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WISCONSIN NATURAL RESOURCES

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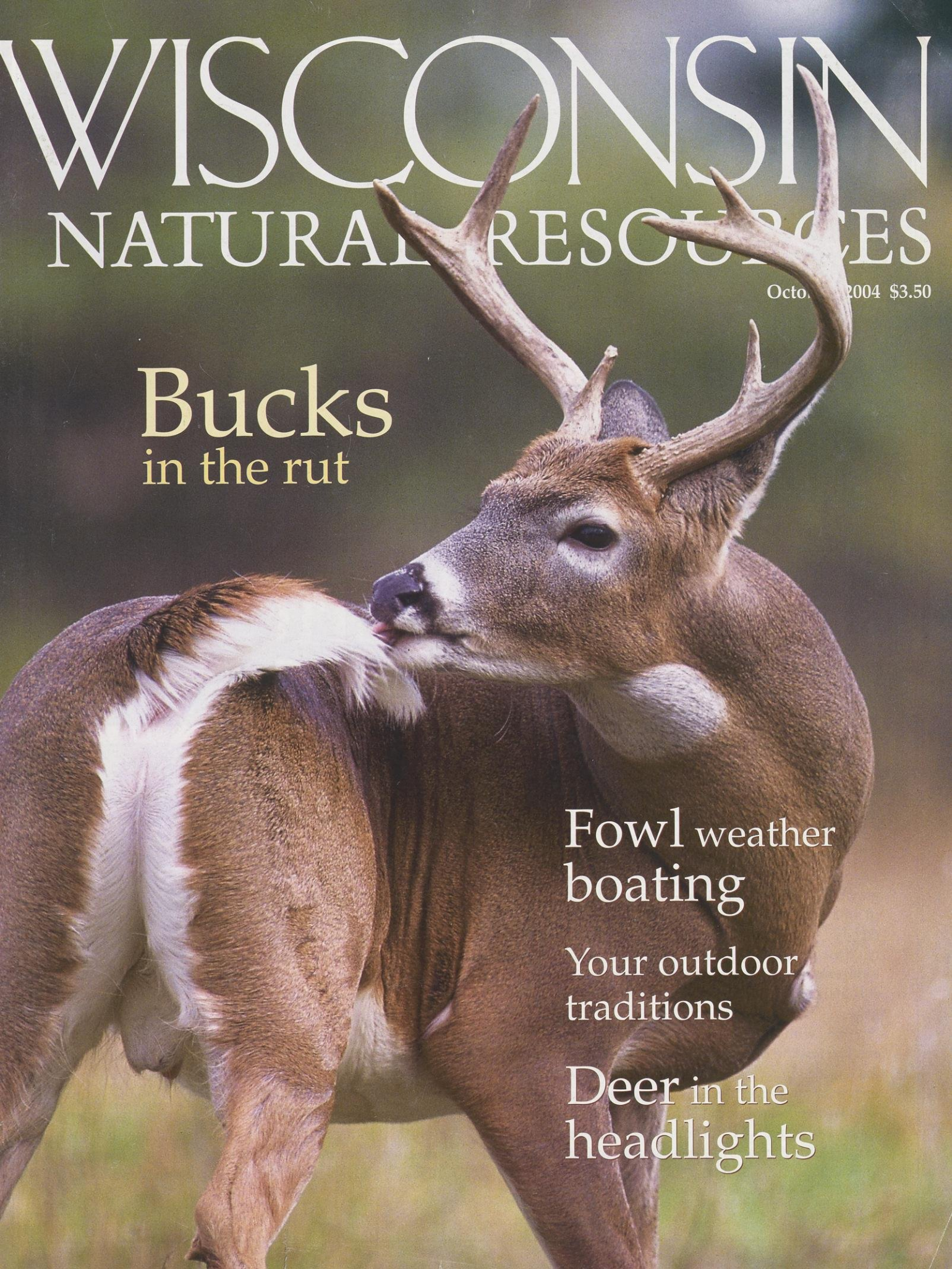
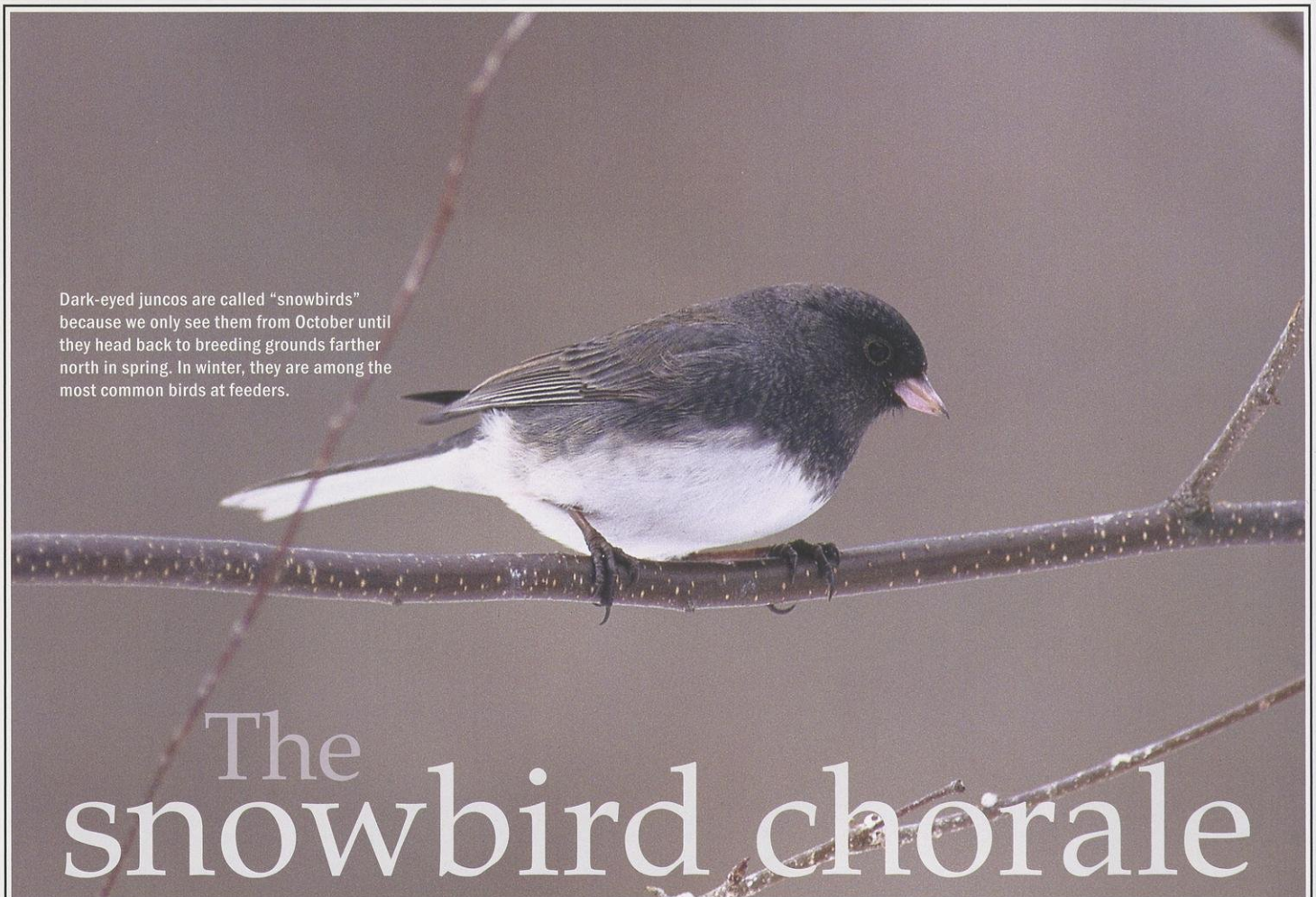


Bucks in the rut

Fowl weather boating

Your outdoor traditions

Deer in the headlights



Dark-eyed juncos are called "snowbirds" because we only see them from October until they head back to breeding grounds farther north in spring. In winter, they are among the most common birds at feeders.

STEPHEN J. LANG

The snowbird chorale

Juncos twitter in the fall and winter chorus.

Anita Carpenter

Flaming red maples, fading goldenrods and slow-chirping crickets are all clues that summer is winding down and autumn is sneaking in. The change brings mixed emotions, but one joy is the return of those perky, chunky, six-inch-long slate-gray birds with white bellies — dark-eyed juncos. Traveling in small flocks, these distinctive sparrows appear predictably from the last week of September into the first week of October under cover of darkness. I often hear their soft twitters before I first spot them scratching the ground under shrubbery or hopping from branch to branch in dense foliage.

Along with shorter days and frosty nights, returning juncos foretell the coming of winter. Early nature watchers gave these winter harbingers a name — snowbirds — and their scientific name, *Junco hyemalis*, reflects their association with winter: *hyemal* from Latin means winter. Many juncos spend winter with us, but countless others continue south as far as they choose. They delight us from October through March, then push north in April.

Coniferous forests of extreme northern Wisconsin and Canada are the juncos' summer home. Their soft trilling must be a pleasant addition to the symphony of song in the spring forest. Juncos get down to the business of breeding quickly, constructing a well-hidden nest in a grass-lined depression on the ground. The female alone incubates four to five, gray to blue-white eggs speckled with brown. Eggs hatch in 11 to 13 days and the nestlings, tended by both parents, are fed an insect diet. Young leave the nest in 12 to 13 days. After a second brood is hatched and fledged, juncos gather in flocks and head south.

Dark-eyed juncos are easy to identify. They are the only small winter birds with white bellies that are dark gray on the body head and tail. They have finch-like, conical pink bills and dark eyes. Females and young are lighter gray washed with brown overtones. The friendly, non-feisty juncos are primarily ground feeders, hopping about, scratching the earth, pecking and searching for seeds. If startled, they fly to cover, fanning their tails to reveal white outer tail feathers — a conspicuous field mark to aid in identification.

continued on page 29

WISCONSIN NATURAL RESOURCES

October 2004
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DONALD S. ABRAMS

RJ & LINDA MILLER

MISSY SCHULENBURG

FRONT COVER: Bucks signal unique behaviors during the rut. See our pictorial essay p. 10–15.

STEPHEN J. LANG, Madison, Wis.

BACK COVER: Kohler-Peet Barrens State Natural Area is located within the Governor Knowles State Forest, Burnett County. Find more recreational opportunities at state forests at dnr.wi.gov/org/land/forestry/StateForests/recreation.htm.

ROBERT QUEEN, Madison, Wis.

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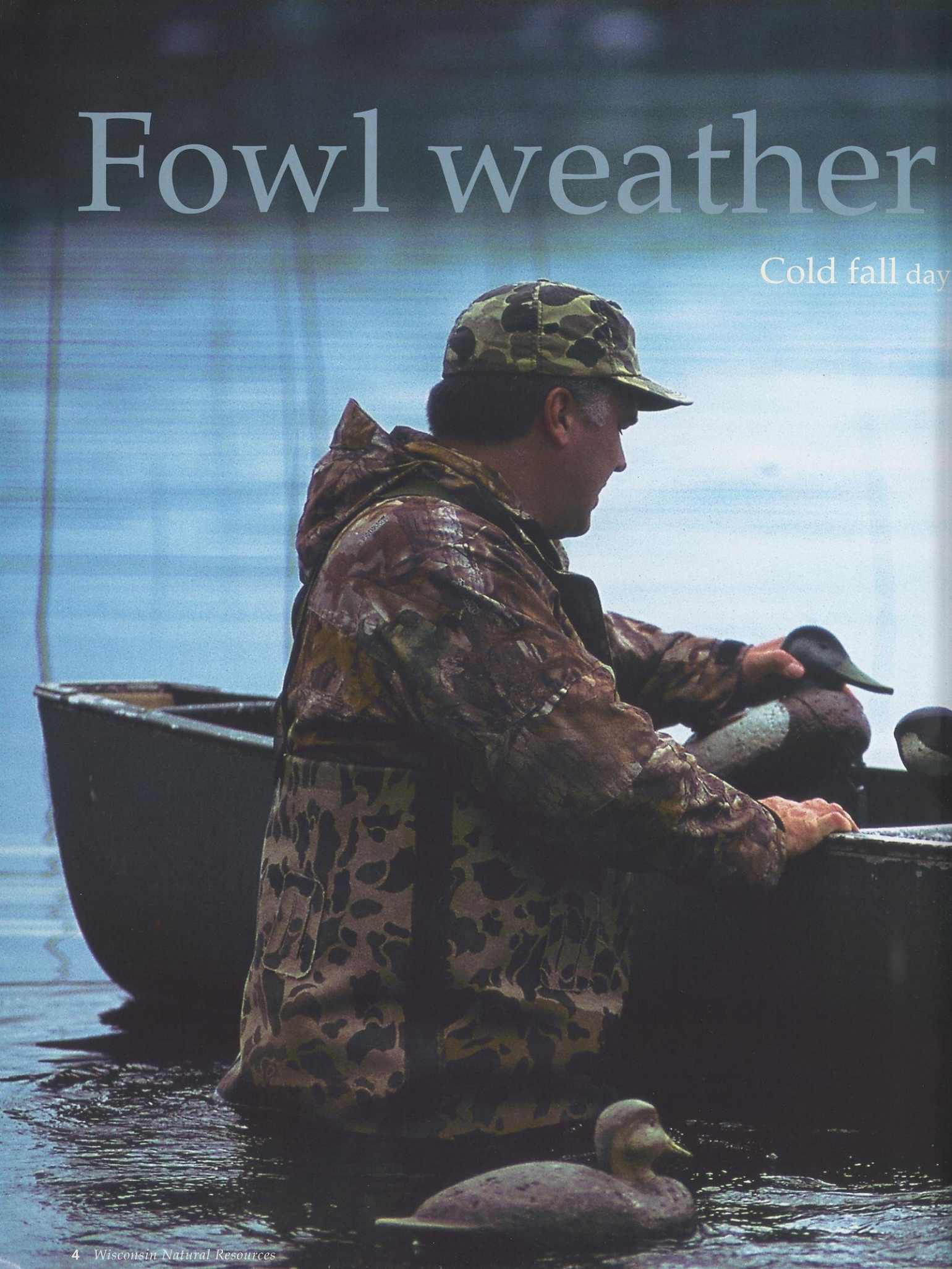
Fowl weather

Cold fall day



boating

rovide mixed risks and rewards to duck hunters on the water.

DNR Communication and Education staff

Duck hunters are a breed apart. On a raw fall morning when the temperature is dropping, the wind is picking up, and the warm weather has given way to cold waves of pelting rain, waterfowl hunters see nothing but opportunity. While the rest of the world pulls winter coats out of storage and throws a few logs in the fireplace, waterfowlers take vacation and head outdoors. A good cold snap with a stiff breeze and low clouds increases the chance of an encounter between the hunter and rafts of low-flying ducks pushed by nature to leave breeding grounds and staging areas on southern migrations.

ROBERT QUEEN *(INSET)* DARRYL R. BEERS

A day of waterfowl hunting can stay tranquil or the weather can turn rough quickly.

The waterfowlers take to the marshlands to test their luck. Some are content to build shoreland blinds that border the rivers and potholes where the ducks feed, loaf and rest up en route to wintering grounds. Others immerse themselves in the experience. Duck hunters can don waders and take cover in emergent cattails and reeds. They can jump shoot on streams or set up floating blinds on the Mississippi River and Great Lakes. And of course they want to set out an impressive array of loafing, happy-looking decoys to entice some live company. All these ducky activities can involve getting into a jon boat or skiff when the weather is raw and the waters are cold and rough.

"All too often, waterfowl hunters just view their jon boat or skiff as a means of getting to a blind, setting out dekes or

retrieving a downed duck," said Roy Zellmer, DNR boating safety administrator. "They forget that they are also boating, and they don't tend to think about factors that can make fall boating a riskier activity. The same winds, cold water and foul weather that would make them think twice about boating in the summer just don't dissuade them in fall. And in autumn the clothing is heavier, the boat is usually shallow, it's loaded with decoys, firearms and maybe a dog. You have to be thinking about safety first."

ROBERT QUEEN (P. 7) SCOTT NIELSEN

Wear your life jacket while duck hunting. Don't rely on digging under piles of gear to get to it in a hurry.

Have a checklist and a plan

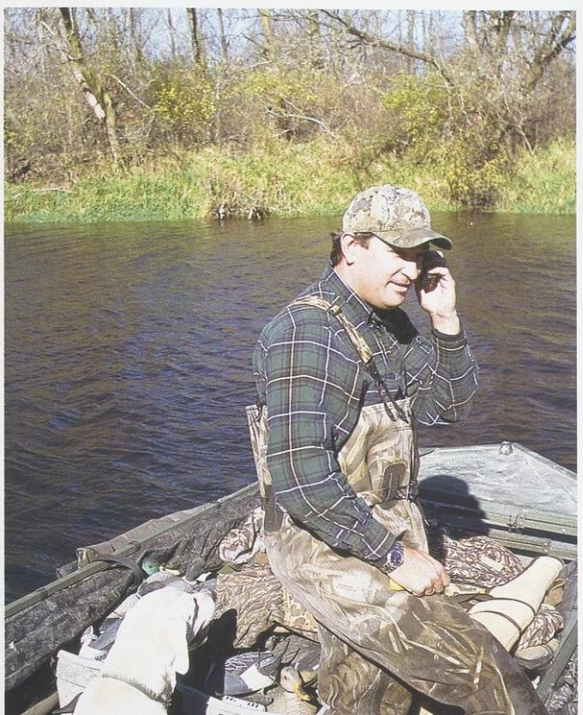
Planning for cold weather boating is essential. You need to wear clothes that will protect you from the air and the water. Conventional wisdom on land is to don several layers of warm clothes. On the water, this weighs you down. Shoreside clothes are less effective in retaining body heat. You want to wear a few light layers under or inside a waterproof shell. Many outdoor clothing manufacturers now offer lightweight togs that have already sandwiched together a camo-print waterproof, windproof outer shell over thin insulating materials and warm fleeces. Light polypropylene undergarments and a light wool layer can provide both warmth and flexibility. You can also find lightweight suits made for windsurfers and river paddlers that will protect you in cold, wet conditions.

