconsin, and it looked as if the business of forest restoration was out for good. It took about 10 years to recover from the setback. However, public interest in this work was so pronounced that after WWI and in 1924, the identical amendment to the constitution was again submitted to state voters and approved by an overwhelming majority. The Supreme Court reviewed the amendment and found it sufficient. The record shows that over one million trees were distributed and planted in 1926, and there has been a constant expansion of effort and facilities up until our entrance into WWII.

## A 1932 expansion and a new nursery at Wisconsin Rapids

Late in 1931, a subcommittee of the Governor's committee on land use and forestry was appointed to study the need for increased reforestation. The subcommittee's report was presented in 1932. The Conservation Commission approved the committee's recommendations that the state, "should commence at once a forest planting program on suitable lands to sustain industry, to afford employment, and to keep land best suited for such use in a productive condition."



DOROTHY FERGUSON



KEN DERR

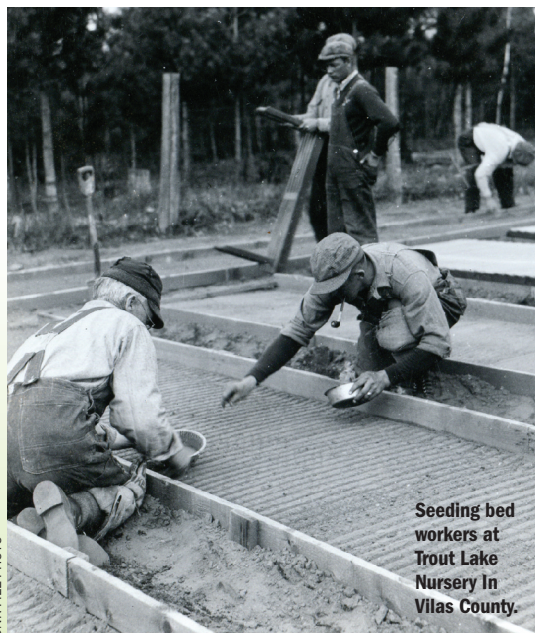




Women working a mechanical tree transplant machine in 1953 in Wisconsin Rapids.

The tremendous planting activities expansion required the state to purchase planting stock, primarily from Wisconsin's private nurseries. This enlarged reforestation program made it imperative to build a new nursery in central Wisconsin.

Coupled with the growing need for planting stock was the old need of supplying trees approximately two weeks earlier for planting in the southern and central parts of the state than was possible from the Trout Lake nursery. An area was selected three miles south of Wisconsin Rapids in Wood County for the new state nursery. Site development began in the fall of 1932, with the first



Seeding bed workers at Trout Lake Nursery in Vilas County.

stock becoming available in the fall of 1934. Over 16,500,000 trees were distributed and planted in 1934.

## Nurseries enlarged and improved

The department's tree growing facilities were again improved and increased in 1936 and 1937. This work was done in cooperation with the Civilian Conservation Corps and CCC camps. As the work of these camps in trail construction was completed, more attention was given to reforestation of state and county lands.

The Wisconsin Rapids nursery facilities were trebled and expansion was carried out at Trout Lake. A new nursery was established near Gordon in Douglas County. In the work of the enlarged nursery facilities, the CCC camps and the Works Project

Administration (WPA) crews furnished the bulk of the labor and shared expenses with the Conservation Department.

## County forest and private landowner planting

While the principal reforestation work was completed on state lands within the limits of the state forests, much of the work also was done on county lands because of the CCC camps locations and the enormous acreage of plantable lands within county forest. Over two million trees were planted in county forests in 1933, and over 25 million were planted on county forest land in 1940.

In fact, 1940 was the high point. Because of the war and the resultant labor shortage, the number of trees planted in county forests then dwindled to less than four million annually. The policy under which planting stock is furnished at reasonable prices to private landowners for reforestation purposes in the state is being continued and has suffered little because of the war. While state and county forest planting has decreased drastically during World War II, the demand for trees from farmers and other landowners has held up surprisingly well.

## Shelterbelt project

The hot, dry weather of 1933, and particularly of 1934, and the lowering of the water table in various communities, together with the dust storms, focused attention on the need for trees and shelterbelts for windbreak purposes.

1964  
Gordon and Trout Lake nurseries closed

The nurseries distribute their one billionth seedling!

1984  
Griffith Nursery expanded to facilitate seedling storage, processing and distribution

1983  
Nurseries begin distributing free Arbor Day seedlings to Wisconsin fourth grade students

1987  
Expansion at Hayward Nursery

2009  
Wilson Nursery expanded to provide better storage for seedlings

2011  
Wisconsin state nursery system centennial. One hundred years of providing seedlings to the landowners of Wisconsin

Hugo Sawyer Nursery returned to federal government



A well organized and enthusiastic demand arose in the central counties for an extensive tree planting program. Through the county agricultural agent's offices and other interested agencies in those counties, surveys determined tree requirements for shelterbelts. The Conservation Department was called upon to furnish over 14 million trees, mostly transplants, from 1934 to 1944. The conservation department entered into cooperative agreements with the county board agricultural committees of the counties concerned, and each farmer signed an agreement to plant the trees as instructed and to give proper plantation care. Trees are planted in three-row shelterbelts, and a total of 5,492 miles has been completed through 1944.

### Research studies and industrial forests

The Conservation Commission is cooperating with soil fertility at all of the state nurseries, and a definite program of soil building has been worked out and is underway. This is especially important because the soils had reached the point where they were run-down and the general vitality and size of the trees had suffered, so that it was important that a program of soil rejuvenation be worked out and that it be continued from year to year as a definite part of the nursery practice.

Studies also are being conducted in controlling soil damage and tree diseases, and a separate experimental nursery has been set up in conjunction with the College of Agriculture and the U.S. Department of Agriculture, where investigations are being carried on in the possible propagation of disease resistant varieties. Through cooperation with the state university and the U.S. Department of Agriculture, work also

has been initiated in the study and control of forest diseases and pestilence, which have become increasingly damaging as natural reproduction and forest planting gain in scope.

It is to be noted that during these years several industrial corporations, mainly of the paper industry, have been carrying on and expanding extensive forest planting as an integral part of their forestry programs. While several of the corporations operate their own nurseries, the Conservation Department continues to make available to all a goodly portion of its forest planting stock at nominal prices.

### Effects of World War II

Even before the United States' entry into the war, the loss of the CCC camps caused a decline in tree planting activities on public lands in Wisconsin. From an all-time high of over 38 million trees planted in 1940, there was a drop to 18 million in 1942, the first full year of our active war participation.

In succeeding years, the tree planting decline continued as the labor shortage became more apparent until, in the present year of 1944, a total of only 10 million trees were distributed and planted. It is gratifying to note, however, that the majority of these trees went to farmers and private landowners who took the time to plant the trees themselves or with help of immediate family members.

From all indications there will be a revival in forest restoration work after hostilities cease and present wartime conditions change, and it is the plan now at the state forest nurseries to attempt to gauge this future demand and prepare and ready their operations accordingly. ❧

## Celebrate the nursery centennial



Celebrate the centennial by planting seedlings for future generations.

*William "Bill" H. Brener was influential in the early years of the Wisconsin nursery system. He was a meticulous manager, taking detailed notes of weather, stock, insect and disease changes and nursery practices at the Griffith State Nursery from its founding to the late 1960s. He loved the nursery and could still be found driving the Griffith Nursery property every Memorial Day for many years after his retirement. He was inducted into the Wisconsin Forestry Hall of Fame on November 3, 1995.*

The Wisconsin state nurseries will celebrate their centennial with events throughout the year. Displays will be scattered throughout DNR offices and other public places, explaining the nursery system and its many changes from 1911 to the present.

In addition, all fourth grade students in Wisconsin were eligible to receive a free seedling to celebrate Arbor Day. Normally this is a conifer, red or white pine; however, to celebrate the state tree, sugar maple, and its contributions to the state, students received sugar maple seedlings.

The nurseries also will distribute free sugar maple seedlings to attendees at certain statewide and regional events. The nurseries are available for tours by school groups, organizations and landowners. An open house will be held at each nursery on September 24.

Check the nursery website [dnr.wi.gov/forestry/Nursery/](http://dnr.wi.gov/forestry/Nursery/) for updates. Join the nurseries this year in celebrating our first centennial and looking ahead to the next 100 years.



# A watershed year

**Discover the state of the lakes.**



A new generation of challenges includes lake weed management and invasive control.

DNR FILE PHOTO



Wisconsin lakes are in better shape than many lakes nationally.

RON ECKSTEIN



Water sampling is critical to telling success stories and planning the next moves.

ROBERT QUEEN



Fish benefit from lake habitat improvements statewide.

DNR FILE PHOTO

*Lisa Gaumnitz*

**I**t's a watershed year for Wisconsin lakes. New studies suggest they're in better shape here than nationally and are demonstrably cleaner than 40 years ago when the federal Clean Water Act triggered a generation of investments in wastewater treatment improvements. The baby boomers hired to carry out that landmark federal law and groundbreaking state laws have done their job well and are heading toward the exits — if they haven't already left.

