

# WISCONSIN NATURAL RESOURCES

A photograph of a young boy with blonde hair wearing a brown hunting vest and a woman wearing a brown cap with a logo. They are both looking down at a small, fluffy yellow duckling that the boy is holding in his hands. The background is a blurred green forest.

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## When gaggles meet giggles

Have a  
healthy hunting  
discussion

The legacy  
of R.D. Pike

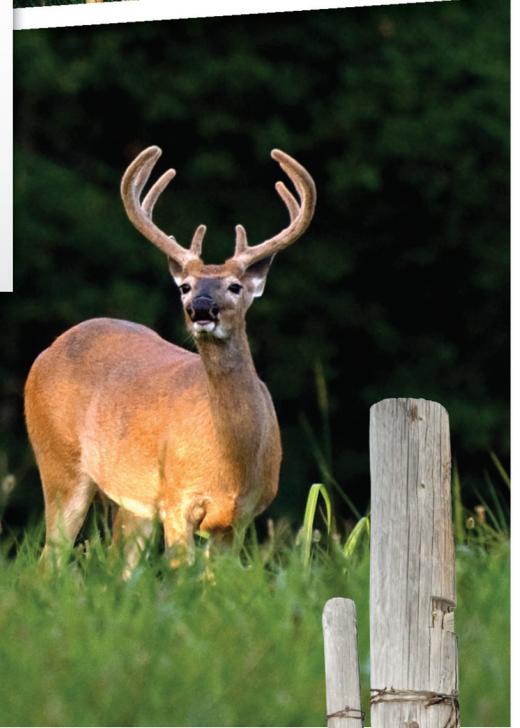
Sandhill  
crane success

# Hunt. Harvest. Help.

**Hunt.** Continue enjoying the Wisconsin tradition of deer hunting.

**Harvest.** Harvest a deer for the quality meat or trophy that it provides.

**Help.** Donate a deer or extra venison to a local food pantry and help keep deer numbers at a level that promotes the health of the herd for years to come.



**Hunt.  
Harvest.  
Help.**

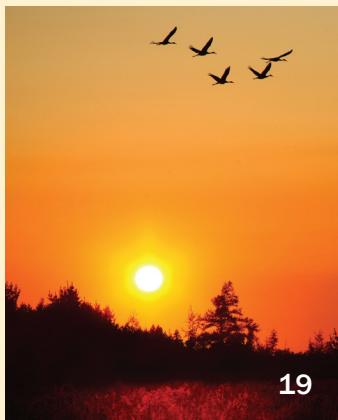
Visit [KnowCWD.com](http://KnowCWD.com)  
for information on:

- Deer donation stations in your area
- Wisconsin's CWD Response Plan
- The latest news and research on CWD

# WISCONSIN

## NATURAL RESOURCES

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BRANDEN KERR

**BACK COVER:** Smooth sumac blazes red among bur oaks at Kettle Moraine Oak Opening State Natural Area. **INSET:** Silky aster (*Aster sericeus*). For more information, or to order a guidebook to State Natural Areas for \$18.00 (postage and tax included) 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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Collecting  
Canada goose  
data depends  
on volunteer  
determination.

It's advisable, when handling a goose for leg banding — once it settles down — to tuck it under your arm like you are carrying a football.

# BANDING TOGETHER

Story by Richard G. Billings Jr. • Photos by Branden Kerr

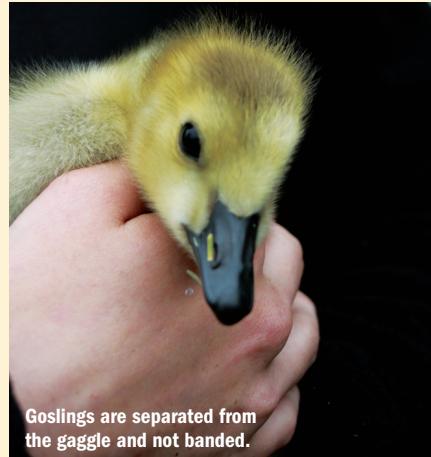
HORICON – Wildlife Biologist Brenda Kelly is running. Meanwhile, the rest of the group that has gathered on this humid and rainy morning disperses into a Dodge County field along Highway 33. Why is Kelly running so frantically? The answer is a fast-paced flurry of feathers. There's a Canada goose running down the fence line like its life depends on it.

Now it makes sense. Kelly is trying to keep the runaway goose from getting to a hole in the fence and escaping capture.

It's June. Goose banding season is underway.



Volunteers construct a makeshift pen to corral the geese.



Goslings are separated from the gaggle and not banded.

The day begins with the goose banding group gathering at a pale blue Department of Natural Resources shed near Horicon Marsh in Horicon. This is a diverse bunch of goose chasers comprised of U.S. Fish and Wildlife Service (USFWS) staff, DNR technicians and biologists, a couple of DNR interns and, most importantly, citizen volunteers of all ages. Almost half the group is kids or teenagers.

Every year the Wisconsin Department of Natural Resources, USFWS and other agencies in other states, place leg bands on a variety of birds. Migratory game birds like ducks, geese and doves are some of the most commonly banded birds.

Why band the Canada goose (*Branta canadensis*)? The primary reasons for banding migratory game birds (birds that are hunted) is to determine the rate of hunting, harvest and annual survival rate for different bird species and populations within a species. The Wisconsin Department of Natural Resources and the USFWS use this information to set hunting seasons and daily harvest limits. The agencies also use information from leg band returns to determine migratory bird patterns.

Each band has a unique number that identifies the individual bird. When someone finds a band on a harvested bird, the Department of Natural Resources asks them to call an operator who will ask a few simple questions like the date and location where the bird was harvested. The hunter then receives a certificate in the mail containing information on the banded bird. The proportion that are harvested and reported compared to the total that were banded provides a rate of harvest.

For Canada geese, the data obtained

from band returns is very useful to wildlife managers. In Wisconsin, we have two primary populations of Canada geese that fill the skies each fall. One is called the Mississippi Valley Population (MVP) that nests along the Hudson Bay coast in northern Ontario. The nesting conditions vary significantly year to year because of sometimes harsh weather. Some years these geese produce many goslings and other years few survive to flight stage. For this reason, wildlife managers want to maintain a relatively low rate of harvest for this population.

The other population is made up of the giant Canada goose that nests in Wisconsin and adjacent states. This population has steadily increased for the last 20 years to a level where some Wisconsin residents would like to see the population controlled. Wildlife managers want to increase the harvest of locally nesting Canada geese. Through the banding return data managers can track the harvest level to see if management goals are being achieved. They then adjust hunting season dates and daily bag limits based on the information collected from band returns.

According to Kent Van Horn, the DNR's migratory game bird ecologist, the harvest rate of the local giant population is greater than 15 percent, while the MVP geese are being harvested at a rate of 8 to 10 percent, which means we are achieving our management goals in Wisconsin. We also know from band return data that the fall hunting harvest is about 50:50 between the two populations.

Nationally, 3.1 million leg bands have been reported, a pretty small number considering that since 1904 about 58 million birds have been banded in North America and these numbers represent hundreds of different species of birds. On this day the goal is to band around 200 geese.

That might not seem like a lot, but this is just one of several banding sites.

"This year we are going to band approximately 4,000 geese at various sites around the state," Van Horn says.

Since Canada geese are migratory birds, banding quotas are established for the different populations and different states. Van Horn works with other states and provinces to develop these quotas and then assigns portions of the quota to local wildlife managers, like Brenda Kelly, so banding efforts are well distributed around the state.

The Horicon banding sets the stage. Horicon Marsh is internationally known as a major migratory stopover that provides habitat for endangered species and is a critical rest stop for thousands of migrating ducks and Canada geese. The spectacle of the annual migrations attracts amateur birders and professional ornithologists from Wisconsin and throughout the Midwest. The marsh is recognized as a Wetland of International Importance and ranks high on the lists of important global and state bird areas.

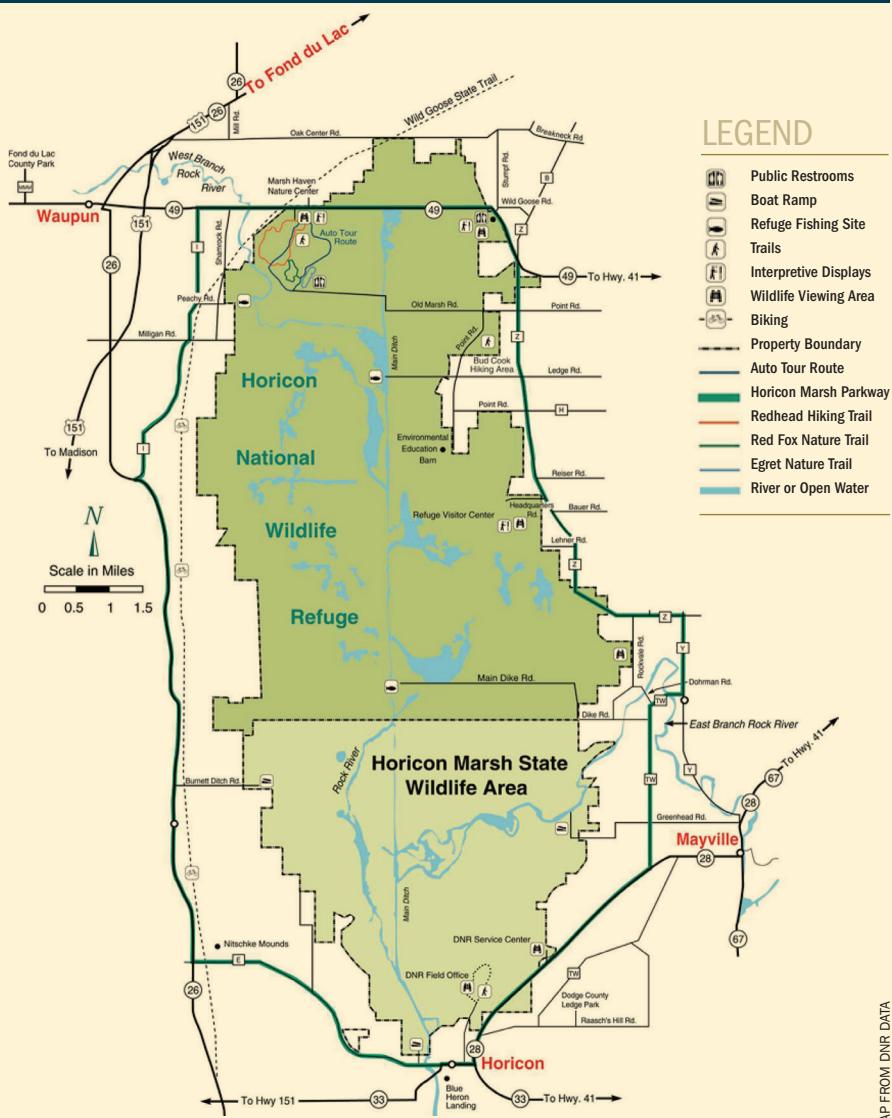
The USFWS manages the northern two-thirds of Horicon Marsh as the Horicon National Wildlife Refuge. The southern third of the marsh is managed by the Wisconsin Department of Natural Resources as the Horicon Marsh State Wildlife Area.

## Wily and wary

Capturing and banding geese isn't simple. You need a strategy and you have to act fast. Geese that have been caught before remember when they were first captured. Now, as adults, they may be leaders within the flock. That's why Kelly is running quickly toward the fence. That lead goose is intent — his eyes on the prize — to show an escape route to the other geese! If you don't beat the leader to the hole in the fence, you've got problems.

Kelly has led many goose captures and is a skillful instructor when it comes to understanding the wily ways of geese. For the first capture of this banding season at Horicon Marsh, Kelly begins by showing the group the leg bands. She then picks up a short piece of rubber

## HORICON MARSH



hose with a flap of duct tape on each end to demonstrate the leg banding procedure. The hose simulates a goose's leg.

She explains that as a leg bander, you must be careful when using pliers to squeeze the band onto the leg because sharp edges left on the band may injure the bird. For the same reason, bands cannot overlap on themselves or they may loosen and fall off, injuring the goose.

"You have to remember while you practice with the hose that a goose's leg doesn't bend the same way the hose can," Kelly says as she bends the hose every which way. "While this is good practice for the banding procedure, a goose will be trying to move while you're working with it."

Next, the banders pass around the hose, pliers and test bands. The test bands look like the real bands used on the geese but they are made of a softer metal. They are commemorative bands handed out to everyone who participates in the event.

"Do not take any of these bands for use on the geese. They do not have the correct information on them," Kelly instructs. Official bands have stamped on them an identification number, the area banded and the number to call after the harvest.

