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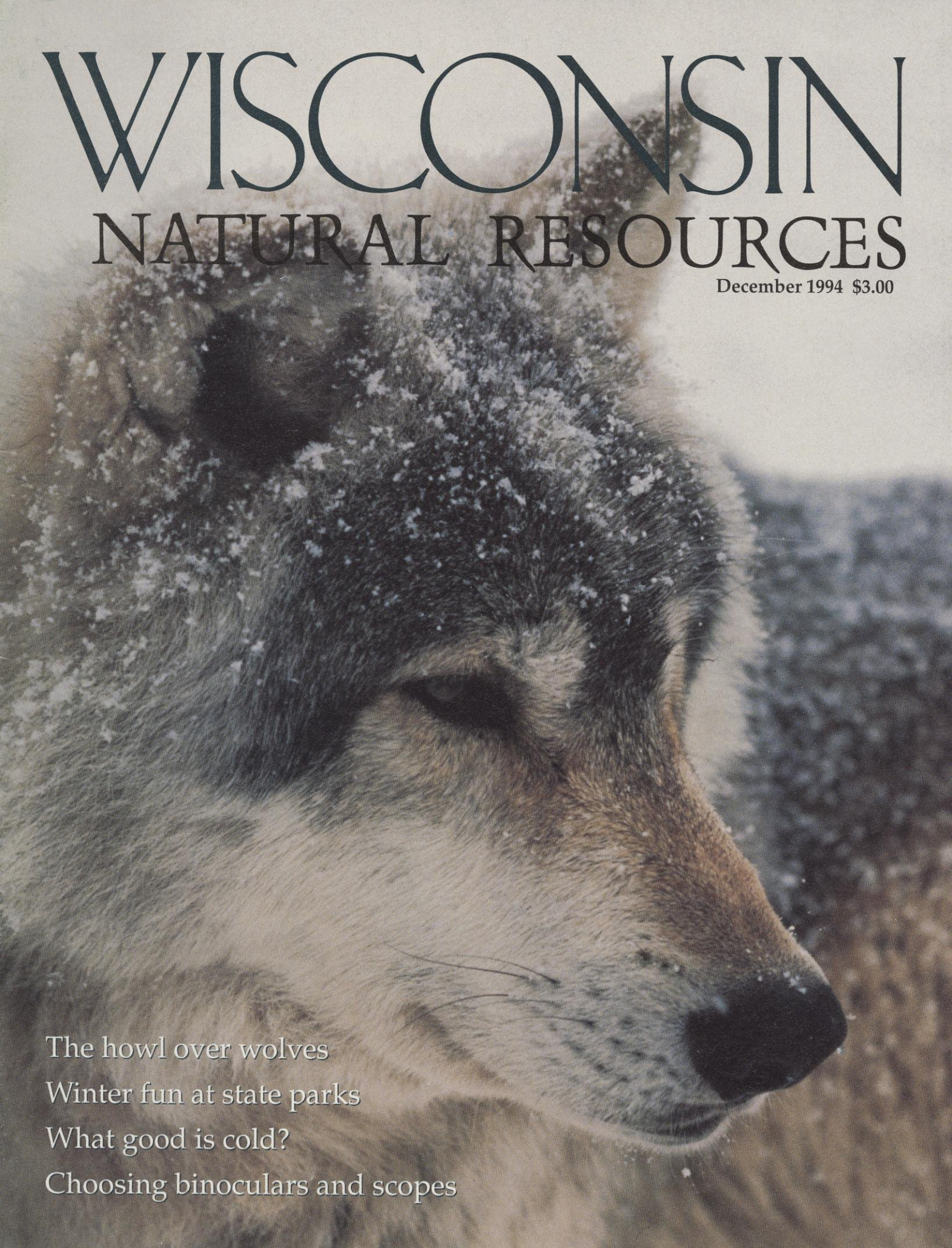

The howl over wolves

Winter fun at state parks

What good is cold?

Choosing binoculars and scopes

The missing ANTLER

Terry Morgan

Good fallen antlers are hard to come by. That seems strange since we live in the heart of whitetail country and every buck drops two of them each winter. Morel mushroom hunters walking on woodland trails in May ought to be tripping over lots of deer antlers, but they do not.

Why is that? Many other things rain down on the forest floor. On almost any walk, if you stop, listen, look and quietly blend into the woods, you will notice that things are continually filtering down: flower petals, leaves, twigs, ice, acorns, walnuts. All things eventually become one with the soil, but it takes time. So if paper-thin leaves can persist for months and months, why do deer antlers turn up missing so rapidly?

A fallen deer antler is a nutritional prize that is quickly discovered by the tiny black eyes of rodents like meadow voles, field mice and chipmunks. Here lies, within reach, a source of minerals and salts the rodents crave and need for their own strong bones. Gnawing an antler also trims and hones their continually-growing teeth. An antler on the ground can be covered with gnaw marks after only a few days; it can be half-eaten in a matter of weeks or months. Therefore, a lot of fallen antlers are completely gone by morel-hunting season.

HERBERT LANGE

This doesn't bother the average picker who can gather enough morels to fill garbage bags, but for someone like me, who couldn't find a morel if it was growing out of my ear, a trophy deer antler (uneaten!) might make a nice consolation prize. ■

Terry Morgan writes and illustrates a column from his southwestern Wisconsin home in Cuba City.

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WISCONSIN NATURAL RESOURCES

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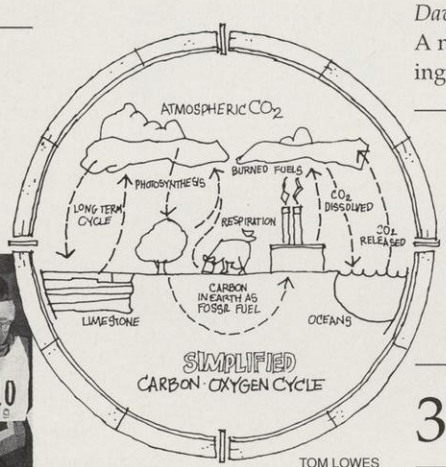
JIM BRANDENBERG

MIKE KOZLOWSKI



TOM LOWES

DNR PHOTO

FRONT COVER: Timber Wolf *(Canis lupus lycaon).*
MONTY SLOAN, Wolf Park, Battle Ground, Ind.

BACK COVER: Frost-covered mushrooms on the shore of Green Bay.
DARRYL R. BEERS, Green Bay, Wis.

Editor's note: Fear, exaggeration, politics and intrigue are the feedstock of great theater and whodunits. They also fuel Dick Thiel's engrossing account, "The Timber Wolf in Wisconsin: The Death and Life of a Majestic Predator," available at book stores or from UW Press, Madison, Wis. His historical review shows how our attitudes and misperceptions about wolves forged policies that extirpated the species in less than 100 years.

The story focuses on wolves, but the weaknesses reflected in his narratives are decidedly human. Thiel details how our judgements and our actions doomed wolves, often in the name of conservation. Those who shake their heads at today's policy-making process will appreciate Thiel's account of the "deer wars" of the 1940s as pressure from the hunting public swung and shaped the actions of game managers, legislators and wildlife commissioners. Readers will also learn about a secret wolf study whose findings were suppressed because they bucked deer management policies and prevailing anti-wolf sentiment.