As Wisconsin lake managers, educators and volunteers come together in 2011 to chart the course for the next 10 years, they recognize that protecting and restoring water quality alone isn't enough, that habitat is king, and that tackling new threats will require new approaches and leadership.

"We had a huge influx of staff in the 1970s as a result of the Clean Water Act and the funding available to states. Those people have done a good job in implementing it, and we're seeing that in cleaner water in the middle of the lake," says Carroll Schaal, who leads the lakes team for the Department of Natural Resources.

"Now that they're moving on, another generation needs to come forward and deal with these other challenges: habitat loss, water levels, toxic algae, invasive species and climate change. Those weren't on the radar 10 years ago, but they are now."

Sandy Gillum, a longtime lake volunteer, scientist and author



who lives on Anvil Lake in Vilas County, is seeing those challenges up close.

Anvil Lake and others like it — groundwater fed and perched high on the topography — are suffering significantly lower levels during the prolonged northern drought, while lakes sitting lower in the topography are in better shape or in some cases may be getting too much water.



SUBMITTED BY SANDY GILLUM

Sandy Gillum

"Anvil Lake's profile is that of a classic glacial kettle lake that is shifting to a shallow water lake system," Gillum says.

"Water clarity has been decreasing, algae, some toxic, have been a growing problem, and the assemblage of fish, aquatic plants and other aquatic creatures is shifting. It's not fun to watch." She hopes that some of the Anvil Lake watershed studies will open opportunities for improved management decisions for many lakes experiencing a shift to a shallow water regime.

Gillum, vice president of the board of directors of Wisconsin Lakes, a statewide nonprofit organization previously known as the Wisconsin Association of Lakes (representing over 80,000 citizens), says that state laws, administrative rules and policies need to be flexible in order to respond to emerging situations on a regional or local basis and that grant and other assistance programs should be available accordingly.

"Lake stressors vary across the state. In some cases, we have one-size-fits-all laws and action responses," she says. "We also need to learn to live with the lakes. We try to manipulate the environment to fit our needs when we should manipulate our habits to fit the environment."

### Progress at the end of the pipe

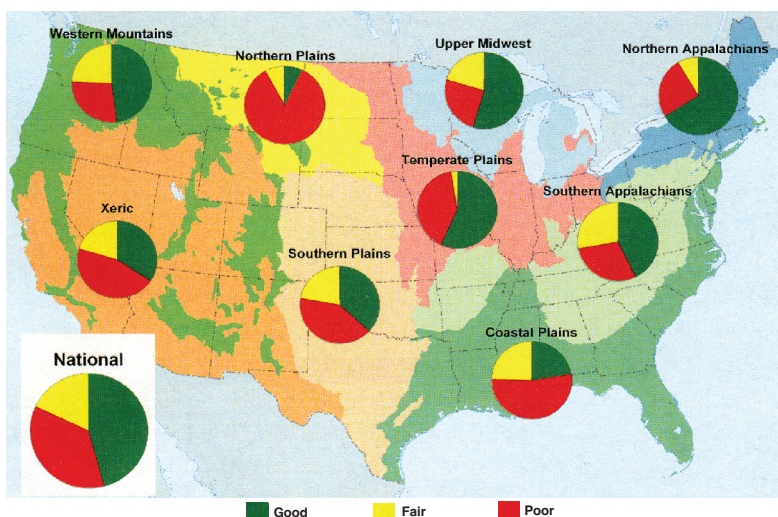
The federal Clean Water Act of 1972 sought to assure that all lakes and rivers nationwide would be safe for swimming and fishing. It set national standards for "point source" pollution — the liquid wastes flowing out of discharge pipes from factories and sewage treatment plants and into lakes, rivers and streams. The law also launched a massive grant program to help communities rebuild aging sewage treatment plants and included a "citizen suit" pro-



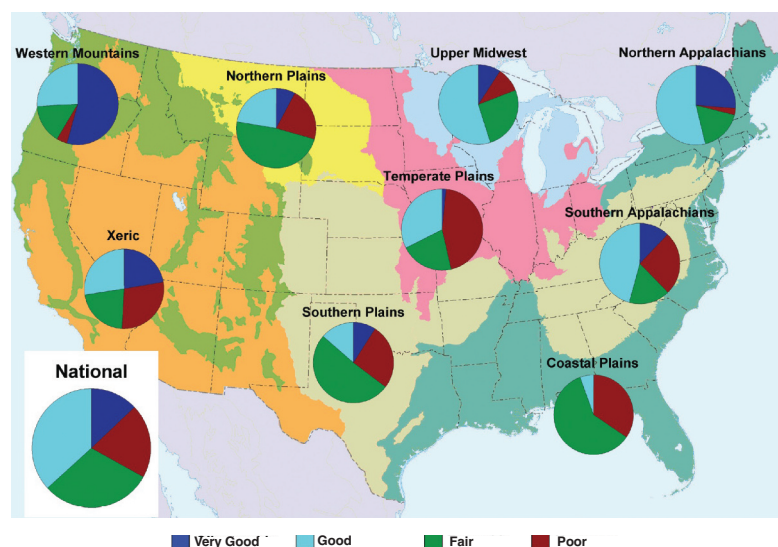
Susan Knight working with volunteers on Tinsel Lake during a baseline aquatic plant survey.

SANDY GILLUM

## Lakeshore Habitat



## Water Clarity



Maps from National Lakes Assessment: A Collaborative Survey of the Nation's Lakes



vision that allowed environmental watchdogs and other groups to sue polluters and the agencies regulating them.

Wisconsin was the first state to gain federal authorization to issue its own permits limiting point source pollution and, a decade later, the first state to have its point source permits require a greater level of treatment. The state was also a leader, starting in the late 1970s, in tackling the diffuse sources of pollution to lakes and rivers, so-called runoff pollution or “nonpoint source pollution.”

These investments have paid off in those lakes where point sources were a problem, according to the first ever baseline study of the nation’s lakes. In summer 2007, EPA’s National Lakes Assessment looked at 1,028 inland lakes across the country, including 32 in Wisconsin. Sampling crews from each state followed uniform procedures for collecting information on water quality, habitat, biological health, and presence of toxic algae on randomly selected lakes intended to provide insight on a regional basis.

Nationally, and in Wisconsin, most lakes sampled 35 years ago that were impacted by wastewater discharges have shown improvement or no increase in phosphorus.

Wisconsin also fared relatively well in other measures of lake health, with northern lakes in better shape than southern lakes, and with different stressors affecting them.

Northern Wisconsin lakes were part of the Upper Midwest eco-region, which also included northern Minnesota and Michigan, and which came out strong:

- 91 percent of lakes were in good biological condition, compared to 56 percent nationally.
- 64 percent of lakes had good shoreline condition, compared to 47 percent nationally.
- 91 percent of lakes had low to moderate levels of nutrients, compared to 80 percent nationally.
- 77 percent of lakes didn’t have detectable levels of a toxin produced by excessive blue-green algae, compared to 70 percent nationally.

Overall, habitat loss was the biggest stressor for northern lakes.

Southeastern Wisconsin lakes, grouped in the Temperate Plains region that included Indiana, Illinois, Iowa, Missouri and parts of the Dakotas, didn’t fare as well nationally but beat the regional

averages. These lakes had a variety of major stressors, from high nutrient loads to aquatic invasive species to habitat loss.

The national results are consistent with Wisconsin’s monitoring results as reported in the DNR’s 2010 Water Quality Report to Congress, notes Tim Asplund, DNR’s statewide limnologist.

Seventy-five percent of the 3,200 lakes assessed exhibited excellent or good water quality, and the number of lakes judged as such has grown since 1980 in each of the classifications DNR has assigned lakes based on their size, depth, water sources, drainage area and position within the landscape.

“I’m encouraged by these findings that most of our lakes are in excellent or good condition overall,” Asplund says. “We should be proud we have an important resource and we have maintained that. But keeping Wisconsin lakes in good condition is going to take vigilance and investing dollars where we know we can make a difference because the cost and effort to restore a lake once it’s degraded can be so great.”

### **Habitat is king**

One of the most significant findings of the National Lakes Assessment, Asplund says, points to one of the biggest challenges to lake management in the 21st century — keeping habitat intact.

“The stressors affecting the largest proportion of lakes are in fact habitat alterations to the lake shorelines and shallow water areas,” Asplund says.

“What we’ve increasingly realized, from multiple lines of evidence, and what the national study confirmed, is that both water quality and biological condition are driven by what happens on the shoreline and shallow water areas of the lake.”

Nationally, lakes with poor lakeshore habitat were three times as likely to have poor biological health as lakes with good lakeshore habitat. Good biological health is characterized by the composition of the zooplankton and phytoplankton community, key to the production of oxygen and food to support a diverse and healthy population of fish, insects, algae, plants and other organisms.