#### **Ready, set, run**

After leg banding practice, Kelly uses a Horicon Marsh map to orient everyone. We launch two canoes into a nearby pond and a small group of banders heads out in front to cut off the main escape routes for the geese.

One group deploys fence panels making a portable cage. If all goes well, we will soon experience our first capture of the day.

It turns out that most geese cannot fly at this time of the year and that is why we are capturing and banding them now. The geese are molting and their primary flight feathers are being replaced with new ones. Not all geese molt at the same time and during the course of the day we do encounter a couple geese that can fly.

Once the fencing is in place, we sit and wait. The rain starts again so the entire group moves into the DNR shed for protection from the weather. The whole operation is in trouble because of the rain. The geese have water repellent built into their feathers. Handling them under wet conditions can defeat



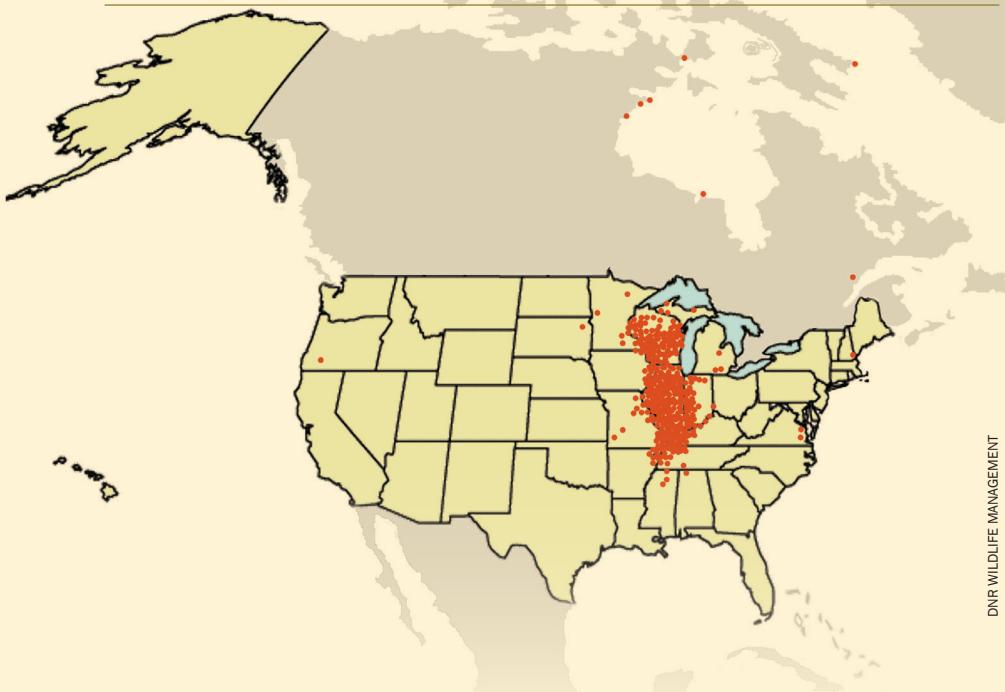
A hose simulates a goose leg and is used to practice leg banding.



Pliers are used to secure the leg bands, which contain an identification number, the area banded and the number to call to report the band.

## CANADA GOOSE RECOVERIES FROM WISCONSIN-BANDED BIRDS

DIRECT RECOVERIES FROM 1996 TO 2005



that system making them susceptible to hypothermia. If the rain intensifies or doesn't let up, we are going to have to do the captures another day.

But Mother Nature decides to play along. The rain stops. We begin our first capture.

"Now when you see the geese, in order to get them to go where we want, you have to appear as big as you can," Kelly advises. "I need a volunteer to show us what that looks like. How about you young man?"

Kelly signals to a young boy. With a little chiding and a push from behind, the boy joins Kelly and stands with his arms stretched out as far as he can while trying to hide his bashfulness. No goose is getting past this guy.

A truck carrying the most experienced banders drives away quietly to set up the corral. Two DNR technicians with a truck and two canoes slip quietly over the hill and down the path to the pond. After waiting a few minutes to allow the first two groups to get into position, Kelly launches the mission.

"SSSShhhhhhh," Kelly warns. "We have to be quiet or they will hear us and then we'll have to come back later and try again."

As we come up over the hill, the capture site is visible and the two canoeists are at the far end of the pond away from

where the geese are. We quietly walk down the path and around the side of the pond. That's where we spread out in order to keep any geese that get into the pond from escaping into the marsh. They are surrounded. It seems to happen all at once. We form a human funnel. The canoes quickly move to the other end of the pond next to some cattails. Several volunteers are monitoring the fencing panels. Before we know it, the geese are in the corral.

It's quite a sight for anyone who has not experienced the goose banding process. Geese that had been caught before are hissing at us and are gathered as a gaggle in the middle of the corral.

"I need one person who has banded before to get into the corral with me,"

### DO YOU HAVE A BIRD BAND?

If you obtain a bird band, please visit [reportband.gov](http://reportband.gov) to report the date and location of recovery and receive immediate information on your banded bird. If you are unable to report your band via the website, you may call 1-800-327-BAND to report your band to the National Bird Banding Laboratory in Maryland.

Kelly says. Then she demonstrates how to properly capture and handle geese.

Once you are inside the corral, pick a goose and pull it toward you. Squat down over the goose while holding its wings down. Then, with the goose pinned between your legs, take its head and put it under one wing. If you hold it that way for a moment or two the goose will settle down and handling will be a lot less stressful for both you and the goose. Then, pick up the goose and tuck it under your arm like you are carrying a football.

The next step is to hand the goose off to someone on the outside of the corral, although the goose's bottom should be pointing out away from you and facing everyone else. This is a dangerous time for everyone. The goose poop could fly.

Now it's the banders who handle the geese. They get to sit on chairs to do their part. Hold the goose tucked under your arm, upside down, head first between your legs. Keep the head tucked under a wing and use your legs to hold the goose, freeing up your hands to work.

Identify if the bird has a leg band. If it does, it is an adult. An adult with a band is a "recapture."

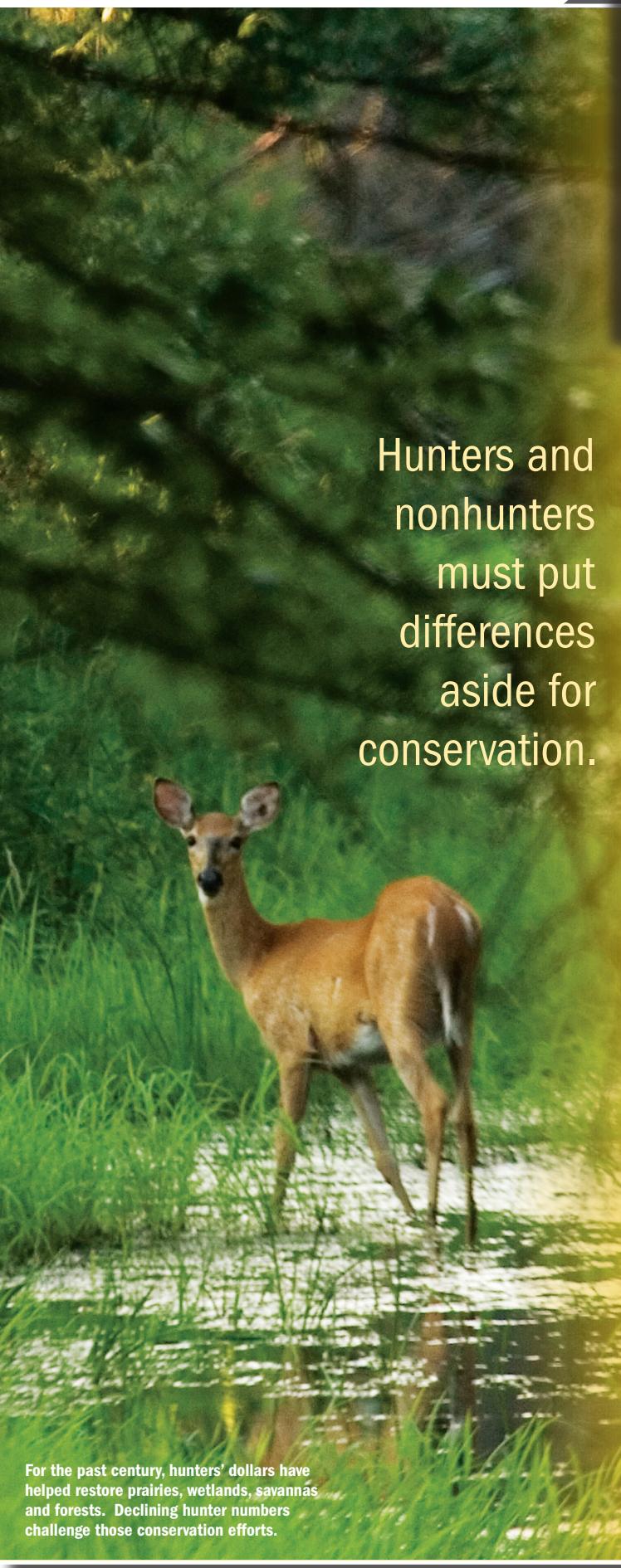
Now, without getting into too much detail, you need to sex the bird to figure out if the bird is male or female. Read the band number to record-keepers. If you have a juvenile bird, sex it and report to record-keepers. They record the band number, age and sex of the bird then they toss you a band. Once a good clean band is on the goose's leg, the bird is handed off for release.

As we finish emptying the corral, Kelly reiterates that the banding operation would not be as successful without volunteers. What we've accomplished with 40 to 50 people couldn't be done by staff alone. Kelly thanks everyone again for their efforts and care for the environment.

The Department of Natural Resources offers opportunities to experience the outdoors in unique ways. Whether you're goose banding, pulling garlic mustard, deer collaring or electro-fishing, the DNR has your next unique opportunity waiting.

Visit [dnr.wi.gov](http://dnr.wi.gov) and search for volunteer opportunities. Get out there! Make a new memory! Go on a wild goose chase.

*Richard G. Billings Jr. is an editorial intern with Wisconsin Natural Resources magazine.*



## Hunters and nonhunters must put differences aside for conservation.

For the past century, hunters' dollars have helped restore prairies, wetlands, savannas and forests. Declining hunter numbers challenge those conservation efforts.

SHANE RUCKER

# Let's TALK HUNTING

*Kathryn A. Kahler*

If conservation is important to you and you enjoy Wisconsin's natural resources, thank the hunters and anglers you know. They are major contributors to conservation in our state.

Wisconsin hunters — whose license fees and equipment purchases fund a good chunk of wildlife conservation — have declined in number by 50,000 since the year 2000 and will continue to drop over the next 20 years.

In 1991, 17 percent of Wisconsin residents hunted. By 2001 that proportion had dropped to 15 percent. The U. S. Fish and Wildlife Service will report on the latest survey findings early next year, but odds are the proportion of us who hunt will have declined again.

Research conducted by the Department of Natural Resources and

the University of Wisconsin Applied Population Laboratory predicts that resident male gun deer hunter numbers will fall from 550,000 in 2010 to 400,000 in 2030, a decline of more than 25 percent. This translates to a loss of over \$4 million in revenue to the state's fish and wildlife fund *each year*, when you adjust for future license increases. That account pays for game management and conservation law enforcement as well as ecosystem restoration and management.

What's behind that decline and how to deal with it have been debated across the country for a



SHANE RUCKER



Keith Warnke wants to bridge the divide between hunters and nonhunters. He values time spent outdoors with his two young daughters.

PHOTO COURTESY OF KEITH WARNE

couple of decades. But the bottom line is hunters and anglers are the primary funders and supporters of the "North American Wildlife Conservation Model," begun in the early 1900s by leaders such as Gifford Pinchot, Theodore Roosevelt, Aldo Leopold and others. The primary principles that evolved were wildlife "belongs" to the public, and the scientific management of game species is funded by users, specifically hunters and anglers. These principles have not only benefited game species, but have helped bring non-game species like American bison and bald eagles back from the brink of extinction. Although the model has evolved over the years, the basic funding source remains unchanged.

#### What does the future hold?

"We are on the precipice of change in Wisconsin when it comes to the traditional role of hunting in the state's conservation and wildlife management efforts," says Keith Warnke, hunting and shooting sports coordinator with DNR's Bureau of Law Enforcement. "Our tremendous tradition and connection to this sacred activity is slipping. There is a disconnect between some environmentalists and some hunters and anglers, and how we bridge that divide depends on both sides putting differences aside, opening a dialogue and working together to solve it."

Warnke considers himself an "eco-redneck," a term first defined by author Steve Chapple as someone who isn't afraid to pursue and harvest wildlife, but who has a love and respect for wildlife and the ecosystem of which it's a part.