To capture some of the heat, color and flavor that Thiel cooks up, enjoy these excerpts that document both wolf fact and fiction:

The howl over Wolves

Richard P. Thiel

STABER W. REESE

Bounty hunters and 90-pound wolf. November, 1945, Vilas County.

Bounty fraud

Editor's note: Bounties on wolves were offered on and off in Wisconsin between 1839–1957. Thiel documented some of the schemes used to bilk the taxpayers.

Just as quickly as bounties were adopted, schemes were developed by enterprising citizens to bilk the coffers of the bounty system. Fraudulent practices plagued every bounty system ever devised by lawmakers.

Usually high bounties were an open invitation to swindlers. The 1868 composite bounty of Waukesha County and the Town of Summit offered $175 for each wolf killed.

No sooner had the bounty become a settled thing than hunting wolves became a good business, and forthwith, several men went at the work of extermination. Very soon after this the wolves in Summit were nonexistent, but the hunters were equal to the emergency. Therefore, wolves were hunted from adjoining localities and chased into Summit to be killed.

Perhaps the most ludicrous example of political absurdities was the case where a suspicious county clerk submitted a scalp to the Secretary of State for close scrutiny. "It was the scalp of a dog and no more resembled a wolf than a poodle resembles a St. Bernard." The secretary refused to process the claim and advised the county clerk to do likewise. After some little "investigation" the county board adopted a resolution declaring the animal a wolf and instructed the county clerk to pay the county bounty.

COURTESY OF BUREAU OF ENDANGERED RESOURCES

HARVEY MAU

(above) Like wolves, coyotes were bountied. Some hunted by plane tiring out the pack and then shooting them. Feb. 1960 on the Apostle Islands.

(below) Wolves avoid people in the wild. Many accounts report that trapped wolves cower to human dominance.

ADRIAN WYDEVEN

Did wolves threaten people?

Wisconsin and upper Michigan are replete with horror stories of wolves attacking and killing many an unsuspecting wayfarer...What probably begins as a fireside tale, firmly ingrained with realistic elements is readily absorbed by many a gullible listener. And so the stories circulated throughout the communities like wildfire like this account from the February 19, 1873 issue of the Evansville Review:

> Wolves are becoming so numerous in the Northern Pineries that they attack the lumbermen as they pass from different camps. A pair of boots were recently found near Sherry's mills with the feet still in them; particles of clothing, etc. showed the horrible work of these rapacious, hungry brutes.

This was a common tale, the pattern of events remains unchanged in different versions (as) the victims and locations differ.

The most sensational of the stories that originated in the Northwoods involved a huge pack of timber wolves chasing a sleigh hauling meat to the winter logging camps. Ed Epler related the least farfetched account, which is said to have taken place along Four Mile Creek area on the Forest and Oneida county line:

> Ed Grattan and one of his teamsters brought two sleighs to town for supplies. One sleigh was loaded with groceries and the other carried a ton of beef hindquarters. Unfortunately, Mr. Grattan was detained at the bar by a group of friends until it was too late to get back to camp before dark.
>
> When they got to Steve Aldrich's farm on the Military Road, they were warned by Steve that there was a large pack of wolves near Four Mile Creek. Steve invited Grattan to stay overnight, but Grattan thanked him and drove on.
>
> The load of beef was in the rear when the wolves attacked. The dri-

ver threw off a hindquarter of beef and drove on, and each time the wolves attacked he threw off another until the entire load was gone.

When they went back the next morning they found that all the beef had been eaten. They estimated there were at least 20 wolves in the pack that ate that sleigh load of beef.

If there was a shred of truth to the story, it probably revolved around the disappearance of a considerable amount of beef meant for the logging camps. One might well be suspicious of the teamsters or supply managers than the beasts of the forest.

Respect and fear of humans

Most experienced outdoor people agree that wolves have a profound respect for humans and act reserved when encountered. Trapper Walt Rosenlaf knew well the habits of timber wolves and felt there was little for a person to fear when in wolf country. Rosenlaf had several unusual experiences with wolves during his trapping career on and south of the Willow Flowage in Oneida County between 1930 and 1949. He stated, "The timber wolf when trapped is ashamed of himself. [They] never try to fight you. They more or less just give up."

JIM BRANDENBERG

On the winter route. Wolves will cover 30–100 square miles territories.

Regarding the reactions of trapped wolves upon seeing their captors, Frank Tomaier of Glidden said, "Wolves and coyotes are cowards. I've had a big one sit back and howl right next to me. Wolves never lunged." Trapper Russ Olson said, "The big ones — they didn't dive around or anything. The minute they'd see you, they'd be watching you. They either sat or lay down. They wouldn't get up or offer to fight.

[Similar experiences were described in an account by government trapper George Ruegger and the Wisconsin Conservation Department's P.C. "Jake" Jakoubek, who were assigned to capture a pair of wolf adults or puppies for the State Game Farm in the winter of 1936–37.] Extracting an adult wolf from the trap became a sudden reality for the two men. Ruegger's account:

"This was my first experience in trying to take a timber wolf alive, and for the life of me I couldn't figure out how we were going to get him out of the trap and into the crate.

"While Jake was gone I commenced to experiment and as I circled around him, he would show his teeth and say "Whuh." When I threw snow at him, he would jump and snap. Finally I got close enough to give him a good poke in the ribs with my walking stick and he just wilted. I was surprised and thought he was just being tricky, so did it again; he just lay there trembling. When Jake finally came with the crate, (the wolf) was still lying down and I guess Jake thought I had been pretty rough with him.

"For awhile then we tried to get the wolf into the crate without getting too close but it didn't work, so I went up and took the trap off him and pushed him in. I had mittens on. He rolled his eyes at us and then looked the crate over, all the time not moving, and it seemed as if he said 'They got me.' The odds were too great against him and he knew it."

The next wolf they caught gave them another problem.

"We got her into a trap about three miles off the road and didn't have a crate for her. It would have been mighty tough travelling to get her out that way anyhow. I punched her in the ribs the same as the other and, you know, her reaction was just like his. When she was laying down there we shoved her into a packsack and buttoned her up and took turns carrying her out to the road. One of the boys put a collar on her and hauled her down to Poynette in the back of his car. When they give up, they give up in earnest."

The twilight years

On several occasions biologists witnessed first-hand the devastating impact overtrapping had on individual families of wolves. Dan Thompson's meticulous study of the Willow wolf pack provides a picture of the demise of each of the small family groups that remained in Wisconsin at the time.

Walt Rosenlaf usually took three or four wolves per year from this pack. In addition...other trappers caught wolves there. Trapping activity really intensified in the mid- to late 1940s. During the fall of 1944, Charles Gustafson reportedly trapped five wolves in the Willow area. Despite this, the Wisconsin Conservation Department's Deer Research crews were encountering signs of three or four wolves throughout the winter of 1944–45. On April 2, 1945, local resident Herman Witt trapped two adult male wolves near the north shore of the flowage in some coyote sets. Somehow a few pack members managed to survive; sign found in sandy stretches of fire lanes during the summer months indicated three wolves were still present, including the famed Old Two Toes.

Three years later, the existence of this small family was again threatened by overtrapping. In spring 1948, Dan Thompson reported sign of three wolves, one of which was Old Two Toes...Thompson heard a trapper caught a wolf near the flowage in October. [Another] began trapping in December and "took two adult male and two young female wolves in 30 days."