Asplund says those national findings also suggest that Wisconsin’s existing protections for shorelands and shallow water areas are benefitting lakes by preserving natural habitats and their filtering capabilities. Wisconsin was the

first state to adopt statewide minimum development standards and many counties have gone beyond those state minimums to enact more protective standards.

And Wisconsin for decades has required environmental review for dredging, grading, aquatic plant management and other activities in the shallow water that can disturb or destroy habitats.

“The Lakes Assessment says that shoreline development in and of itself doesn’t automatically make lakes worse — it’s how you develop it that determines the impact on the lake,” Asplund says. “It also says that if people who live on the lake engage in proper stewardship and restoration activities, it does benefit the lake. Some of the damage can be undone.”

### **New threats surface**

As point source pollution has been controlled, runoff pollution from farms, cities, roads and construction sites has become the leading cause of poor lake water quality. Rules to address these so called “nonpoint sources” have been tightened in the last decade. But because of the sheer number of these diffuse sources, it will take a lot longer to control them and see the kind of improvement witnessed after point sources were controlled, Schaal says.

The spread of aquatic invasive species like zebra mussels, rusty crayfish, common carp and Eurasian water-milfoil, along with water level issues, have emerged as some of the most concerning challenges. Algae blooms, sometimes toxic, are a growing problem on lakes, especially large reservoirs, where nutrient levels are still too high.

The lower water levels Gillum observes on Anvil Lake, which is down 6.5 to 7 feet from its all-time high in 1943, and about 3.8 feet since 1995, is a problem in other parts of Wisconsin. Some central Wisconsin lakes are particularly susceptible because of a combination of factors including their reliance on groundwater, their location in the watershed, weather patterns, and increasing groundwater use by humans. Central Wisconsin now contains the highest density of high capacity wells in the state — those pumping 100,000 or more gallons a day — with about 2,100 wells in Adams, Marquette, Portage and Waushara counties.

Seepage lakes located close to a



groundwater divide (a high point where water divides and flows in different directions) have less area to draw water from than lakes farther down the hill which intercept more groundwater sources. So when a lack of water lowers the water table, "high" lakes are more susceptible to fluctuations.

In other parts of Wisconsin, lake lovers are coping with effects associated with too much water.

Mary Jane Bumby, a retired high school biology teacher who lives along Green Lake, has been monitoring water quality and aquatic plants in the lake for 40 years, and for some years, had recorded improved water quality on the lake, Wisconsin's deepest natural lake at 236 feet. Then came the flood of 2008. The Ripon area received 13 inches of rain in a

few days and water from the 114-square-mile watershed rushed toward the lake.

"Water is a mighty force," Bumby says. The rains washed sediment and nutrients from surrounding rich farm fields into the lake, shorelines collapsed, adding more sediment, and piers and boats floated away with the high water levels.

"It's very sad to look out and see how muddy the lake can be when we have high winds," Bumby says. During the drought of 1992, she measured water clarity down to 50 feet. Last summer, clarity was 20 feet. "The lake is changing because of runoff from its watershed of two counties and water retention in the deep lake of 17 to 19 years."

That story has been repeated elsewhere in the state. The improving water quality seen across all classifications of lakes since 1980 has dropped off somewhat in the last five years, possibly due to extreme weather conditions, including the drought in northern Wisconsin and a series of unusually wet years in southern Wisconsin, Asplund says. Such flooding and drought are expected to intensify as a result of climate change in Wisconsin.

### New leadership and approaches needed

For the last 30 years, a partnership involving the Department of Natural Resources, UW-Extension and citizen and lake communities has helped Wisconsin keep its lakes healthy.

The partnership builds on the efforts of other DNR programs and local, state and federal agencies to control pollution sources and other stressors that can impact lakes. The state provides educational, financial and technical support to lake communities. Citizens provide local leadership, initiative and the political will.

The Wisconsin Lakes Partnership is considered a national, if not international, model for successful lake management. But key architects are now sailing into retirement, including Bob Korth, lakes team leader for UW Extension's Lakes program at UW-Stevens Point, and Jeff Bode, the longtime leader of DNR's lakes and wetlands section.

New leaders are grabbing the tiller. Eric Olson has been hired to take on the Korth job; Karen von Huene is leading Wisconsin Lakes. Together with DNR's Carroll Schaal, they are steering an effort to develop a new strategic plan for the Wisconsin Lakes Partnership. "Collaboration has been a critical component to addressing lake issues over the past decades," Olson says. "As we look to the future, the Wisconsin Lakes Partnership hopes to extend their collaborative network to ensure that everyone who cares about lakes can take an active role in protecting and restoring them."

Gillum says the new strategic plan needs to embrace adaptive management and replace the one-size-fits-all approach. This is already happening. Wisconsin Lakes is developing regional leadership teams to be the ears and sounding boards for Wisconsin lakes. These will be non-agency representatives who have solid backgrounds in lake issues and will be helping identify some of the most important concerns in their areas, she says.

For its part, the DNR has been classifying its waters in 10 classes based on lake size and depth, water sources, how much land drains to the lake, and its position within the landscape. Sediment core studies help give an idea of what the water quality was before statehood for a particular lake class. From those measurements, data collected by the Department of Natural Resources, other agencies and by volunteers through the self-help lakes

monitoring program can be used to determine if a lake is good, fair or poor in certain health indicators.

"There are different expectations for different lakes, so we expect shallow drainage lakes with large watersheds to be different than deep seepage lakes with small watersheds," Asplund says. The classifications are helping set realistic expectations for lakes and can help better steer funding to where it will make the most difference.

The DNR is hoping that Wisconsin's involvement in the Midwest Glacial Lakes Partnership, one of several emerging national fish habitat protection efforts, can help bring new information, recommendations and resources to the fight. When all is said and done, though, the success of the strategic plan rests on the shoulders of citizens like Gillum and Bumby.

Their energy and involvement seem limitless. Gillum, former education director and past president of the Vilas County Lakes Association, served on the LoonWatch Advisory Council of the Sigurd Olson Environmental Institute at Northland College in Ashland and designed and supervised a number of shoreline restorations in Vilas, Oneida, Forest and Florence counties, in addition to conducting and publishing research on the habitat values of natural shorelines and other topics. She now serves as Chairman of the Town of Washington Water Resources Committee and is involved in studies on Anvil Lake that she hopes can help lead to improved management decisions for lakes shifting to shallow water states.

Bumby also has a very hands-on approach.

She pilots her small motorboat to two sites in Big Green Lake, taking water clarity measurements by lowering a state-supplied Secchi disk into the water until she can no longer see its black and white markings, before recording the depth. She takes the water temperature, and completes her other sampling. This summer she'll be working with a group of volunteers to conduct a survey of submersed aquatic plants. The first such survey was done in 1921; she repeated that study in 1971 and has done it every decade since.

"I love to see what's going on in the lake," she says.

*Lisa Gaumnitz is the public affairs manager for the DNR Water Division.*



Mary Jane Bumby

SUBMITTED BY MARY JANE BUMBY



# Signature success stories



Fish Sticks are downed trees that are added to the water's edge to create habitat for many critters.

PAM TOSHNER

## Fish Sticks even a fish can love

The Eau Claire Chain of Lakes in Bayfield and Douglas counties are high quality headwaters of the National Wild and Scenic St. Croix River. Historic logging followed by a slow progression of shoreland development eliminated much of the natural woody habitat in the lake system. Since 2006, local citizens and conservation groups, the Department of Natural Resources, and the Bayfield County Land and Water Conservation Department have placed hundreds of downed trees ("Fish Sticks") in the water's edge and anchored them to shore where they benefit fish, bugs, birds, turtles, frogs, and other critters, and of course people. Now, interest in Fish Sticks projects is growing throughout the region.



The Upper St. Croix River is critical habitat in need of protection.

PAM TOSHNER

## Identifying and protecting habitats

The DNR completed Critical Habitat Designations to protect important habitats and natural scenic beauty on 14 lakes and the St. Croix River in northwestern Wisconsin. DNR staff mapped the critical habitat, including native aquatic plant beds, spawning substrates, wetlands and fallen trees; wrote reports; and invited citizens to provide feedback, which was overwhelmingly positive. Local government and conservation planning efforts had identified habitat protection as a need and these groups will use the designations in local decision making.



Lake Wabikon is one of the most significant undeveloped lakes in Wisconsin.

©JIM SCHUMACKER

## Wild lakes preservation

The Nature Conservancy (TNC), the State of Wisconsin and the Chequamegon-Nicolet National Forest closed a multi-faceted deal with Connor Timber Associates that will protect more than 19,000 acres of industrial forestland in northeast Wisconsin for forest jobs and timber products, recreation and wildlife habitat. The property includes 55 river miles and 15 lakes, including land next to two of the most significant undeveloped lakes left in Wisconsin, Wabikon and Riley lakes. TNC will eventually transfer the land to the Chequamegon-Nicolet National Forest for long-term stewardship.



Rain gardens help control runoff pollution to Deer Lake.