Warnke took a step to open the dia-

logue at a brownbag lecture on the UW-Madison campus last March, called "Shifting paradigms in hunting and conservation: How will Wisconsin respond?" His talk centered on three facts — backed by survey research — that hunters and citizens in Wisconsin share a lot of values related to environmental conservation and hunting. Wisconsinites place great value on conservation in the Badger State and the main divide is one of communication and connection.

"There are so many great reasons that we need hunting," Warnke says. "It's the time spent bonding with family and friends. It's the connection you feel with nature when you're out harvesting your meal. It's the ability and skills you develop. You're getting outside, breathing fresh air. But conservation costs money. We're using a funding mechanism developed a century ago to provide conservation and ensure that the public has the opportunity to not only hunt and fish, but hike or watch wildlife. We have strong reasons to hunt and we can have strong, robust funding mechanisms that involve more than hunters."

Warnke's talk provoked many questions from his audience. We invite you, as a valued subscriber and conservationist, to read them and Warnke's answers, take them to heart, and let us know what you think. Write us a letter or email and we'll print a representative selection of letters in an upcoming issue. □

Kathryn A. Kahler is a staff writer for Wisconsin Natural Resources magazine.

## WISCONSIN'S HUNTING

Here's a sampling of some of the questions on other people's minds. Use them — and Warnke's answers — to inspire your thoughts and help start a dialogue among conservation leaders, and the hunting and nonhunting communities.

**Q.** How do we reconcile the fact that there is a perception that most hunters have not yet embraced Aldo Leopold's views of the importance of developing a land ethic?

**A.** That's a valid observation but the converse is also true and a lot of hunters are "eco-rednecks" and have embraced the land ethic. We need to open the dialogue and bridge the divide so we're all working together and talking about this. We need to go back to our roots and talk about the fact that in Wisconsin and North America, conservation began with hunters. On a positive note, I also think that divide isn't really as big as it appears. We just need to do a better job of communicating the things we have in common.

**Q.** Doesn't it seem like it's the hunting press that validates that perception, especially among nonhunters?

**A.** Yes! We're constantly bombarded by images that portray hunters in a negative light, by our own press. They are trying to sell something. So we need to start buying products — like magazines — and joining organizations that promote the kind of land ethic that Leopold wrote about.

## GIVE US YOUR THOUGHTS

Keep your thoughts concise and on point. Include your name and the city where you live; we won't print anonymous comments! Try to keep your letter to 250 words. Put a face with your thoughts and include a photo of yourself if you'd like.

- Address letters to "Editor — Let's Talk Hunting," Wisconsin Natural Resources magazine, P.O. Box 7921, Madison, WI 53707.
- Send an email to [dnrmagazine@wisconsin.gov](mailto:dnrmagazine@wisconsin.gov), with "Let's Talk Hunting" in the subject line.



SHANE RUCKER

**Q.** Most of the stories we read are about "quality deer management" that push toward trophy hunting. They really don't do service to the concept of hunters as conservationists, do they?

**A.** Right, and I think that's a big disconnect. We know from surveys that what motivates hunters are things like time outdoors, being close to nature, and spending time with friends and family. There's nothing wrong with enjoying harvesting a big buck now and then, but those other motivations are all more important than trophy hunting. But since those magazines sell advertising for products that show big bucks, it is an economic driver for them, and that's what our image becomes. We as hunters can change that image by telling them that we like different kinds of hunting articles, and journalism in the Gordon MacQuarrie style of writing. But we have to take the initiative to build a profile and project ourselves as we truly are: hunter conservationists.

**Q.** When you talk about huntable species, you're talking about one-fifth of the vertebrate species in the state, and the DNR's Bureau of Endangered Resources has to address those endangered and threatened species. I would like you to speculate on an excise tax on non-consumptive users and what role that might play in the future.

**A.** Another great question. Some of the funding for the Bureau of Endangered Resources does come from hunters and anglers. I personally think that beyond the excise tax question, hunters need to step up to the plate and start thinking more holistically about the environment and ecosystems in Wisconsin. When it comes to an excise tax on non-consuming equipment — like binoculars, hiking boots or waterproof pants — it's a

great idea but so far it hasn't worked. I think what it takes for that idea to take hold is for the nonhunting public to say "we need to start paying for conservation" and pushing it up the line to the bureaucrats and politicians. In the past it's been more of a top-down scheme and it hasn't been effective.

**Q.** Have you ever considered a "nonhunting hunting" license?

**A.** Yes, it's been considered but never implemented. I still think there's real value in that. It could be a badge or something you could display in your window that says "I'm a proud supporter of conservation." But such an initiative would have to come from the public as a grass-roots effort. The reality is you can support conservation now by purchasing a hunting or fishing license and know that 100 percent of your money will go to scientifically managed conservation.

**Q.** In terms of recruiting hunters, why can't we rethink how we teach hunter education to emphasize more environmental education, and to educate people to be eco-hunters?

**A.** There are definitely niches where we can make in-roads and one is on college campuses. Karl Malcolm in the UW-Madison Department of Forestry and Wildlife Ecology is hosting a Learn to Hunt event on campus based on the concept of sustainable foods and the "slow food" movement. There's a lot of interest in sustainability and living locally in today's college generation. Hopefully people will embrace that, make it their own and spread it around.

There will always be a continuum of hunters, from trophy hunters to the sustainable-use, part-time hunter, but if we can refocus some of our efforts on educating the public and building a more sustainable population of hunter conservationists with solid connections to environmental groups and organizations, there's no way we'll lose. But we need to make that shift and continue doing things like we're doing today.

## HOW TO GET INVOLVED

Think about your kids' teachers, your hair stylist, grocery store clerk, doctor or neighbor. Do any of them hunt? Are any of them interested in hunting? Have you asked them? Well, you can ask, and you can invite them to participate in a Learn to Hunt event you sponsor. Make it a reality and help pass along a great Wisconsin tradition. The Department of Natural Resources will even reimburse you for your help.

It's a great opportunity to get your friends, your rod and gun club or your conservation club focused on a sense of purpose and challenge — introducing the next generation of hunters.

What is Learn to Hunt? It's an educational program to help beginning hunters experience a high quality, first-time hunt with the aid of experienced hunting mentors. The volunteer program is led by skilled hunters with the assistance of local DNR wildlife biologists and conservation wardens. These events can take place outside of the normal hunting season and the participants are not required to have a hunting license.

All participants receive classroom and field instruction before they experience an actual hunt. Anyone 10 years old or older with less than two years of hunting experience is eligible to participate and we recommend clubs focus on having families attend and participate. Think about recruiting participants from your community. Reach beyond the local hunter education class to other adult friends and their children.

Hunting offers an opportunity to connect with nature, spend quality time with family and friends, and the chance to bring home high quality food. Our challenge is to introduce hunting to at least 2,000 new people this year. In the challenge there is also opportunity — all those baby boomers also represent an army of qualified mentors for the next decade. Wisconsin citizens recognize the importance of hunters to conservation in our state and they strongly support us. It's up to us as hunters — as well as business organizations, youth groups, churches and neighborhood organizations — to make sure that great tradition continues.

You can design your own unique Learn to Hunt. I believe that the way to be most successful is to focus on the family fun surrounding hunting. Invite the whole family out to the field and share our tradition and knowledge with them. A Learn to Hunt event that highlights building the complete family support network for hunting has a good chance to start a long-lasting tradition.

The processes and application forms sponsors need to organize a Learn to Hunt event are available on the DNR website at [dnr.wi.gov/org/land/wildlife/lth/](http://dnr.wi.gov/org/land/wildlife/lth/)

It's not too late to host a Learn to Hunt pheasant or deer event yet this fall and it's not too early to begin planning for next spring's Learn to Hunt turkey event. Contact Keith Warnke at [keith.warnke@wisconsin.gov](mailto:keith.warnke@wisconsin.gov) (P.O. Box 7921, Madison, WI 53707) with any questions.

— Keith Warnke

A color photograph of a young man, Ephraim Love, in his late 20s or early 30s. He is wearing a green knit beanie, a camouflage zip-up hoodie, and camouflage pants. He is smiling and holding a large, dark-colored turkey by its legs. The turkey has a prominent red and blue gobbler. They are outdoors in a field with fallen leaves and bare trees in the background. The lighting suggests it is late afternoon or early evening.

Ephraim Love proudly holds his first turkey. Many college students are part of a "slow-food" movement to become connected to the source of their food. Hunting fits well with the trend, but opportunities for learning aren't always easy to come by.

# LOCAVORE, *meet*



Hunter recruitment takes a new turn to connect young adults with the source of their food.



RANDALL MALCOLM

# HUNTER

Kathryn A. Kahler

**K**arl Malcolm describes himself as a “tree-hugging hunter” and even had bumper stickers made to advertise the fact. Emphasizing the strong ties between hunting and environmental stewardship is one of the ways he thinks we can bridge the “great illogical divide” between hunting and the growing numbers of nonhunters who are in search of a more personal connection to the natural world and their food. Some call it the “slow-food” or “locavore” movement and its devotees have an interest in buying locally grown food from stores, farmers’ markets or community supported agriculture, growing their own gardens or even raising chickens in their backyards. Malcolm believes hunting fits well with those core values and is trying to start his own dialogue to recruit a different kind of hunter.

Malcolm is a graduate student in the University of Wisconsin-Madison Department of Forest and Wildlife Ecology. He has held two Learn to Hunt (LTH) programs and is planning a third for this fall. He describes his LTH programs as a bit different from others in that his are catered more to adults from nonhunting backgrounds.

“A lot of the participants are from urban backgrounds, have no experience hunting and don’t have hunters in their families,” said Malcolm. “But they recognize that if they’re going to eat meat, this is a really great way to go about getting it.”

The two events held so far have been “Learn to Hunt Turkeys for Food” — he adds the last two words for emphasis for his events — held to coincide with the spring turkey season. The first, held in April 2010 was geared for college students on the UW-Madison campus. The second was held in April 2011 with about 20 participants ranging in age from 19 to mid-30s.

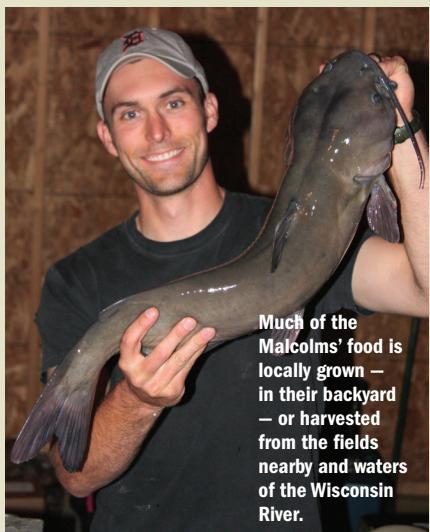
Because he wanted to attract and engage people who are concerned about where their food comes from, he approached Madison’s Willy Street Co-op, where he is a member and regular customer, to host the event. After some lengthy conversations with the open-minded co-op managers about his motivations for hunting and his desire to eat



**Kate Golden**  
slices a turkey  
breast she  
smoked in her  
home smoker.



**Malcolm**  
demonstrates  
proper technique  
for dressing a  
turkey to remove  
the breast meat.



**Much of the**  
**Malcolms' food is**  
**locally grown —**  
**in their backyard**  
**— or harvested**  
**from the fields**  
**nearby and waters**  
**of the Wisconsin**  
**River.**

DAN STORM

locally grown foods, they agreed to host the event and generously provided their state-of-the-art kitchen and meeting facilities.

Malcolm initially planned to round up 15 of his hunting friends and colleagues as mentors, then advertise it through the co-op to recruit 15 participants. He soon found advertising wasn't necessary.

"I literally mentioned it to a couple of graduate students on campus and a couple of my friends who are frequent shoppers at Willy Street and it was a matter of days before I had more than 20 interested first-time hunters and had to scramble to find more mentors," said Malcolm. "I think that speaks to the fact that there really is a high level of interest in the community of nonhunters to learn more, but they perceive a lack of opportunities for training."

The first day began with an introduction to the basics of firearm safety and target practice at the Waunakee Gun Club, whose leadership and members donated their time and space at no cost. Participants were equipped with camouflage, blinds, decoys and other gear loaned for the event.

ing far more important than the bones growing from a deer's head. But you don't see bumper stickers with a doe head and 'Size Doesn't Matter,' or better yet 'Delicious' written underneath. My main goal is to try to tear down some of those stereotypes. In my opinion, the hunting community would benefit from being more vocal about the real reasons many of us actually hunt."

As mentors and hunters took to the woods and fields over the next two days, some shot turkeys and others didn't. When the hunters harvested turkeys — six in all — they brought them back to the co-op for demonstrations on how to dress a turkey and preserve the meat.