Thompson was concerned about the heavy mortality that bounty hunters inflicted on his study pack. He wrote:

> The history of this small family group which successfully raised a liter of four young and then lost more than this increase in numbers to trapping mortality indicates the precarious position of wolves on this range...Considering that additional numbers were probably taken by other trappers during this same time period, it would seem unlikely that a family group could maintain itself in the face of such trapping pressure.

Prominent outdoor journalists, like the Milwaukee Journal's Mel Ellis, wrote glowing articles on just how well off "Old Lobo" seemed to be fairing according to stories heard from trappers and woodsmen who were perhaps more interested in keeping bounty money available.

Carl Heizler caught a 98-pound male in April of 1954 that he claimed was the sole remnant of Wisconsin's Price Creek pack, which roamed the Price-Sawyer county line west of Phillips. Russ Olson recalled seeing occasional tracks of a lone wolf that roamed the Coffee Lake country of southwestern Bayfield County from the late 1940s to the early 1950s. Harold Ruprecht shot a large male timber wolf near Roach Lake in Vilas County during the November 1950 deer season.

Some [wolves] never settled down and lived out their lives, but instead wandered about in search of others. These loners sometimes showed up in areas where resident packs has disappeared decades earlier. A 98-pound wolf was shot at a Hannibal (Taylor County) farm in 1951 and a 75-pound male wolf was hunted down in the Birchwood Hills on the Washburn-Sawyer county line in January of 1952.

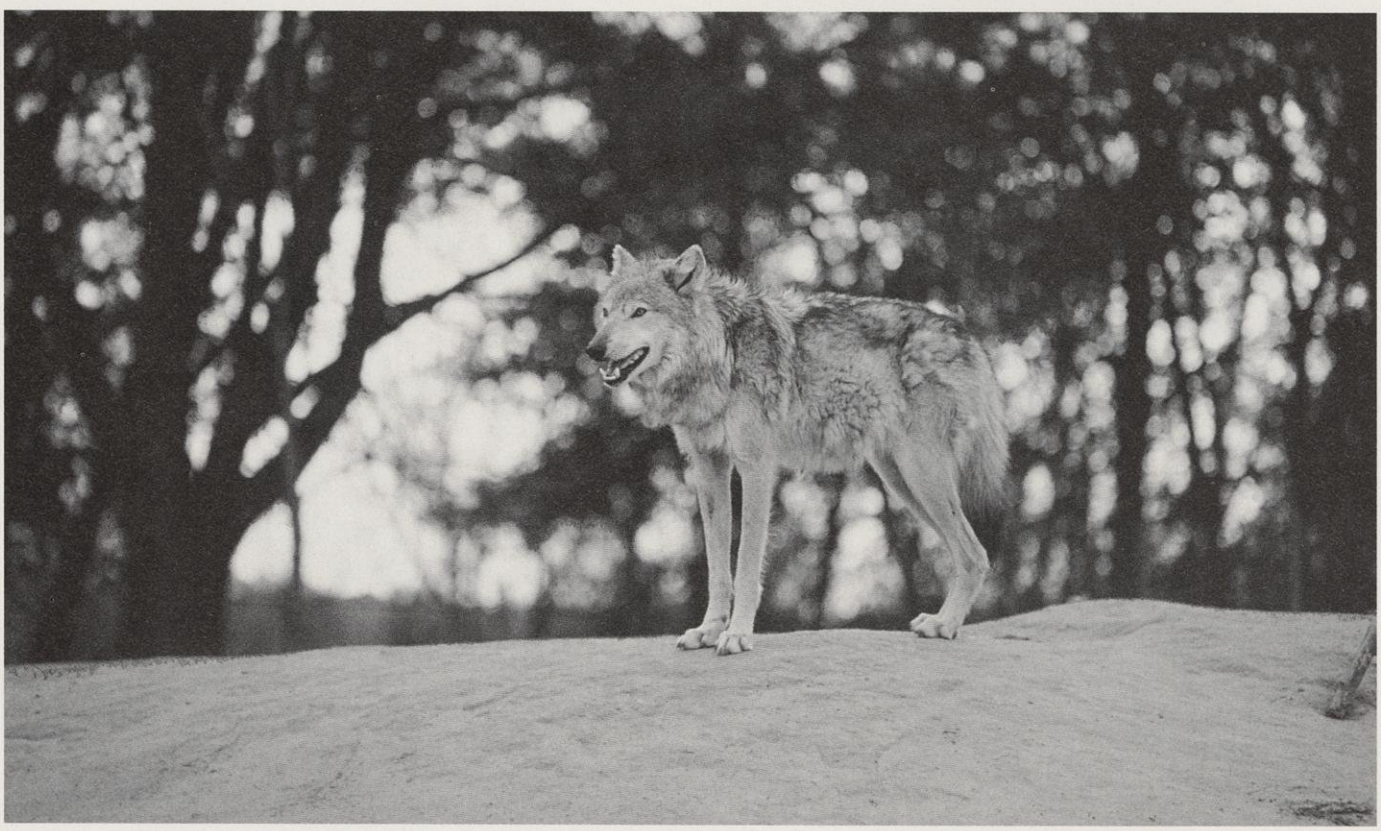
Epilogue

Today the conservation of wolves is supported by a more favorable societal view of predators, laws and an evolving ecologistic policy of governmental conservation agencies. Still, places like Wisconsin and Michigan face a very great conservation challenge. Can today's citizens secure a future for their newly returned wolves?

Those Wisconsinites who cherish this state's history, its abundance of natural resources, and its leading role in environmental awareness must not allow the timber wolf to vanish a second time, because this state may never get another chance. □

Richard P. Thiel coordinates programs at DNR's Sandhill Outdoor Skills Center in Babcock, Wis. He previously served as DNR's wolf biologist. His 20-year search to understand the reasons for the wolf's demise in Wisconsin resulted in this book.

Wolf conservation today depends on maintaining large, unbroken blocks of habitat as well as protection from human interference.



LYNN ROGERS

COURTESY OF PROJECT WILD PROGRAM

Wolf recovery, where are we?

Adrian P. Wydeven

Midway through our 10-year plan to recover timber wolves, what have we done and where are we headed?

Our goal is to re-establish at least 80 wolves in 10 packs by the year 2000. We would like to extend the wolf's range from the Minnesota border at least as far east as Florence County.

Timber wolf populations in the 1980s ranged from 15–30 animals. Since recovery efforts started in 1989, the population has increased from 31 wolves in seven packs to about 50 wolves in 14 packs.

Although some illegal killing still occurs, disease has claimed more wolves in the last three years. Wisconsin wolves have been infested with sarcoptic mange, a disease caused by mites that results in hair loss and weakness. If wolves lose their coat to mange, they can die from exposure or be weakened to the point where other stress or illness kills them.

Wolf education — Wolf Awareness Week, held annually by the Timber Wolf Alliance each October, promotes lessons in schools and sessions for adults to appreciate, understand and support timber wolf reintroduction. Members of the Timber Wolf Alliance, the Timber Wolf Information Network and the Department of Natural Resources conduct workshops and field trips throughout the year. Slide shows, school curricula, group talks (more than 100 given between 1990–93), media interviews, traveling exhibits and progress reports keep interested educators and wolf enthusiasts up to date.