PHOTO SUPPLIED BY HARMONY ENVIRONMENTAL PROJECT

## Watershed management works

After nearly 15 years of state, county and especially local citizen efforts to control runoff pollution, phosphorus runoff into Polk County's 807-acre Deer Lake was reduced by more than 50 percent, resulting in an increase in water clarity of nearly five feet; an almost unprecedented lake response to watershed improvements. Many of the improvements were spearheaded by the Deer Lake Conservancy, which acquired and restored 168 acres of land, much of which was degraded.



Patrick and Sue Dugan donated 5.6 acres in Oneida County to the Northwoods Land Trust which was dedicated as the Dugan Squash Lake Nature Preserve.

NORTHWOODS LAND TRUST

## Education

The Northwoods Land Trust, led by Executive Director Bryan Pierce, promoted education, not acquisition, as their strategy for preserving valuable shallow water fish habitat on a shoestring budget. The group used DNR Lake Protection grants to identify landowners with more than 500 feet of lakeshore property, meet with them about various conservation options, and provide onsite technical assistance and management options for long-term protection and conservation. To date, the projects have made 1,775 landowner contacts resulting in 38 permanent conservation easements protecting 4,049 acres of land and nearly 21 miles of lake frontage on over 40 lakes and two miles of river frontage in Vilas, Oneida, Forest, Florence, Iron, Price and northern Langlade counties.

• Carroll Schaal, Paul Cunningham, Pamela Toshner, The Nature Conservancy, Cheryl Clemens and Alex Smith



# Water conservation and efficiency



More than just turning off the faucet!

*Shaili Pfeiffer*

**Y**ou turn off the faucet while brushing your teeth. You take shorter showers. You've replaced your old toilet with a new *WaterSense* 1.28 gallon/flush model.

These are all good ways to conserve water but are only part of your water conservation opportunity. These practices focus on water demand as it relates to drawing from a water utility or private well. But water conservation and water use efficiency also include using rainwater for outdoor and indoor plant watering, and activities that protect or enhance groundwater supplies.

You may remember learning the water cycle in school: rain falls on the ground, it mostly soaks into the ground to become groundwater that slowly feeds rivers and springs, and some runs directly to fill rivers and lakes. Still more evaporates creating new clouds and more rain.

But when was the last time you thought about how we affect the water cycle with our choices about water use?

On the urban landscape, rain falls and either soaks into the ground or finds pavement and directly runs off into storm sewers, circumventing the benefits of groundwater infiltration such as

water purification and replenishing the water table. To supply our drinking water, we withdraw groundwater that would otherwise be discharged to lakes and rivers. We then release this water to rivers downstream of the water's origin, leaving the aquifers with less water.

**With water conservation and water use efficiency we can:**

- Decrease our water demand by using more efficient appliances or fixtures such as toilets, washing machines, dishwashers, showerheads and faucet aerators. We can eliminate or decrease water use indoors and outdoors without impacting our final goal (such as clean teeth, clean dishes, healthy and attractive lawns and garden plants). Reducing water demand saves us money in the long run through decreased water and energy bills and reduces our use of a water supply that is energy intensive and expensive to pump, treat and transport.



- Use alternate water supplies such as rainwater that we capture on our property through a rain barrel or other means. Captured rainwater can be used for watering garden plants and indoor house plants. This water is perfect for growing plants and decreases our use of water supplied by the utility or a private well.
- Decrease runoff to storm sewers and augment groundwater supplies by redirecting downspouts to lawns and gardens. This reduces water needs in those areas of the gardens and reduces water “lost” to storm sewers. Creating a rain garden contributes to groundwater recharge. Find out more in the how-to section of this article.

### Why be efficient with water in Wisconsin?

There is an argument that suggests that because there is plenty of water in Wisconsin, we really don’t need to conserve water or use it more efficiently here. Often, in Wisconsin, we hear people say they understand why water conservation is important in the desert southwest, but it rains so much in Wisconsin and we have so much water with ample groundwater supplies, rivers, streams and springs that we don’t need to worry about water conservation.

It is true that water is abundant in Wisconsin with two Great Lakes, 15,000 inland lakes, 32,000 miles of rivers and streams, 11,000 springs and enough groundwater to cover the state in about 100 feet of water. But this water is not evenly distributed across the state. Some communities struggle to provide an adequate supply of water to meet residents’ needs given the geology or other constraints in an area, or a rapidly increasing population.

Even in parts of the state where the water supply is ample, water conservation can reduce your water and energy bills and is part of a conservation ethic — to use only the water we need, to reduce the costs for treating and transporting water, and to keep more water available in the natural environment for fish, birds and other critters that make up some of what is special about Wisconsin.

### What can I do?

There are lots of things you can do to conserve and use water efficiently. One important and fun area where you can conserve water is in your lawn and gar-

den. Summer is a great time to assess your yard and see what your options are for using less water, while maintaining that which makes your yard special or important to you. Some changes can be made immediately to reduce your water use and maintain or improve the health of your lawn and garden. Other changes to use less water may require a little more planning and are best implemented over time. All of these options pay big dividends such as contributing to groundwater recharge and a beautiful yard that attracts and feeds butterflies and birds.

**#1 Lawn watering:** Lawn watering is optional. Some people choose to forgo watering established lawns and allow their lawns to go dormant during hot periods in the summer. Other people prefer to keep their lawn green. If you water your lawn, the following tips will protect your lawn and help you use water efficiently.

Water your lawn with one inch of water weekly. Too much water or watering too frequently can damage the grass roots or create shallow roots.

Water early in the morning. Your grass will get more of the irrigation water and less will be lost to evaporation. In addition, there is less demand for water in the morning, so you put less stress on the water supply system.

Cut your grass no shorter than two inches. Taller grass requires less water and results in less evaporation.

Check the weather. Most newspapers include information on the amount of rain in the past week and a forecast. No need to water if your area has had an inch of rain in the past week. If a rainstorm is forecasted for the next day or two, you can safely put off watering.

More tips on lawn watering including types of sprinklers or ways to water difficult areas are included in this UW-Extension fact sheet: [cleanwater.uwex.edu/pubs/pdf/lawnwat.pdf](http://cleanwater.uwex.edu/pubs/pdf/lawnwat.pdf)

**#2 Decrease your lawn area:** Another way to reduce your water use for lawn irrigation is to reduce the amount of lawn you have.

Assess your lawn and decide where to convert lawn into garden beds.

Look for places that are difficult to mow or where adding some varied plants will enhance your yard’s visual appeal. Establishing circles around trees, borders along fences, houses, garages and paths are all good places to start.

Replace the lawn with drought tolerant plants that won’t need water after being established.

Keep your projects manageable by



Convert more yard area to garden beds.

ROBERT QUEEN



starting with a small area and increase the area of planting beds over time. This can also save on bedding plant costs as you can move divided plants to new areas of your yard.

### #3 Use native plants:

Plants and shrubs native to Wisconsin come in beautiful varieties with choices to bloom throughout the season, adapted to varied soil types and light conditions and to Wisconsin's weather. Correctly matched to soil and light needs, once established, native plants will survive wet weather and drought conditions alike.

Determine the soil type, moisture and light conditions of the area you want to plant.

Match plants to these characteristics. More information on planting with natives including sources of plants and a database of native plants and their characteristics is available online at [dnr.wi.gov/runoff/rg/index.htm#plant\\_lists](http://dnr.wi.gov/runoff/rg/index.htm#plant_lists)

Talk to your neighbors. Native plants, like most garden perennials, need to be divided over time, and often you can find a neighbor with plants they would like to share.

### #4 Redirect and disconnect downspouts:

Water conservation can focus on decreasing the demand for water and protecting water supplies. In this case, redirecting your downspouts into your lawn or a garden, allows for some of that rainwater to infiltrate into the soil and eventually reach the water table. This practice keeps your water local and on your property as much as possible. This does not work for all situations such as if the downspout is keeping water out of your basement, but often the water can be redirected to flow into your lawn or garden with no detriment to your yard and a benefit to water supplies.

**#5 Plant a rain garden:** The next step after redirecting your downspout is to build a rain garden. A rain garden is a specialized garden that uses water typically captured from a roof, and allows the rain to slowly infiltrate into the ground, contributing to groundwater



Plant native plants that match soil and light conditions.

supplies and reducing stormwater runoff.

Rain gardens promote water conservation by contributing to the supply of groundwater available, rather than reducing the water withdrawn. Rain gardens are planted with native plants adapted to the site that promote water infiltration and attract birds and butterflies. Rain gardens can allow 30 percent more water to soak into the ground and help make up for the loss of infiltration area due to houses, roads and other buildings. Rain gardens require some planning, but are worth the effort for the water conservation and other benefits. For more on rain gardens visit the DNR webpage at [dnr.wi.gov/runoff/rg/](http://dnr.wi.gov/runoff/rg/)

**#6 Rain barrels:** Installing a rain barrel connected to a downspout is a great way to create an additional water source. Rain barrel water can be used for outdoor and indoor non-edible plants. These barrels usually hold 50 gallons and fill quickly in a rainstorm. You can make your own or purchase one from a garden supply store. For more information visit [dnr.wi.gov/runoff/rg/links.htm#barrels](http://dnr.wi.gov/runoff/rg/links.htm#barrels)

### What's new?

Wisconsin is home to many innovative organizations and businesses trying out new ways to conserve water or promote water conservation and water use efficiency for their customers. Here are a few interesting projects.