It also makes sense to take your hunting clothes with you when you go to purchase a life jacket for cold-weather boating. You want to get one that is comfortable and the right size when you are dressed in field attire.

"You are more likely to wear a life jacket if it is really comfortable and it will serve you well for both the fall waterfowl season and the early spring fishing season when the water is still cold," Zellmer said. "The best life jacket in the world is worthless if it isn't being worn."

The water can get rough when flat-bottomed boats are used in shallow, windy waters. Rules restrict where it is legal to hunt from a skiff. Stay legal and stay safe. One good idea is to hunt in pairs.

Take along a cell phone, but don't rely on it as your primary safety tool when boating in cold weather. Loads of gear, shifting dogs and shallow boats all add to the risks and challenges in the fall waterfowl hunting season.



(BOTH PHOTOS) ROBERT QUEEN

Diving ducks like ring necks pose a special hunting challenge because they are fast and often move through in deeper water when the weather is windy, cold and rainy. Foul weather hunters need to be especially safety conscious.

Zellmer cited a sad example from last fall when two young hunters on the south shore of Lake Winnebago lost their lives while waterfowl hunting.

"We may never know exactly what happened," he said, "But when the boys were found, neither was wearing a life jacket, but both boat oars and life jackets were found in their car that was parked near the boat landing."

Adults need to think twice before taking children along on a waterfowl hunt if rough weather is forecast. Children are especially vulnerable as their smaller body mass means even shorter survival times in cold waters. According to the Health Resources and Services Administration's Maternal and Child Health Bureau, drowning is second only to car accidents as the leading cause of accidental death among children age 1–14.

"Don't buy oversized jackets with the idea that your children will grow into them," Zellmer said. Properly fit children with life jackets that are sized both for their weight range (under 30 pounds, 30–50 pounds, 50–90 pounds and over 90 pounds) as well as their chest size measured under the armpits.

"If life jackets are too big or too small, they can slip off when your children need them most. Test the life jacket, fasten all the chest straps and the crotch strap and lift the jacket up at the shoulders. If it gives more than three inches, it is too big."

As you plan your trip, watch the weather forecast, prepare a float plan and leave a copy with someone, or at least notify someone where you are going and when you expect to be back. When you return, let them know you're back. Don't hunt or boat alone when the water is cold and the weather fickle. Using the buddy system is a proven lifesaver. While you are out, observe the boats around you, their location and proximity to your boat. You'll have to depend on each other for quick rescue in case of an accident in cold water.

Pack extra dry clothing in a waterproof bag. Make sure that your boat has adequate bailing equipment and lash it to the boat so it will stay with the skiff if it goes over. You may want some simple provisions to make it easier to get back into a boat when wearing hunting clothing. Consider having a short boarding ladder or a rope. Your life jacket should have reflective material attached to it and a whistle or small horn to call for help.

Cold water temperatures, sudden weather changes, an energetic retriever and the added gear that waterfowl hunters carry in their small boats or skiffs can all increase the chances that they'll end up in the water and in trouble, Zellmer said. To avoid capsizing or going overboard, he advises waterfowl hunters to make sure they do not overload their boats, to respect changing weather, to watch out for branches and underwater obstructions, to get retrieving dogs accustomed to the boat before the hunting season, and to keep a low center of gravity when moving around or shooting from the boat.

"Although hunters may consider the risk of falling overboard or capsizing to be small, such accidents pose a serious threat," Zellmer said. "Going overboard into cold water can quickly render a hunter unconscious and may kill those who are not wearing proper clothing and a life jacket. The absence of other boaters on lakes and rivers in the late fall and winter also greatly reduces the chances of a prompt rescue," he added. "Carry a cell phone, but don't count on it as your primary safety tool when boating. It takes time to find boaters, and you don't have a lot of time if you end up in the water from fall through early spring."

The cold truth

The dangers of cold water need to be understood and heeded. According to the U.S. Coast Guard, more hunters die each year in the United States from drowning and hypothermia than from gunshot wounds.

People lose body heat 25 times faster in cold water than in cold air, and hypothermia — the body's inability to produce heat faster than it's being lost — can occur in any water less than 70°; relatively quickly in the colder water temps of late October. The Coast Guard estimates that in 50–60° water a victim will become exhausted or unconscious within two hours and may survive in the water for one to six hours. In water colder than 50°, the hypothermia victim may lose consciousness within 30 minutes and can survive for only one to three hours without medical attention.

"These survival times may seem long, but on big waters, help can be a long time coming," Zellmer said. "If a person goes overboard near sunset or after dark, the possibility of a timely rescue is unlikely."

If you fall overboard or capsize in cold water, panic and shock can set in quickly. The shock from falling into icy water triggers an involuntary gasping reflex that can cause you to inhale water through your mouth. Without a life jacket, a person can drown without ever coming back to the surface. Cold shock may result in cardiac arrest or loss of consciousness. When the head and chest are exposed to cold water, heart rate and blood pressure can increase suddenly. Once you get past the initial shock, you feel disoriented and thrash around getting a sense of bearing and composure.

Wearing a life jacket is critical to protecting yourself and increasing your chance of survival.

Water quickly robs your ability to help yourself. Cold water numbs extremities and draws off body heat. Cold fingers can't fasten a life jacket or grab a rescue rope. Cold legs can't kick long to keep you afloat. The life jacket not only allows you to float without expending energy, it also provides insulation.

If you do fall overboard, these tips may help save your life:

Don't take off any clothes. Instead, button, buckle, zip and tighten collars, cuffs, hoods, or anything else to help you stay insulated, especially around your head. About half of heat loss comes from your head.

Devote your energy to getting out of the water. Act quickly before losing the use of your hands. Turn a capsized boat over and climb in. Most boats will support you even if they are full of water. If you can't right the boat, climb on top.

Don't try to swim unless it is to reach a nearby boat or floating object. By re-

When a ducky day turned dangerous

Having been born and raised in North Dakota, we were used to sudden weather changes in late fall. In the past 41 seasons as a duck hunter, I'd already seen my fair share of 90° bluebird days turn into snow showers, dropping temperatures and frozen ponds. Still, I never suspected that our late October duck hunt would be such an adventure.

COURTESY OF JOHN WETTSTEIN

John Christopherson and Tory Wettstein *(l to r)* have shared many fine goose and duck hunts. Fortunately, they lived to tell the tale of one particularly harrowing experience.

Our trip started on October 24 driving from eastern Wisconsin to eastern North Dakota. We encountered some heavy rain through Wisconsin and as we arrived in the Minneapolis area, the rain turned to snow flurries and weather forecasters were already advising motorists to avoid traveling to the north. Our destination was Wahpeton, ND, located about 50 miles south of Fargo, the home of my friend, Phil Glander, where my son, Tory, and his friend, John Christopherson, had already been hunting for four days. Prior to my arrival, the hunting had been excellent, but the snow started on Wednesday, and when I finally made it to Phil's driveway, the snow didn't show signs of stopping.

But bad weather only looks like opportunity to a duck hunter. We set the alarms early because we knew the heavy snow would slow our 30-mile drive to a crawl. At 3:30 a.m. the wind was howling at 50 to 70 mph and the white stuff was coming down heavily. We departed in two vehicles and 3½ hours later managed to arrive at the lake.

Getting out of the truck, we chased up about 2,000 to 3,000 ducks. Tory and John were going to row the 10-foot duck skiff about a half-mile along the upwind side of the shoreline. Their route was well protected from the wind. Phil and I walked across a plowed field to angle off toward the spot where the duck skiff was headed. When we reached the spot, we kicked up about another 1,000 ducks and the boys soon arrived in the skiff. It looked like the tough part of the trip was behind us, but looks are deceiving.

We set up the decoys and started getting ducks immediately. By late afternoon, the wind chills were plummeting into the -10° to -20° range, and John was starting to get cold. He said he would walk about a quarter-mile along the lake to a more sheltered area where we saw thousands of ducks land. After John had been gone about a half-hour, we got two ducks, but one landed about 40 yards out, too far from shore

ROBERT QUEEN

When setting out decoys and moving gear around the boat, wear life preservers, move slowly and shift your weight evenly.

ROBERT QUEEN

Offshore hunting blinds can bring hunters nearer rafts of ducks, but the blinds are exposed on all sides to waves, wind and weather. Plan your hunt, including how you will travel to and from the blind safely.

leasing warm water between your clothing and your body and sending "warm" blood to your extremities, swimming can cut your survival time by as much as 50 percent.

Even if it's painful, remain as still as possible. Intense shivering and severe pain in cold water are natural body reflexes. These will not kill you, but heat loss will.

If you're with other people, huddle together for warmth, otherwise, hold your knees to your chest to protect your chest from heat loss, and clasp your arms around your calves.

"Our best advice is to play it safe," Zellmer said. "If the weather gets rough, adjust your hunt plan. Consider hunting from shore. Consider cutting the hunting day short if the weather turns really foul, and consider that it's more important to stay healthy to hunt another day than to place yourself or others in a risky situation."

to reach. Tory said he'd take out the skiff to retrieve it.

Initially, it looked safe, but Tory got caught in strong 60 mph winds, and he was immediately blown about 150 yards out into the 400-acre lake. He was unable to row the skiff against the strong wind and was losing about 10 yards per second in his strong effort. Moreover, though he had life jackets in the skiff, he couldn't get one on over all of the heavy cold-weather hunting clothing.

I immediately tried to go to his aid, but the water was soon over my waders. I had to helplessly watch in total horror as Tory weakened and could not battle the waves any longer. He decided to turn the boat with the waves and ride them out to the other side of the lake.

He had about a three-quarter mile rough ride across the lake in a 12-inch deep skiff. I sent Phil to get help in the nearest town about a mile away, Lidgerwood, while I stayed to watch my son so I could lead rescue personnel to the site where the boat would likely come ashore. When the skiff was about halfway across the lake, I could see that it was floating lower in the water and taking on some water with each wave. Tory rode out the waves like a California surfer and proceeded at the speed that Mother Nature pushed him along.

About 25 minutes had gone by and I could only see his head when the skiff was at the top of a wave. I'm convinced that it was his will, strength and desire to live that saved his life.

All of a sudden I could see him standing up on shore and my prayers were answered. He collapsed from both the mental and physical exhaustion. The boat was at least three-quarters full of water when it reached the shoreline. I was trying to be optimistic, but in truth I would have only given him a 50–50 chance of making it across.

Phil arrived with a Lidgerwood volunteer fireman and all went well.

We proceeded to hunt for two more days, and with the northern flight of ducks coming down, the hunting was great.

We all learned a great deal about the fury of nature, and we have much more respect for the elements when duck hunting or heading out on a larger body of water. We adjusted our hunting strategies. Initially, we got life jackets that are comfortable and big enough to fit under our top layer of clothing. The first year after this happened, we also brought along a 150-foot hank of thick nylon rope and tied one end to the boat and the other to a stout tree. That way if someone retrieving a duck started to drift off, we could pull the skiff back to shore. We also started carrying a cell phone, though tower reception in this area is not great.

Ultimately, we found that we could hunt on nearby dry land even more successfully. During our hunting period we get an opportunity to hunt local ducks and we usually have timed it right so we get a chance at some of the northern ducks coming down from farther north in the Dakotas and some of the ducks coming down from the northern flights in Canada as their pothole marshes freeze up.

— John Wettstein, Marinette

Bucks

Remarkable photos catch whitetails in this season

Story and photos by F. Eugene Hester

In autumn, a white-tailed buck makes a dramatic transformation. During the summer while his antlers grow, he socializes as part of a bachelor group. But as days shorten in early September, major changes take place. Testosterone levels increase, his antlers harden and the velvet supplying blood to his antlers dries to a ragged sheath that falls off. He rubs off the remains, polishing his rack like a barber stropping a razor.

From that time on he is a loner, focused on the mating season and using his keen senses to detect danger, rivals and receptive does. If he proves to be dominant, he can breed many does; the strongest and

in the rut

of signaling their mating intentions.

fittest bucks sire the most offspring.

A buck advertises his presence through numerous sensory signals leaving physical scrapes and signs. He applies scents from various parts of his body signaling other deer of his presence and dominance. Saliva, urine, pre-orbital glands in front of his eyes, forehead glands at the base of his antlers and tarsal glands on the insides of his hind legs all send aromatic messages to other deer.

Though scents may tell a lot about his readiness for breeding, the ultimate test of his dominance is the buck fight. Early in the season, young bucks and even mature ones may engage in skirmishes, but when breeding time is imminent, mature bucks may challenge each other in serious combat. With antlers pushed together, they shove and twist with tremendous force. The battle lasts from a few seconds to several minutes, until one of them admits defeat and leaves. The dominant buck focuses on finding receptive does and will fight other bucks along the way in his pursuit. Look for these signs and behaviors on fall hikes or while you scout out hunting sites.

Rubbing brushes and trees

Bucks start rubbing soon after their antlers complete their growth and harden. The initial rubbing removes the velvet covering of dried blood vessels that nourished the antlers during growth. Antler rubbing continues throughout the autumn months and intensifies as breeding time approaches. As the buck rubs bushes and trees, he leaves scent from forehead glands. Other deer detect both the physical appearance of the rub and the scent left behind. Additionally, rubbing may act like a mock shoving match as if shadowboxing with an adversary.

STORY PHOTOS © F. EUGENE HESTER

Making a scrape

A buck advertises his presence by pawing the ground and raking away leaves and grass leaving a bare ground spot two or three feet in diameter. Bucks scrape almost anywhere including the middle of a field or deep in the woods, but often they scrape along the edges between fields, pastures and wooded areas.

Twig licking

After making a scrape, a buck will often leave his scent in several ways. One way is to lick overhead twigs as high as the buck can reach without standing on his hind legs. Other bucks will smell and also lick the branch. It seems to provide a form of social communication.

Scenting the scrape

After making the scrape and licking the overhead branch, a buck often will urinate or defecate in the bared space leaving a lot of scent. He may also rub together the deeply stained tarsal glands located inside each hind leg and urinate on the tarsal glands, leaving a very strong odor of both urine and the scent glands in the scrape.

Fighting

During autumn, bucks continually look for opportunities to breed. Deer do not form pair bonds, but rather the larger and stronger bucks become dominant and breed many does. Bucks exert their dominance in many ways — by their massive appearance, through stares and by challenging subordinates. At the peak of the breeding season, mature bucks do confront each other and a genuine fight ensues. With great speed and strength, bucks battle and antlers clash together as they vigorously push, shove and twist. The conflict continues until one admits defeat and retreats.

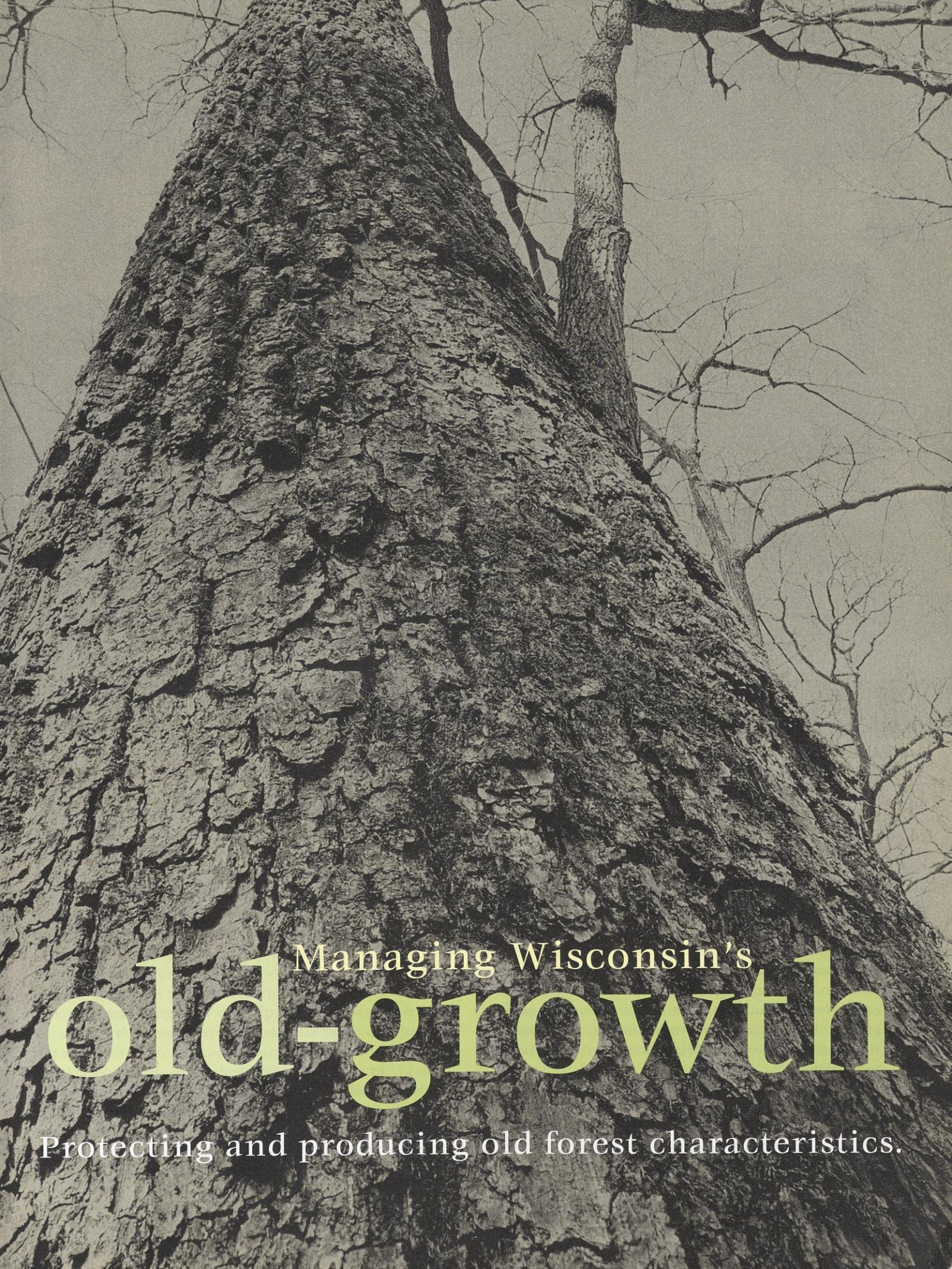
Sniffing air for scent

As a doe approaches estrus (heat), she provides behavioral and chemical clues that a buck will follow. She frequently stops and urinates advertising her state of estrus. The buck has a special way of drawing that scent into the roof of his mouth just inside his upper lip. This special sniffing action, known as a flehmen behavior, enhances his ability to detect the chemical messages she deposits in her urine.