ROBERT W. BALDWIN

Adrian Wydeven and Ronald Schultz examine a sedated wolf. Researchers take body measurements, collect bodily fluids, give inoculations and may affix a radio-transmitting collar to learn more wolf habits and health.

Protecting wolves — Coyote season has been closed during the deer gun season since 1987 in the northern third of Wisconsin where hunters might unintentionally shoot a wolf. The boundary should extend further south as wolves have been spotted at least as far south as Columbia County this year. The Conservation Congress recommended extending the coyote closure at least as far south as Highway 29 at its hearing last April.

Since 1991, the Timber Wolf Alliance has offered rewards to gather carcasses and information about any wolves killed in Wisconsin.

Cooperative habitat management — Foresters managing large tracts of the Chequamegon and Nicolet national forests identified 12 areas that should be protected as wolf habitat. Similar cooperative plans were developed for 58,000 acres on industrial forests in Oneida and Sawyer counties.

A new policy will similarly limit human access within a half-mile of rendezvous sites and wolf dens on public lands.

DNR staff also worked with state highway developers to design the expansion of Highway 53 so wolves can cross it more safely.

Monitoring populations — Since 1979, ninety-two wolves have been live-captured and radio-collared to monitor pack ranges, pack size and locations. Collared wolves are located

by aerial survey year-round, but they are usually only seen in winter. When leaves have dropped, wolves form tighter packs and snow makes it easier to view animals from the air. The aerial work is supplemented with track surveys in 16 counties each winter. Howling surveys each summer help estimate pup production and the location of summer home sites.

Disease abatement — Every wolf that's tranquilized for collaring is tested for signs of seven diseases, vaccinated for common canine diseases and treated for conditions that can be diagnosed. All dead wolves that are found are necropsied to note disease trends and determine cause of death.

Evaluation — A committee of university, forest service, animal control officers and foresters annually review the program's progress and recommend future projects to expand healthy wolf populations.

Reimburse farmers for depredation — In the last five years, wolves have killed livestock nine times, worth an estimated $5,800. The Endangered Resources Fund reimburses owners for losses where wolf depredation can be verified.

Coordinate management — Research and management projects are coordinated with adjoining states, federal agencies, state agencies and professional organizations.

Seek citizen interest — Quarterly progress reports are sent to about 1,100 people who have expressed interest in wolves. Booths at sports shows, fairs and other public gatherings encourage public interest and discussion of wolf recovery.

Garner volunteer help — The Timber Wolf Alliance has a corps of 220 volunteers and the Department of Natural Resources gets help from 42 volunteers on its timber wolf surveys and projects. Volunteers and professional managers meet five to six times a year to get updates and coordinate field surveys.

L. DAVID MECH

Our state goal is to re-establish at least 80 timber wolves roaming Wisconsin by the year 2000.

Future wolf issues

Biodiversity — Wolves can provide valuable clues for monitoring the variety and abundance of species as well as the habitats that support them. By monitoring how wolves disperse and travel, scientists can learn where the natural corridors are that link wild lands. Deer and beaver are staple food sources for wolves, so steps to protect wolf habitat must also sustain the animals they use for food. Wolf territories are large (30–100 square miles) and should contain a diverse mix of openings, young forest, mature forest and old growth.

Wolf-dog hybrids — Two free-roaming wolf-dog hybrids were killed each year in 1991 and 1992 after they started feeding near homes, restaurants and livestock. Wild roaming hybrids could breed with wild wolves reducing the gene pool. The hybrids are not well adapted to the wild and consequently are more likely to feed on livestock and interact with people. Of course, hybrids also confound our surveys of wild wolf abundance and distribution.

Expanding the coyote hunting closure zone — As timber wolves expand their range, managers will be challenged to convince the public to continue expanding the ban on coyote hunting during the deer gun season. Clearly, wolves are traveling south well beyond the protection zone. A wild wolf was found dead this summer outside Portage in Columbia County. Hunter education will be a key component to avoid unintentional killings of this endangered species.

Funds for disease studies and management — We spend approximately $100,000 annually to monitor the health and distribution of timber wolf populations. These funds are drawn from contributions to the Endangered Resources Check-off, taxes on hunting equipment, grants from the national forests, grants from the U.S. Fish and Wildlife Service, and private grants from groups like the Timber Wolf Alliance.

The proposed sale of endangered species license plates could provide additional funds as the public clearly favored timber wolves above all designs under consideration. This broad base of support is critical to continue aerial surveys, ground tracking, protect habitat and foster public enthusiasm to bring back a healthy wolf population where feasible in Wisconsin. □

Adrian P. Wydeven is DNR's wolf biologist based in Park Falls, Wis.

the RIGHT APPROACH

Collecting de-icing fluids keeps runoff from taking off at the airport.

Greg Matthews and David L. Sperling

Add to the list of urban water pollution sources we never considered...the airplane. Not the exhaust from takeoffs and landings, nor the salts used to keep the runways clear and dry. It's another safety factor: ice control.

Ice build-up on airplane wings is a real concern because it adds weight to the aircraft and disrupts the air flow that gives the plane lift. Icy wings make planes less maneuverable.

The wide open spaces around Dane County Regional Airport on the northeast side of Madison are adjoined by cornfields and a college campus. It hardly seems like a pollution source to the nearby chain of four lakes. However, runoff from the airport was flowing directly into the lakes, as DNR Water Resources Biologist Dave Marshall discovered.

ROBERT QUEEN

De-icers can be applied September through May in Wisconsin when wings can ice up at higher altitudes.

Most de-icing fluids were sprayed on aircraft at the airport's West Terminal apron. From there, the fluids were washed into a storm sewer by rain, melting snow or ice. The storm sewer drained into a ditch that fed directly into Starkweather Creek. The creek emptied into Lake Monona.

The Department of Natural Resources and the City of Madison are spending $775,000 cleaning up Starkweather and stabilizing its banks to stem pollution in the prime recreational waters in the heart of the city.

In de-icing operations, the chemical ethylene glycol (E-G) is sprayed on the aircraft's wings and rudders to melt ice or keep them ice-free. The de-icing season in Wisconsin runs from Septem-

GREG MATTHEWS

DNR District Wastewater Supervisor Bob Weber and Michael Kirchner, Dane County Regional Airport engineer, at the detention pond that collects de-icing fluids. Exposure to sunlight rapidly breaks down the oxygen-robbing qualities of this pollutant in a matter of days.

ber through May when weather on the ground and temperatures at higher altitudes can make ice buildup an aviation hazard. Ethylene glycol, also the chief component of antifreeze for automobiles, is a powerful water pollutant, notes Robert Weber, DNR wastewater program supervisor for 13 counties in southern Wisconsin.

"E-G has a very high biological oxygen demand (BOD) ranging from 375,000 to 500,000 parts per million," Weber said. For comparison, raw sewage has a BOD averaging around 200 ppm.

BOD is not toxic to fish or other aquatic organisms, but it can kill them by removing dissolved oxygen from the water — sort of an aquatic version of suffocation.

DNR staff contacted airport managers and county officials. The airport hired a consulting firm to conduct an inventory of de-icing agents, solvents and cleaners used on aircraft, and then design runoff control measures.