Redirect downspouts to the lawn or a rain garden.



Rain barrels create a source of free water.

**UW-Milwaukee Building Dashboards** – In their efforts to reduce water and energy use, UW-Milwaukee installed Building Dashboards last fall. These dashboards project real time energy and water usage in three dormitories. UWM plans to install them in several more academic buildings. The





Rain gardens require some planning but are worth the effort.

ROBERT QUEEN

Dashboards are connected to water and electric meters that provide data for the Building Dashboard. The information also can be accessed through a simple webpage or a touch screen at the building entrance that shows trends in energy and water usage and allows dormitory residents to see the impact of their actions to conserve energy and water. UWM participates in national competitions to encourage conservation in fun and innovative ways. While it is too soon to determine the water use reductions at UWM from the Dashboard project, during the most recent competition the top three schools reduced their water use by 10 to 15 percent.

**Kaukauna and Fitchburg water utilities promote water conservation** – Many public water utilities in Wisconsin promote water conservation and water use efficiency through programs they sponsor. The Kaukauna Utility and the Fitchburg Utility are two such examples with different approaches. In 2010, Kaukauna Water Utility started offering rebates from \$10 to \$200 on water-saving faucets, showerheads, toi-

lets, dishwashers and clothes washers. The utility also has a \$500 incentive for homebuilders who meet the WaterSense new home standard and up to \$1,000 incentive for industrial customers who install water-saving measures. For 2010 the utility provided 199 rebates and saw a 10 percent decrease in residential water use over the last four years, while the population has increased by three percent. Using another approach, in 2008 the City of Fitchburg increased its water rates by more than 80 percent for customers with separate irrigation meters to encourage water conservation for lawn watering. Lawn irrigation typically is the main contributor to peak water use in the summer. With more expensive water rates for irrigation the City of Fitchburg intends to reduce summertime water use peaks.

**J. F. Ahern Company Rainwater System** – J. F. Ahern Co. is a mechanical contractor company in Fond du Lac that upgraded in 2007 to a Leadership in Energy and Environmental Design or LEED Gold certified facility. One of the key innovations J. F. Ahern Co. included in the expanded facility was a rainwater system that collects and treats rainwater to use for flushing toilets and urinals. The system is capable of holding 20,000 gallons of water in a cistern below the building and turns stormwater into a resource for the building. J. F. Ahern Company could have expanded its water service to supply the building addition, but instead took a novel route that reduced the facility's potable water demand by 61 percent. The J. F. Ahern Co. project is one of the 80 or so reuse projects around the state. It turns rainwater into a resource.

**Wisconsin's Water Conservation and Water Use Efficiency Program** – Part of the Great Lakes Compact, an agreement between all of the Great

Lakes states to protect water quantity in the Great Lakes, calls for Wisconsin to develop a statewide voluntary water conservation program. The Department of Natural Resources is leading this effort in partnership with the Public Service Commission and the Department of Commerce.

While water conservation efforts are not new to Wisconsin, this team of state agencies will build upon past successes to promote water conservation and efficiency in the state. One of the first steps was to develop program goals to understand water use, adopt policies to promote sustainable and efficient use of water, provide education, and encourage research and technology development. Two early projects of this program are the Water Conservation and Water Use Efficiency rule that identifies water conservation and water use efficiency measures by water use type and promoting Fix-a-Leak Week.



A cistern below the building turns stormwater into a water resource for building use.

J. F. AHERN COMPANY

#### Want to learn more?

These resources can support your efforts to conserve water and increase your water use efficiency:

- Wisconsin Department of Natural Resources:  
[dnr.wi.gov/org/water/dwg/wateruse.html](http://dnr.wi.gov/org/water/dwg/wateruse.html)
- EPA WaterSense:  
[epa.gov/WaterSense](http://epa.gov/WaterSense)
- Alliance for Water Efficiency:  
[allianceforwaterefficiency.org](http://allianceforwaterefficiency.org)



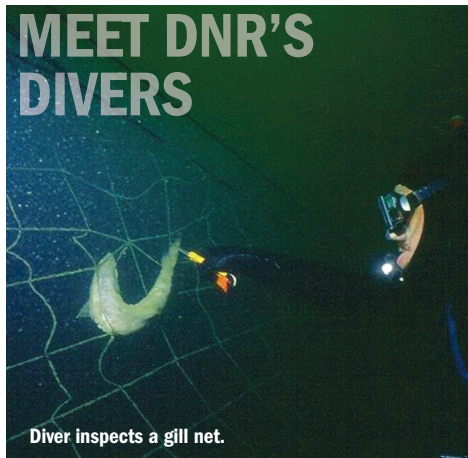
*Shaili Pfeiffer is a specialist in the DNR's drinking water and groundwater program.*





# CARRYING OUT THE MISSION

## MEET DNR'S DIVERS



Diver inspects a gill net.

DNR FILE PHOTO

*Mike Kitt*

**S**ixty feet beneath Lake Michigan's rippled surface, two divers slip silently along the sandy bottom, with 40 feet of heavy plastic netting looming ominously overhead. Lake trout, whitefish and alewives swim uncaringly 10 feet away on the other side of the barrier.

One diver swims a little too close to the netting and gets his scuba tank caught in the webbing. Trapped like the fish on the other side of the net, there is no panic, no struggling. This diver is well trained, like his partner.

The second diver slips in and untangles the first diver, and carefully pulls him back – crisis averted. The divers continue along the 1,300 feet of net and continue their job of counting and clipping salmonids trapped in the net.

Resembling a scene from a popular TV series of the early sixties, it is not Lloyd Bridges who is engaged in underwater battles with evil-doers as on "Sea Hunt," but two of the Northeast Region's dive team members.

On this day, the team is conducting its bi-weekly count of trout and salmon in commercial fishing nets to help determine incidental mortality. The



A diver in a wetsuit and scuba gear is underwater, holding a thick rope. The water is clear and blue. The diver is positioned on the left side of the frame, facing right.

The DNR Northeast Region dive team has assisted in equipment recovery as well as body recovery.

DNR FILE PHOTO

It's a dangerous job, very dependent on water clarity and conditions.

DNR FILE PHOTO

A diver in a wetsuit is on a boat, possibly preparing for a dive. The boat has the number 'C-170' on its side. The diver is wearing a red jacket and a cap. The boat is on the water.

This isn't "Sea Hunt" but the stories are still fun and engaging.

DNR FILE PHOTO

results will be analyzed and factored into future management and regulation strategies.

The Wisconsin Department of Natural Resources has used divers from time to time for years, but nothing was ever formalized. Department employees, who happened to be divers, were sometimes used to recover lost equipment.

My first department dive in 1984 consisted of plunging into an underground cistern on top of Rib Mountain State Park to remount a valve that had fallen off. Diving into the vault in pitch blackness made more sense than draining it and sending in a certified confined

spaces technician to reattach the valve. Trying to screw on the valve with a monkey wrench underwater proved to be quite a challenge due to the lack of leverage and positive buoyancy. I finally managed to "get 'er done" by wedging my head between the feeder pipe and the wall in order to use both hands. I didn't say divers were the sharpest tools in the drawer!

As underwater diving offered value to resource management, employees who were certified divers quickly saw the need for formalized activities and training. After transferring to the Northeast Region in 1985, I met other personnel who were divers or interested in becoming divers.

District limnologist Tim Rasman was a very active diver and instrumental in kindling the fires of the state's first formalized dive team; however, it took until approximately 1988 to establish a real team complete with its own set of rules to organize and govern it.

The original team was a blend of divers from the warden force as well as fisheries and water quality specialists. This blend of expertise continues to be the team's real strength. Original dive team members included myself along with wardens Todd Wipperman and Dave Weber, as well as fisheries technicians Tim Kroeff and Don Bielfuss, and fisheries biologist Paul Peeters. The team was lead by Tim Rasman.

The regional dive team members have assisted in many projects over the years ranging from equipment recovery, to evidence gathering, to body recovery. Some of the more notable projects included placement and recovery of Astroturf egg mats for lake trout rehabilitation on Lake Michigan. Activity over the last several years has included counting skeins of perch eggs on Lake Michigan's Milwaukee Reef in the Southeast Region in order to determine spawning success during a critical rehabilitation period.

Northeast Region divers have also been recruited for assessment projects on Lake Superior in the Northern Region. They have gathered evidence for


littering cases as well as pollution and water regulation violation cases. Warden divers have recovered several drowning victims. Team members have made assessment dives on dam faces and outflows to determine causes of fish mortality.

The view below is sometimes clear, but all too often it is more like coffee with creamer. Some of these projects have been rather complicated as well as dangerous, but always fun.