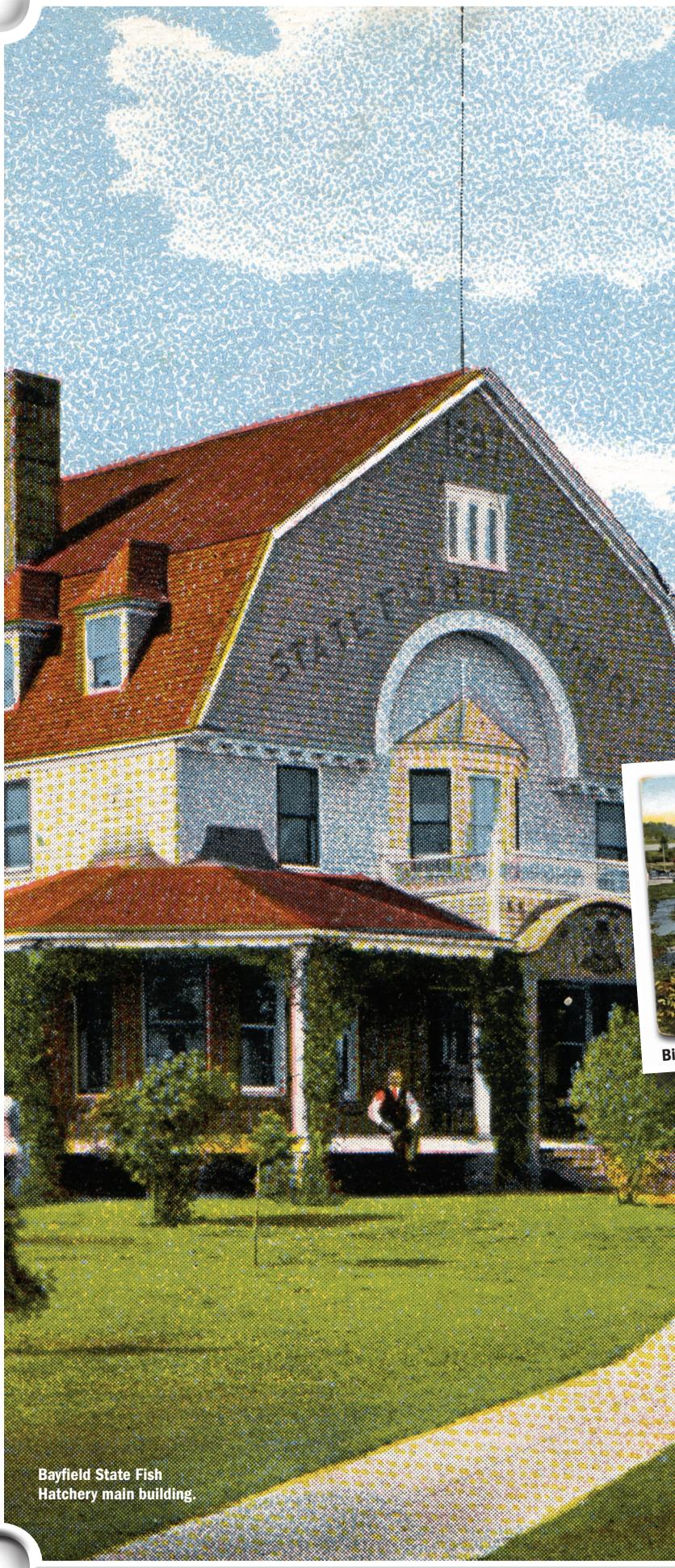
Jennifer Stnglein, a graduate student with the University of Wisconsin Department of Forest and Wildlife Ecology, hunted with her mentor, Steve Swenson, on Aldo Leopold Foundation property near Baraboo. She had very limited hunting experience going into the event and found the most beneficial outcome was the chance to give hunting a try without having to make much of an investment. Of course, the turkey she harvested was a plus as well.

"I was just blown away by the fact that so many people came together and volunteered their time and resources," said Stnglein. "It was just a great experience to be able to get food off the land that's completely organic and free-range — and extremely tasty!" Stnglein turned her turkey into turkey Marsala within 24 hours of its harvest.

Malcolm summed up his feelings about why he thinks hunting will remain an important part of our conservation heritage.

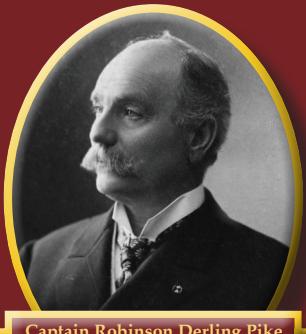
"The condition of the land will continue to be decided by people and communities who either value healthy, wild places or those who do not. As we become increasingly urbanized, the more people who care, and the deeper their connection to the natural world, the better. Hunters will remain among the most devoted conservationists because our connections to the lands and waters we hunt are among the deepest that people can have to a place. Nobody needs to tell a hunter that land stewardship is important — we all know it. Nobody needs to be told that the things they love matter."

*Kathryn A. Kahler is a staff writer for Wisconsin Natural Resources magazine.*



Bayfield State Fish Hatchery main building.

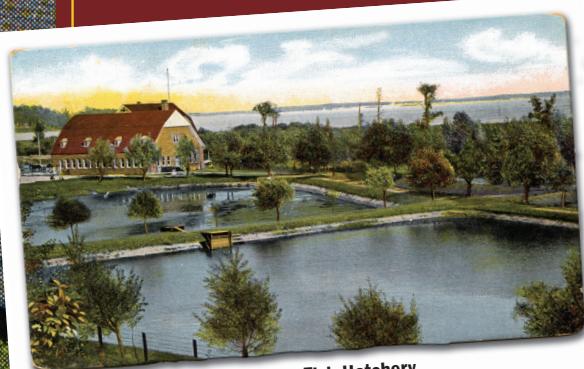
# A gift that spawns Great Lakes fisheries



DNR FILE PHOTO

Captain Robinson Derling Pike

The legacy of Bayfield pioneer R.D. Pike.



Bird's-eye view of Bayfield State Fish Hatchery.

DNR FILE

*Julia Riley, Darren Miller and Karl Scheidegger*

If there had been a "Conservationist of the Year" award in 1896, Captain Robinson Derling (R.D.) Pike would certainly have been a nominee. A Civil War veteran and founding father of the City of Bayfield, R.D. Pike gave his family homestead containing rare coastal wetlands along the shoreline of Lake Superior and his private fish hatchery on Pikes Creek to the State of Wisconsin.

The Pike family's private fish hatchery was owned and operated by Elisha Pike and his son R.D. from the mid-1860s until 1895. In 1895, the Legislature increased the annual appropriation of the Wisconsin Conservation Commission by \$8,000 and required that a fish hatchery be established in the northern half of the state. R.D. Pike, along with Isaac H. Wing and William Knight of Bayfield, donated more than 405 acres to build a new fish hatchery with the stipulation that it be used for the public's benefit in perpetuity, or the land would revert back to the families. The state accepted this generous gift in 1896.

The pristine acreage included nine miles of excellent spring-fed trout waters in the Town of Bayfield and the confluence of Pikes Creek and Birch Run Creek with Lake Superior at Chequamegon Bay. Resident brook trout are common in the headwaters of these creeks, which today are classified as Class 1 Trout Streams and Outstanding Resource Waters. They produce annual spawning runs of approximately 1,000 rainbow trout and an unknown quantity of coho and Chinook salmon. All of this land is now part of the South Shore Lake Superior Fishery and Wildlife Area and home to the more modern Les Voigt Fish Hatchery.

But the first structure seen upon arrival at the Les Voigt Fish Hatchery is the old Victorian brownstone building constructed in 1897. The sandstone used in the building came from Pike's Quarry south of Salmo. J.H. Sykes was the initial superintendent of the state fish hatchery at Bayfield and oversaw construction of the fish rearing ponds and hatchery buildings. The front section of the hatchery building was used for office space and living quarters for the superintendent's family. An office and a parlor were on the ground floor, and family living quarters were on the second and third floors. The caterer's menu (see sidebar) for the dedication of the building on Friday, September 10, 1897, reflects it was a festive event for the surrounding community.

The rear of the building housed the fish egg propagation area. The eggs were laid down on 2,200 12- by 17-inch wire mesh trays, in long troughs brimming with cold Birch Run spring water that kept the eggs at a constant temperature. The eggs were visually inspected and discolored or opaque eggs were



Hatchery Superintendent Darren Miller at the Visitor Center/Aquarium.



Today, the R.D. Pike mansion has been converted into the Pinehurst Inn.



A historic raceway on the hatchery grounds.

STABER REESE



The Badger railcar in front of the 1897 hatchery building. The car contained aerated tanks to transport fish to stocking locations.

DNR FILE PHOTO



**THE 1897 DEDICATION MENU:**

SOUP  
OYSTER, LE BLANCHE

OYSTERS  
PLAIN RAW & MANHATTAN

FISH  
BROILED WHITEFISH, TOMATO SAUCE

ENTREES  
BAKED SPRING CHICKEN, SPRING  
CHICKEN-LE BLANCHE, DIAMOND CRUST  
HEINZE'S BAKED BEAN, BROWN BREAD

BAKED POTATOES, MASHED  
POTATOES, STEWED TOMATOES, GREEN  
CORN OF THE COB

APPLE AND BLUEBERRY PIE,  
WATERMELON, MUSK MELON,  
ASSORTED CAKE, CRÈME CHEESE  
TEA, COFFEE & FRUITS

tediously hand-picked with tongs and discarded. The building is listed as a National Historic Building and is used today as a supplemental fish rearing space.

Workers used horse-drawn scrapers to dig 10 fish-rearing ponds near the hatchery. Each pond was 12 feet deep and 100 feet long, with a 50-foot by 4-foot spawning raceway. Willow trees planted around the edges of the ponds helped stabilize the banks and provide shade. Fish fed on ground liver shipped by the barrelful from Ashland to supplement the natural food in the ponds. Often sizable crowds would gather to watch the spectacle of thrashing, jumping and feeding fish.

The Chicago, St. Paul, Minneapolis & Omaha Railway line lay within 100 feet of the hatching house, and the railway company built a side track to the building. A regulation-size Pullman car, the *Badger*, distributed fry and fingerling fish for stocking Wisconsin streams and lakes. The *Badger* contained aerated tanks for the fish in transit to their stocking destinations across the state. One end of the car was equipped with living quarters for the crew and included a kitchen and sleeping accommodations.

Hatchery operations were updated in 1974 with the construction of modern buildings and wells. Three buildings are used for producing fish and rearing is done completely indoors with well water to ensure good fish health and a bio-secure environment. Incubation of the annual 1.2 million eggs is done indoors in vertical incubators. After hatching, the fry are moved to one of the 38 start tanks. As the fry grow, they are transferred into the raceways.

Current production consists of five strains of salmonid: splake, brown trout, lake trout, coho and Chinook. The lake

The Pikes built a homestead on Pikes Creek, operating the small water mill, built in 1845 by the American Fur Company. R.D. Pike was a member of the party which gathered on March 24, 1856, for the founding of Bayfield.



**The old hatchery still functions.**

trout are currently used mainly for restoration work on Trout Lake, Black Oak Lake and on Lake Superior. Some of the lake trout are used for enhancement on Geneva and Green Lakes. Chinook and coho are reared for the Lake Michigan's sport fishery. The splake and brown trout are raised to yearling size for anglers on Lake Superior as a put-grow-and-take fishery.

The newer hatchery building contains a self-guided Visitor's Center/educational exhibit area that includes a 3,500-gallon aquarium. The public can also watch hatchery operations from a viewing area. Approximately 5,000-8,000 visitors stop by the hatchery Visitor's Center annually. The hatchery also hosts an open house in June that has drawn over 500 participants. Education stations at the open house engage children and families in bait-casting, fly-casting, fly-tying, creating fish print T-shirts and other activities. The event teaches families how to have fun with fishing while protecting Wisconsin's fisheries.

The fish hatchery facility was dedicated as the Les Voigt State Fish Hatchery at a formal ceremony in August 2006. Voigt ran the Wisconsin Department of Natural Resources and the agency's predecessor, the Conservation Department, for a combined 22 years from 1953-1975.



**Left to right: Austin Pike, Deborah Pike, Anna Pike, Arthur Pike, Sarah Pike Hamilton holding Eli Hamilton, Aaron Pike, Mary Martin, Robinson Drake Pike and David Martin.**

At its April 2011 meeting, the Natural Resources Board approved naming the original 1897 fish hatchery building the "R.D. Pike Building" in honor of Captain Pike and his significant gift to the people of Wisconsin.

Hatchery Superintendent Darren Miller was a key supporter of the initiative. "The Bayfield County Historical Society and the Bayfield Heritage Association, Inc., are enthusiastic over the recognition of R.D. Pike's legacy at the fish hatchery," Miller said. "It is hoped that members of the local community will form a 'Friends' organization to help restore and maintain this historic building for the enjoyment of future generations." A formal dedication for the naming of the 1897 building was held on July 9, 2011, and R.D. Pike's great-great-grandson, Robinson Drake Pike, attended the ceremony along with other Pike family members.