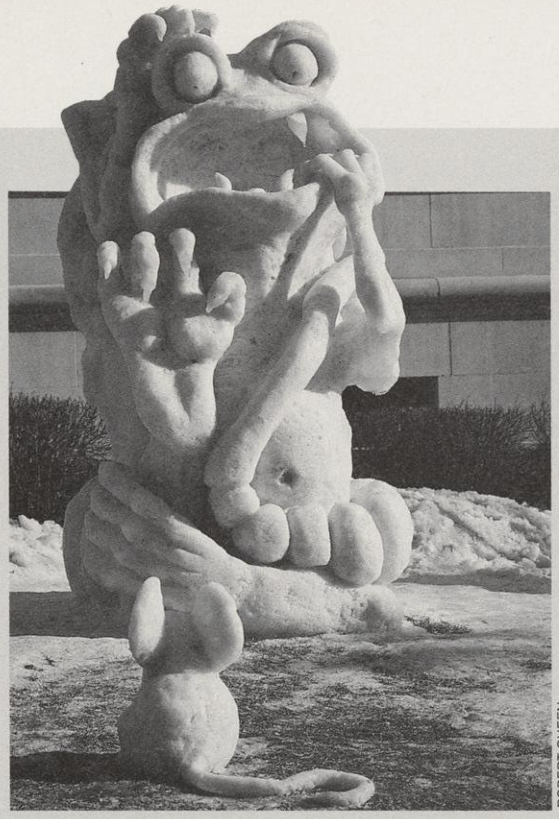
As a short-term measure a few winters ago, airport managers piled up an earthen berm to collect de-icing fluids in a ditch adjacent to the tarmac. The fluids were then pumped to Madison's sanitary sewer system for treatment.

In the subsequent two years, the "ditch" was enlarged into a two-million gallon holding pond that was lined with thick, impermeable plastic. Storm sewers at the airport's west apron were isolated so that non-contaminated stormwater could run directly into Starkweather Creek while the wastewater contaminated with detergents, solvents and de-icing fluids would be stored in the retention basin. About 48,000 gallons of de-icing fluids, detergents from washing planes and precipitation are held in the retention basin each year. The lagoon is large enough to hold an entire winter's runoff.

Tests by the consulting firm showed that E-G stabilizes very rapidly and breaks down from 375,000–500,000 ppm BOD to less than 15 ppm BOD in a matter of days. It can then be safely discharged to Starkweather Creek under environmental permits. Monitoring equipment at the low end of the retention basin keeps track of the pollution levels. If the levels are low enough, the liquids are discharged to the creek; if not, they are pumped into the sanitary sewer and piped to the sewage treatment plant.

"This prompt action eliminated the discharge of oxygen-robbing runoff from the airport," Weber said. It also stopped one more of the unseen sources that carry pollution from city streets and services to waterways. □

Greg Matthews is the public information specialist for DNR's Southern District, based in Fitchburg, Wis. David L. Sperling edits this magazine.



ROBERT QUEEN

Snow sculpture whimsy. Mouse over monster.

A HOWLING GOOD TIME

When winter winds blow, take refuge in a Wisconsin State Park.

Maureen Mecozzi

Complete the following statement:

Winter is

A) a pleasantly brisk but much too brief period extending from the December solstice to the March equinox. Accompanied by copious quantities of fluffy snow suitable for wholesome outdoor athletic pursuits.

or

B) infinity masquerading as a season. Marked by dreariness, lack of activity, adverse weather, and copious quantities of fluffy snow suitable for a variety of back-breaking outdoor chores.

Readers selecting "A" may be excused from this story. Strap on your snowboards and be gone.

If you selected "B," it's clearly time for a seasonal attitude adjustment. And there is no better place in which to reconsider winter's charms than a Wisconsin state park.

State parks offer plenty of wintertime fun for spectators and participants alike — including a few events that actually take place indoors. With heat.

Here are a few good ways to reacquaint yourself with winter at a Wisconsin state park. Venture out, join in, and enjoy. But beware: The season may prove so congenial, you'll switch to hibernating in summer.

❶ The holiday spirit

For many, winter brings thoughts of Christmas. At Heritage Hill State Park in Green Bay, you can celebrate the holiday during four different eras of Wisconsin history.

Heritage Hill's historical interpreters — clad as fur traders, missionaries, army officers, farmers and shopkeepers — will guide you through "The Spirit of Christmas Past." You'll meet them in the park's carefully restored cabins, forts, churches, barns, shops and homes surrounded by 40 acres of fields and gardens. The buildings are illuminated only with light sources appropriate to the eras they represent: candles and kerosene lamps.

HERITAGE HILL

Relive the 1871 Victorian-style Christmas at Heritage Hill State Park.

Start your trip back in time at the open hearth of a 1700s frontier log cabin, where a fur trader and his wife solemnly ponder the meaning of Christmas, a holy day. Notice that they don't have a Christmas tree. Why not? Ask! They'll tell you...and more.

A century later, in 1836, the holy day becomes more of a holiday at Fort Howard, an outpost in the Wisconsin Territory. Officers' wives decorate the fort with evergreen boughs and oversee the preparation of a Christmas dinner. They may be expecting some special guests from back East...but you won't know who until you ask.

Next, visit the small community of Green Bay as it revels in the trappings and frivolity of an 1871 Victorian Christmas. Ornaments, purchased and homemade, decorate Christmas trees. Whole houses are bedecked with greenery. Baking is now a holiday tradition. The social calendar is full; families and friends exchange gifts at parties. (One may join in the social swirl, provided one minds one's manners.)

In 1905, the holiday comes full circle on the modest farmstead of Bel-

gian immigrants. Thrifty and austere, this hard-working farm family honors the holy day with a small tree decorated with popcorn and cranberries. Midnight mass is the highlight of their celebration. They do exchange gifts, but on St. Nicholas' Day, not Christmas. The gifts are mostly practical items, like socks, mittens, or scarves — but what the children really want are oranges. Bring along a few and make some friends across the ages.

The Spirit of Christmas Past, Heritage Hill State Park, 2640 S. Webster Ave., Green Bay. November 26 through December 11. Hours: Monday through Thursday, 10 a.m.–5 p.m.; Friday and Saturday, 10 a.m.–8 p.m.; Sunday, noon–8 p.m.

Admission: $5.50 adults; $3 children; $4.50 seniors; $14 family. No park sticker required. (414) 448-5150.

BILL MARTINELLI

Mirror Lake is the Wright place for a winter meeting or getaway.

MERRILL CHAMBER OF COMMERCE

Patching out on the ice lanes. Come ice drag at Council Grounds in Merrill.

❷ Draggin' the Ice

Your hands grip the wheel. You pin one eye on the horizon, the other on your competitor, who's revving the engine of a cowl-chopped candy-apple-red '67 Thunderbird. Put the pedal to the metal and you're off, speeding down 660 feet of pure ice as fast as your 1981 Toyota rustbucket will allow...the crowd roars as you cross the finish line 9.24 seconds later, the T-bird eating your dust...er, make that a snow cone.

Such are the dreams of many come January at Council Grounds State Park in Merrill. Hundreds of spectators come to the park on wintry Saturdays to watch from 75 to 100 vehicles participate in ice drag races sponsored by the Merrill Ice Draggers, a local racing club.

Park Manager Mike Willman grants that drag racing is not the usual sort of activity one would find at a state park. "People around here have been doing it for 30 years, maybe longer," he says. "It's a winter tradition." The Ice Draggers do a fine job of organizing the races, Willman notes, and they are good neighbors, too: The club hopes to host a benefit fundraiser for the Ice Age Trail in February.