Diving is not for everyone and DNR diving is not for all divers. During a rather hectic several weeks of trap net assessments in the mid 1990s, schedule conflicts and lack of qualified personnel caused a shortage of divers needed to complete the project. A local sheriff's department dive team volunteered their help. After one dive on a trap net, they decided they would stick to easier and less intimidating dives. Tim Rasman recalls swimming through a culvert with his tank under his arm, due to the tight squeeze, in order to recover a crow bar dropped into the auger in a water lift station at a state wildlife area. The alternative was to bring in a crane to remove the entire lift station, which would have been costly.

Many dives have saved the department thousands of dollars in time, equipment, and hiring commercial divers. Team divers have also saved other agencies a lot of money. A few years ago, the U.S. Coast Guard requested the NER Dive Team to recover a \$50,000 submersible Remotely Operated Vehicle that had become entangled in a shipwreck near Death's Door in Door County. The equipment was returned to the Coast Guard unharmed.

The dive team members train several times a year and are required to make a minimum number of dives each year to remain on the team. All members are certified and most hold advanced certifications.

Some equipment is department owned and some is personal gear. All warden divers supply their own gear. Each diver receives a physical once every three years specifically aimed at diving physiology. The average diving experience for team members is 15 years, with some members having over 30 years of diving experience. 

*Mike Kitt recently retired from the DNR and was a warden in Marinette.*





## WOLF CONTROL NECESSARY FOR ELK HERD SUCCESS

"A herd in the balance" (December 2010) contains more depressing news concerning the future of elk than it does words of joy. Steps taken to minimize traffic fatalities are truly commendable and need be continued, but failure to deal realistically with the wolf problem (yes, PROBLEM) will render useless all other efforts to build up our elk herd. Pennsylvania, Lower Michigan and Kentucky have enjoyed tremendous success in re-establishing their elk herds — they have no wolves with which to contend, and all have had regulated elk hunting. Wisconsin could achieve that end if proper managerial steps are taken.

I strongly recommend that wolf population control measures be implemented at the earliest possible date; failure to do so will keep our elk herd at a meager level forever, or until the wolves eliminate the elk completely. Moving the elk away from the wolves, as the article describes,

will be a futile and costly measure, destined to solve nothing, because the wolves will find them. A limited, controlled shooting of wolves, to pare down the pack, would be far more effective. Wolves are intelligent creatures and they would soon learn where life is dangerous. Those surviving would take up life in areas where they do not get shot, and our elk would have a far better chance for survival.

R. Claude Corbeille  
Life Member, Rocky Mountain  
Elk Foundation  
Brillion

We asked DNR's wolf expert, Adrian Wydeven, and head elk biologist, Laine Stowell, to respond to Mr. Corbeille's letter. Adrian Wydeven says, "Elk herds in Michigan and Pennsylvania took a while to take off as well. In Kentucky many more elk were reintroduced and were released into areas with extensive reclaimed mine sites which have been converted to grass-

lands. Elk were released into the Clam Lake area with wolves on the landscape, and although the elk population growth has slowed some at times, the herd has grown with the presence of wolves, and there is no indication they would eliminate the elk. When elk were experimentally introduced into Clam Lake in 1995, it was understood that for elk to succeed, they would need to be able to adapt to the existing environment, which included the existing wolf population.

"Wolves continue to be listed as endangered species by the federal government, therefore there currently is no possibility to consider a hunting season. The federal government started a process to delist wolves this spring that may remove wolves from the federal list by the end of 2011. But it would still take time for a public harvest to be implemented. It is also not clear whether it would be appropriate or broadly accepted to remove wolves from large blocks of public land that are managed for a diversity of wildlife. This is not a herd of domestic cows; these are wild elk that are adapted to wild lands and dealing with predators."

Laine Stowell says, "Certainly Michigan, Pennsylvania and Kentucky have had great success with their elk herds and do have hunting seasons. These states also have not had wolves on the landscape for at least most of the time that they've had elk. However, it is not correct to assume that their success is solely due to the fact that wolves were not present for at least most of that history. Elk were released in Michigan in 1915 and in Pennsylvania in 1918. Both releases were at single sites. It took 50 years before Michigan had an elk hunting season and Pennsylvania didn't have an elk hunting season until 2001. A major factor limiting expansion of these herds was due to human predators (poachers) and the fact that the elk would not disperse on the landscape. Eastern habitats are lush and all seasonal habitat needs are close at hand. Elk are non-migratory on eastern landscapes.

"On the other hand, in four years, starting in 1998, Kentucky brought in 1,549 elk and released them in eight different locations across a 16-county elk range. By 2009 Kentucky estimated they had 11,000 elk. In 1998 Pennsylvania did a similar project. In 1996 they only had 160 elk in a 285-square-mile elk range. They expanded that range to 825-square-miles and in 1998, 1999 and 2000 they moved 69 of their elk to three different locations. By 2006 they had 700 elk.

"In Wisconsin, 25 elk were released at one site three miles south of Clam Lake. There were two to three wolf packs present in their vicinity. It took four years before one of those packs killed a calf elk and eight years before any of the then several packs within the elk range killed a two-year-old bull. Our wolves are primar-

ily adapted and skilled at preying on deer and beaver. Not all wolf packs are created equal! There are 14 wolf packs within the Clam Lake elk range, six that adjoin or overlap elk occupied areas. Only two packs, the Ghost Lake and Torch River packs, have become expert elk predators, accounting for 90 percent of the 49 wolf-killed elk since 1995. Both the Torch River and the Ghost Lake packs share a boundary along Highway 77 and 85 percent of the elk are concentrated in this border area between these two wolf packs.

"Even if we could kill wolves, it would not promote elk dispersal. That's not our experience, nor the experience in Michigan, Pennsylvania or Kentucky. Expanding elk range is the primary purpose of the 'assisted dispersal' project, moving them away from the Ghost Lake and Torch River packs and State Highway 77 where most vehicle collisions occur. Certainly other wolf packs will learn and become expert elk predators, but if we continue to place elk in areas where packs haven't yet developed those skills and away from Highway 77, we hope to return annual elk growth closer to the 19 percent average annual growth we observed during the first eight years of elk, rather than the six percent annual increase we observed the last six years.

"For the record, from May to December of 2010 we only saw five verified elk deaths, only one due to wolves. In the same period in 2009 we had 20 deaths, with eight due to wolves. The elk herd at the end of January 2011 was estimated at 160 animals. The department continues to work hard to help Wisconsin elk grow."

## MAGAZINE STAFF UPDATE

After producing this magazine for nearly 25 years, David L. Sperling has retired as editor of *Wisconsin Natural Resources*. The magazine will be edited and compiled by a team of Creative Products Manager Natasha Kasulke, Circulation Manager Karen Ecklund, and Staff Writer Kathryn Kahler, working with Art Director Thomas Senatori.

"The magazine continues to be an inviting, enjoyable means to explore outdoor issues, bolster the value of getting outdoors and lay the foundation for discussions about emerging environmental issues," Sperling said.

"We like introducing readers to the DNR people and our partners who improve properties; restore habitat; and nurture healthy animals, plants and landscape the public can enjoy. We're equally proud to introduce readers to a host of talented writers, photographers and illustrators who donate their works.

"Our contributors are generous people who care deeply about Wisconsin's natural beauty. They want to take others along with them as they explore outdoor spaces, come eye to eye with wildlife, find spectacular scenery, and practice conservation. We are proud to share the vision and actions of so many who value the outdoors," Sperling said. "We're proud to introduce talented people to our readers and we're proud to give readers a forum to share the outdoor experiences they enjoy.

"I'm equally grateful to the skilled, well-trained and generous DNR staff that makes time to share their stories and explain the evolving art of nurturing outdoor resources. Earth did not come with a set of instructions. Every day we have an opportunity to discover more and appreciate how nature works. We can choose to act in ways that sustain health and the natural systems that protect us."



Larry Sperling

DNR FILE PHOTO

## NO ACCESS TO THE WEB?

Don't have access to a link we mention in a story? Let us know when you want to follow a link we list. We'll do what we can to get you a copy of the material if it is available free of charge and is relatively short in length.

## BLUE JAYS DISAPPEARED

We have had a family of blue jays regularly at our feeders along with cardinals, chickadees and other seed eaters. We only use sunflower seeds. All of a sudden the blue jays have disappeared! Actually, good riddance as they are pigs, but we love all of our birds. Has anybody else had the same problem?

Bill Sherry  
Menomonee Falls

Andy Paulios, DNR's Bird Conservation Initiative coordinator, reports that it's very difficult to explain such localized events for which there could be several reasons. He would like to commend you, Bill, for being tuned in to the value of birds and engaged in their comings and goings. If you have access to the Internet, you might try searching online for information about blue jays and your other favorite birds. Start by typing "bird watching in Wisconsin" or "backyard birding" in the search engine and see what comes up. And keep up the good work!