The chase

When a doe nears estrus, the buck pursues her and they start running. He disregards all normal cautions likely exposing himself to the dangers of highways and hunters. He keeps other bucks away through threatening gestures, a grunt-snort-wheeze noise, or fights as necessary.

When the doe is ready to conceive, she allows the buck to catch her. After breeding, the buck may stay near her for a day or two and breed again.

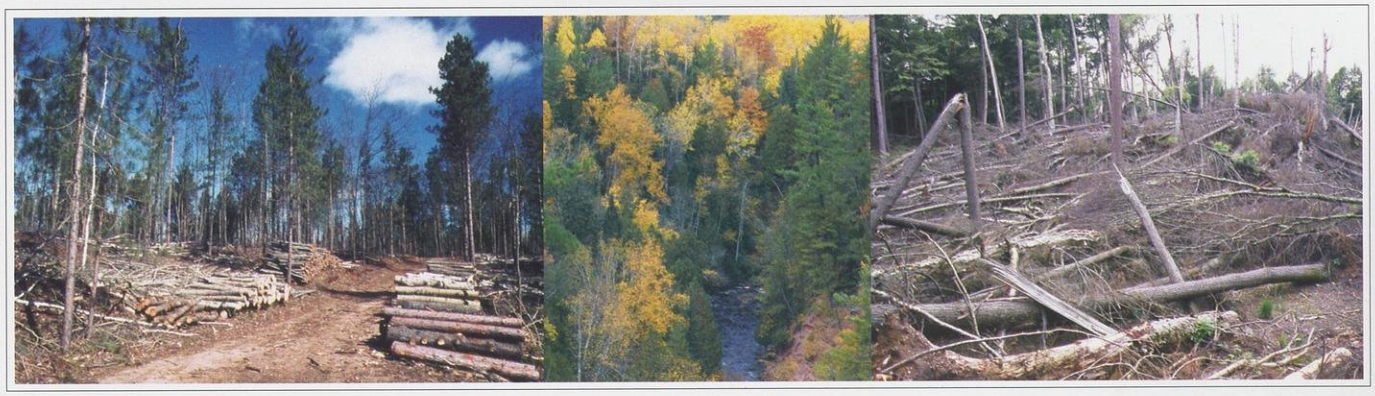


Managing Wisconsin's old-growth

Protecting and producing old forest characteristics.

Old-growth

A rare treasure.



DAVID CHESEMORE *(MIDDLE)* SCOTT NIELSEN

JMAR FOTO-WERKS

Forests throughout Wisconsin were heavily cut for timber by the early 1900s, which means almost all forests today are second-growth. To accelerate development of old forest characteristics, researchers are experimenting with mimicking natural processes. The blowdown of an old-growth hemlock stand at Kemp Station in Oneida County is an example of a natural disturbance.

HIKING AN OLD-GROWTH AREA CAN BE AN AWE-INSPIRING EXPERIENCE. In the Sylvania Wilderness Area of Michigan, ancient trees such as massive yellow birch, hemlock and maple stretch skyward humbling hikers with their grandeur and antiquity. Hikers' heads tilt back searching the canopy for the topmost branches, often in vain.

Old-growth forests have been called America's original forests.

Old-growth forests mean different things to different people. But in simple terms, old-growth consists of old trees where there has been little or no human intervention. These are sometimes called virgin forests or "first forests."

To early settlers and lumberjacks these forests were seen as a barrier to progress and a valuable natural resource to be exploited. Today, although not completely understood, they are valued for their scientific, aesthetic, ethical and recreational qualities.

"Old-growth forest represents a unique ecosystem that was once abundant across the forested regions of Wisconsin but is now very rare," says Signe Holtz, bureau director for DNR's endangered resources program. "As stewards of the land, it is important for us and our generation to try to maintain and restore this habitat type on Wisconsin's landscape for future generations."

Surveys conclude that only about one percent of Wisconsin's old-growth forests remain intact. According to a 1995 study by the U.S. Department of Interior's National Biological Service, less than five percent of the lower 48 states' original old-growth forests remain, and most of this is concentrated on publicly owned lands in the Pacific Northwest.

In the Pacific Northwest, the first thing you notice about the remaining old-growth forests is the sheer tree size. Large conifers that range from 250 years to well over 1,000 years old with heights of 100 feet to 370 feet and diameters of six or more feet dominate these forests. These are diverse forests — a mixture of old and young trees, mosses, insects, plants and animals including the northern spotted owl, marten and black bear.

Many southern Wisconsin forests were cleared for agriculture by the late 1800s, while forests in the north were heavily cut for timber by the early 1900s. Therefore, almost all the mature trees you see today are second-growth forest or younger, regrown after land clearing and settlement. Most of these trees are less than 125 years old.

The challenge is not only to preserve the small pockets where old-growth remains, but to develop more old-growth and learn how to mimic nature to develop old-growth characteristics while producing wood products for society's needs.

"It may be possible to accelerate development of old-growth characteristics through harvesting that mimics natural processes," says Karl Martin, a forest research ecologist in Rhinelander. "By making various-sized openings in the canopy, leaving some areas uncut and increasing the amount of dead standing and downed wood, we should be able to increase species diversity, age structure, forest structure and accelerate the development of large trees in these stands. These are key components of an old-growth forest."

Old-growth forests contribute to biodiversity and may house many plant and animal species. Fruits from bunchberries are eaten by some songbirds, grouse and chipmunks. Bunchberries are found in upland forests, hardwood forests and conifer swamps.

Maintaining and restoring a legacy

Some people just want old-growth to exist even if they never get a chance to see it, Martin says. This desire is a focus of several environmental organizations across the country. But this interest has to be tempered with society's growing wood and paper product consumption.

Scientists view old-growth as an opportunity to investigate the interworkings of a complex ecosystem and to maintain biodiversity and natural processes. Not only old-growth forests, but forests in general, are valuable for many reasons. They keep soil from eroding, help to keep water clean, hold nutrients important for plant growth in place and provide animal habitat.

"Many people agree that there should be old-growth forests, but often times they cannot agree on how much and where," Martin says.

Across the country and in Wisconsin, there are areas purposely unmanaged or passively managed (no active treatment of vegetation) where old-growth either exists or is developing.

Located near Woodruff in Oneida County, the Kemp Natural Resources Station's 135 acres support remnants of old-growth forests. This environment supports a diverse population of mammals, birds, amphibians, reptiles, fish and invertebrates.

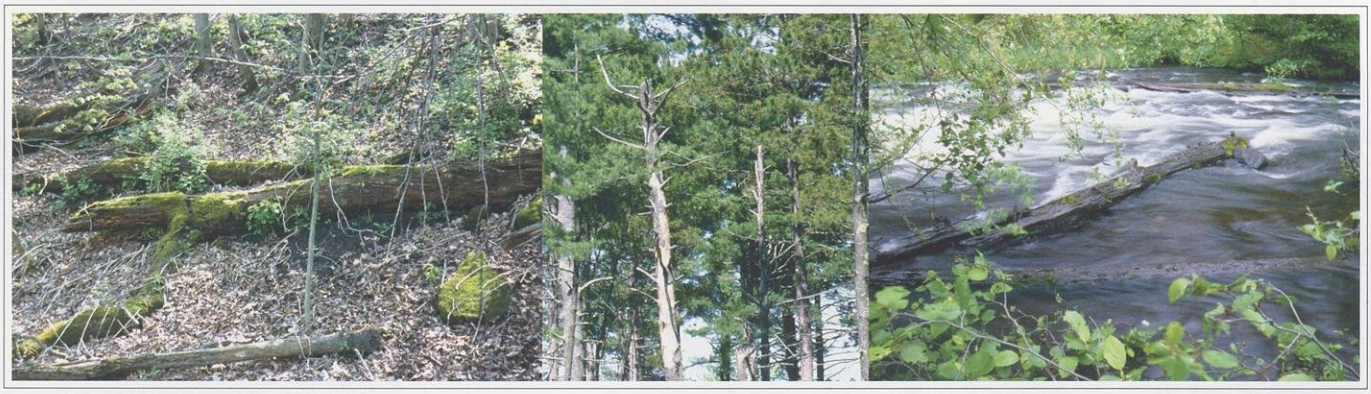
The management emphasis on areas where old-growth exists or is developing is usually for recreation or research rather than pulp or timber. Such areas have different designations including wilderness, natural areas, research areas, wildlife refuges and parks. Even within these areas there is sometimes pressure to harvest wood, especially for salvage purposes following wildfire, windstorms or insect outbreaks.

Despite conflicting interests over public land use, segments of society want to designate more old-growth areas as noncommercial. Increasingly, consumer markets are moving away from old-growth wood. Some major corporations have pledged to end the use of old-growth wood in manufacturing their products and product packaging.

In Wisconsin, managing these forests involves controlling and removing exotic species, designing management plans for lands around and between old-growth forests, and monitoring changes in the forest.

More than big trees

A complex ecological system.



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Old-growth characteristics include large fallen logs and limbs (coarse woody debris) and large snags and cavity trees (standing dead trees). Fallen logs provide aquatic habitat in the Manitowish River in Vilas County.

SOME PEOPLE THINK OF OLD-GROWTH FORESTS AS LARGE MOSS-COVERED REDWOOD and Douglas fir trees in the Pacific Northwest. But depending on where they are growing, old-growth trees can occur in a great variety of sizes, shapes and ages from short twisted wind-swept mountaintop bristle cone pines that are thousands of years old, to lofty centuries-old hemlock in Northern forests.

In a Wisconsin bog, a stand of black spruce can be hundreds of years old, yet the trees may measure only an inch or two in diameter. Certain short-lived tree species like aspen and jack pine also get relatively old (100 to 150 years), but they are generally not thought of as developing into old-growth.

Old-growth is sometimes thought of as park-like in appearance with towering crowns and a shaded open understory. However, the size and age of individual trees within an old-growth forest are dependent on past disturbances that create natural openings in the canopy where sun reaches the ground and allows new growth. Much of what was old-growth hardwood-hemlock forest in Wisconsin probably had this broken-up appearance with small pockets of new growth developing as the overstory trees died or blew down, singly or in groups.

With such geographical and ecological variety, it is easy to see why a single definition of "old-growth" has not been generally accepted. Common characteristics include the presence of large trees, multi-layered vegetation, canopy gaps, large snags and cavity trees (standing dead trees), and large fallen logs and limbs (collectively called coarse woody debris).

Other terms used include natural appearing, unmanaged look or over mature when talking about old-growth.

While any of these features can occur in young forests, only in old-growth or older forests managed specifically for these characteristics do they occur simultaneously.

Old-growth forests are extremely diverse. Old-growth can have old and young trees growing together in a mixture of species or single species such as red pine. They are often covered by a thick growth of mosses and lichen, which provides a home for insects, birds and small mammals.

Insects and woodpeckers open up the dead wood providing habitat for many other species.

Fallen trees may form pools in streams holding woody debris long enough for much of it to be utilized by insects and animals. These small pools provide fish shelter and attract insects that are an important food source.

Old-growth once described as a "biological desert," unhealthy and unproductive, is now considered a very complex and productive ecological system. With natural disturbances — wind, fire, and insects — at work, old-growth forests are places of rebirth as well as death. "Cradle knolls" and "nurse logs" describe the seedbeds created as trees tip over and expose mineral soil, and where rotting logs provide a microclimate suitable for yellow birch and hemlock seeds to germinate and grow.

Standing cavity trees, large snags and downed logs occur in commercially managed second-growth forests, but are often larger and more abundant in old-growth.

In other regions, certain wildlife and plant species depend

on old-growth habitat. That is not the case in the glaciated and relatively young upper Great Lakes landscape, but the diverse habitat provided in old-growth certainly promotes a diverse and somewhat unique wildlife and plant community.

"Old-growth forests in the Great Lakes Region may not contain unique species like spotted owls, but they do contain a unique assemblage of plants and animals," says Gerald Bartelt, chief of the DNR's Wildlife and Forestry Research section.

All forests are dynamic, always changing from one stage to another, influenced by natural forces and humans. Changes can be subtle and occur over long periods, or can happen in seconds from a windstorm or fire.

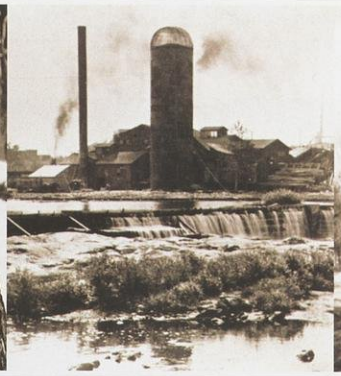
The source of the "thump, thump, thump" you hear while in a woodland likely may be tracked to a hardworking woodpecker. Woodpeckers have characteristic calls, but also use a rhythmic pecking sequence to make their presence known. Referred to as "drumming," it establishes their territories and apparently attracts or signals mates.

HERBERT LANGE

A seemingly endless resource

But logging, farming and development changed the landscape.

U.S. FOREST SERVICE *(MIDDLE)* DNR FILE PHOTO



U.S. FOREST SERVICE FOREST PRODUCTS LAB

While some large trees still exist, extensive logging occurred in Wisconsin from the mid-1800s through the 1920s. Land was also cleared for agriculture and development. As a result almost all old-growth forests in Wisconsin are gone.

WHEN EUROPEAN SETTLERS LANDED ON OUR SHORES they saw what appeared to be a never-ending forest stretching to the west. That vast forest expanse was not all old-growth. Wind, fire and insects along with burning by Native Americans created a patchwork of young and old forests. However, large tracts of old-growth forests dominated many of the forested regions.

Beginning in the late 1700s, the U.S. General Land Office began a Public Land Survey that delineated township and section boundaries and mapped the vegetation to determine its value and suitability for settlement. In Wisconsin this survey occurred between 1832 and 1866. Interpretation of those early survey notes can be difficult, but it has given us a fair view of what those forests looked like.

Beginning in the mid-1800s and continuing through about 1920, extensive logging occurred in Wisconsin. It started with pine cutting, mostly white pine, which was abundant throughout much of the western Great Lakes states. Large areas in northern Wisconsin where the pine was particularly prevalent were called pineries.

Logging camps were concentrated near waterways since pine logs float and could be transported by water. Historical writings are full of stories of the river drive days and the rugged individuals who endured the hardships of that era.

Historical accounts in literature also express the concern some felt for the early forests. Increase Lapham, a pioneer in the conservation movement in Wisconsin, stated in 1855, "It is much to be regretted that the very superabundance of trees in our state should destroy, in some degree, our veneration for them. They are looked upon as cumberers of the land; and the question is not how they shall be preserved, but how they shall be destroyed."

By the 1920s most of the pine accessible by water was logged. Narrow-gauge railroads opened other areas and logging of vast stands of hardwoods and hemlock began. The network of railways was extensive and some of the road system we travel on today originated as railroads. Most of the remaining uncut timberlands were cleared, with the hardwoods going to area sawmills and the hemlock utilized mostly for its bark in tanning mills.

"The nearly complete removal of old-growth in the late 1800s and early 1900s was an example of unregulated unsustainable logging that in no way reflects the modern forestry practices that have developed since then," says Paul DeLong, the state's chief forester.

What once seemed like an endless barrier and timber resource all but vanished in less than a human lifetime. The resulting landscape was in stark contrast to what those first settlers, land surveyors and lumberjacks saw. People could see for miles where once they could barely see the sun. What was once mostly old-growth pine or mixed hardwood forest in northern and central Wisconsin was replaced with brush.

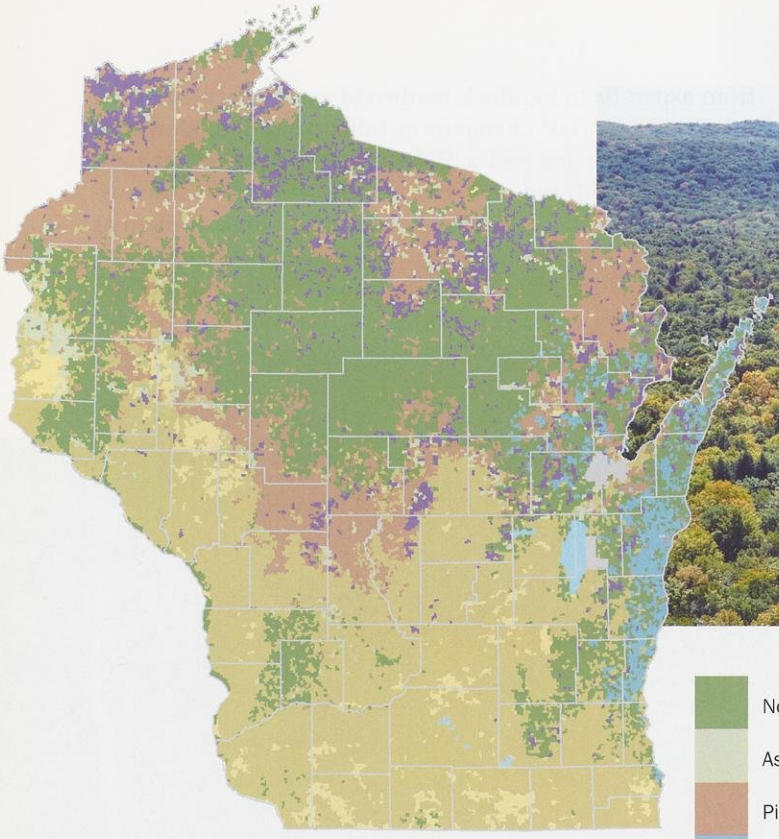
The slash and debris left by the extensive timber cutting kindled forest fires across the land that left the landscape even more bleak. But from the brush and ashes sprang new forests that are now our second-growth forests. Except for a few scattered stands and some conifer swamps that escaped the ax and fires, virtually all the original old-growth forests are gone. Some of the tree species diversity of the old forests, such as white pine and hemlock, was reduced in many areas.