Club members begin grooming the one-eighth mile track on Lake Alexander, a flowage of the Wisconsin River, as soon as the weather allows. "We need a good 18 inches of ice to race on," says Rick Weber, ice dragger. "And we want it smooth and glassy, so we're out there clearing away the snow and flooding the lanes to get that good, hard surface."

The weekly races feature all kinds of cars. There are the classic "rails" — as Weber describes them, "just four tires, a motor and a driver." Rails have reached speeds of 114 mph on Lake Alexander, covering the track in 6.92 seconds. There are cars equipped to run on nitrous oxide in addition to gasoline. "Quadruples the horsepower," says Weber.

Then there are the "nailies" — cars equipped with regular tires, each of which is studded with 2,000-5,000 drywall screws. "They bite the ice pretty darn good," says Weber. "Before, we used to use roofing nails, but the drywall screws are a lot sharper. Definitely state-of-the-art."

Sunday drivers take note: If your trusty Chrysler has snow tires, you can race in one of the "off-the-street" classes. Registration opens at 9:30 a.m. on race day; race fee, $15.

The final race of the season (January 28) coincides with the Merrill Winterfest, a weekend of activities including broomball, tug-of-war and hockey tournaments, snow sculpting and sledding. As part of the Winterfest, Council Grounds will host a candlelight ski/walk from 5 to 9 p.m. on January 27.

Ice Drag Races, Council Grounds State Park, 1110 E. 10th St., Merrill. Tentative dates (depends on the ice!): January 7, 14, 21, 28. Hours: noon - 4 p.m. Admission: State parks annual, daily or hourly sticker. "Pit passes" available for $5 from the Merrill Ice Draggers. Council Grounds State Park, (715) 536-4502; Merrill Ice Draggers, (715) 536-1092; Merrill Winterfest: (715) 536-9474.

❸ Tea and Tour

Ice drag racing not your style? Then imagine spending a quiet winter afternoon at a little cottage in the woods in the company of people who share your love of art, architecture and nature. At Mirror Lake State Park you can tour the Seth Peterson Cottage, designed by one of Wisconsin's most

infamous sons, architect Frank Lloyd Wright.

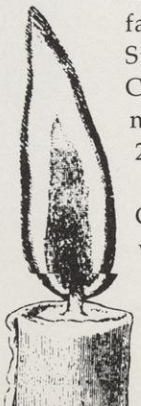
The cozy one-bedroom home built around a central stone fireplace rises gracefully from a wooded hillside 60 feet above Mirror Lake. Large windows add a feeling of spaciousness, merging the indoors with the out-of-doors. Wright's distinctive style is evident in the angles shaped by the sandstone walls and natural pine trim.

During the tour you'll learn about the unusual history of the structure, named for the client of modest means who commissioned Wright to design his ideal home in the 1950s. Anyone interested in home construction will marvel at how the cottage was restored after 22 years of neglect, thanks to a group of determined area citizens dedicated to keeping this small part of Wright's Wisconsin legacy alive.

But we're getting ahead of the story. Go see for yourself how a simple cottage began as one man's dream, became another man's creation, and stands as a landmark of an era when architecture was truly art.

Seth Peterson Cottage Tours, Mirror Lake State Park, E10320 Ferndell Rd., Baraboo. December 11, January 8, February 12. Hours: 2–5 p.m. Hors d'oeuvres served. Admission: $2. (608) 254-6551.

❹ Gliding After Dark



It's a long way up the Mississippi from Hannibal, Mo., but each winter Fountain City, Wis. offers a scene Mark Twain himself could have written: In the dark of a late winter evening illuminated only by candlelight and stars, red-cheeked children bundled in thick mufflers and puffy snowsuits wobble out onto a frozen slough, knees locked

in a desperate attempt to remain vertical on two narrow blades. Parents stand near, ready to offer physical and moral support. Lovers glide by arm in arm, oblivious to all. Hotshots crouch low, zipping through the throng in pursuit of that exhilarating freedom only a pair of ice skates can bring. At the bonfires, cheerful vendors hawk hot cocoa and cider while the logs pop and crackle, a glowing chorus to the music of laughter and metal against ice.

What's missing from this scene? You and yours! Dust off the silver skates, sharpen the blades and glide the family on over to Merrick State Park for the annual Candlelight Skate, beginning at 5 p.m. on January 28.

Park Superintendent Cecilia Inman says anywhere from 150 to 400 people turn out for the event, so there will be plenty of friendly arms to help pull you up should that double-toe loop become a triple disaster. The Friends of Merrick sell hot drinks, hot dogs and other treats — and yes, there will be big bonfires to keep the cold at bay.

Candlelight Ice Skate, Merrick State Park, Rt.1, Box 182, Fountain City.

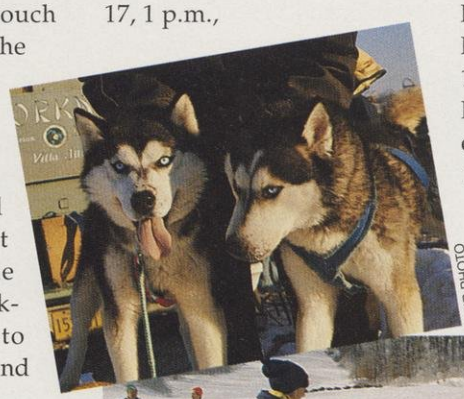
January 28, 5 p.m. Admission: State parks annual, daily or hourly sticker. (608) 687-4936.

❺ And That's Not All, Folks!

Many state parks offer candlelight ski nights throughout the winter. For a complete list, contact the park, or call (608) 266-0866.

Here are a few more events to take the chill out of winter:

A Winter Hike to Larson's Cave, Sat., December 17, 1 p.m.,



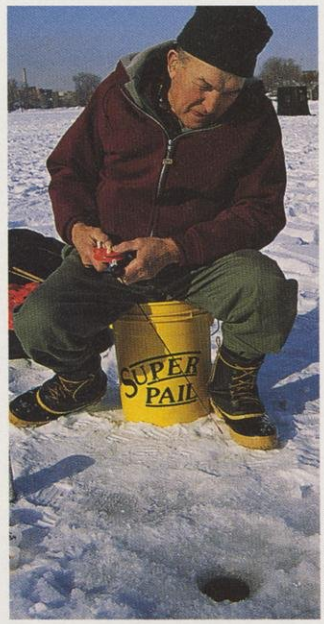
DNR PHOTO

Governor Dodge State Park, Dodgeville. (608) 935-2315. Admission: State park annual or daily sticker. Spot winter wildlife and their tracks, look inside the park's largest cave and visit the ruins of a mid-1800s homestead. Keep an eye out for "Crazy Henry" Larson guarding his 1904 homestead. Meet at the Hickory Ridge Group Camp entrance; bring along a light lunch and a flashlight.

Wilderness Express Dog Sled Races, Sat. and Sun., January 21–22, 10 a.m. – 4 p.m., Buckhorn State

WISCONSIN DIVISION OF TOURISM DEVELOPMENT

The Wilderness Express at Buckhorn State Park; one stop on the dog-sledding race circuit. Meet the mushers and some of the prettiest blue eyes on four legs!