## AWESOME RESPONSIBILITY

My son took this picture of a wild turkey nest of eggs which he observed while hunting last spring in Waushara County. He was on his way out of his hunting area when



he observed a turkey hen flush out of a grassy area. He suspected she was on a nest and this is what he found. He quickly took a picture and left the area. After developing the picture it looks like at least 21 or 22 eggs and could be more. What an awesome responsibility that mother will have when they start to hatch. There are so many predators that prey on the young poults like fox, coyotes, raccoons, hawks, owls, snakes and more. Thanks for publishing a great and interesting magazine.

Bud Meyer  
Wild Rose



#### GREENLAND ONCE GREEN?

Although most of your articles are interesting and informative, the article on preparing for the "absolutely happening" climate change ("Getting ahead of a changing climate," December 2010) is lacking some interesting points to paint a complete picture. I like to use the example of Greenland to provide data on the perceived climate change seldom mentioned by media sources. The name Greenland was not chosen because of the current tundra landscape. Erik the Red, the father of Leif Eriksson, discovered Greenland in the mid-900s AD and named it as such due to the lush and fertile green valleys. By the year 1000 the population was about 3,000, living in 300-400 farms. This small community survived for hundreds of years. Around the year 1300 the earth started to experience a mini-ice age that eventually drove the farming profession from Greenland completely. Today there are a few farming opportunities returning to Greenland as a result of the never ending climate cycle.

Perceived man-made climate change has little absolute evidence. Yet Greenland's history is a documented fact that

#### COMMENT ON A STORY?

Send your letters to: Readers Write, WNR magazine, P.O. Box 7921, Madison, WI 53707 or email letters to [dnrmagazine@wisconsin.gov](mailto:dnrmmagazine@wisconsin.gov). Limit letters to 250 words and include your name and the community from which you are writing.

our earth's climate cycles from warm to cold in an eternal rhythm.

Russ Tinder  
Orfordville

#### NIGHT SKY IS RESOURCE TO TREASURE

My wife and I have always enjoyed your magazine. The February 2011 edition was extra special to me, for one reason. The cover story ("Seeing the night sky") by Kurt Sroka from Somerset was great. Thank you for helping inform everyone of this true issue and one that we can overcome. You see, I am an amateur astronomer and I agree wholeheartedly with every word in the article. The article covered every concern I have about losing one of our most beautiful resources. The article was written very well.

Wisconsin has many great natural resources to preserve, however, the night sky is one of them that the majority of its residents fail to include as being important. In fact, most of the people in this country, and the world, never even think of the night sky as a resource. There are people today who live in large cities who, on a good night, would be very lucky to see a couple dozen stars or planets. What a pity! If the people of our state, and the world, would just take the time to go to a dark sky site and look up, they would see exactly what I mean. It is absolutely stunning. You would never forget the sight and would long to see it many, many more times, I promise.

Most people are ignorant about the night sky and need to be educated about proper lighting. Contractors and subcontractors need to do a better job by informing people about better ways to light their homes and businesses. It is a shame to have to travel hundreds of miles to get to places where I can truly enjoy the night sky the way I remember it, as a kid, right here in our great, beautiful state of Wisconsin. Great article. Keep up the excellent journalism!

Duane Jacob  
Tomah

#### MOTION DETECTORS EFFECTIVE AND CONSERVE ENERGY

Thanks for the fantastic, informative article on "Seeing the night sky." We bought 40 acres in the north woods 20 years ago. We used to love to go into the clearing with a telescope and view stars, planets, comets and other heavenly bodies. Unfortunately a few of our neighbors have installed those "on-all-night" mercury vapor lights. We see a fraction of what we saw before! This is such a violation! Many of us feel they should be banned. The other side wants "security" [offered by the lights] but an insurance agent friend states 70+ percent of rural homes broken into have one of these offensive lights! He also stated "motion detectors are far more effective" and are not wasting energy all night. Sadly, our children will not see the Milky Way and other heavenly bodies if we don't stop these offensive lights in rural areas.

Wayne Jensen  
Grantsburg

Continued from page 2

## Weevil warriors

sources tested a new design for sorting the weevils — a drastic improvement from old methods.

Root-mining larvae, *Agapeta zoegana* and *Cyphocleonus achates*, also are effective biological controls that bore into the root of the knapweed plant. As adults, *Agapeta zoegana* live up to 13

days, but mating takes place in the first 24 hours. The eggs are laid on knapweed plant leaves and once they hatch, the larvae immediately mine into the outer root. The larvae feed on the root overwinter and emerge mid-summer the following year. They devastate the knapweed plant, but they have been difficult to raise and distribute as adults. The Department of Natural Resources is developing methods to harvest this agent in the larval stage. Successful collections in 2009 and 2010 raise hopes for the 2011 collection season.

The *Cyphocleonus achates* beetle is a brown-gray mottled color and about ½ inch in size. It also targets spotted knapweed. The adults live eight to 15 weeks and during warm sunny days climb to the top of the knapweed plants to search for a mate. After mating, the female lays her eggs at the base of the root crown. When the eggs hatch, the larvae bore into the root core. The larvae feed on the root over winter and emerge mid-summer. Their effects on the knapweed plant are similar to that of the *Agapeta zoegana*, but collecting adult beetles is still difficult in the field.

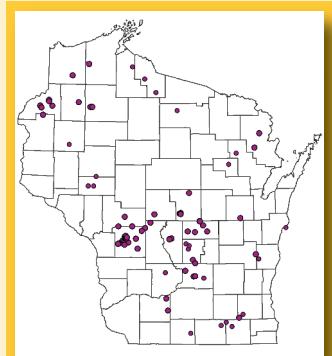
In 2009 and 2010, the Department of Natural Resources built eight *Cyphocleonus achates* propagation corral pens and plans to bring that total to 25 pens by 2012. The concept is to enclose an area with aluminum flashing, so the beetles can't escape.

Biological control is an effective, long-term answer to suppress spotted knapweed in Wisconsin. But the process is slow and spotted knapweed is a formidable enemy. This shouldn't discourage you but help you put into perspective the severity of this plant's dominance and the difficulty in controlling it.

To get involved in stopping spotted knapweed, join your local weed district, adopt a highway or local conservation group and help map infested areas. For more information contact Wade Oehmichen by email at [wade.oehmichen@wisconsin.gov](mailto:wade.oehmichen@wisconsin.gov).



Wade T. Oehmichen is a DNR wildlife biologist located in Horicon.



This map shows where control agents have been released at 174 sites in 33 counties since 1991.

WADE OEHMICHEN



# Comforts

## Here's to your health

Enjoy the outdoors but "Leave Wildlife Alone."

DAVID L. MISTEREK

Kathryn A. Kahler

**A chance wildlife encounter can be thrilling. But wild animals, as cute and cuddly as they may be, can carry diseases that could threaten both you and your pet's health. "Leaving Wildlife Alone" is an important lesson, not only for the animal's sake, but for yours as well.**

Zoonotic diseases are those that can be transmitted from wildlife to humans from direct contact (picking up an animal, a scratch or bite), inhaling spores from contaminated soil, or ingesting parasite eggs. Examples of avian zoonotic diseases include avian influenza, chlamydiosis, histoplasmosis and salmonellosis. Examples of mammalian zoonotic diseases include rabies, Hantavirus, tularemia and baylisascaris procyonis, the raccoon roundworm. Vectors or biting insects, such as ticks or mosquitoes, also can transmit disease from wildlife to humans. For example, Lyme disease and ehrlichiosis are transmitted through the bite of a deer tick, and West Nile virus is transmitted by mosquitoes.

It's important to be aware of zoonotic diseases because some can cause illness, or even be fatal. Rabies can be transmitted through a scratch or bite, or even direct contact with an infected animal's saliva. Histo-

plasmosis is transmitted by the inhalation of fungal spores released from disturbed soil in bird or bat roosting areas. Baylisascaris procyonis is transmitted to humans or pets when they accidentally ingest parasitic roundworm eggs. Eggs are passed through the raccoon's feces, which may be on the ground or clinging to surrounding vegetation.

Zoonotic diseases also can be a challenge to differentially diagnose from other diseases. If you believe you have been exposed to a zoonotic disease, it's important to let medical personnel know so they can provide the right treatment. In some cases, more than one disease creates similar symptoms. In other cases, mild infections may not develop symptoms, so people don't even realize they've been exposed to a zoonotic disease. Those who may have the highest risk of exposure are hunters, trappers, outdoor enthusiasts, taxidermists, wildlife

biologists, conservation wardens, game farm workers and farmers.

Other non-zoonotic wildlife diseases not transmissible to humans can still be a danger to pets. Canine distemper virus (CDV) and canine parvovirus (CPV) affect many wild species including raccoon, fox, and coyote, as well as unvaccinated domestic dogs. It's important to keep domestic animals up-to-date on vaccinations because diseases like CDV and CPV can be transmitted through direct or indirect contact with a variety of wildlife species.