To many in Bayfield, this additional tribute to R.D. Pike is appropriate for someone who contributed to his community through numerous acts of generosity combined with ingenuity. A well-known and respected figure in

**The hatchery grounds and main building as they looked in 1944.**

COURTESY OF PIKE FAMILY

the history of the City of Bayfield, Captain Pike built a large sawmill in Bayfield named the "Little Daisy" that averaged over 70,000 feet of cut lumber daily, mapped out the streets of the city, set up electric street lights and the first telephone service and established its first bank.

One could also attribute Captain Pike's initial land gift and passion for fish propagation as setting the stage for the eventual land acquisitions to protect and conserve the Pikes Creek and Birch Run Creek watershed and other key spawning areas.

The South Shore Lake Superior Fishery and Wildlife Area was created in 1992 to preserve spawning areas for Great Lakes fish and spans five distinct stream drainages including Pikes Creek, Fish Creek, Cranberry River, Flag River, and Sioux River and their associated coastal wetlands. The fishery and wildlife area currently encompasses more than 6,700 acres in Bayfield County.

The legacy of R.D. Pike's generous land gift is that it has helped to keep fishing a vital part of Wisconsin's nature-based economy.

STABER W. REESE

*Julia Riley is a water resources specialist in the Bureau of Watershed Management. Darren Miller is the Les Voigt Fish Hatchery superintendent in Fisheries Management. Karl Scheidegger is a warmwater rivers management biologist in Fisheries Management.*

To hear a sandhill crane call visit: [allaboutbirds.org/guide/Sandhill\\_Crane/sounds](http://allaboutbirds.org/guide/Sandhill_Crane/sounds)

# WILDNESS INCARNATE

**Sandhill cranes are a conservation success.**

*Story by Kent Van Horn • Photos by Shane Rucker*

**D**aylight comes slowly today. At 5:50 a.m. it is 20 minutes past sunrise, but still dark. The cold wind adds force to the sleet and rain against my cheeks. In spite of multiple layers, I shudder from 35-degree cold, and acknowledge that it's a typical spring day in Wisconsin. I listen quietly; a red-winged blackbird calls, a mal-

lard hen quacks then finally a rolling trumpet call echoes across marsh and field.

The reason for my departure from a warm bed this morning speaks. It is the call of the sandhill crane, prehistoric and penetrating as it resonates across the landscape. It is a call that speaks of wildness and mysteries unknown to those who start their day in warm beds.



When sandhill cranes are ready to mate, they begin a unique courtship ritual. The cranes have a series of movements that they do while making calls. The dance looks like two marionette puppets frolicking delicately on strings.

Two calls blend together as a pair engages in a unison call beyond the trees. This is my goal as I participate in the spring regional count organized by the International Crane Foundation (ICF) — to count sandhill cranes and particularly report paired birds. I begin trudging through field and marsh to see if my quarry is in my survey unit.

As I walk, dried grass crunches under my feet and the sounds conjure up memories. Twenty-five years ago these feet were walking through marsh grass on a duck research project in the Yukon River floodplain of central Alaska. As I rounded a group of spruce trees that day, a loud bugle from a disturbed pair of sandhill cranes broke the relative silence of the moment. I was about 20 miles from the Arctic Circle.

That memory fades into another setting, thousands of miles south in the Everglades region of Florida and a few years later.

As a young wildlife manager out on a wildlife survey of public land, the same trumpet call broke in. I looked out into the tall marsh grass and sandhill cranes were there making a declaration of wilderness despite being only miles from Miami. These experiences have helped to define my respect for a bird that now lives from Mexico to Siberia, and from the Pacific to Atlantic coasts; a bird that Aldo Leopold called “wildness incarnate.”

### Sandhill summary

Sandhill cranes are found in a diversity of wetlands, however, they prefer an open landscape of grasslands, agricultural fields and wetlands. Sandhill cranes feed on plant tubers, seeds and grains, invertebrates, and small vertebrates found in uplands and wetlands.

They are territorial breeders, arriving each spring in Wisconsin where a pair establishes a 20- to 200-acre exclusive area for nesting and brood rearing. A pair's courtship includes an elaborate dance involving quick steps, half-spread wings and leaps into the air as well as the unison calling.

Sandhill crane nests are normally constructed over water in wetlands using the surrounding vegetation. A crane typically lays a single two-egg clutch annually but rarely fledge more than one young each year. After

about 30 days of incubating the eggs, the young, called “colts,” hatch out and are able to leave the nest walking or swimming within 24 hours. Parents first feed and then lead the growing colts to food.

After 60 to 70 days the young begin to fly and soon become strong fliers. In addition to the pairs, non-breeding cranes form small flocks in summer consisting of young birds, adults without territories and failed breeders. Sandhills are long-lived birds often surviving more than 20 years with the oldest wild sandhill crane reported at 35 years old. They go through “teenage years” from 2 to 7 years old when they pair up and may nest, but many do not successfully raise a colt to independence. As they grow older they become more experienced and successful parents.

### Exceeding a sustainable harvest

While the sandhill crane population is currently large and widespread, this was not always the case. As Euro-American presence expanded across North America in the 18th and 19th centuries, unregulated hunting, wetland drainage and habitat loss caused a significant reduction in the sandhill crane population.

Sandhill cranes were commonly harvested for food until the last century. In an account published in 1622, Edward Winslow and William Bradford noted that during the Pilgrim's first year in North America a “fat crane” was a welcome addition to the dinner table. From this and other information, many have suggested that sandhill crane was likely to have been on the original Thanksgiving dinner table, either in place of, or along side the turkey.

Unfortunately harvest of cranes and other wildlife species grew into unregulated market hunting during the early period of our country and exceeded a sustainable harvest level. At the same time, the productive soils of many shallow marshes were drained and farmed, reducing breeding habitat.

### Steps to recovery

In 1916 the Migratory Bird Treaty Act halted hunting of migratory birds, including sandhill cranes, unless a regulated harvest and monitoring of their



Male and female sandhills look nearly alike. In the spring, they actually “paint” their feathers with mud to camouflage themselves in brown grasses.

populations was established.

Gradually appreciation for wetlands grew, and habitat important to the cranes and many other wildlife species received protection. These conservation steps set the stage for sandhill crane recovery.

The sandhill crane likely reached its lowest population level in the 1930s. In 1936 President Franklin D. Roosevelt called the first North American Wildlife Conference to assess the status and stimulate conservation of many wildlife species. At this conference, Franklin S. Henika of Madison estimated that there were only about 25 nesting sandhill crane pairs in Wisconsin along with a few small breeding populations in other Great Lakes states. These were undoubtedly greater sandhill cranes.

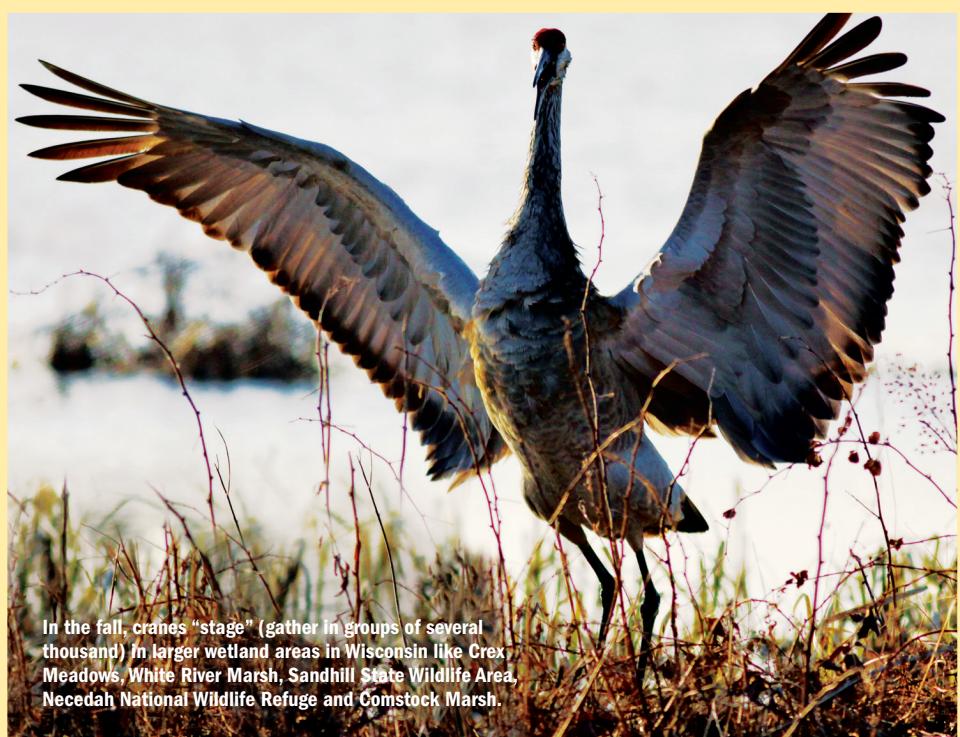
At the same conference other biologists from Manitoba to Texas described “tens of thousands of the little brown cranes” on migration through the central flyway of North America. These birds would be another subspecies: the lesser sandhill crane. These estimates were anecdotal but describe a reduced population and distribution of sandhill cranes compared to today.



From the population low, the sandhill recovered to over 600,000 cranes and is now the most abundant crane species in the world. It is widely distributed, extending from northeastern Siberia, across North America from coast to coast and as far south as Cuba. During migration, sandhills are well known for congregating at staging areas in numbers in the 10,000's to 100,000's. As the sandhill crane population recovered, six subspecies were recognized as well as various populations that have distinct ranges and migration routes.

#### **Subspecies and populations**

The three migratory subspecies include the lesser, greater and Canadian sandhill cranes. The Canadian sandhill crane is intermediate in size between the lesser and greater and some biologists do not consider it a distinct subspecies. These migratory subspecies are all relatively abundant and distributed across a broad breeding range in northern North America and eastern Siberia, with wintering grounds in the southern United States and Mexico. There are three non-migratory subspecies; the Mis-



In the fall, cranes "stage" (gather in groups of several thousand) in larger wetland areas in Wisconsin like Crex Meadows, White River Marsh, Sandhill State Wildlife Area, Necedah National Wildlife Refuge and Comstock Marsh.

sissippi, Florida and Cuban sandhill cranes, all with relatively low populations and restricted ranges.

The U.S. Fish and Wildlife Service (USFWS) defines six migratory sandhill crane populations based on geographic ranges and migration routes, which allow management plan development, conservation efforts and hunting regulations by region. These populations include Pacific Flyway (lesser), Central Valley (greater), Lower Colorado River Valley (greater), Rocky Mountain (greater), Eastern (greater) and Mid-Continent (MCP) (lesser, greater

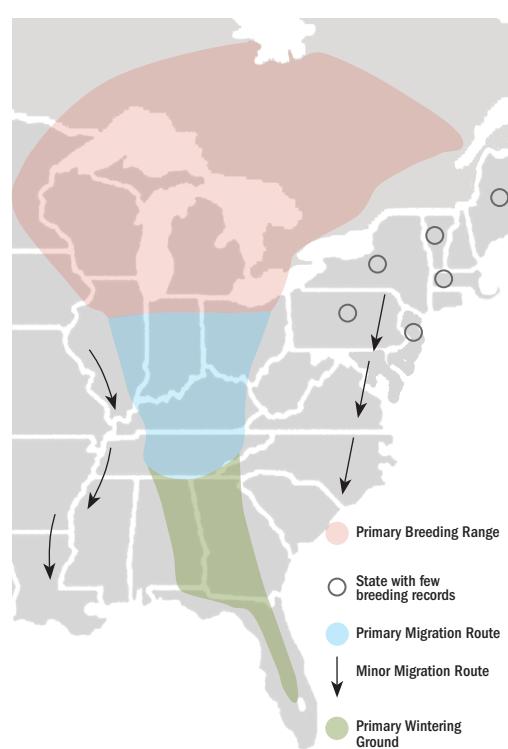
and Canadian). The largest population of sandhill cranes is the MCP estimated at 450,000-500,000.

The greater sandhill crane subspecies is part of five of the six populations with a subspecies total of 100,000. Wisconsin is a core part of the Eastern Population (EP) breeding range for the largest of the greater sandhill populations which numbers near 60,000. The EP was the only population without a management plan until it was completed and approved by the Mississippi and Atlantic Flyway councils (36 states and provinces) in 2010.