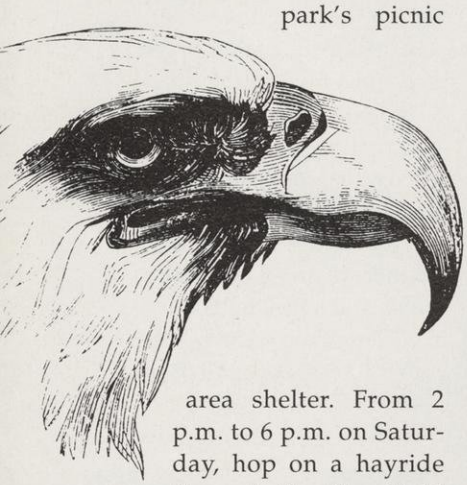


ROBERT QUEEN

No better place than a state park to hold a family ice fishing picnic.

Park, Necedah. (608) 565-2789. Free. Watch 4, 6, and 10-dog teams hurtle down park trails and across the Castle Rock Flowage. Races start and end in the park's picnic area. With races beginning every 15 minutes, you'll have plenty of opportunities to bark for your favorite teams!

Eagle Watch, Sat. and Sun., January 28–29, 8 a.m. to 4 p.m., Nelson Dewey State Park, Cassville. (608) 725-5374. Free. View the magnificent raptors and chat with knowledgeable volunteers about the bald eagle's habits and life cycle at the park's picnic



area shelter. From 2 p.m. to 6 p.m. on Saturday, hop on a hayride through the Stonefield Historic Site on the park grounds; later that night, take a candlelight hike on park trails. Speakers and displays about eagles can be found throughout the weekend at the Cassville Elementary School. All events are part of Cassville's Bald Eagle Days.

Badger State Games, Sat. and Sun., February 4–5, 8 a.m.–4 p.m. Rib Mountain State Park, Wausau. (715) 359-4522. Free. Enjoy the Winter Olympics of Wisconsin! Watch amateur athletes participate in the downhill skiing competition (both days), and Sunday's mountaineering competition, in which participants don 15-pound packs and snowshoe through the forest. □

MIKE KOZLOWSKI

Rib Mountain State Park hosts many Badger State Game events the first weekend in February.

ROBERT QUEEN

Ice boat on Lake Mendota and tack over to Guv Nelson State Park for a winter weenie roast.

Whenever possible, Associate Editor Maureen Mecozzi prefers to contemplate winter from the equator.

MIKE KOZLOWSKI

Children's snowshoe races are part fun and camaraderie at the Badger State Games.

SCOTT NIELSEN

The case for conservation biology

Why botanists, biologists, resource managers and researchers need to look at the natural world in the same way.

Stanley A. Temple

WE ARE FACING A BIOLOGICAL CRISIS the likes of which has rarely been experienced, yet it is largely unseen. Genetic variation is being lost, species are becoming extinct, and entire ecosystems are being destroyed at thousands of times the pace that new ones are being created. Several recent polls of the world's scientists showed that a majority consider this irreversible loss of species caused by habitat destruction to be the number one environmental problem.

The challenges this loss presents are monumental, and conservation as we have practiced it has clearly not been up to the task.

Conservationists traditionally divided their domain into narrow spheres of special interest, such as wildlife management, fisheries or forestry. Each, in time, became increasingly preoccupied with a tiny portion of the diversity of life: game animals, commercially valuable fish and trees. Meanwhile, most of the biological world was slipping through the cracks in conservation's foundation.

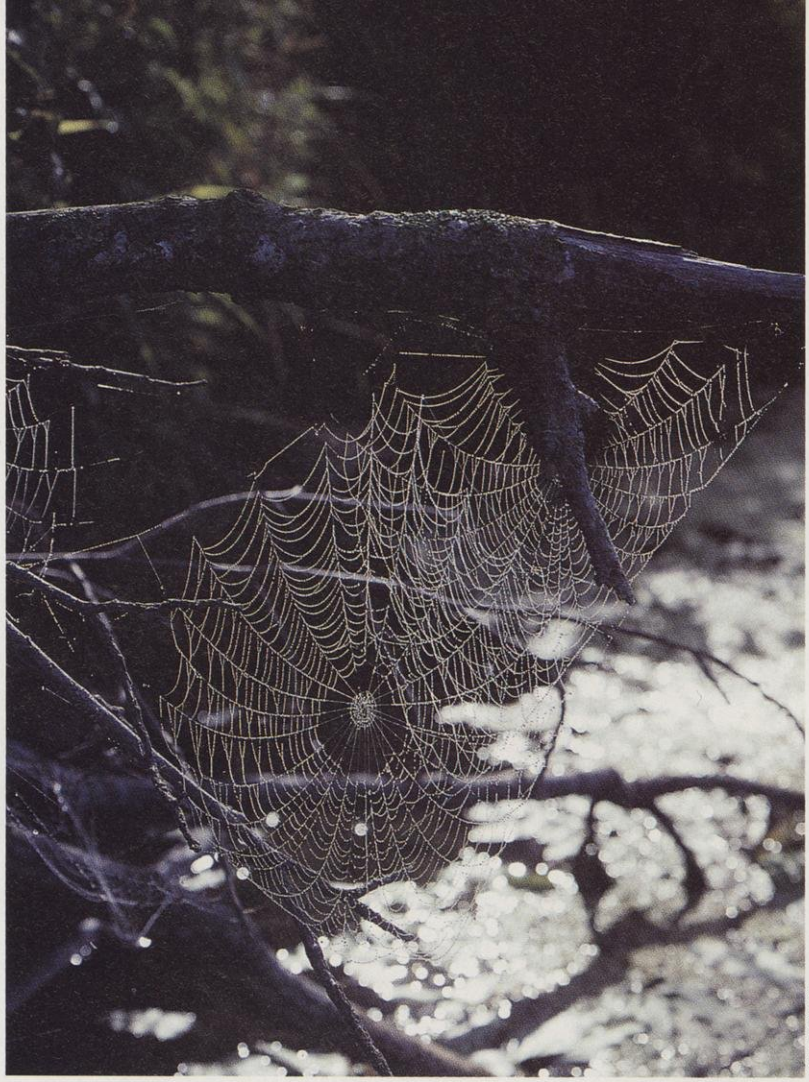
Concerned scientists recognized this deficiency in the 1970s and 80s. Edward Wilson, Paul Ehrlich, Peter Raven, Dan Janzen and other respected biologists envisioned a new style of conservation whose central goal was preserving the diversity of life. They called it "conservation biology."

The concept is still wet behind the ears, yet it has already made a tremendous difference. "Biodiversity," a word few had heard 10 years ago, is now frequently in the headlines. Already, we can see that many aspects of conservation are changing in the direction championed by conservation biologists.

Conservation biology includes saving space for the spectacular... *(above)* like nesting eagles *(below)* and behemoth white pine.

SCOTT NIELSEN

This spring, for example, a hearing at the state capitol examined a bill to revise the mission statement for Wisconsin's state forests. The current mission statement is very traditional: state forests' primary purpose is sil-



DON BLEGEN

It recognizes the connections between diverse fields like entomology, meteorology and limnology.

viculture, growing crops of trees for harvest. The new bill proposed to make the primary mission protecting, restoring and enhancing biological diversity within the forest boundaries; silviculture would come second. Ten years ago, such a proposal would not have been contemplated. Now, we recognize the need to sustain biodiversity much more aggressively.