Here are steps you can take to protect yourself, your family and your pets from wildlife diseases:

- Never pet or hand-feed any wild animal.
- Avoid a wild animal that exhibits unusual behavior, such as aggression or loss of fear of humans.
- Do not keep a wild animal as a pet.
- Keep pets and livestock up-to-date on vaccinations.
- Wear gloves if you need to handle a dead animal. When possible, seal the dead animal in a plastic bag and bury it. You can also contact your local DNR office to report the death.
- Use masks, gloves, boots, coveralls, respirators, and goggles at appropriate times when in contact with wildlife. Consider getting the rabies pre-exposure vaccine.
- Seal off openings to attics, chimneys, sheds and barn lofts so raccoons and other

wildlife cannot nest there.

- Use care when handling and eating wild game. Wear gloves when field dressing, and be sure to sterilize utensils and cook meat thoroughly.
- Avoid drinking untreated and inadequately filtered surface water.
- Protect yourself from ticks

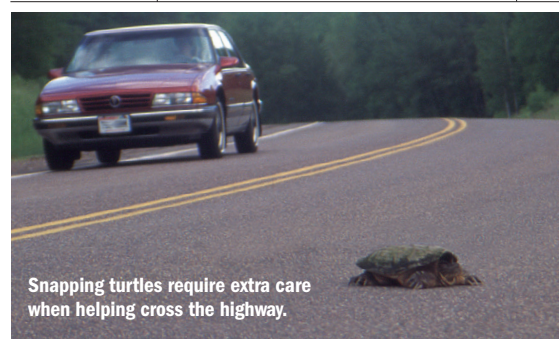
and other biting insects by wearing light colored long pants and sleeves, tucking pant legs into socks, and using insect repellent that contains DEET. Perform a thorough "tick check," and carefully remove any ticks, without squeezing them.

• Read up on wildlife diseases at DNR's website [dnr.wi.gov/org/land/wildlife/whealth/](http://dnr.wi.gov/org/land/wildlife/whealth/) or the USGS National Wildlife Health Center at [nwhc.usgs.gov/](http://nwhc.usgs.gov/) under the "Education and Outreach" section.

### Turtle crossing

The one exception to the "Leave Wildlife Alone" rule might be if you see a turtle crossing the road. This time of year is dangerous for these pokey pedestrians because it's their nesting season and many turtles encountered on roadways are probably females looking for a good nesting site.

What can you do if you see a turtle crossing a road? If you are driving, first make sure it's safe to slow down and pull completely onto the road's shoulder. Do not put yourself in danger by walking into traffic. Consider safety first for both yourself and the turtle. Carefully pick up the turtle by holding onto the sides of its shell, away from the head.



STEPHEN J. LANG

If it's a large snapping turtle, avoid getting close to its head by holding onto the shell closer to the rear. Move the turtle to the side of the road in the same direction it was headed. If there's a barrier at the roadside, put it on the other side of the barrier, further away from traffic.



## Traveler

### Sweet summertime!

Kathryn A. Kahler

**Pedal, paddle or make like a pedestrian. Just be sure to take time this summer to enjoy a day trip or weekend in Wisconsin's great outdoors. Stretch those apathetic muscles or simply watch in awe as others paint the summer sky with colorful kites and balloons. You can choose to compete or just go along for the ride, but whatever you do, don't forget to have fun.**

Lace up your Nikes and head to Stevens Point Saturday, June 4, for the **Walk Wisconsin Marathon** on the beautiful Green Circle Trail. This is not a competitive race but one that encourages walkers of all ages and levels of ability, from the full (26.2 miles), half and quarter marathons to one devoted to just kids. The \$25 registration fee (\$35 after May 31) covers the cost of a finisher's medallion, sport sack, T-shirt, refreshments and finish-line picnic, with any extra used for other local wellness oriented activities. Register online at [www.walkwisconsin.com](http://www.walkwisconsin.com) or call (800) 236-4636.

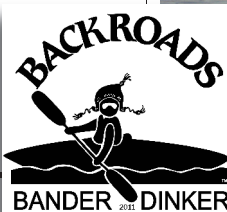
Strap your canoe or kayak to the car and set the GPS for Nelson Lake in Hayward on Saturday, June 4. That's where you'll join other paddlers just after sunrise for the **Banderdinker Fiddles, Food & Fun Paddle**. The name is the first clue — this is not a serious race, but an opportunity to slow down and enjoy the beautiful surroundings, a little food and live music on the water around Big

Island. There's a \$23 registration fee and let the organizers know if you need to rent a kayak. Call (715) 558-3040, email [banderdinker@gmail.com](mailto:banderdinker@gmail.com), or visit [banderdinker.com](http://banderdinker.com) for more information.

Kids and kids-at-heart will love the **10th Annual Outta Sight Kite Flight** on June 4 to 5, from 10 a.m. to 5 p.m. in Kennedy Park on Kenosha's beautiful lakefront. The event features free family kite-flying, giant kites of Yves Laforest, professional kite-flying teams and a Grand Launch of 500 kites at noon. Call (414) 305-3145 or visit [giftowings.com](http://giftowings.com) (click on "Events") for information.



PAMELA RUETTEN



Walk the grounds and soak in the history of Door County's fabled lighthouses at the **18th Annual Door County Lighthouse Festival**, Friday through Sunday, June 10 to 12. Tickets (available from the Door County Maritime Museum) range from \$4 for self-guided tours of mainland lighthouses to around \$70 for narrated trolley tours that include lunch. Boat excursions, dinner cruises, shipwreck tours and other guided cruises to island lighthouses also are available for varying prices. For more information call (920) 743-5958 or visit [dcm.org](http://dcm.org) to buy tickets online.

Book a date with Dad on Father's Day weekend (June 17-18) for the **Monroe Balloon Rally** at the Green County Fairgrounds. Hot air balloons will take flight on Friday at 6 p.m. and Saturday at 6 a.m. and 6 p.m., depending on weather. Admission is free with a small charge for parking. Call (608) 313-4869 or visit



RICHARD HILL



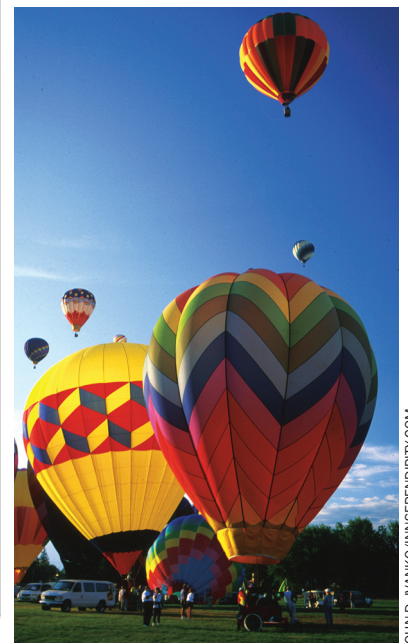
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[monroeballoonrally.com](http://monroeballoonrally.com) for more information.

You'll need your bike, but leave the stopwatch at home (this is a ride, not a race) for the **Superior Vistas Bike Tour**, Saturday, June 25. Novice and

experienced bikers will enjoy views of Lake Superior while riding paved roads past farmland, forests, lakes and gently rolling hills. Registration begins at 7 a.m. at Thompson's West End Park in Washburn. Fees are \$20 (individuals) and \$45 (families) by June 14, and \$25/\$55 after June 14. Call (800) 284-9484 or visit [superiorvistas.org](http://superiorvistas.org) for more information.

**Float the Flambeau** by canoe or kayak on Saturday, July 2, from Holt's Landing to Hines Park. Events include geocaching, canoe and kayak races, a "Rapids Challenge" and obstacle course for teams and individuals, a fishing contest and visits to logging camps of the past. Rentals are available by reservation. Plans are still evolving so contact the Park Falls Area Chamber of Commerce (877) 762-2703, email [chamber@parkfalls.com](mailto:chamber@parkfalls.com), or visit [parkfalls.com](http://parkfalls.com) for more information and to pre-register.



JOHN D. WANKO/INNSENEDIPITY.COM





## *Wisconsin, naturally*

### MAWIKWE BAY CLIFFS

**Notable:** Spectacular sea caves, vaulted chambers, arches, pillars, and cliffs are the focal points of this newly designated unit of the Apostle Islands Maritime Cliffs State Natural Area located on the mainland portion of the Apostle Islands National Lakeshore. Lake Superior waves have sculpted these features from the erodible, reddish-brown Precambrian sandstone of the Devil's Island Formation, which originated 500 million years ago as river-deposited sands. Atop the cliffs grows a forest of red pine, white pine, paper birch, white cedar and balsam fir. Rare plants found here include the tiny bird's-eye primrose, fir clubmoss, and the state-endangered mountain cranberry.



**How to get there:** Within the Apostle Islands National Lakeshore, Bayfield County. From the junction of Highways C and 13 in Cornucopia, go 4.3 miles northeast on 13 to Meyers Rd., then 0.4 mile north to a parking lot and the trailhead for the Lakeshore Trail. Walk northeast along the trail 1.2 miles to the cliffs. The cliffs and caves are also accessible by watercraft, and by walking across the ice in winter. Visit [dnr.wi.gov/org/land/er/sna/index.asp?SNA=267](http://dnr.wi.gov/org/land/er/sna/index.asp?SNA=267) for maps and more information.