### Range for the Eastern Population

The majority of the EP breeds across the Great Lakes region (Wisconsin, Michigan, Ontario) and winters in Florida and southern Georgia. In late summer and early fall, these cranes leave the breeding grounds and congregate in large flocks at staging areas. EP cranes stage for several weeks before beginning their southeast migration through their primary corridor that includes Illinois, Indiana, Ohio, Kentucky, Tennessee and Alabama, en route to wintering grounds.

During recent mild winters, more cranes have remained further north in Tennessee, Kentucky, Indiana and even in southern Ontario on Lake Erie.



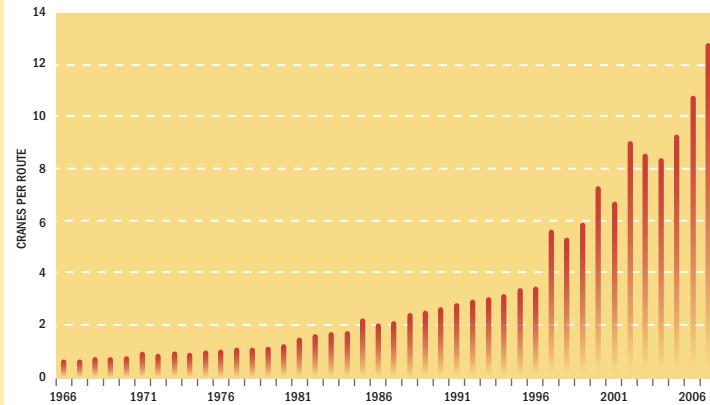
BASED ON DNR DATA

### Range expanding

The EP has shown a dramatic increase and range expansion in the last 20 years as documented by multiple sources. One source is the Breeding Bird Survey coordinated by the USFWS to monitor many species of birds through annual breeding indices (number of birds per route). For USFWS Region 3 (MN, WI, MI, IN, IL, OH, MO, and IA), which represents the U.S. core of the EP breed-

ing range, the number of sandhill cranes counted per route has increased from under two cranes per route in the late 1960s to over 10 cranes per route in the early 2000s. This translates to an increasing population trend of about 10 percent per year.

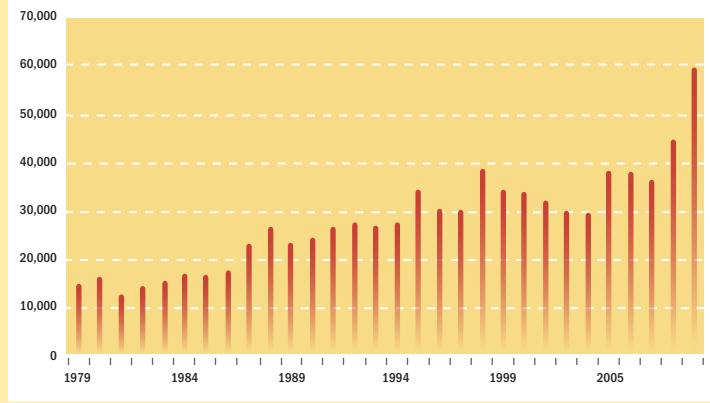
### Sandhill Crane Breeding Bird Survey Trends, Midwest Region



BASED ON DNR DATA

An additional EP survey coordinated by the USFWS each fall has also shown a dramatic population increase.

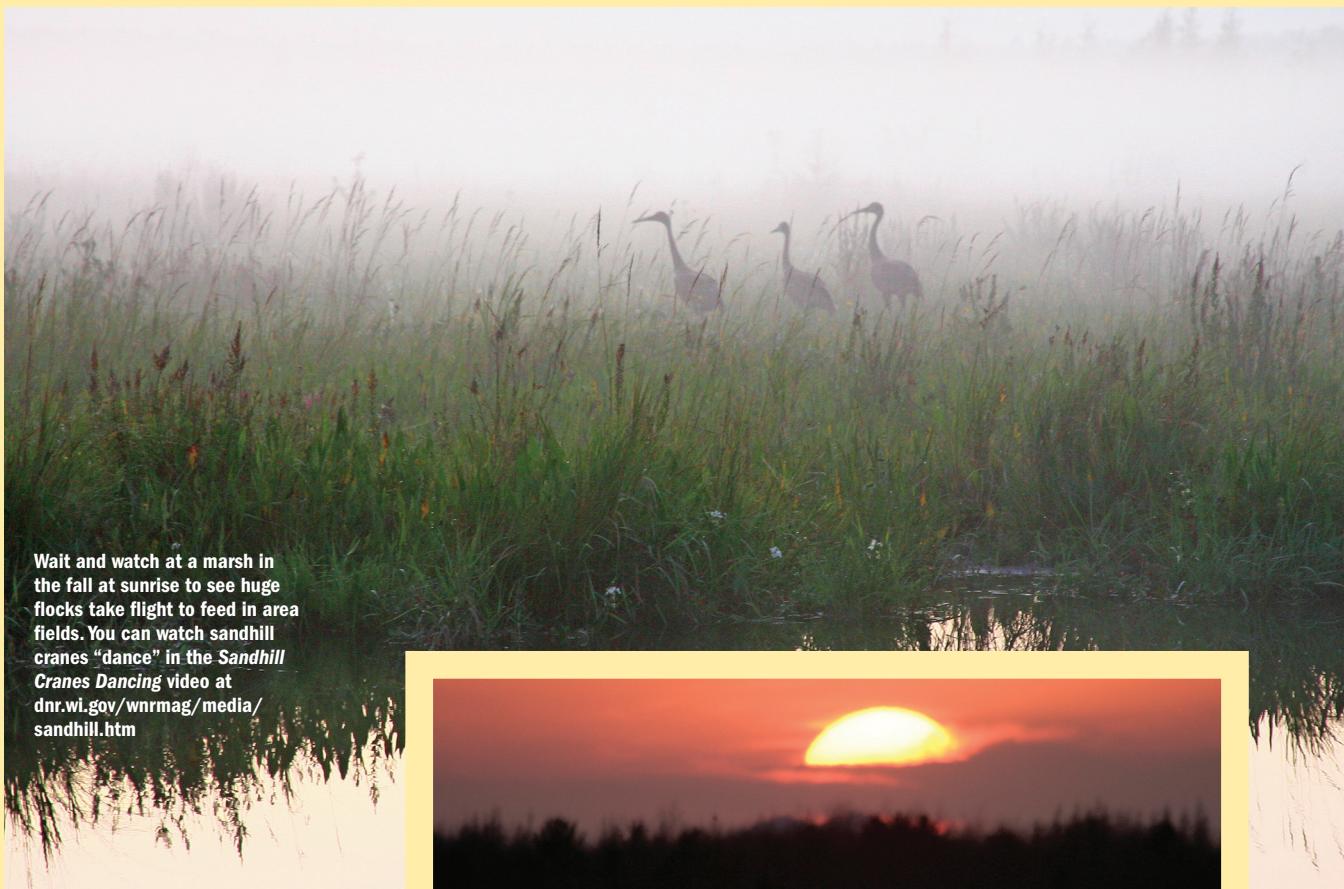
### Fall Counts of the Eastern Population of Sandhill Cranes U.S. Fish and Wildlife Service



BASED ON DNR DATA

As the EP has increased, its breeding range has expanded. The EP breeding range core in south-central Ontario, Michigan and Wisconsin has steadily spread into Illinois, Iowa, Minnesota, Quebec and beyond. The Ontario Breeding Bird Atlas indicates that the probability of seeing a sandhill crane has increased from 12 percent during 1981-85 to 33 percent during 2001-05. Much of this increase was from EP cranes breeding in southern Ontario.

Breeding pairs occurred for the first time in Indiana in 1982, Ohio in 1987, Iowa in 1992, Pennsylvania in 1994, and in New York state in 2003. EP sandhills have pioneered into the northern Atlantic Flyway with 19 instances of nesting sandhills at six locations in Maine, Massachusetts, New Jersey and Vermont between 2000 and 2008. Breeding sandhill crane pairs in Quebec have increased from one to four pairs per 5-square-kilometer plots from 1990-2000 to eight to 13 pairs from 2002-2008.



**Wait and watch at a marsh in the fall at sunrise to see huge flocks take flight to feed in area fields. You can watch sandhill cranes "dance" in the *Sandhill Cranes Dancing* video at [dnr.wi.gov/wnrmag/media/sandhill.htm](http://dnr.wi.gov/wnrmag/media/sandhill.htm)**

## Recovery

Within Wisconsin, breeding sandhill cranes have increased in overall numbers, breeding density and range. While Henika's 1936 estimate of 25 breeding pairs in Wisconsin was likely an underestimate, it still reflected a very low population. In contrast, the current spring sandhill counts in Wisconsin organized by ICF document a dramatic increase in the spring population to about 15,000 cranes. The fall USFWS coordinated count has totaled nearly 25,000 sandhills in Wisconsin during late October.

Breeding sandhill crane density in central Wisconsin may have reached capacity while breeding density estimates in northern Wisconsin continue to increase. A significant proportion of the summer sandhill population in Wisconsin consists of young birds or nonbreeders with a reasonable estimate of 5,000 breeding pairs of sandhills along with several thousand nonbreeders.

For perspective, this successful recovery of the EP can be compared to another once rare but well-known migratory bird, the giant Canada goose.



**Today, the sandhill crane population is in good shape, benefiting from habitat restoration projects around the state.**

This subspecies was thought to have been eliminated as a nesting species in Wisconsin by the 1930s and was later considered extinct as a subspecies. However the subspecies was "rediscovered" in 1962. Through conservation efforts this bird recovered across its range and by 1986 a spring count of giant Canada geese breeding in Wisconsin showed 11,000 geese. Over the next 20 years these geese experienced a growth rate of 13 percent per year reaching a level of over 120,000 birds.

While these two bird species have different breeding characteristics, their stories, nevertheless show the potential

for the recovery of a wildlife species.

## A symbol

This significant increase in sandhill cranes has not gone unnoticed producing different reactions. From the writings of Aldo Leopold, which etched a picture of the crane as a symbol of lost wild habitat, the sandhill crane has emerged as an icon of conservation success and a changing wildlife legacy.

As a large visible wildlife species, with unique characteristics such as their courtship "dancing" and prehistoric call, sandhills are a charismatic species attractive to wildlife watch-



**Sandhill families feed on tubers (a swollen underground plant stem, like a potato) worms, grasshoppers, snails, frogs, seeds, and sometimes snakes, small birds and mice. Cranes can be a problem for farmers when they pull up sprouting corn in springtime and eat large amounts of farm field grain in the fall.**

ers. The crane's annual habit of congregating in thousands at staging areas during migration brings more attention.

Many residents have developed a passion for sandhill crane viewing and conservation over the decades. For example, the spring ICF sandhill crane count began in 1976 with 200 people in Columbia County and now involves over 2,500 volunteers covering most of Wisconsin as well as portions of our neighboring Midwest states. Large fall staging flocks attract wildlife watchers within Wisconsin at locations such as Crex Meadows Wildlife Area.

As sandhills move south they often form larger concentrations such as the 20,000 sandhill cranes that gather at Jasper-Pulaski Fish and Wildlife Area in northwest Indiana. Thousands of people are attracted annually to view this large group of cranes. Along the Platte River in Nebraska where the MCP migrates, concentrations of hundreds of thousands of sandhill cranes are a popular tourist attraction.

From the closure of sandhill crane hunting in 1916 and the 1930s population low point to the dramatic continental population recovery, sandhills also attracted attention from the hunting public. Within Wisconsin and else-

where, much of the recovery of sandhill crane habitat can be attributed to hunter efforts.

Hunters have provided funding for decades through federal and state duck hunting stamps as well as taxes on firearms and ammunition that go to land acquisition and restoration. In Wisconsin, these funds supported the purchase of public lands such as the Necedah National Wildlife Refuge and Sandhill/Meadow Valley State Wildlife Areas in the 1930s and 40s, which are in the core sandhill crane recovery area.

Many hunters feel a connection between their conservation efforts and the recovery of a game species that had been common table fare for much of our nation's history.

#### **Finding a balance**

On January 1, 1961, 45 years after the hunting of sandhill cranes ended, a 30-day hunting season was authorized on sandhill cranes in eastern New Mexico and western Texas. In the fall of 1961, a 30-day season was added for Alaska. Since that initial period, now 50 years ago, sandhill crane hunting has been steadily expanding as the continental sandhill crane population has continued to grow. Sandhill cranes are hunt-

ed in 12 states with Minnesota added to the list in 2010. Mexico and three Canadian provinces also have sandhill crane hunting.

It is a great conservation victory when a species can move from a rare status to a level where it can support regulated hunting across the continent.