Surviving benchmarks of the past

Although all forests are impacted to some degree by humans, some places in the Great Lakes states were not logged, logged very lightly, or logging ceased many years ago. Places such as the Boundary Waters Canoe Area Wilderness in Minnesota, and the Porcupine Mountains and the Sylvania Wilderness in Michigan's Upper Peninsula are well known examples.

Although differing from each other in the type of forest, from aspen-fir to hemlock-hardwood, each is valued for its relatively "natural" character or relict condition. However, they have changed and will continue to change. They are functionally altered and both natural and human disturbances impact the ecosystems. We tend to think of them as large areas, but relative to what they once were, they are very small. Nevertheless they do show us what much of our forests once looked like at a time not that long ago. It's a forest condition that seems to draw people in search of solitude,

A rotting white pine stump is a relic of old logging days in Wisconsin.



This generalized map shows land cover for Wisconsin during the mid-1800s, prior to widespread Euro-American settlement. The map was derived from vegetation information recorded in the U.S. General Land Office surveyor's notebooks as they conducted the Public Land Survey of Wisconsin between 1832 and 1866.

MAP COURTESY OF DAVID MLADENOFF, FOREST LANDSCAPE ECOLOGY LAB, UNIVERSITY OF WISCONSIN-MADISON

NATASHA KASSULKE

Pockets of old-growth forests may be found in the Great Lakes states in areas that were not logged or very lightly logged such as the Porcupine Mountains in Michigan.

recreation and perhaps a spiritual experience.

There are other old-growth survivors out there, but they are not so well known. They too are not pristine, and have had some type of cutting or disturbance by humans. These areas include some state natural areas, some state parks, some designated small wilderness and some privately owned tracts. In appearance they may look like old-growth forests, but because of their small size or past changes, they probably do not function ecologically as pre-European settlement old-growth.

Then there are certain managed lands, public, tribal and industrial lands, that have some of the components or characteristics that are associated with old-growth. However, these lands are managed for commercial wood products. The 220,000 acres of commercial forest land on the Menominee Indian Reservation is well known in Wisconsin. Tribal forest management goes back to the late 1800s, yet to the casual observer much of the Menominee Reservation appears much like old-growth prior to the turn of the century.

There are huge white pine, hemlock and hardwoods uncommon to most other managed areas. The difference is that this forest was not cleared and burned as was most of Wisconsin, so the management starting point on the Menominee Indian Reservation was much different than elsewhere. Another difference is that these tribal lands have lower numbers of deer relative to other areas, which in part accounts for abundant Canada yew and hemlock in the forest understory. Also, forest management goals and techniques are somewhat different.

Two relatively large private industrial tracts in Wisconsin, the 35,000-acre tract managed by Nicolet Hardwoods, and the 65,000-acre Goodman Tract now owned by International Paper Company, appear different from surrounding lands. Both of these holdings have been managed for commercial sawtimber for a long time (since the 1940s and 1927 respectively), but two differences stand out.

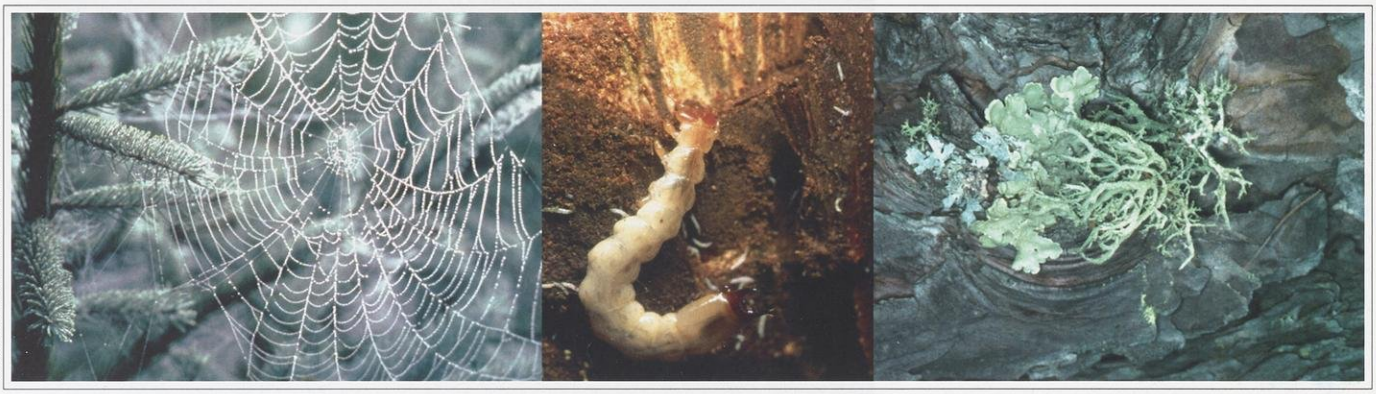
Hemlock, a key component of the pre-European old-growth forests of northern Wisconsin, is more abundant on these large tracts than on most other managed lands. Also, the trees are generally older and larger and uneven aged. Again, one significant difference is that these two tracts were not cleared and burned during the early logging and settlement days as were most other lands in Wisconsin.

On both of these industrial forests hemlock is cut as part of normal logging activity, though hemlock has remained a major component of their forests for decades. These intensively managed industrial timberlands appear very natural and somewhat like old-growth.

"Current management guidelines and policies promote sustainable forestry, including reserve areas for no timber harvesting, and silvicultural techniques such as extended periods between harvests to encourage old-growth characteristics," DeLong says.

Assessment and study

Research lays the groundwork for understanding and management.



CHRIS MATTISON (MIDDLE) DON BLEGEN

DON BLEGEN

Spiders are abundant in many forests. Beetles (beetle larva shown above) help decompose woody debris. If you have spent much time in the forest, you may have happened upon this beard lichen (also known as "Old Man's Beard"), which hangs over the branches of pines, oaks and apple trees.

WITH PATIENCE, WE CAN DEVELOP OLD-GROWTH FORESTS IN PRESERVES AND OTHER PASSIVELY MANAGED LANDS, but can we have forests with old-growth characteristics, and produce wood products from the same land?

Researchers are developing experiments to test how and if this can be done. But to get to that point, they first needed to reach a sound scientific understanding of how old-growth is formed and functions. They also needed to be able to mimic nature's removal of trees while retaining the look and complex ecological workings of old-growth.

It's taken many partners and years of research to lay some groundwork for accomplishing the lofty goal of taking an ecosystem approach toward promoting biological diversity, forest sustainability and economic use of our current forests.

Most of the scientific research on old-growth in this country took place in the Pacific Northwest, but some very good work has also been conducted in forests here in the Great Lakes states. One such study is the managed old-growth work done on the Ottawa National Forest of Michigan's Upper Peninsula.

In addition, the Wisconsin Department of Natural Resources teamed with many others in a cooperative research effort on old-growth forests and their management. Collaborators include the University of Wisconsin, Milwaukee Public Museum, the Forest Products Lab, Nicolet Hardwoods Corporation, the U.S. Forest Service Research Program and national forests.

"The study, initiated in 1993, lasted eight years and got us to this point," explains Karl Martin.

Early research results — comparing old-growth and managed stands

Recent old-growth research has focused on northern hardwoods, and looked at differences between Michigan's Sylvania Wilderness and similar, but younger, managed forests in adjacent Wisconsin.

The soils in old-growth Michigan hardwoods had significantly more sodium and nitrate ions than those in the managed hardwoods of northern Wisconsin. In addition, rain falling through the canopy had higher levels of magnesium and potassium cations. This suggests the managed stands are growing more quickly and cycling nutrients more actively. Another interesting finding: trees like basswood cycle greater amounts of nutrients more quickly than other species.

There are more species of invertebrates than any other group of species in the forest ecosystem. Of these, beetles are most abundant and ground-dwelling beetles perform important functions in forest stands. Beetles are especially important in decomposing woody debris and preying on insect species viewed as forest pests. Somewhat different groups of beetles live in old-growth, managed hardwood stands and managed hemlock stands, but all are important to the forest.

Spiders also comprise much of the living organisms in our forests. The numbers of spiders collected in the leaf litter of old-growth vs. managed stands did not differ significantly, although more species were collected in old-growth stands.

Similarly, old-growth stands had a richer diversity of fungi that decompose wood, though some fungi species were found more often in managed stands.

Old-growth stands also are home to more species of lichens than managed hardwood stands. The managed stands had fewer lichen species capable of fixing nitrogen, an important asset for naturally cycling nutrients for growing trees. Lichens especially associate with standing snags and partially decayed woody debris on the forest floor.

There are other differences and similarities in the plant species found in old-growth and managed hardwood stands. Shrubs like red raspberries and red-berried elders are more abundant in managed stands and are rarely found in the gaps and openings in old-growth forests. On the other hand, sugar maples dominated the woody understory in both kinds of stands and there was little sign of hemlock regeneration in all stands.

Openings created by periodic tree harvests in managed uneven-aged stands developed a multi-layered tree canopy very similar to that found in old-growth stands. By contrast, in young unmanaged stands, the small gaps close quickly as treetops spread and shade the forest floor.

As one would expect, the number and particularly the size of fallen logs and limbs is greater in old-growth stands, moderate in managed stands of uneven-aged trees, and lower in stands of even-aged trees. The same holds for large snags (standing dead trees) used by cavity-nesting birds.

Breeding birds show definite preferences for certain forest types. Red-shouldered hawks, pileated woodpeckers and chimney swifts are more abundant in old-growth forests. Blackburnian warblers, northern parulas and red-breasted nuthatches prefer hemlocks. Rose-breasted grosbeaks, downy woodpeckers and black-throated blue warblers are more prevalent in northern hardwoods. Generally, stands with trees of uneven sizes and ages provide significantly more habitat than even-aged stands with trees of the same size.

JMAR FOTO-WERKS

This forester is cruising timber with a data recorder and a Biltmore Stick. The Biltmore Stick is an old tool dating to the middle of the 18th century. The concept is simple: a device that can be used easily in the field to measure trunk diameters and estimate heights of standing trees.

Some of the individual differences between old-growth forests and managed forests may seem trivial, but old-growth stands clearly provide subtle differences that are important to some species. The combination of soils, insects, fungi, lichens, shrubs, amphibians, birds and mammals found here produce a unique forest ecosystem.

Ideally, we can develop management techniques that allow us to harvest resources from the forests while still creating the habitat conditions that mimic old-growth stands, Martin says. While these forests won't replace natural, old-growth stands, they can provide habitat that sustains many old-growth characteristics.

Partners in preservation and production

Paul West, director of conservation science for the Wisconsin Chapter of The Nature Conservancy, also is interested in creating habitat for species that thrive in old-growth.

Earlier this year, the Conservancy assessed northern hardwoods in Wisconsin, the Upper Peninsula and eastern Minnesota using satellite images. In 2002, the group also

identified what it thinks are the most significant places for conserving biodiversity in northern Wisconsin, Minnesota, western Upper Peninsula and parts of Ontario and Manitoba.

"This effort included over 100 experts from state, federal and provincial governments, as well as universities and conservation organizations, and will be used to guide where the Conservancy and its partners work," West says.

The Conservancy also is working at Caroline Lake, located at the headwaters of the Bad River, which empties into Lake Superior. Here, the Conservancy will use forestry practices to create a forest structure and composition similar to that found in old-growth or older forest.

"We'll monitor if certain wildlife species are present and abundant due to the acreage of habitat we can provide," West says. That means, for example, checking for the presence of the black-throated blue warbler or habitat that would support that bird.

ANDY STOLTMAN

Using computer forest visualization technology, forest researchers are able to predict how forests may look at various stages of development in managing for old-growth characteristics.
Figure 1 represents a mature, northern hardwoods stand populated mostly with sugar maple, hemlock, white ash, paper birch, yellow birch and other species mixed in. *Figure 2* shows the stand after a significant disturbance such as a blowdown and seedlings and saplings have established themselves. *Figure 3* shows what the site might look like after 30 years of growth and when northern hardwoods are in place.

Work in old-growth research also is underway at the Kemp Natural Resources Station, a UW-Madison research and teaching facility in Northern Wisconsin. Kemp was once a summer residence for a family in the wooden door business. Old-growth exists at Kemp today because the family did not log timber around its homestead but instead preserved it for their enjoyment. Here, you will find hemlock-hardwood that is 200 to 275 years old.

In August 2000, a strong windstorm struck Kemp and knocked down huge trees creating openings in the forest, dramatically altering its condition. In one area, 30 to 60 percent of the trees were blown down. This disturbance makes growing space for new tree populations to enter the forest and develop a new cohort of young trees.

"Before the storm," explains Tom Steele, superintendent of the Kemp Natural Resources Station, "this area was dark and dense hemlock forest. The forest floor was barren except for needles."

Some of the 250-year-old trees were toppled in the storm opening the canopy. These openings were quickly colonized and are now a jungle of lush growth. Wind disturbance is a natural process in old-growth forest. Since the storm, researchers at UW-Madison have been visiting the site to study the effects of moderate to severe natural disturbances on forests.

Professor Craig Lorimer, of the UW-Madison Department of Forest Ecology and Management and an expert on old-growth in the Midwest, and aided by a graduate student at UW-Madison, has been mapping canopy gaps here to determine how naturally disturbed forests differ from those disturbed by humans. This study parallels studies at the Flambeau State Forest, Northern Highland-American Legion State Forest and Argonne Experimental Forest in the Chequamegon-Nicolet National Forest. A goal is to develop guidelines that will assist forest managers in restoring old-growth characteristics and managing old forests.

Within each plot at Kemp, they have analyzed vegetation, plot condition and data on how each tree was windthrown — stem breakage or uprooting. They are keeping tabs on species that survive and depend on forest disturbance to create new habitat, Steele says.

The researchers are also taking photos with a special-shaped lens to show how much of the canopy is open and how much sky the trees block out. Using a computer program, researchers are determining how much light reaches the spot where each photo is taken during the growing season. The amount of light reaching the forest floor is important because it affects what plant species will grow there.

Changes in attitudes

David Mladenoff, a professor of Forest Landscape Ecology at the University of Wisconsin-Madison, coordinated the original eight-year study on old-growth forests and their manage-

The Argonne Experimental Forest in the Chequamegon-Nicolet National Forest is one of several sites that the Wisconsin Department of Natural Resources and its partners have chosen for conducting old-growth studies. You can see an uneven-aged stand (trees of different sizes and age) managed by selectively removing single trees.

ment and has written scientific articles about old-growth forest issues.

He became interested in old-growth forests as a Ph.D. student at UW-Madison where he studied the importance of tree falls and gaps to nutrient cycling in the old-growth of the Porcupine Mountains of Michigan.

Much of his work is funded by the Department of Natural Resources.

"What has changed since the 1980s when I was studying old-growth in college is that there is more appreciation now for having forests of all age classes and tree species," Mladenoff says. "People used to consider old-growth merely old and poor producers of wood, fiber or wildlife. But that attitude is changing."

Mladenoff's work consists of measuring gaps in the forest canopy as part of the Flambeau old-growth project, reconstructing pre-settlement forests, measuring the importance of having large coarse woody debris (downed wood) in forests, modeling climate change, and looking at chronic wasting disease and how a dramatic reduction in deer population may change a forest.

"It is exciting to see a growing public appreciation and interest in having a more diverse representation of what was on the landscape historically," Mladenoff says. "And forest managers are seeing that you can maintain these values in ways that are not in conflict with managing for forest products."

Next steps

Managed old-growth.

ROBERT QUEEN *(MIDDLE)* HERBERT LANGE

JMAR FOTO-WERKS

The Flambeau River State Forest is another old-growth study site. Black bears like large forested areas with swamps and streams mixed in, similar to what we have in the northern two-thirds of Wisconsin. This thinned red pine stand provides a nice shrub layer for wildlife habitat.

THE ARGONNE EXPERIMENTAL FOREST LOCATED WITHIN the Chequamegon-Nicolet National Forest near Three Lakes is no stranger to studies. Since 1947, the Argonne Experimental Forest has been managed as a living laboratory to study methods for managing northern hardwoods. An interpretive trail passes through study areas where you can learn about different cutting methods and their effects.

But now the Wisconsin Department of Natural Resources and its partners are initiating the second phase of the old-growth study and the Argonne is one of several sites for these experiments.

This study differs from earlier studies in that it is long-term, more intensive and compares the results of treating even-aged northern hardwood forests to unmanaged stands.

"The Argonne area was picked because it is used for research and it has extensive areas of unmanaged second-growth forest," says Terry Strong, a research forester with the North Central Research Station. "The study also requires fairly large acreage, which we have here."