The USFWS manages migratory game bird hunting by distinct populations. Currently the USFWS has authorized the hunting of four of the six migratory sandhill crane populations and all populations are either stable or increasing. Populations with hunting seasons include the Lower Colorado River Valley (LCRVP), Rocky Mountain (RMP), Pacific Flyway (PFP) and Mid-Continent (MCP). The MCP is the largest with an estimated 450,000-500,000 sandhills and an average annual harvest of 35,000 within the United States, Canada and Mexico. The RMP is estimated at 21,000 with an annual average U.S. harvest of 760 in recent years.

The Pacific Flyway is about 25,000 with an annual harvest of about 250 birds in Alaska only. The smallest hunted population of sandhill cranes is the LCRVP estimated at 2,800 cranes and the first hunt, a three-day youth hunt, was conducted in 2010 with no



When winter falls on the Wisconsin landscape, cold mid-November winds will carry the cranes circling up to heights of 5,000 feet to catch stiff north winds on their flight to southern climates.

recorded harvest. The Central Valley Population of sandhill cranes is estimated at 5,000-7,000 and does not have a hunting season.

The EP, at 60,000, is the second largest of the sandhill crane populations and currently does not have any hunting seasons. However, the EP management

plan has provisions for establishing hunting seasons in both Canada and the United States if a state or provincial agency develops a jurisdictional hunting plan. Sandhill crane hunting seasons across the United States provide hunting opportunities for over 10,000 migratory game bird hunters each year.

Not everyone appreciates the significant increase in the sandhill crane population. During the 1990s the EP increased to approximately 30,000 cranes as measured by the USFWS fall survey. During this period conflict intensified in the agricultural communities of Wisconsin as well as Minnesota, Michigan, Tennessee and Ontario. The primary problem occurs shortly after crops are planted and the cranes arrive in the spring.

Sandhill cranes are very adept at pulling up the new shoots of crops such as corn and then eating the unearthed kernel. According to the University of Wisconsin-Extension, high risk fields can lose up to 20 percent of the planted corn from sandhill crane depredation and some fields have had losses of over 50 percent. Farm fields that are high risk for sandhill crane crop damage include those within one mile of emergent wet meadows and it is estimated that there are 2.8 million acres of farm fields within this category in Wisconsin alone.

Several south-central counties including Columbia, Dane, Dodge, Green Lake, Jefferson, Marquette, Waushara and Winnebago support these types of fields and have the highest density of nesting sandhill cranes. According to the United States Department of Agriculture-Wildlife Services (USDA) in Wisconsin, in 2009 they received 82 complaints of crane crop damage and farmers lost \$571,636 to sandhill crane depredation.

This damage has resulted in demands from farmers and elected officials for crane population reduction, lethal control, hunting seasons and government damage compensation. Scare devices have been used on cranes causing agricultural damage but have had limited effectiveness

*Continued on page 29* →

COMPOSITION COMES INTO PLAY IN THE FIELD.

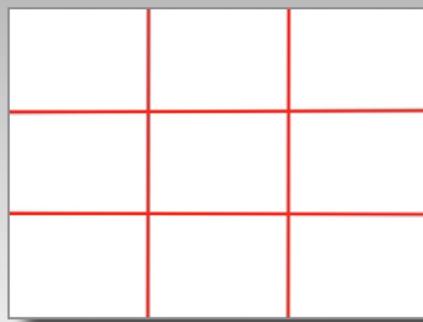
# Hunting for outdoor photo

## The rule of thirds

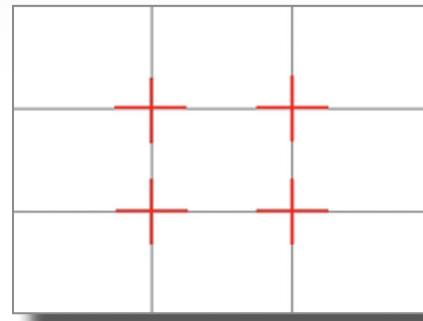
**W**ith a booming digital age, more hikers, hunters and outdoorsmen and women are finding themselves with cameras in hand while in the field. This photo influx is great for creating memories, but more is not always better and many amateur photographers are inundating their friends and the Internet with less than appealing photographs. Here, we share advice for how you can improve your photographs and keep them above the riffraff by using good composition.

### What is composition?

Webster's defines composition as "the act or process of combining things to form a whole." In photography, composition can most readily be described as selecting and arranging a subject within a frame while using the available space most efficiently. With that in mind, let's take a look at some quick tips that will really help your photos stand out.



By creating this grid in your mind you accomplish two things. First, you have identified four intersections within a photograph in which to consider placing points of interest. Second, you now have four lines along which you can also consider positioning other photo elements.



The premise here is that by placing your focal points at the intersections, or along the lines, your photo will be more balanced, enabling your audience to interact with it in a more natural way. Many studies have shown that viewers most naturally are attracted to the intersections in a photograph rather than the center of a shot. By using the rule of thirds, we are working with nature rather than against it.

A similarly good technique is to place the horizon lines of a landscape shot along one of the horizontal lines in your frame.



In practice, the most important questions to ask about the rule of thirds are:

What are my most important focal points?

Where am I intentionally placing these focal points within this shot?

# hints

## Fill the frame

While it is possible to use empty space in a photograph to achieve some stunning results, you are much more likely to receive praise by filling your shots with interest.

Below are two examples of photographs I took recently at a goose banding event. The photo to the left shows people rounding up geese, which puts the situation in context. But what you can't see is what emotions are circulating within the group. The photo to the right focuses in on one person who has caught a goose. By filling the frame with one person I am able to show emotion. She is smiling. The viewer can see her holding one of the geese — telling the story.



### To fill your frame try one of these options:

- 1. Optical zoom** – Use the built-in zoom lens on your point and shoot or change to a more powerful lens if you have one.
- 2. Use your legs** – Don't forget about using your body. More often than not you can fill your frame by taking a few steps closer to your subject rather than zooming in.
- 3. Crop your shots** – For me, this option is more of a last resort. Cropping an image can trim it down to the proper size; however, you run the risk of pixelating your shot by doing so. Always try and go with options one or two first.



## Now get out there

Now that you're armed with some fresh ideas it's time to put them to work. Always be on the lookout for new angles. Photography is one of those "sports" that requires practice, practice and more practice. Get snapping. Be bold. Be daring. Most important — BE CREATIVE!

Happy shooting.

*Branden Kerr is an editorial intern with Wisconsin Natural Resources magazine.*



#### CONJOINED TREES

While deer hunting this past fall near New Lisbon I came across these two maples growing together. I thought it was quite unusual that two trees could actually graft together in this fashion, with two separate tops and two separate root systems. I enjoy your magazine. It is very informative of what we have here in Wisconsin. Our state is unique.

Ted Haschke  
New Lisbon

*What you observed is called inosculation and the two resulting trees are often referred to as "husband and wife" trees. They occur when the two trees touch, then gradually as the trees move in the wind, the bark on the touching surfaces scrapes away. Once the cambium of the two trees touch, they self-graft and grow together. Thanks for sharing this interesting natural phenomenon!*

#### WOOD DUCK NEST REDUX

I have a wood duck that sets and hatches eggs each year in a hollowed-out branch in a silver maple tree in front of my house not eight feet from the door. The nest is about 12 to 15 feet up and when they hatch she shoves them out and takes them to a pond about 150 yards to the west. It's very seldom you see her fly in and out, but the first I saw her go in was April 8. On Easter (April 24) I saw egg



shells on the patio, so I thought they hatched. Then at 11 p.m. I saw an egg with a little duck in it. It was broken and the duck was alive but when I moved the neck straight it seemed to die. I went outside and there were more shells — something or the hen had shoved more out. Today (May 25), I saw a wood duck fly back into the tree and saw that she pushed all the old duck down out, so maybe she's starting over again — Wow!

Jim Koltes  
DeForest

*Jim, it's possible that the hen's first nest was raided by a raccoon or other predator. Wood ducks are very productive and will attempt to re-nest once or twice if the first nest fails.*

#### ACCIPITERS PREY ON BLUE JAYS

In response to the letter published in your June 2011 issue about the disappearance of blue jays from a reader's bird feeder, I have a biology degree, am a bird lover, wildlife enthusiast, bow hunter and am fairly knowledgeable about birds in general. I am blessed with a huge population and wide variety of birds in our close vicinity and overall area. We have lost all of our blue jays, which I estimate at approximately three different pairs that had frequented our area. I always feed during the winter, but what is unusual is that I have not heard even one in the past two months. The cause of their demise in our area is the Cooper's hawk (accipiter or bird hawk). Its cousin is the sharp-shinned hawk, which is a deep woods hawk. I have discovered the remains of three blue jays since early spring in our yard alone. I have seen the Cooper's hawk hunt on numerous occasions. Over the years, I have observed and I am convinced that, for whatever reason, the blue jay is the favorite prey of the accipiter. Many people don't even realize that they have an accipiter hunt-

#### TRAILCAM GLIMPSES MORE THAN BIG BUCKS

Here are some grouse pictures from my trailcam at our land in Crivitz. I hear this grouse drum at 5 a.m., as it's only 100 yards from the cabin. I had about 300 pictures in the last week, and even thought the red squirrel was a nice touch. I've told my wife I probably won't grouse hunt the cabin this fall as I want this grouse to live a long grouse life and keep giving me pictures. My opinion is too many people dwell on deer and large bucks for trail camera pictures and miss a lot of other wildlife out there. There's also a picture of a woodcock on the same log used by the grouse earlier.

Gary Kraszewski  
Green Bay



ing their area due to the hawk's secretive nature, their swooping, very low flight, attack style, and ambush skills. I have had Cooper's hawks hunting my yard and my winter feeding station for several years now. My past bow hunting experiences have also proven to me that the preferred food of the sharp-shinned hawk is the brightly colored, loud and raucous blue jay, which always broadcasts its exact location. The hawks have to eat also and I love all birds, except the starling, a whole other story!

I have another observation about robins. We have a large population of robins in our yard, neighborhood and overall area. Robin males sing at 4 a.m. every day and are constantly at war for territory, nesting sites and feeding grounds. I am always attentive to bird sounds. Approximately 10 years ago I began to hear a bird's whistling sound. I am aware of most robin sounds and songs but it took me three years to identify the bird responsible and determined that it is the robin. If you have good hearing, the whistle is soft, shrill, high-pitched and plaintive. My theory is that these robins are

first-year, fully-grown fledglings that know they are in a danger zone and asking for safety and safe passage. I ask anyone with similar observations or knowledge to write the DNR magazine or email me directly at [kirchjo@centurytel.net](mailto:kirchjo@centurytel.net).

Jon Kircher  
Milton

#### IS RAIN BARREL WATER SAFE TO CONSUME?

I have read the article on "Water conservation and efficiency" in your June 2011 issue and I have a question regarding rain barrels. It was stated that rain barrel water can be used for outdoor and indoor non-edible plants. Why do you state that this water being used should not be used on edible plants? Is there a potential for rainwater to become a health hazard? Would appreciate your comments.

Gary Schilling  
Campbellsport

Author Shaili Pfeiffer, specialist in DNR's drinking water and groundwater program, provided this explanation: *Rain barrel water may contain contaminants, depending on the material the roof and gutters are made of; asphalt shingles are of the greatest concern. In addition, birds and animals on the*

#### 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.**

## WILDNESS INCARNATE

and tend to simply move the problem cranes from one field to another. Permits to kill sandhill cranes damaging spring crops have been issued by the USFWS and Canadian Wildlife Service for several years with as many as 500 cranes being removed across the Great Lakes EP breeding range in one year.

As one solution to the crop damage problem, the USDA and ICF cooperated on research into chemicals that would give crops a bad taste to sandhill cranes. The ICF and various partners have shown that a chemical (9, 10 anthraquinone), now marketed as Avipel™, can be applied to seed corn to produce a bad taste for sandhill cranes. In 2008, farmers treated 41,300 acres in Wisconsin; 12,500 in Michigan and 1,200 acres in Minnesota at an estimated cost to farmers of \$275,000 or \$5 per acre.

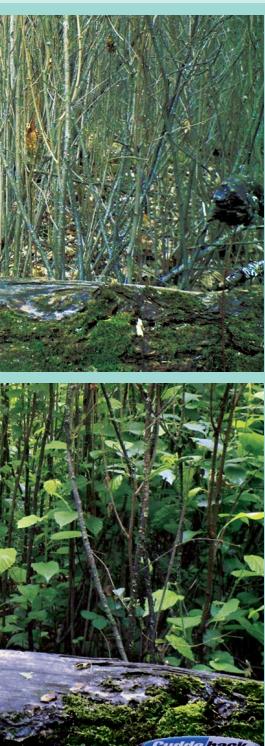
### Circumventing a prophecy

Aldo Leopold wrote these words in a *Marshland Elegy* as a statement of the plight of the sandhill crane and its marsh home: "The last crane may well trumpet his farewell and spiral skyward from the great marsh." Fortunately, some 60 years later this prophetic lament of the sandhill crane's eventual demise in Wisconsin has not come to pass.