The goal of this silvicultural work is to mimic some of what nature does in the process of creating old-growth, to document ecosystem responses, and to identify economic and social costs and benefits. Other study sites include areas of the Flambeau River State Forest and Northern Highland-American Legion State Forest.

The research has two parts; one concentrating on the role of coarse woody debris and canopy openings, and the other on assessing the use of silvicultural techniques to develop selected old-growth characteristics.

The coarse woody debris study will examine effects of the debris on carbon and nitrogen cycling, and on insects, microbial composition, vegetation and lichen community structure. Treatments will vary from a control to sites where all the downed wood is removed, to sites where large wood is actually brought in.

To increase species diversity, gaps will be created near ash, oak, yellow birch and hemlock to provide quality habitat and an adequate seed source for regeneration.

There are many questions this study hopes to answer: What are the differences between hardwood and hemlock log decomposition and nutrient cycling? Is the amount of CO_2 from the decaying wood significant as compared to the total produced in a forest? Will the number and kinds of insects vary depending on the amount and kind of coarse woody debris? What about changes in the microbial community? What will be the effects on groundlayer vegetation?

"On the Argonne we are mimicking what happens in a windstorm," Strong says. "Once we get enough 20- to 24-inch trees we can cut those to create a gap. We also look for areas with five to six smaller diameter trees that might have diseases and take all of those out to create an opening in the canopy."

The other part of the second phase of old-growth research deals with silvicultural techniques. The research aims to determine if the forest can accelerate development of old-growth characteristics by creating gaps in the forest canopy and increasing the amount of standing and downed dead wood. The experiment involves manipulating stand structure through timber harvests. There will be six silvicultural treatments plus a control applied to 60 to 80-year-old north-

ern hardwoods. There will be various combinations of single tree selection, canopy gap creation, snag retention and felled log retention. The specific objectives involve silviculture, economics, wildlife, education and outreach.

Foremost will be comparing and quantifying which management techniques are most effective in creating old-growth forest characteristics. This includes monitoring how quickly trees regenerate and which plant species grow over time. The decay rates, fall rates and build up of coarse woody debris will be examined. Overall growth and timber yields from the treatments will be measured. The costs of the overall silvicultural practices will be assessed, along with costs to develop specific old-growth attributes. In addition, researchers will quantify how these options for managing forests affect regional timber supply and revenues.

Sampling before and after treatments will assess relative abundance of small mammals, amphibians and birds. The association between animal abundance and certain forest characteristics such as snags, woody debris, and vegetative structure will be reported, Strong says.

"When you study wildlife, you need large acreage," Strong says. "Especially when looking at birds, chipmunks, mice and salamanders, which are real indicators of change in the forest."

Strong says the study also involves building deer exclosures to help address the impacts of deer on vegetation. Deer trail surveys will be used to index browsing on study sites by deer during the winter months.

Forest management goals vary widely depending on the forestland owner. Publicly owned lands in Wisconsin are managed for a variety of goals including recreation, aesthetics, timber harvesting and biological diversity. Results from this study should provide managers with sound biological and economic information on management alternative silvicultural options to meet distinct forest objectives. If these experimental treatments show that providing old-growth conditions can increase plant and animal diversity while sustaining harvests, then these approaches will be an important management option for land managers in northern Wisconsin.

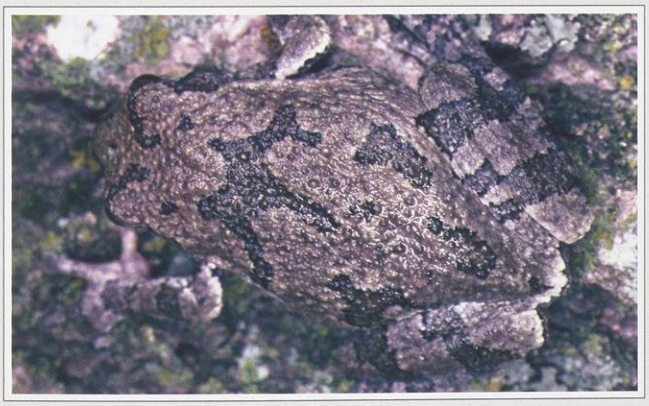
STEPHEN J. LANG

The common porcupine *(left)* is a member of Northwoods wildlife and the second-largest rodent in Wisconsin after the North American beaver. Like most rodents, porkies are vegetarians. The red-backed salamander *(below)* likes cool moist forests.

Project timeline

The timeline below is tentative for the DNR study on the Argonne, Northern Highland-American Legion and Flambeau. This is due to the extended period it covers and because the study is highly dependent on locating research sites and available funding. Assessments will include treatments on both state and USDA Forest Service lands.

2001–2003 — Select study sites and locate grid points within each stand; collect vegetation data as time permits. Evaluate and characterize sites and vegetation. Develop techniques and information needed to evaluate economic alternatives of the various treatments.



DON BLEGEN

The gray tree frog hides on or beneath rough tree bark, in hollow trees and on leaves. Its remarkable ability to climb is the result of a mucous layer produced by toe pad cells. This mucus creates a sticky bond strong enough to support the frog's weight.

2004 — Collect first year of pretreatment data. Inventory avian populations. Quantify vegetation, coarse woody debris and snags at each site. Begin installing deer exclosures.

2005 — Conduct second year of pretreatment data collection and quantify vegetation, coarse woody debris, and snags at each test site. Complete installation of deer exclosures.

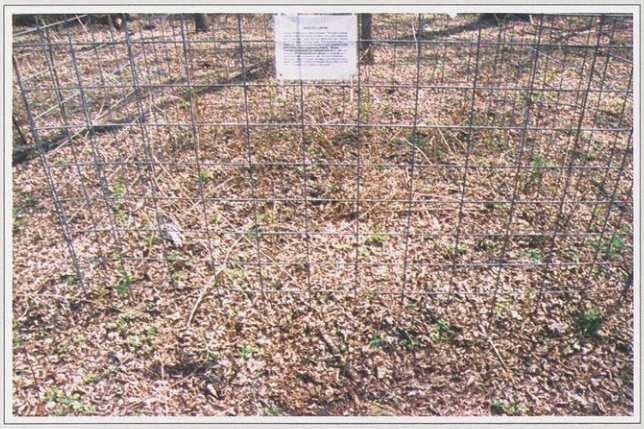
DON BLEGEN

Vegetation data collection is an ongoing part of the study. Researchers record the presence of plants such as the wood violet, which is Wisconsin's state flower.

2005–2006 — Begin treatments in fall and continue through the winter — ideally complete all treatments within six months. Calculate operating costs of each treatment. Develop and erect signs for the demonstration areas.

2006 — Finish treatments in winter. Conduct first year of post-treatment. Quantify and map each stand and compare to proposed treatments. Sample birds, small mammals, vegetation, coarse woody debris and snags. Develop technical report on treatment types and an economic analysis of each treatment.

2007 — Continue post-treatment data collection, analysis of data and report writing.



JMAR FOTO-WERKS

Deer exclosure installation began in 2004 to protect young vegetation at study sites.

2008 — Conduct third and final year of post-treatment data collection and produce reports and articles on the effectiveness of treatments, economics of the various treatments, and impact of treatments on understory and overstory vegetation, small mammals, birds and amphibians.

2013 — Begin long-term monitoring of these sites (vegetation and vertebrates) to be conducted every three to five years. Propose additional treatments as part of a long-term management approach. Potential future treatments include thinning and harvesting, creating gaps and managing reserve trees, coarse woody debris and snags.

JMAR FOTO-WERKS

Forest studies on the Argonne, Northern Highland-American Legion and Flambeau include inventorying bird populations.

The future of old-growth in Wisconsin

Recently the Wisconsin Department of Natural Resources formed an old-growth guidance team comprised of representatives from endangered resources, forestry, wildlife management and research. Darrell Zastrow, director of DNR's Office of Forest Science, says the first goal for the team is to define and characterize types of old-growth and old forests in Wisconsin.

"In addition, the team will develop management guidance for old-growth and mature forest management on public lands that will also be available for private landowners who desire these conditions," Zastrow says. "The team is making progress and plans on issuing its first report in 2005."

Protecting the remaining old-growth forests, and managing lands to promote old-growth development, is important to society. However, nothing remains static, and forests are no exception. Forests go through natural changes over time — some slow and subtle, others swift and catastrophic.

Though nature preserves can harbor old-growth forests we shouldn't rely on these small parcels as the sole places to sustain this unique plant community. Properties change over time, and sometimes drastically as from a passing tornado.

Our abundant managed lands may not have all the ecological "pieces" we associate with an old-growth forest. However, some of these lands can be harvested in such a way that they will provide many of those pieces while still providing commercial wood products — sustaining a wide range of ecological and economic values.

"While the study is long-term (50 years of monitoring) and will extend beyond most of our careers, we are always learning something new," Strong says.

Written by: Karl Martin, DNR forest research ecologist; Natasha Kassulke, associate editor *Wisconsin Natural Resources* magazine; and Tony Rinaldi, DNR forest research technician.

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Deer in the headlights

Split-second actions can help you avoid and survive highway collisions with deer.

David L. Sperling

On a crisp, blustery day just before Halloween last year, a small group gathered on a rise overlooking Governor Nelson State Park near the shores of Lake Mendota in Dane County. The commanding view of grasslands, the nearby County M highway, surrounding farm fields, open spaces and country homes was a pastoral scene for a get-together, but this was no picnic. Speakers dressed in warden gray, State Patrol blue and business suits held a press conference urging motorists to drive defensively, stay alert and watch out for deer as the fall rut and the annual peak in deer-vehicle crashes approached.

There was good reason for the warning. Last year proved the deadliest on record in Wisconsin with 13 fatalities, more than 800 injuries and almost 22,000 reported collisions between cars and deer. As both the deer herd and the number of miles driven in Wisconsin climb, the odds of seeing deer crossing roads also grows. Avoiding serious crashes means practicing better defensive driving skills.

"Deer are creatures of habit and they are driven by strong natural forces," said DNR Wildlife Biologist Michelle Windsor. "During the rut that starts in October and peaks out in the first two weeks of November, the deer are looking for mates, they are looking for food and they are much more active."

Statistics compiled by the Wisconsin Department of Transportation bear out those observations. Forty percent of the deer-vehicle crashes occur from mid-October through November. A surprising number of injuries also occur in May and June when pregnant does chase off their young from the previous year and start dropping spring fawns.

JOHN WAGNER: NYC WORKS PROGRESS ADMINISTRATION 1936-40, LIBRARY OF CONGRESS AMERICAN MEMORY COLLECTION

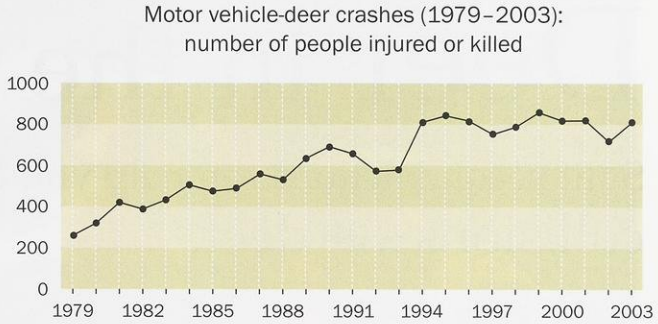
Deer have been on a collision course with motor vehicles since highways and faster cars spread their reach across the nation. Growing numbers of deer, vehicles and paved highway miles only add to the likelihood of a split-second emergency as deer cross your path.

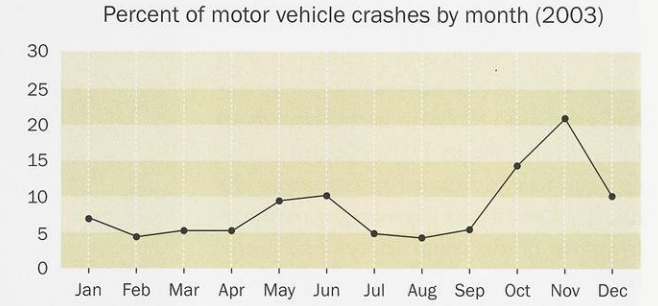
Groups of wandering, inexperienced deer are more likely to feed and walk slowly along roadsides, oblivious to the dangers of oncoming vehicles.

On the human side of the equation, motorcyclists are especially vulnerable to serious injury in a deer collision. In 2002 only two percent of the cars and 1.3 percent of the utility trucks crashing into deer resulted in serious human in-

STEVEN L. OLSON, WIS. DOT

State Patrol Superintendent Dave Collins joined insurance companies, AAA, natural resources and transportation officials in alerting drivers to slow down, avoid swerving and "remain in your lane" to survive collisions.





THE WISCONSIN CRASH FACTS BOOK 2003, WIS. DOT

jury or a fatality, but 75 percent of the motorcycle-deer crashes resulted in serious injury or death to the cyclist.

Drive to survive

Avoiding and surviving deer collisions is a mixture of luck, anticipation and preparation.

The State Patrol, insurance companies and the American Automobile Association (AAA) offered tips for minimizing the occurrence of collisions and the damage they cause:

Stay aware and alert — That's the advice given by Dave Collins, Superintendent of the Wisconsin State Patrol. Deer are more active in fall. They move between resting and feeding areas at dawn and dusk when it is hard to see, and they blend into the landscape. Crash reports verify deer accidents are most likely to occur between 5–10 p.m. in fall and early winter; 8 p.m. to midnight in spring through summer.

STEPHEN J. LANG

Just before does drop fawns in spring, they chase off young from the previous year. These inexperienced deer are especially unwary of vehicles.

Slow down, heed road signs, and drive defensively — Roads that cut between forested patches, roadside brush, openings and valleys in farm fields form natural paths for deer. Road segments with histories of crashes are often marked with yellow deer crossing signs. Slow down to give yourself more time to react in these areas. Allow more space between vehicles. Wear safety belts and make sure all your passengers are buckled in.

Watch for deer sign — Collins added that "reading" the landscape and using your peripheral vision to watch for reflections in deer's eyes or roadside movement can give you an early warning of nearby deer activity. If you have passengers, have them scan the road edge as well. If you see one deer, slow down. Deer often travel in groups: where one deer crosses the road, others will follow. Watch the deer and the roadside; slow down as best you can; and alert other vehicles with your lights and horn, which will also prompt the deer to keep moving or head back into the brush.

Keep your car/truck in good repair — Check that your tires and brakes are in good condition and be sure headlights are properly aimed. Trucks and SUVs ride higher, so check that headlights hit the roadway evenly and don't shine in the eyes of oncoming traffic.

Remain in your lane — "In an emergency situation, this can be the hardest piece of advice to practice, but it definitely saves lives," said Ted Gamble, president of AAA Wisconsin. Hit your brakes, hit your horn and hit the deer if you must, but don't swerve. The chances of serious injury are much greater when cars swerve to avoid a deer, Gamble said. Swerving into traffic and hitting an oncoming vehicle, swerving to the side and hitting a fixed object, or leaving the road are all more dangerous than hitting a deer. Deer can accelerate from 0 to 30 mph in 1.5 seconds; if you continue in a straight line and brake, the deer may be gone before you reach the point of impact.

Deer move between loafing/feeding areas and bedding areas at dawn and dusk. Watch for them crossing roads at these times of day.

Collins observed that the driver's instinct is to avoid crashing into a deer. But to lessen the chance of serious injury, the driver needs to stay in control

of the car or truck. Slipping into a ditch, swerving and causing the vehicle to roll, leaving the pavement, hitting a fixed object or crossing the center line and hitting another vehicle are all much more dangerous than the collisions people typically have with deer. As deer also scramble to avoid a collision the chance of a glancing blow is more common than a head-on, full body hit. Given the prevalence of large SUVs, trucks and minivans, it is also less likely a deer will come above the hood and crash into the windshield.

All the speakers agreed: The odds of surviving a crash and staying alive increase significantly when drivers keep their cool, don't swerve and stay in their lane.

Testing the deterrents

Given the growing nationwide deer herd and steady increase in vehicle traffic, "road ecology" is a serious consideration as highways, overpasses and ramps are designed and built. Across the nation, traffic engineers are experimenting with road designs and other features to make crossing safer for wildlife and people. Examining the effectiveness of those designs and sorting out manufacturers' claims to determine if deer deterrents are effective calls for analysis by a neutral source.

One reliable center for such information is the Deer-Vehicle Crash Information Clearinghouse (DVCIC) at the University of Wisconsin-Madison. Funded by the Wisconsin Dept. of Transportation, the center compiles statistics about deer-vehicle crashes in Wisconsin, Minnesota, Michigan, Illinois and Iowa. DVCIC also evaluates the effectiveness of countermeasures designed to reduce such crashes. Center Director Keith Knapp of the UW-Madison Dept. of Civil Engineering and several graduate students recently completed a review of deterrents designed to reduce deer-car collisions. Here's what they said:

ROBERT QUEEN

Road designers and builders have tried adjusting roadside fencing, plantings, lighting and overpasses to dissuade deer from crossing highways.

In-vehicle technologies — Some new cars are being equipped with infrared or heat sensors that provide some night vision for drivers. Currently the technologies are costly (in excess of $2,500 as a vehicle option) and are largely untested.

Deer whistles — Air-activated or electronic devices attached to the front vehicle bumper are supposed to emit sounds deer can hear from a distance, alerting them to an approaching car or truck. Research shows deer are sensitive to low sounds (2–6 kilohertz) below the range of human hearing. Only some of the deer whistles emit sounds in this range. The researchers did not find convincing evidence that deer hear and react to vehicle-mounted whistles, especially given other traffic noise. Such whistles may give drivers a false sense of security that deer will stay away from their moving vehicles.

Roadside lighting — Additional lights do not appear to reduce deer accidents, change deer crossing patterns or reduce average vehicle speeds. The results are a bit surprising given that limited tests reported an 18 percent reduction in deer crashes per deer crossing on segments with additional lights. Adding and lighting a taxidermy mount of a full-size deer in the emergency lane did reduce car speeds by an average of eight mph, but more tests are needed.

Speed limit reductions — This simple tactic hasn't been tested enough to reach conclusions. It appears drivers choose their operating speeds based on road conditions and roadway design more than posted speed limits in the absence of law enforcement.

Road salt alternatives — Like people, animals are attracted to salt, and salt melts snow and ice, exposing vegetation that might attract deer. One study considered how salt concentrations attract moose to the roadside area. Whether road salt draws deer near road edges is largely unstudied.

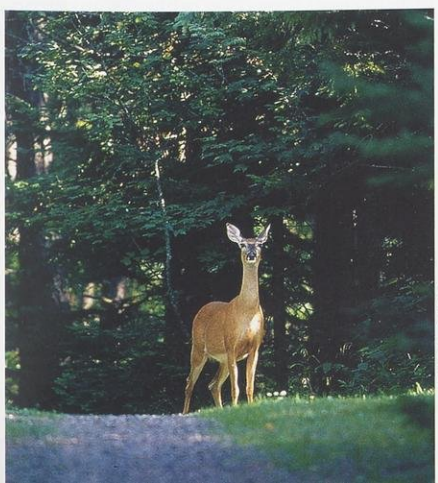
Artificial deer flagging — Whitetails raise their tails to expose the white underside as a warning. In one study wooden silhouettes of deer displaying this warning behavior were installed along a roadside. The field researchers concluded they had failed to demonstrate the models were effective in deterring deer from crossing roads or in reducing the number of deer along highway rights-of-way.

STEPHEN J. LANG

Since deer "raise the white flag" as a warning , plywood cutouts of flagging deer were set on roadsides to scare away deer. They didn't work.

Intercept feeding — Can an easy meal lure deer away from the roadside? "Intercept feeding" can reduce the likelihood of crashes for a short period of time, but long-term results are inconclu-

Given their keen hearing, would deer avoid whistles on moving cars? Research on many deer "countermeasures" has yet to determine that most deterrents are effective.



KEVIN R. SPATT

sive. Several studies have shown the incidence of deer road kills is not proportional to the deer populations living near those roadsides. There is no research on whether deer become dependent on roadside feeding stations. If deer congregate at feeding stations, then this method would not be practical in regions affected by chronic wasting disease, which is spread by close contact between animals.

Deer crossing signs and technologies — In a few places highway engineers have experimented with lighted signs warning of deer crossings or even radio collars on deer that trigger a lighted sign near the roadside warning drivers of deer activity. Researchers call for more testing or more designs before concluding if such approaches will slow down drivers and reduce the number of deer-vehicle collisions.

Roadside reflectors and mirrors — If the bright light from headlights were reflected into the surrounding land, would deer freeze or change their behavior to avoid roads? Five of the 10 studies concluded reflectors don't reduce road kills or crashes; two concluded they did. The other three studies were inconclusive. In fact most of the studies evaluating deer reaction to reflected light were either inconclusive or suggested that deer did not appear to react to light quickly enough to change their habits and avoid the light patterns formed by oncoming vehicles. Researchers called for better designed, longer-term studies to evaluate this technique for dissuading deer from roadsides.

Repellents — Repellents are "field tested" continually by homeowners, orchardists and others trying to keep deer away from their gardens, landscaping and livelihoods. There were no documented attempts to use repellents to deter deer from crossing or feeding by roadsides. Other repellent studies looked at kinds of repellents (predator, urine, odor, taste), how repellents were applied (sprays or pastes), concentrations, and effectiveness after rainfall. All repellents can reduce feeding somewhat, but studies haven't been repeated enough to make recommendations. Reviews of many kinds of repellents concluded that those leaving predator odors or putrescent odors like rotten eggs were more effective, but they haven't been tested to reduce roadside browsing. Further tests should be conducted at sites where deer-vehicle collisions frequently occur.

ROBERT QUEEN

Dead deer spray-painted with orange or red have already been reported to authorities for removal.

Hunting and herd reduction — Reducing deer populations clearly reduces unwanted consequences like overbrowsing, but it is unknown if smaller herds proportionally reduce the number of crashes along roadsides.

Driver information and education campaigns — The part of this equation most within human control is an attentive driver. Annual or more frequent reminders to motorists might change driving behavior during critical time periods. Awareness of the problem, suggestions to make motorists more attentive and strategies for minimizing damage all can help. Changing our driving habits to slow down in the seasons, times of day and locations when deer are especially active can save lives. Both deer and people need a little more reaction time to reduce the number of collisions.

Curbing roadside vegetation — Some have speculated that natural vegetation or intentional plantings along roadsides may attract deer and increase the chance of a collision. Several studies have documented which plants deer prefer, and it is clear woody shrubs will encourage wildlife use. However, no study concludes that plantings increase the number of deer killed along roadways. Two studies showed cutting back vegetation at least 65 feet along railroad rights-of-way can reduce moose/train collisions but the costs, aesthetics and habitat loss of such programs need to be evaluated.

Exclusionary fencing — Research shows erecting fences at least 8–10 feet high can reduce deer deaths by 60–97 percent. It is effective, but not a panacea. Fencing has consequences too. Quality fencing is expensive to install and maintain. It interrupts normal animal migrations for wildlife large and small. The restricted movement can isolate local populations of a species, which may create groups too small to survive or lead to inbreeding and a depletion of the gene pool. Fencing may not be attractive and must be designed with one-way gates to allow animals trapped in the road right-of-way to escape. Fencing is also impractical in very uneven terrain. All that being said, fencing will clearly continue as a strategy as roadways are built or expanded.

Wildlife crossings — A newer strategy in road building and modification is to establish overpasses and underpasses where wildlife habitually cross roads along major transportation routes. These artificial structures should be located along natural paths commonly used by deer or other animals. Successful crossings aim to maintain natural vegetation at the entrances, natural ground cover within the structure, and minimize human contact with the wary wildlife. Research suggests underpasses must be at least seven to eight feet high and at least 20–25 feet wide. Overpasses that are square or hourglass shape and at least 100 feet wide at their narrowest point have been successful. Two current studies are evaluating crossing designs and sizes.

Improvements in road design and other safety features, while welcome, are not the sole solution to the problem of car-deer collisions. "No driver should rely on these countermeasures or get overly confident they will prevent an accident," Knapp said.

Alert drivers who proceed with caution at this time of year are still our best lines of defense to avoid collisions and increase the chances that both animal and people will survive the surprise encounter.

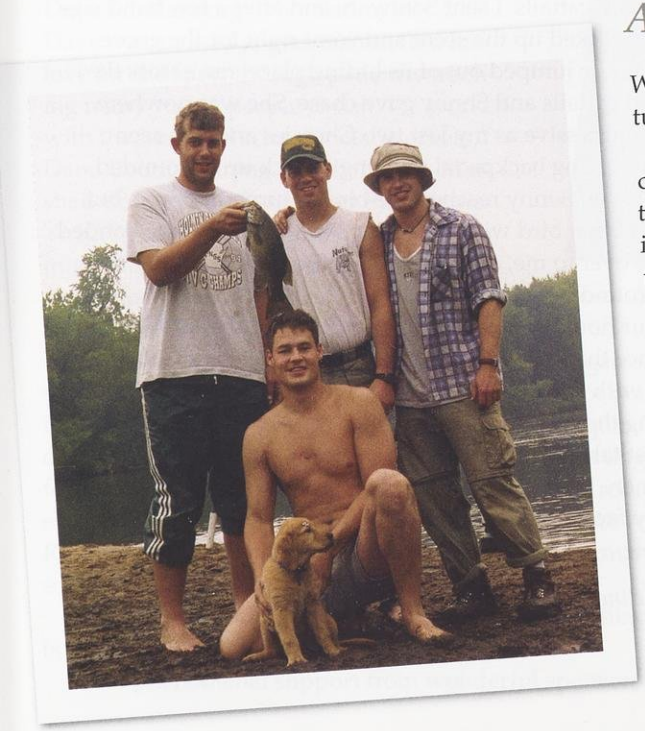
David L. Sperling edits Wisconsin Natural Resources *magazine.*

Outdoor traditions

What rituals make your days outdoors special and fun?

When we asked you to share a bit about your outdoor traditions/superstitions, we thought we'd get a few funny stories about the quirky habits that develop whenever a few friends get together on a regular basis. We thought we'd hear stuff like my own habit of playing the computer chip version of "Anchors Aweigh" on my depth finder as we leave the dock at 4:30 in the morning.

But our readers never fail to surprise us, and the stories you forwarded are deeper and more meaningful than our initial idea. You reminded us that the joy of shared experiences is bigger and more significant than any "harvest." The features of outdoor experiences that we seek out and renew are friendship and togetherness — both savoring the good company at hand and remembering those whose spirit and actions flavored so many of the moments that form our fondest memories. To all of you who wrote us, thanks for that reminder.



A little friendly competition

When good buddies get together for some fishing, a little competitive nature is always in store.

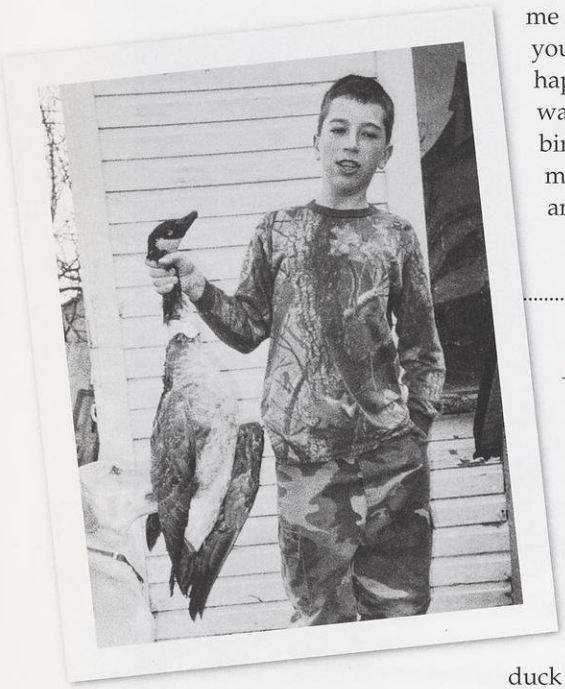
Our tradition started when we discovered a secret lake. Our first competition was to discover who had the better truck: the 1986 F-150 or the 1998 F-150 4 by 4. The older truck got stuck trying to launch the boat in sandy conditions. We spent that day walking to town to get a tow truck instead of fishing. The second trip, we took the newer truck and we were humbled a bit as we nearly got it stuck too before we could launch.

Once we were on the water, everyone started catching sunfish. We decided to make a competitive game of who could catch fish the fastest. The first person to catch a fish got to state a consequence of being the last person to catch a fish. We thought of making that person put a worm in his mouth, clean and cook all the fish, or write some choice words in sunscreen on his back while he was tanning. The tradition continues. We may not catch more fish but we sure do catch more laughs.

Aaron Braund
Prairie du Sac

Waterfowl memories

There's a rich lore and tradition of superstitions, rituals and whatnot in the world of hunting and fishing. Favorite hats and meals are all part of the game and may be even more important than the animal a person is pursuing. We Kellners are not very good deer hunters, but put me in the middle of a cattail swamp with a northeast wind howling with sleet and freezing rain pelting me in the back and you will have one happy camper. On warm sunny bluebird days you'll find me chasing pheasant and grouse, but when the weather has most people huddled inside with a cup of hot chocolate warming their hands, I, my wife and two sons will probably be out somewhere waiting for a circling flock of mallards to set their wings and sail in to our decoys.



You might call our house a "camp" during waterfowl season. Waders, decoys and muddy dogs lie everywhere ready to be used at a moment's notice. What follows is my son's story from last year that brought back many memories of my own firsts in 40 years of hunting.

Jymn Kellner
Mukwonago

Jack's goose

Jack worked hard for this moment. Since he was five, he'd been tagging along with his big brother, mother and me to the duck marshes. He was attentive and diligent at hunters' safety classes. He practiced on the duck calls and shot trap. If I were to ask him to restring all the decoys by morning, I know my many dozen decoys would have new string and would be set to go by sun up. So this moment, totally engulfed in fog, is his.

We were late. Thick fog on Highway 41 slowed traffic to a crawl. Because we were so late, all the good spots in the central marsh were taken. We chose to set up at a widening of the southern channel beneath a hill. By the time we dropped our last decoy into the water, it was well past the start of shooting time. To our back was a high hill with standing corn. In front and to either side was a sea of cattails, but all we could see was fog. Everything looked like the inside of a giant marshmallow. Our ears told us that honking geese and quacking hen mallards were all around us. The flutter of wings sounded overhead. We couldn't see a thing and no one in the marsh was shooting. Maybe we weren't late after all.

About 8:30 the fog lightened a bit. We could finally see the cattails on the other side of the channel and a teal raced by too quickly for us to shoulder our guns. Sonny, our three-year-old Chesapeake, had a puzzled look trying to figure out why I didn't shoot. Guns started thudding. Suddenly a resounding chorus of geese honked somewhere just inside the thick folds of fog. I answered back with a few toots on my call.

There they were! A solid block of geese emerged from the fog and hung over the decoys. I opened fire and a single goose folded in the air and fell. Jack had fired too, but no geese fell. I was preparing to send Sonny after my goose when I noticed Jack reshouldering his gun. He'd just managed to slip a shell into the chamber and had two more shells in his hand when another flock of geese emerged from the fog. With only a single shell in his gun, Jack slapped the 20-gauge to his shoulder and fired.

"I got it!"

Everybody hunting Theresa Marsh that day heard that Jack had just dropped his first goose.

His bird fell into the cattails across the channel and we went after it. "I see it! I see it!" he said as we slowly rowed to the spot. The goose was trying to hide underneath a big circle of flattened cattails. I sent Sonny in, and after a few hand signals, she picked up the scent and went right for the goose.

The goose jumped out of its hiding place, ran across the flattened cattails and Sonny gave chase. She was nowhere near as aggressive as my last two Chessies and I've seen many a big dog backpedal refusing to pick up a wounded goose. When Sonny reached the bird, it turned to fight, but Sonny hit that bird with authority. Moments later she handed the bird over to me, and Jack was getting his tag ready to strap around the bird's neck.

In our household the big gray birds hold the same place of reverence that a 14-point buck with a 22-inch spread or a tom turkey with a 10-inch beard hold in others. I watched Jack standing there in the jon boat holding his goose and realized he'd just taken another step away from the Legos and toy army men. If I'd smiled as hard as he did that moment, I'm sure my face would still be hurting. This was his moment and his alone.

Jymn Kellner

A pause on the river

About 20 years ago, my husband Dan and I invited some friends to join us on an overnight canoe trip down the Chippewa River from Caryville to Durand. It was the first of many enjoyable, aimless drifting adventures that were later peopled by many others looking for some quality time with nature. One trip tradition is a pause for fishing at Sevastopol Pool, a long, deep pool just downstream from a curving rapid a couple of miles from the launch point. We never really know what we'll catch (which is part of the fascination with this place), but we always anchor for a while to see what's hungry. Catching fish to add to the weekend species count (13 is our highest) is only part of the pool's intriguing charm. While anchored in the swirling water (in places over 25 feet deep), we often see leaping paddlefish, perching bald eagles and feeding shorebirds. Sometimes it's hard to leave the pool — it lures and holds one's imagination and wonder — but we know we'll return next summer and there are miles to go and more favorite fishing spots ahead.

Carol Wilcox
River Falls

The Order of the Red Fox

On November 23, 1963, the day after President Kennedy's assassination, I was deer hunting on my Uncle Norm Whitford's hobby farm between Poysippi and Pine River.

Uncle Norm was on stand and Joe Putsch and I were on a deer drive. We heard a shot but saw no game. We came to a clearing to take a breather when I saw a buck laying down with its antlered head up and looking at me. I took aim and fired. It was a nice six-pointer.

We later learned that Uncle Norm had fired the earlier shot and had gotten a red fox. That fox skin was tanned and hangs in the bunkhouse of our deer camp.

Some years later we undertook the tradition of initiating hunters who get their first deer into the Order of the Red Fox with all due pomp and ceremony.

Ronald David Whitford
Madison

Wish For Fish

We started a new annual event to introduce skills and appreciation for fishing into the lives of young people in our community. The event honors the memory of my fiancé, Dave Schulenburg, who died in July 2003. Dave was an avid angler who shared his love for the sport through patiently teaching many young people to fish. We worked with the Marshall school social workers, Dane County Joining Family Forces, Marshall Community Center and Sun Prairie YMCA Youth Center to identify kids who might not otherwise have the resources or support to learn to fish.

Local adult volunteers connected as "big buddies" one-on-one with each child. Skill-related games gave each child the opportunity to have fun learning knot tying, fish identification, fishing safety and casting techniques. We enjoyed a big picnic lunch complete with grilled hot dogs before the fishing began. Each child received a fishing rod, stocked tackle box, bait and other goodies. The DNR's Aquatic Resources Education Program and the Future Fisherman Association of America provided teaching materials.

The program even included a presentation on fishing and boating safety from a Wisconsin DNR warden.

With phenomenal support from wonderful sponsors and 75 volunteers, we fed and served 35 children age 8–12. Dave smiled on us that June day. The weather was perfect and the kids enjoyed fishing the stocked ponds on Wilburn Road in Sun Prairie where Dave and I had gone so many times. I look forward to the continued growth and success of this new event and tradition.

Missy Schulenburg
Sun Prairie

Deer stand nicknames

Everywhere you go there are local nicknames for landmarks and land features like "The Bluff," "The Gravel Pit," "The Swimming Hole" and so on. Our deer hunting party has a nickname for every hill, knoll, swamp, ridge and hollow. We call one place "Plow Hill" because when they stopped using horses to plow the fields years ago, they left an old plow abandoned on the side of the hill. It's almost a secret language spoken by the few who have walked the trails.