Through changing attitudes and conservation efforts, the 21st century for the sandhill crane in Wisconsin and in eastern North America looks much brighter. Of course, the recovery and expansion of the sandhill crane, as with any wildlife species, will result in increasing interaction with people. As this occurs we will be challenged to rethink our perspective and relationship with this bird that has trumpeted its voice throughout the centuries.

The future path that people and an increasing sandhill crane population take together will be charted in the years to come. Regardless of what this path looks like, I think Aldo would be pleased to change his pessimistic view of the sandhill crane's future. 

Kent Van Horn is the DNR's migratory game bird ecologist with the Bureau of Wildlife Management and lead author of The Management Plan for the Eastern Population of Sandhill Cranes.



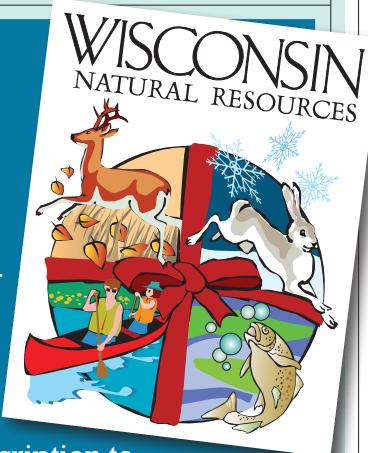
roof may be a bacteria source to the rain barrel. As a precaution, the Department of Natural Resources recommends using water from rain barrels only on non-edible plants. However, there is not uniform agreement on this issue and interested homeowners may wish to further research the issue in the context of the specific materials used for their roof and gutters or investigate installing first flush diverters to dispose of the initial flush of water from your roof.

### 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:dnrmagazine@wisconsin.gov). Limit letters to 250 words and include your name and the community from which you are writing.

## Choose a gift that delivers in all seasons

Set your sights on a bargain and consider holiday gifts of **Wisconsin Natural Resources** magazine. Whether you are thankful for a favor or just want to do something special for a friend or family member who enjoys the outdoors, a subscription to **Wisconsin Natural Resources** makes a thoughtful, affordable, tasteful gift that we wrap up and deliver six times throughout the year. Just call 1-800-678-9472 or subscribe online at [wnrmag.com](http://wnrmag.com) and download a gift card of your choice. Just \$8.97 per year. Call now, and wrap up your holiday shopping before the snow flies.



## Comforts

## Fleas: Our tiny foes



Johanna Schroeder

Imagine my horror in November of 2008 when I discovered all four of my cats were infested with fleas. Not only was I shocked to have an infestation occur so close to winter, I also was stymied by the fact that my cats were indoor pets, and had little or no contact with the outdoors. Thus began a frustrating, year-long journey down a path in which I learned more about fleas than I ever wanted to know. Hopefully my experiences will help other pet owners prevent the same nuisance from happening to them.

**Indoor pets can definitely get fleas**

I was foolish enough to believe that indoor pets were somehow immune to fleas. Wrong. I had one cat that was notorious for escaping any time he heard either the front or back door open. Even though we usually managed to capture him immediately and return him indoors, his brief encounters with outside freedom were long enough that fleas could have hitched a ride. I learned from many frantic phone calls to a vet in Prairie du Sac that flea eggs can attach to surfaces such as shoes, enter a home unseen, and hatch.

I also learned that my neighbors' infestation could have caused my infestation. When speaking with a pest control company about the possibility of treating my home they asked what type of dwelling I lived in. When I answered it was in a duplex, they said my neighbors would have to treat their home as well, and that the flea problem my neighbors had been dealing with since August could have caused my problem. Ever the definition of rude guest, fleas will find a way to enter a home uninvited, whether or not your pet goes outdoors.

**Store-bought products don't always work**

I can't speak for everyone and there may be a success story somewhere regarding flea treat-



KRISTIN BALOUSEK

useless! By the time the bomb explodes and the chemicals hit the carpet area, they are so diluted that bombs are bummers. I was informed, though, that the flea treatments I had used on my cats up to that point were strong enough to potentially harm my cats. After a bath in mild dish soap to remove the chemical residues, I was able to proceed with the vet-recommended treatment. I saw results almost immediately.

**Fleas can live up to one year without a host**

Yuck! I read this information in an article recently, but I actually witnessed it firsthand. I had heard stories about fleas biting or being found a few months or even six months later, but not a year! This leads to my next bit of advice: even if you think you have conquered the problem, do not stop treating.

Treating four cats with Frontline<sup>TM</sup> monthly became very costly, so in September of 2009 I decided to quit treating the cats. A month later I noticed one of my kitties itching profusely. Every day for several weeks I gave her a few swipes with the flea comb and luckily found nothing. Then one day, I did find a single flea in her fur. I immediately started treating all of the cats again. Costly or not, I did not want to go through what I had almost a year before.

Another excellent way to prevent a future infestation is frequent vacuuming. Until you're sure the problem has been abated, be sure to empty your vacuum after every cleaning and immediately dispose of the contents outside of your house. Fleas can thrive happily in cracks, crevices and vacuums.

**Prevention is the best solution**

Currently, I have two fewer felines, continue with monthly treatments, and have been flea-free for almost two years. The most important lesson I learned from my ordeal: preventing an infestation from occurring is the best strategy by far.



KRISTIN BALOUSEK



JAMES A. LANGBRIDGE

Johanna Schroeder works at the Department of Natural Resources in the Bureau of Watershed Management and continues to share a happy, flea-free home with two cats and four kids.

# Autumn festival fare

Kathryn A. Kahler

Wisconsin is ablaze in glorious panoramas of oranges and reds that pique our visual senses.

Traveler invites readers to satisfy another of your senses at festivals and fairs devoted to the state's bountiful harvests. From Bayfield to Door County to Grafton — and all points between — you'll find events celebrating apples, cranberries, cherries and pumpkins, to titillate your taste buds.

Wisconsin's love affair with apples kicks off October 1 at the **29th Annual Galesville Apple Affair**. Area orchards sell apples and apple treats ranging from pie, caramel apples and Apple Normandy to apple cider and juice. Aromas abound, including those wafting from one big tent where a 10-foot apple pie bakes to flaky perfection. Visit [galesvillewi.com/appleaffair.html](http://galesvillewi.com/appleaffair.html), call the Galesville Area Chamber of Commerce (608) 582-2868, or email [info@galesvillewi.com](mailto:info@galesvillewi.com)

Head north October 7-9 for the **50th Annual Bayfield Apple Festival**, one of Wisconsin's premier festivals, where more than 46 area orchards display and sell their delicacies. Come early for the apple pie contest and sampling on Thursday night, and stay for the grand parade down Rittenhouse Avenue on Sunday. Visit [bayfield.org/festivals\\_events\\_apple\\_festival.php](http://bayfield.org/festivals_events_apple_festival.php) or call 1-800-447-4094.

Of course, you don't need to drive across the state to experience the crisp, juicy bite of a freshly picked apple. Visit the **Wisconsin Apple Growers Association** website ([waga.org](http://waga.org)) to find an orchard near you, then get out and get pickin'.

Tart and heart-healthy, the humble cranberry is the featured fruit of festivals in north central Wisconsin. Eagle River is host to **Cranberry Fest**, October 1-2, where the famous

"World's Largest Cranberry Cheesecake" helps support the Make-A-Wish Foundation. Visit [eagleriver.org/CranberryFest.asp](http://eagleriver.org/CranberryFest.asp), call 1-800-359-6315, or email [info@eagleriver.org](mailto:info@eagleriver.org)



WISCONSIN STATE CRANBERRY GROWERS ASSOCIATION

About 100 miles to the west, on October 1, guests will celebrate the **32nd Annual Stone Lake Cranberry Festival**.

Thousands of pounds of bagged cranberries — fresh or dried — will be on sale, but get there early because they are usually gone before noon. Visit [stonelakecranberryfestival.com](http://stonelakecranberryfestival.com)

Besides the annual festivals, many cranberry marshes offer guided tours throughout October near Wisconsin Rapids, Warrens and Manitowish Waters. Take a self-guided drive along the 50-mile Cranberry Highway — that loops from Pittsville to Babcock to Wisconsin Rapids and back — or the 29-mile Cranberry Biking Trail. Visit the **Wisconsin State Cranberry Growers Association** ([wiscran.org](http://wiscran.org), 715-423-2070); Wisconsin

Rapids Area Convention and Visitor's Bureau ([visitwisrapids.com](http://visitwisrapids.com), 715-422-4650) for a map of the highway and information about tours; Manitowish Waters Chamber of Commerce ([manitowishwaters.org](http://manitowishwaters.org), 1-888-626-9877); or the Warrens Area Business Association ([visitwarrens.com](http://visitwarrens.com)).

A trip to **Door County** in autumn is always a good bet. Although the cherries were harvested a few months ago, you'll find them in just about any form at orchards and retail outlets across the county. Tart or sweet, you can get them frozen, canned, dried, juiced, jellied, covered in chocolate or made into wine, salsa, mustard, syrup or sausage. Whew!

Rounding out — or should we say anchoring — our list of festivals are those dedicated to that most beloved of gourds, the great pumpkin. At the **Nekoosa GIANT Pumpkin Fest**, October 1-2, you can witness the great pumpkin bake-



GRANT M. DAVIS



BAYFIELD CHAMBER OF COMMERCE AND VISITOR BUREAU

off and giant pumpkin drop, or partake in a pie eating contest. Visit [nekoosagiantpumpkinfest.com](http://nekoosagiantpumpkinfest.com), call (715) 323-4533 or email [nekoosagiantpumpkinfest@yahoo.com](mailto:nekoosagiantpumpkinfest@yahoo.com)

The **Fall Pumpkin Festival**, October 7-8, at Paramount Plaza and Lime Kiln Park in Grafton offers pumpkin carving and scarecrow decorating contests, a Pumpkin Cross bike race, kids activities and food, of course. Visit [grafton-wi.org](http://grafton-wi.org), or call (262) 375-5310.

The following weekend, October 15, head to the **Fremont Pumpkin Festival** for more of the same — but this one has outhouse races! Visit [travelfremont.com](http://travelfremont.com), or call (920) 446-3236. Can't fit a festival into your schedule? Plan a family outing to a pumpkin patch. Visit [hauntedwisconsin.com](http://hauntedwisconsin.com) to find a patch near home.

Speaking of **Halloween**, a number of state parks feature "fright hikes" and campground festivities leading up to the holiday. Events are scheduled at Kettle Moraine State Forest-Northern Unit (Campbellsport) on October 14 and 15; Kohler-Andrae State Park (Sheboygan) on October 15 and 29; Heritage Hill (Green Bay) on October 21, 22, 28 and 29; Mirror Lake State Park (Lake Delton), Richard Bong State Recreation Area (Kansasville), and Roche-A-Cri State Park (Adams-Friendship) on October 22; and Lapham Peak Unit, Kettle Moraine State Forest (Delafield) on October 28 and 29. Check out the Wisconsin State Park event calendar at [dnr.wi.gov/org/caer/ce/news/events.html](http://dnr.wi.gov/org/caer/ce/news/events.html) for more information and listings.

Kathryn A. Kahler is a staff writer for Wisconsin Natural Resources magazine.



## Wisconsin, naturally

### KETTLE MORaine OAK OPENING STATE NATURAL AREA



**Notable:** Kettle Moraine Oak Opening lies in the heart of the jumbled and rugged landscape of the interlobate moraine, an area of glacially-formed kettle holes, kames (conical mounds), and gravelly hills and ridges. The natural area is a mixture of oak opening and oak woodland communities dominated by open-grown bur and black oaks. Small dry prairie openings occur on gravel knobs and steep south- and west-facing ridges. Bald Bluff, the largest and most diverse of these, contains short grasses such as little blue-stem, side-oats grama, and prairie drop-seed. Forbs include pasqueflower, grooved yellow flax, and a host of autumn-blooming asters and goldenrods. The best area of oak opening lies southeast of Blue Spring Lake. It features big blue-stem, Indian grass, purple prairie-clover, white camass, lead-plant, Illinois tick-trefoil, and a large population of the state-threatened kitten tails.

#### How to get there:

Within the Southern Unit of the Kettle Moraine State Forest in Jefferson and Walworth counties. From the intersection of State Highway 59 and County Highway H in Palmyra, go south on H 2.7 miles to the Bald Bluff parking area east of the road. Access is also available from Young Road and Bluff Road. The Ice Age Trail traverses the site. Vehicles must display a state park admission sticker. Visit [dnr.wi.gov/org/land/er/sna/index.asp?SNA=229](http://dnr.wi.gov/org/land/er/sna/index.asp?SNA=229) for information and maps of the site.