In another part of the hunting area we have a series of huge pines that stand tall and majestic in flat woodland consisting mainly of aspen. The pines are spaced about a half-mile apart and are named First Pine, Second Pine and Third Pine. If someone talks of hunting Third Pine, you know they were dedicated to walk a mile-and-a-half in as the crow flies and even more dedicated to haul out from back there.

Some nicknames are bestowed and kept by families and small hunting crews of good friends who might send each other to post by Chuck's Deer Stand, Ann's Rock Pile, or Grandpappy's Log. The beginning young hunter has a lot to learn when given directions to follow Cut Finger Trail (Don't ask!) or find their way to Baldy Hill, where a storm took down all of the trees years ago.

When we reflect back, the stories attached to naming these places are a way to quietly follow our memories to seasons past along the little used trails.

John Humpal
Tripoli

A 6 x 8 piece of hell

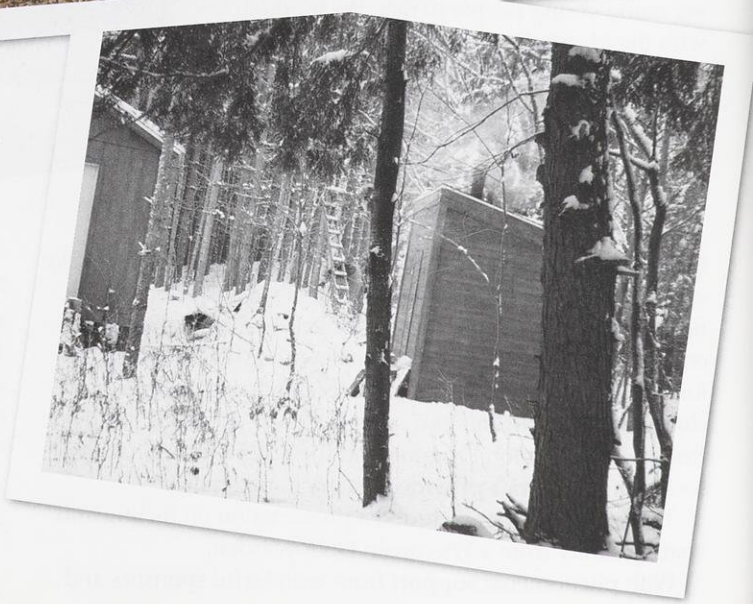
In 1993 we harvested cedars, sawed them into lumber and built a camp sauna. A small cast-iron stove stoked with split hardwood now provides the heat. Our sauna is best described as a 6 x 8 piece of hell. The candy thermometer in the corner attests to this. The top is melted down the sides and hardened like icing on a warm cake. It gets real hot in there! It's reminiscent of a rendering plant, smell and all.

After wetting down the bench to prevent frying human flesh, each hunter enters and remains until the proper sweat quotient is met.

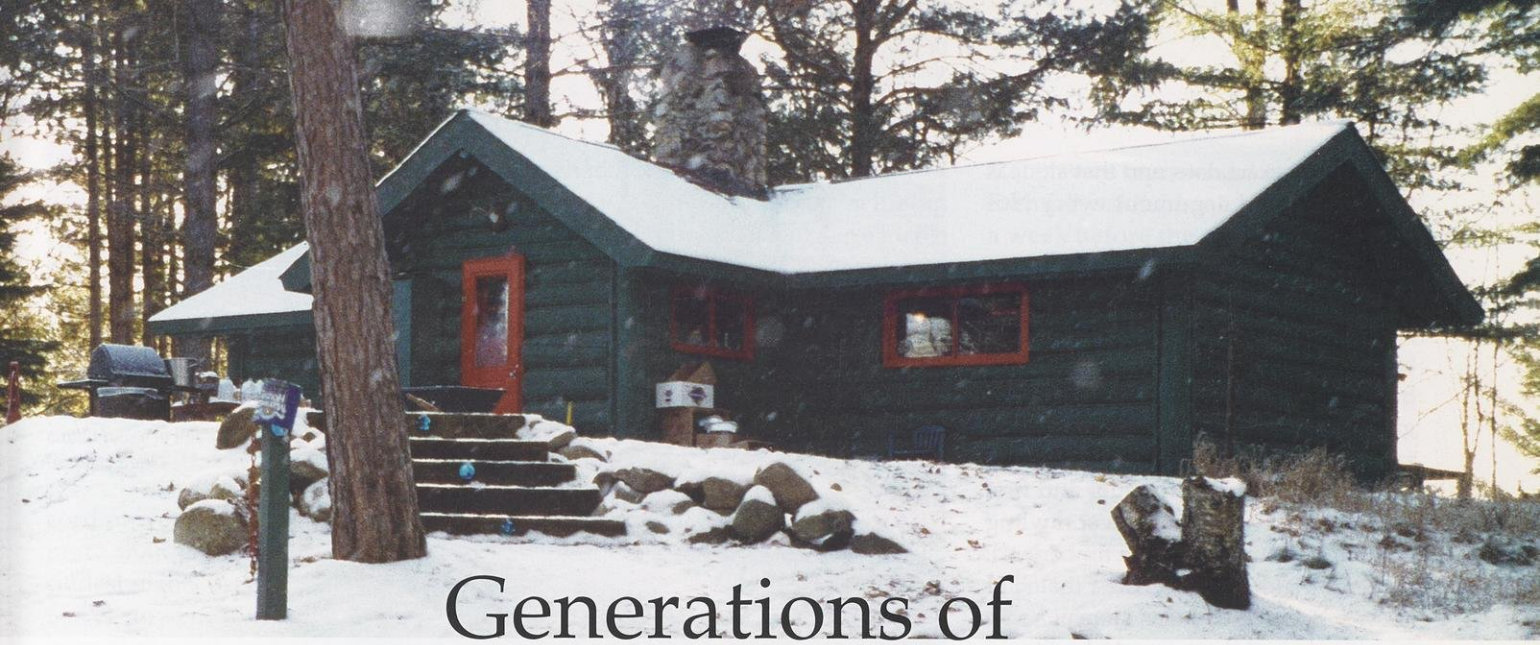
"I got two-hunert, and I'm outta here!" groans one hunter. But that's only the beginning of the self-abuse. If it's cold enough, there will be melted hiney prints on the icy bench outside the door. If there's snow, there will be anatomically correct snow angels. If it's a little warmer, there will be a boots-only run to the creek and back.

The ritual sauna improves our hunt by eliminating any trace of human aroma. It all goes down the drain as we soap up in our sweat and rinse off with clean water. Does it help our hunt? We'll let the photo do the talking.

John Sanders
Kaukauna



Mr. Sanders has a hunting party of nine, three of whom have been hunting together for 35 consecutive years.



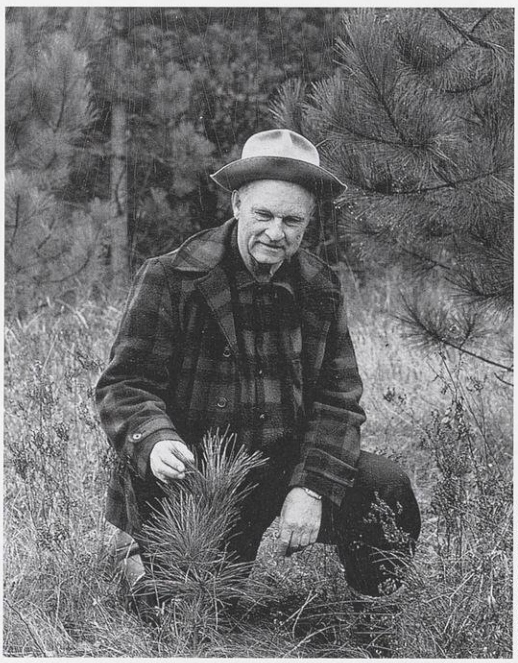
Generations of good company

The family deer camp provides enduring comfort, sanctuary and fellowship.

Donald A. Bluhm

There's a cabin full of memories and ghosts on a hill in a section of third growth forest in northeastern Oneida County. Truth has suffered some serious setbacks within its walls, but laughter has rushed in to fill the void and together they have helped create a structure as strong as its iron-cored hemlock logs.

The cabin is a grand monument to camaraderie, mute testimony to the friendship of those who have come, hunted and left behind something of themselves. It has been a November destination from as far away as Australia, the longest trip ever made to deer camp, though Africa is a close second. Whiskey glasses and cigar ashes have been spilled on the premises almost as a matter of ritual, while dime-limit poker pots have humbled some and exalted others.



O'MELIA FAMILY PHOTO

(top) **The O'Melia cabin on Thanksgiving morning, 1996.** *(above)* **A.J. O'Melia examines a red pine seedling on the cabin homestead.**

There's an old hand-crank telephone box on one wall and more than a few embarrassed recollections — with snapshots to prove them — of trying to reach the operator in Three Lakes with two shorts and a long, except that she always seems to be on a coffee break.

A jack pine beam spans the cabin's width, shaped and smoothed by an old-fashioned drawshave. The beam is almost black, but shiny from half a hundred coats of varnish and oil. Seventeen nameplates, so far, have been fixed to it, each with two dates marking the beginning and the end of the lives of hunters whose temporary residence enriched the camp in so many ways. Many more have graced the camp over the years, but those 17 have a particularly strong hold on the thoughts of the current generation. This gathering place, like a dwindling number of such enclaves in Wisconsin, is a camp of tradition, embraced by ordinary men as well as the extraordinary because class distinctions are checked at the door and if you wear a cap to the dinner table, you'll pay a $10 fine whether you're a bank president or a day laborer.

An oval pewter plaque that hangs on the main roof-bearing column announces the camp was established in 1920, although there is no real agree-

ment on the exact date, and that alone is worth hours of argument every November.

Here, one name and two dates are etched for eternity: A. J. (for Albert Joseph) O'Melia, who was born in 1889 and died in 1964. In between those years he earned one of the first law degrees given at Marquette University; raised a family of five, including three more attorneys; and was the founder and first camp boss of what is now a sprawling 1,850-acre chunk of private timberland. It seems that he always had a thatch of snow-white hair and was more at home in a wool shirt than a vested suit in a courtroom, even if that is only a fond memory. A.J. created an environment that has been seasoned by several hundred personalities, shaped by several thousand stories, and nurtured by every visitor's affection for the woods and the wildlife that surround the cabin.

JOHN O'MELIA

(top) Adolph Zacharias, camp cook in the 1950s and early '60s, prepares a venison roast in the small but well-equipped kitchen.
(above) Electricity is forbidden at the cabin and the portable radio only goes on for five minutes at 6 p.m. to catch the weather forecast. Gas and propane lights add to the ambiance around the dining tables.

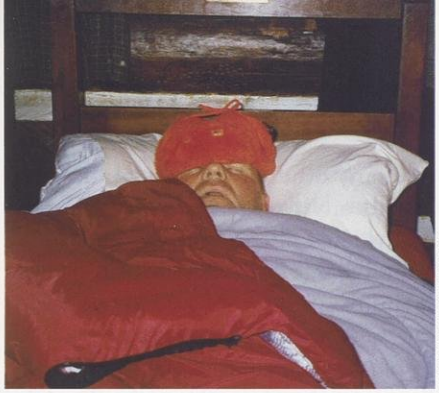
Temporary occupants over the years have added to the lore. An English professor, thought to have been a faculty member of what was to become the University of Wisconsin- Stevens Point, spent some time in the area writing children's books. He and his wife kept a neat home for several years just off an old narrow-gauge right-of-way that led to Three Lakes. Their homestead is now just a shallow depression on a coniferous ridge.

There were two older Rhinelander buddies who spent a number of Novembers together on the property in a 10 by 16-foot shack — "shack" being a rather generous description — that contained two cots, a small table, a wood stove, a large supply of liquid sustenance, and (during deer season) a horse. They were said to have spent almost every day during the hunting season fine-tuning their hunt plan, which, as it turned out, required considerably more planning than executing.

There were 10 acres on the northeast section of the property where the Germans settled because they didn't like the idea of serving in the Kaiser's army. A half wall of cobblestones that served as part of a root cellar is all that remains of their presence.

The property's centerpiece remains the hunting cabin. In the center of that building, more or less, stands a colossal fieldstone fireplace at the intersection of the cabin's four wings. The walls are old-growth hemlocks taken from nearby land. And even after more than eight decades you couldn't budge the cabin with a D11 Caterpillar. There seems to be a lingering aroma of cigar smoke in the room, one that may be imagined, or not. On the backside of the fireplace there is a propane "restaurant" cook stove with six burners, two ovens, and a griddle, because 20 or more hunters can eat a lot of food in two weeks, and "preparation" is nine-tenths of the hunt. For the last several years a grandson, Brian O'Melia, has been flown in from Arizona to cook for the crew, a job similar to the one he has held at a large hotel in Phoenix.

There are 17 Army-surplus wood bunks in three of the cabin's wings, all but one of them double, and two handmade, 10-foot-long dining tables set end-to-end along the east wall. A round poker table sits under the beam with the names, and two additional propane wall heaters add to the cabin's warmth, though after the first 24 hours and a full



O'MELIA FAMILY PHOTO

Mike O'Melia, former UW basketball captain and a circuit judge in Phoenix, Ariz., ponders a decision from his bunk.

cord of wood, the fireplace produces more than enough heat even on the coldest nights. At one time there was a barrel stove near the west wall, but it burned through and was removed, as was a large kerosene heater on the opposite wall that became harder to start than some of the hunters. There is a large screened porch that runs across the front of the cabin with an open deck beyond that looks over a 40-acre lake.

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The land that surrounds the cabin has been scarred over the years, most recently by tornado-like wind shear in late summer of 2000 that flattened five acres of hemlocks about a half-mile east of the cabin. Other sections were clear-cut before more selective land practices were introduced by Wisconsin DNR foresters. Millions of board feet of timber have been removed from the land, much of it during the second wave of logging in the last decade of the 19th and early years of the 20th centuries. During many of those years the logs were taken away by the Thunder Lake Lumber Company, whose narrow-gauge rail has been described as "probably one of Wisconsin's best known logging railroads." The line ran northeast from Rhinelander, paralleling the present State Highway 17 for several miles, and eventually ending at a village known then as Robbins, but now called Sugar Camp.

While logging in Wisconsin's Northwoods has become much more selective, there is plenty of timber left on that property, including several small groves of bird's-eye maple trees. One sold some years back to a German automaker for $2,000 to be used for handcrafted dashboards in some of its models.

The property has supported many rounds of tree harvests and at one time contained a logging camp. Remnants of that camp can still be found west of the cabin. On a ridge above what is left of the bunkhouse and cook shack are the remains of the horse and ox barns. And, like the many stories of deer camp, retelling the tales of those lumbering days by Dick and Al O'Melia has reached monumental proportions in terms of describing "long and hard" days. Dick now lives in Maryland, and Al, or "Bud," as he is known, resides in Kansas. Only death would keep either out of Wisconsin in November.

They are not alone. At one time or another people from half the United States were represented at deer camp. Each fall visiting hunters begin arriving a week before the opening Saturday. Most have at least some gear stored in the two sheds near the cabin. About a half-mile to the west is an old gravel pit where rifles are sighted and test-fired and bets are made on the approaching season.

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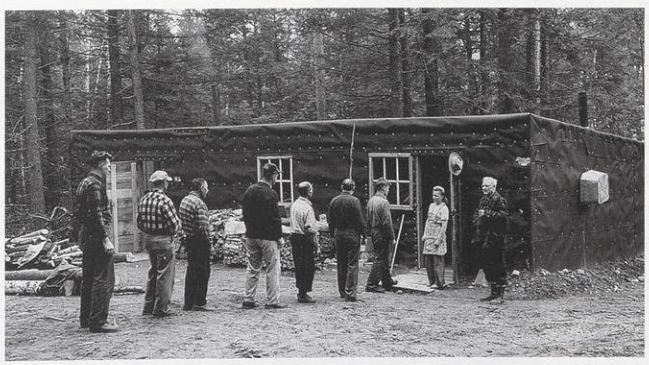
Then there are the deer stands, which must be checked every year. Porcupine damage must be repaired, squirrel nests swept away, obstructing tree limbs trimmed back and propane gas heaters tested. One of the four brothers, the late Don O'Melia, who served for a time on the Wisconsin Natural Resources Board before he passed on, had an especially, ah, unusual, blind. Over the years, the small wood structure began to deteriorate and was replaced by hay bales. To keep snow and rain off his head, O'Melia erected a large, spray-painted umbrella that, in its original life, advertised a famous Italian aperitif. The real genius, however, was a rear-view truck mirror that was installed on the front left-hand side of the stand. It frequently was useless because the occupant often fell asleep, usually with a cigar clamped in his teeth, which is not so good if your deer blind is made of straw; and, yes, it is true that he once awoke with his stand smoldering.

Other blinds are scattered throughout the property including one with a shingled roof that originally rode to Wisconsin on top of a truck from South Carolina. Each hunter's favorite hiding spot has its distinctive qualities. Bud's has an old swivel office chair, along with a gas heater that doubles as a stovetop for his mid-morning hot soup or chili snack. His nearby relief station amounts to a two-by-four nailed between two young maples. Dick, the current camp boss, is

(below) Loggers outside the old logging camp in the 1940s with A.J. O'Melia at right.
(bottom) By machine and horsepower, parcels of the 1,850 acres of timberland have been harvested and regrown to provide cords, boards and quality deer habitat.



O'MELIA FAMILY PHOTO

O'MELIA FAMILY PHOTO

O'MELIA FAMILY PHOTO

The O'Melia sons *(left to right)* Don, Bud, Dick and John with a nine-pointer shot by Dick. Don and John are since deceased.

about the only hunter who doesn't smoke cigars because his doctor and his wife won't let him, but he likes to sit near those who do. And since cigars are a fact of life, deer season visitors almost always enjoy a smoke whether they want one or not.

John O'Melia, who died in 1995, was the eldest brother and the immediate predecessor camp boss to Dick. He preferred a discarded, straight-backed law office chair as a throne from which to issue camp orders. It now sits empty on the front porch, but a small brass nameplate indicates the former owner, who usually spent a good deal of time each year explaining to every newcomer how his khaki pants had come to be stained with moose blood from a Canadian hunt, a stain that looked suspiciously like faded red paint.

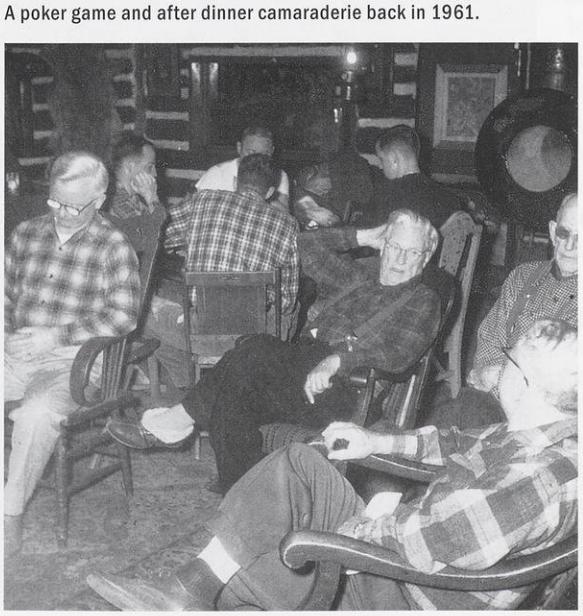
The cabin lake (one of three on the property) is now officially renamed Dick and Don Lake, after the twin sons. Dick swears that a careful search of the spring near the lake would almost certainly yield a bottle or two from the cache of a former moonshiner who hid some of his produce there during Prohibition. If not, there's a tin cup hanging from a tree limb in the vicinity and the water is as sweet as anything you'll find in a store, and a whole lot cheaper.

Presiding, in a practical way over the property, is a third-generation O'Melia, John, an attorney with the family firm in Rhinelander, grandson of the founder, and a tireless caretaker who probably spends more time shepherding various family interests with the timberland than scanning the law books. He, more than any other, is the reason the cabin and its environs survive for visitors to enjoy. His affection for the land is the adhesive that holds it all together, keeps it running smoothly, and keeps building new memories every year.

Stories drift in and out of camp like the ghosts to whom they refer. The tales are as real, however, as the living who come to listen and to share. One rookie was discovered tracking a deer backwards through the snow because, he said, he wanted to see where the animal had been. The same fellow was almost certain he had seen a "deer nest" in the crotch of a large basswood. Another hunter was the victim of an elaborate plan that involved a papier-mache deer replica and a Bowie knife. Another insisted on the existence of "snow fleas" and no one believed him until he arranged for a University of Wisconsin entomologist to create a colored sketch of the virtually invisible insects that textbooks say are 400 million year old species.

Many others have come and gone from the cabin on the hill. The camp has an amazing safety record; no one ever has been seriously injured during the deer season. Some have been lost, however, and then found. But all have enjoyed the experience and all have been changed in wonderful, if undefinable, ways. The deer pole has sagged on some occasions — the first journal that was kept (in 1950) lists 13 successful hunters — and has been a little lighter at other times. But the memories remain strong and secure. And if they've been edited a little over the years who's going to argue? After all, as a philosopher once said, a story of questionable veracity is simply the truth misunderstood.

A poker game and after dinner camaraderie back in 1961.



O'MELIA FAMILY PHOTO

Donald A. Bluhm has hunted at the O'Melia cabin since 1960, following his marriage to Nora O'Melia. He still crafts feature stories following retirement from The Milwaukee Journal.

continued from page 2

Juncos are interesting to study. As you peruse a flock, you can't help but notice the subtle variations in plumage. Perhaps you may see a junco with a black head and breast, reddish back, white belly and buff flanks or maybe a light gray junco with white wing bars. They look quite different from the more familiar dark gray forms, but they are all the same species.

Junco nomenclature and taxonomy are confusing. At one time, six color variations (slate-colored, Oregon, white-winged, pink-sided, gray-headed and red-backed) with separate geographical ranges were considered separate species. Subsequently, ornithologists discovered that where the population ranges overlapped, interbreeding occurred. The six "species" were consequently lumped into one species and renamed the dark-eyed junco. To this day, field guides still identify the various populations. "Our" junco is the eastern population or slate-colored junco.

All this taxonomic confusion has not bothered the birds one iota. They go about wandering the countryside, brightening our winters and twittering when most birds are silent. So put out the bird seed, welcome and carefully examine all of our autumn and winter-visiting dark-eyed juncos. If you don't like the notion of a harbinger of winter, recall the lyric in the Anne Murray hit: "The snowbird sings the song he always sings, and speaks to me of flowers that will bloom again in spring."

Anita Carpenter birds year-round from her home in Oshkosh.

Color variations from white to pink, gray or black originally led ornithologists to classify the juncos as six distinct species. We commonly see the slate-colored variety.

RICH PHALIN

FISH PARASITES

I have a question. What are the black specks that I am finding on some perch? I haven't seen them on any other species, just the perch. Are these fish edible?

Pepe Cadena
Green Bay

Fish Health Specialist Sue Marcquenski responds: The black spots are larval stages of parasites that form a cyst in the skin or muscle of fish. Birds such as kingfishers and gulls are infected with the adult stage of the parasite. The parasite's eggs pass from the birds and enter the water where they hatch and infect snails. Larval stages develop in the snails and leave the snails to swim in the water until they find a fish. They burrow into the skin or muscle and a cyst forms around the parasite. When the bird eats the fish, the larvae become adult parasites in the birds and the cycle begins again. The common name of the parasite is "blackspot." A related parasite is "yellow grub" which looks like a yellow piece of rice in the muscle. The bird host in this case is the great blue heron.

The parasites cannot infect people and cooking kills the larvae. In the past 8–10 years, the fish-eating bird populations have been very high in the Midwest, so it is not surprising to see more fish infected with this parasite. Until there is a change in the bird, fish or snail populations, fish will continue to carry these parasites.

SURFIN' THE INLAND SEA

As a Wisconsin native now living in California, I look forward to receiving each issue of *Wisconsin Natural Resources* magazine. And, as a lifelong "beach person" who spent my childhood summers at the Zoo Beach first jetty in Racine, I particularly enjoyed the special "Reach the Beach" section in the June 2004 issue.

In that special section I was pleased to see you mention surfing in Sheboygan and the Dairyland Surf Classic that Lee and Larry Williams organize each Labor Day weekend. For far too long, surfing on Lake Michigan has been a little-known mystery to all but the fortunate few who have had the opportunity to enjoy its pleasures.

I don't get back to Wisconsin very often anymore, so most of my surfing now is done in San Diego and here on the California central coast, where surfing is popular all year long. But I can tell you that most of my fondest surfing memories are from the uncrowded surf spots on Lake Michigan, such as Zoo Beach and Wind Point in Racine and the numerous individual spots in Sheboygan that begin at North Pier and extend more than a mile northward to the Sheboygan Water Treatment Plant. Although the lack of crowds in the fresh water is a big advantage over most salt water surf spots, I can tell you that, as with a lot of things in life, much of the enjoyment of an activity relates to the people that you do it with.

And that's where surfing on Lake Michigan reveals its biggest advantages — the people. Because of the limited number of people who surf the Great Lakes, the surfers tend to know each other. But when they see someone "new" for the first time, they extend their greetings and are eager to welcome and get to know the new surfer. This has always been particularly evident in Sheboygan, which has the three-fold advantage of great surf spots, a long and rich surfing history, and great people who love to share their lifestyle (don't call it a sport!) with other and new people.

My wife and I are both Wisconsin natives, and we've subscribed to *WNR* for about 25 years. Since we moved out here to California many years ago, the magazine has been a much-

COMMENT ON A STORY?

Send your letters to Readers Write, WNR magazine, P.O. Box 7921, Madison, WI 53707 or e-mail letters to david.sperling@dnr.state.wi.us

valued link to our roots and memories of our summers "Up North" when we were growing up. I know that Wisconsin spends much money each year competing with the other Great Lakes states for tourism, and I've long felt that the state could gain an edge over its competitors by promoting awareness of surfing in its coastal waters, including the chilly shorelines of Lake Superior.

An integral part of such awareness would be printing photographs of people actually surfing along Wisconsin shorelines. I have seen other previous references to surfing in prior issues of *WNR*, and an old photograph of several of us with our boards on North Beach in Sheboygan in the August 2002 issue. (By the way, I am in that photo at the far left with the yellow and green Stewart surfboard.) But I think some photos of Wisconsinites actually riding the waves of Lake Michigan would really send the message that this is something that anyone can do right in their own backyard, and they don't have to spend a lot for a trip to California or Florida to do it. Such photos could prompt some people from inland states to visit Wisconsin to try surfing, but probably even more would be curious enough to go to Wisconsin just to watch.

By the way, I'm sitting here writing to you now (rather than surfing) because our lifeguards spotted a great white shark at our beach earlier this week. Another reason why fresh water surfing is better than ocean surfing!

You're correct in your assessment of Lee and Larry Williams. They're really great guys who personify the mellow surfer community in the Great Lakes area and in Sheboygan in particular. October is actually the peak of the surfing season on the Great Lakes, a terrific opportunity to prompt people to go down to some of the prime surfing spots to watch surfing right in their own backyards.

Dave Cole
Morro Bay, California

CREX MEADOWS EFFECT

I was surprised that anyone remembered the "Crex Meadows effect" ("Saving the best of the best," April 2004). In the spring of 1958, Drs. John T. Curtis and Henry C. Greene visited Crex Meadows and Northwest Wisconsin as part of Curtis' research in the preparation of his book "The Vegetation of Wisconsin." They were astonished to find extensive tall grass prairie at Crex Meadows being restored by the burning and clearing of scrub oak forest by Game Manager Norm Stone. At that point the rough draft of the book did not recognize the existence of prairie vegetation that far north in Wisconsin.

When I returned to graduate school at the University of Wisconsin in Madison in the summer of 1958, after serving in the Korean War, Dr. Curtis assigned me to find out where the prairie plants were coming from and to learn more about the effects of fire on the vegetation. After learning to identify prairie flowers and grasses in their non-flowering or vegetative states, I soon discovered that the entire prairie flora lay dormant under the canopy of the oak forest. The forest invaded and grew up with the prevention and cessation of wildfires and farm burning starting in the 1920s to 1930s. When Norm Stone reintroduced prescribed burning in the 1950s, the removal of the oaks with their shade and the fire stimulation of the understory plants resulted in instant prairie in all of its blooming glory; a "land of living color" as Norm Stone called it.

Richard J. Vogl
Professor Emeritus,
Biology Department
Cal. State University, Los Angeles

AN ENTHUSIASTIC FAN

I just got through skimming through my new issue of *Wisconsin Natural Resources* and it is, as usual, a super good publication. It reminds me of the day in the late 1970s when I was still on the Natural Resources Board in which we made the fateful decision to change from a black and white issue of our magazine, one which was distributed free, to a colored, pay-as-you-go, magazine. We thought the decision to make the change was correct and we did it, although all of us had some concerns about how things would go. Fortunately, the circulation continues to increase and the quality of the magazine improves with every issue, though there is little room for improvement left.

I have a suggestion. Encourage readers to do two things: 1) Send a gift subscription to a friend (I send four every year to siblings and relatives), and 2) Join the Natural Resources Foundation of Wisconsin. Thanks again for doing an excellent job.

Daniel T. Flaherty
La Crosse

Keep an eye out in the December issue for details on gift subscriptions. Or if you can't wait that long, visit our website at www.wnrmag.com and click on "Give a Gift." For information on joining the Natural Resources Foundation, see "Saving the best of the best" in our April 2004 issue and the accompanying insert card.

BITTERSWEET CONFUSION

I'm even more confused about American bittersweet. The exchanges in the last issue ("The exotic bittersweet," Readers Write, June 2004) did not make clear whether both varieties are invasive or just the *Celastrus orbiculatis*. I planted a few hundred seeds of *Celastrus scandens* on my Wisconsin farm this spring. The primary purpose was to cover unsightly piles of bulldozer spoils — primarily box elder trees and brush — along the edges of fields that also border woodlands. Do I need to worry about *Celastrus scandens* invading woodlands and choking off desirable trees such as oaks and walnuts? Should I consider stifling these plants before they seed, then plant a variety of ivy or some other vine that would be less invasive to cover these piles? Give me your thoughts please.

John Thurston
Irving, Texas

Celastrus scandens *is considered the native, noninvasive form of bittersweet here in Wisconsin. It spreads naturally, but not in the invasive manner that* C. orbiculatus *spreads. It is an excellent choice for landscape plantings since it is both attractive and serves as a first-rate wildlife food source.* C. orbiculatus *is also widely sold here as a landscaping plant, but it is definitely more aggressive and can choke off native vegetation. You made the right choice.*

I was always told that it was illegal to cut or damage the bittersweet plant, that it was a protected plant under Wisconsin state law. Is this true or false?

Pat McQuillan
Eau Claire

Bittersweet is not protected. It can be picked, with the property owner's permission, on private lands.

Stage fright

...on the bank of a broad part of the brook, where the water ran deep and black, was found the hat of the unfortunate Ichabod, and close beside it a shattered pumpkin.

— Washington Irving, "The Legend of Sleepy Hollow"

BILL JANNKE, WATERTOWN PLAYERS

HERITAGE HILL STATE HISTORICAL PARK

(clockwise from left) **The play's the thing whether you enjoy "The Legend of Sleepy Hollow" at Heritage Hill, "Dead Emma" at the Octagon House Museum, the drama of pie-eating contests at Portage's Pumpkinfest or a good-natured scare at Neenah's first BooFest.**

This year Halloween takes a literary and theatrical turn in several historic Wisconsin settings. Enhanced by authentic creaking floorboards, real rusty hinges and the dark of night, these events are guaranteed to spook the bejabbers out of you and your little goblins:

After feasting on the season's harvest at the Clausing Barn Restaurant, warm your bones with a glass or two of claret and sink your teeth into the tale of the fella with the shiny incisors, none other than Count Dracula. A troupe of dramatic performers presents Bram Stoker's classic story of the vampire's insatiable thirst for blood in a series of moveable vignettes set against the darkened backdrop of **Old World Wisconsin's** historic buildings and wooded hills. Performances run October 15–17 from 6–9 p.m. at Old World Wisconsin, Eagle. For tickets and reservations, call (262) 594-6305 or visit www.wisconsinhistory.org/oww/ on the web. For your safety, turtleneck sweaters are the recommended attire. BYOG. (Bring your own garlic.)

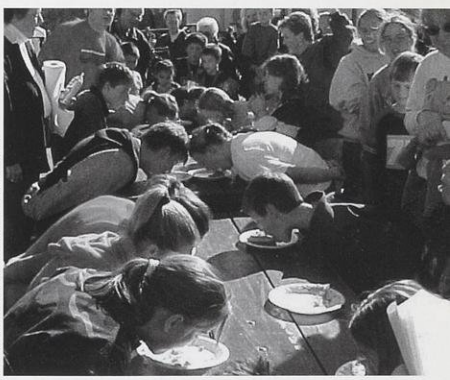
In the fog-shrouded valleys of the Hudson River gangly schoolmaster Ichabod Crane swoons for the fair Katrina, but ends up two ears shy of a head at **Heritage Hill State Historical Park** in Green Bay. There you can relive "The Legend of Sleepy Hollow" on October 22–23 and 29–31 from 5–8 p.m. Expect a night of fun and fantasy — costumes are encouraged. All Headless Horsemen invited to attend. See www.heritagehillgb.org or call (920) 448-5150.

The questionable events surrounding the disappearance of Emma Thomas, granddaughter by marriage of John Richards, the original owner of Watertown's most famous structure, are laid bare in the comedy/mystery "Dead Emma." The Watertown Players present Emma's harrowing but brief saga on October 29–30 every 15 minutes from 6:30–9 p.m. at the **Octagon House Museum** in Watertown. The charming 1854 solid-brick house with far too many corners was one of the largest single family residences of the pre-Civil War era in Wisconsin. Visit the players on the web at www.watertownplayers.org or call the eight-sided museum at (920) 261-2796, www.watertownhistory.org/octagon.htm for details.

The City of Neenah embarks on its first annual **BooFest** from October 22–24. By all means cut a swath through the pumpkin carving contest, dally at the costume ball, march in the costume parade, and screech through the night at the drive-in Halloween movie screening — but be sure to stop in at the Neenah Public Library for some classic scary storytelling. See www.neenah.org or call (920) 722-1920.

FH&K, COURTESY OF FUTURE NEENAH, INC.

As far as over-the-top grand theatrics go, you can't beat the Portage **Pumpkinfest**, October 22–23. In an attempt to claim the world record for decorated and lit-up pumpkins, city residents will line the Portage Canal with more than 500 of the carved and glowing monster orange cucurbits. It's certain to be a good fright and a stunning sight. (608) 742-6242.



PORTAGE CHAMBER OF COMMERCE

Governor Knowles State Forest

Follow a hiking trail that winds through the flat expanse of Kohler-Peet Barrens & Cedar Swamp State Natural Area in Burnett County. Enjoy prairies, barrens and bracken grassland communities. Keep an eye out for the federally endangered Karner blue butterfly that feeds on wild lupine.

Directions: From the junction of County Hwys. F and D in Grantsburg, go north and east on F 15.3 miles to the parking area north of the road at a right angle corner where Hwy. F meets Highline Rd. The hiking trail is accessible from this parking area.

Find forestry centennial activities at wisconsinforestry.org.