Conservation biologists need to be aggressive because the odds against them are long. Ten years from now there will be one billion more of us on this planet than there are today. These numbers predict a grim future for biodiversity. Indeed, the central challenge is to figure out what to do in the meantime.What can we do now to ensure that once we bring our own species under control, there will still be a rich fabric of life to sustain us?

There are lots of challenges, but here I'd like to focus on six issues where I think conservation biology can make a big difference in the next few years.

We can start with a problem which could be kindly called "information deficit" but is really just plain garden-variety ignorance. We are ignorant of most of the species that share this planet with us. We don't even know how much we don't know! Yet, we have fallen into what one philosopher called the "arrogance of ignorance." We think we've got things under control, that a modern technological society can take care of everything. In fact, most biological research has focused on a minuscule fraction of the species on this planet. The scope of biological diversity, for the most part, remains a mystery to us.

There are some encouraging signs. Department of Interior Secretary Bruce Babbitt has created a National Biological Survey to systematically catalog the biological diversity of this country for the first time. Most people find it incredible that we don't know what plants and animals live in the United States, but the fact is we don't.

We can't even map the ecosystems of the United States in a systematic way. Compare the ecosystem maps created for the states of Wisconsin and Michigan. You'd think that since there's only an imaginary line between the states, the maps would match up. But, if you align them, you see an apparent ecological mismatch. We don't even use the same terms to describe the same ecosystem on either side of the border. "Northern wet-mesic forest" in Wisconsin is called either "poor conifer swamp", "rich conifer swamp" or "northern hardwood swamp" in Michigan.

How will scientists cope with the huge amount of data that describes biodiversity? The National Biological Survey proposes using methods already developed by The Nature Conservancy to tally information uniformly for the nationwide Natural Heritage Inventory Program. Something like that system, one similar, nationwide approach will be needed.

What can we do now to ensure that once we bring our own species under control, there will still be a rich fabric of life to sustain us?

Our limited knowledge of the world's species is very biased toward just a few types of organisms. A second challenge is to recognize that organisms with fur and feathers are not the only ones that matter. Most species on this planet are not mammals or birds, and we are not very familiar with them. We certainly don't understand them well enough to try to manage them, even if we had the required personnel and funding.

One way to broaden the scope of conservation is to work to preserve entire communities of species that have evolved

together and share similar requirements for survival. I see hopeful signs that this shift is already underway. The U.S. Forest Service and the U.S. Fish and Wildlife Service, lead federal conservation agencies, have both adopted an ecosystem theme for their work. Ideally, this focus means management for a few favored species will not be allowed to compromise the welfare of all the other members of the biological community.

A third problem conservation faces is inbreeding, and I mean the inbreeding of conservationists, not wild species. Aldo Leopold had the right idea when he advocated academic training in conservation here at the University of Wisconsin 60 years ago. The problem is that we have steadily compartmentalized college training into narrow, isolated specialties: conservationists are trained as foresters, fisheries biologists or wildlife biologists, for instance. Within each field, professionals receive the same focused education, a uniformity often insured

SCOTT NIELSEN

...recognize that organisms with fur and feathers are not the only ones that matter.

Polyphemus moth *(Antheraea polyphemus). (below)* Painted turtle *(Chrysemys picta).*

DON BLEGEN

DON BLEGEN

White cedars and red sandstone along the Black River at Pattison State Park. Nationwide, examples of only 40 percent of our ecosystems are protected in parks, forests and wilderness areas. We need to fill in the gaps and save more pieces as national treasures.

by professional organizations that dictate curricula. Conservationists became better and better at a narrower and narrower range of activities that they all performed exactly the same way. They had become inbred.

We're going to have to diversify the types of expertise contributing to conservation. We need to take advantage of the full range of wisdom that the scientific and public communities have to offer. Conservation biology has already begun to bring new people into the fold. The members of the Society for Conservation Biology now include natural and social scientists. Genetics and economics, for example, were subjects that many natural resource students avoided. Today, geneticists and economists are pursuing conservation careers and making exciting contributions.

A fourth obstacle is inefficiency. Clearly, time is running out and we don't have long to put together a plan to preserve biological diversity. We must make better use of our time, money and people who are devoted to conservation.

In the past, many of the things conservationists did were inefficient, at least at preserving biodiversity. We created a wonderful national park system, but it was not put together with a view to protect the nation's natural diversity. In fact, recent analysis shows that only 40 percent of the nation's ecosystems are represented in national parks, national forests and wilderness areas. The rest have not been protected at all. Midwestern tallgrass prairies and oak savannas were extensive, species-rich ecosystems in presettlement times. Today they are hardly represented in our country's collection of protected natural areas.

...conservationists need to be bold because time is short.

That kind of inefficiency can no longer be tolerated. We have to better allocate our scarce resources to the places where they will make the most difference. A new conservation program called "gap analysis" attempts to iden-

JOSEPH BUTSICK

Wildlife management students band and test turkeys before release. Students and working professionals need more cross-training in a wider variety of sciences and social sciences to avoid becoming too much of an expert in too narrow a field of study.

tify these holes in our conservation holdings so the missing pieces can be protected. Some of the plans conservation biologists are now proposing are considered quite radical by traditionalists. But conservationists need to be bold because time is short. The controversial "wildlands project" proposes to restore almost 50 percent of the U.S. to wilderness areas that will eventually represent the full range of ecosystems in our country.

> ***"...the public doesn't know what biodiversity is, doesn't know that we're losing it, and doesn't know that losing it is a problem."***

A fifth problem that conservation biologists have to tackle, if they're really going to make a difference, is the isolation of conservation from social issues. Traditionally, conservation avoided rather than addressed clashes between our species and others. We knew we needed to protect the habitat for endangered species, but we usually left people out of the equation. If you've kept up with the northern spotted owl controversy in the Pacific Northwest and other environmental train wrecks, you know that if we're going to be successful, we have to incorporate people into solutions. Clearly, we need to know a lot more about how to do this. That means conservationists need to listen to what social scientists have to say. They also have to work with the people the social scientists study.

The last challenge for conservation biology is to make the topic seem more vital to people and overcome public apathy. A recent survey done by Peter D. Hart Research Associates in conjunction with Stephen Kellert of Yale University showed that "the public doesn't know what biodiversity is, doesn't know that we're losing it, and doesn't know that losing it is a problem."

Most conservation biologists are shocked to learn how poorly their message has been conveyed. When 1,209 adults were asked what they considered to be the most important environmental problem facing the world today, what percentage do you suppose cited the loss of biodiversity or a related issue? One percent cited species loss, and no one mentioned habitat destruction or biodiversity loss. Instead, more than half named specific forms of pollution as the greatest global threat. Waste, trash and litter, nuclear and toxic waste, the failure to recycle, overpopulation and acid rain were all mentioned more often than species loss. Only 22 percent of the respondents had even heard of an issue called the loss of biodiversity. Even among members of environmental groups, only half had heard of this issue!

There are other interesting findings in the Hart-Kellert survey. Respondents said they trusted scientists, hands-down, to provide accurate information about environmental problems. They trust scientists more than environmental groups and conservation agencies; they believe these groups much more than news reporters or business leaders. Politicians came in dead last.

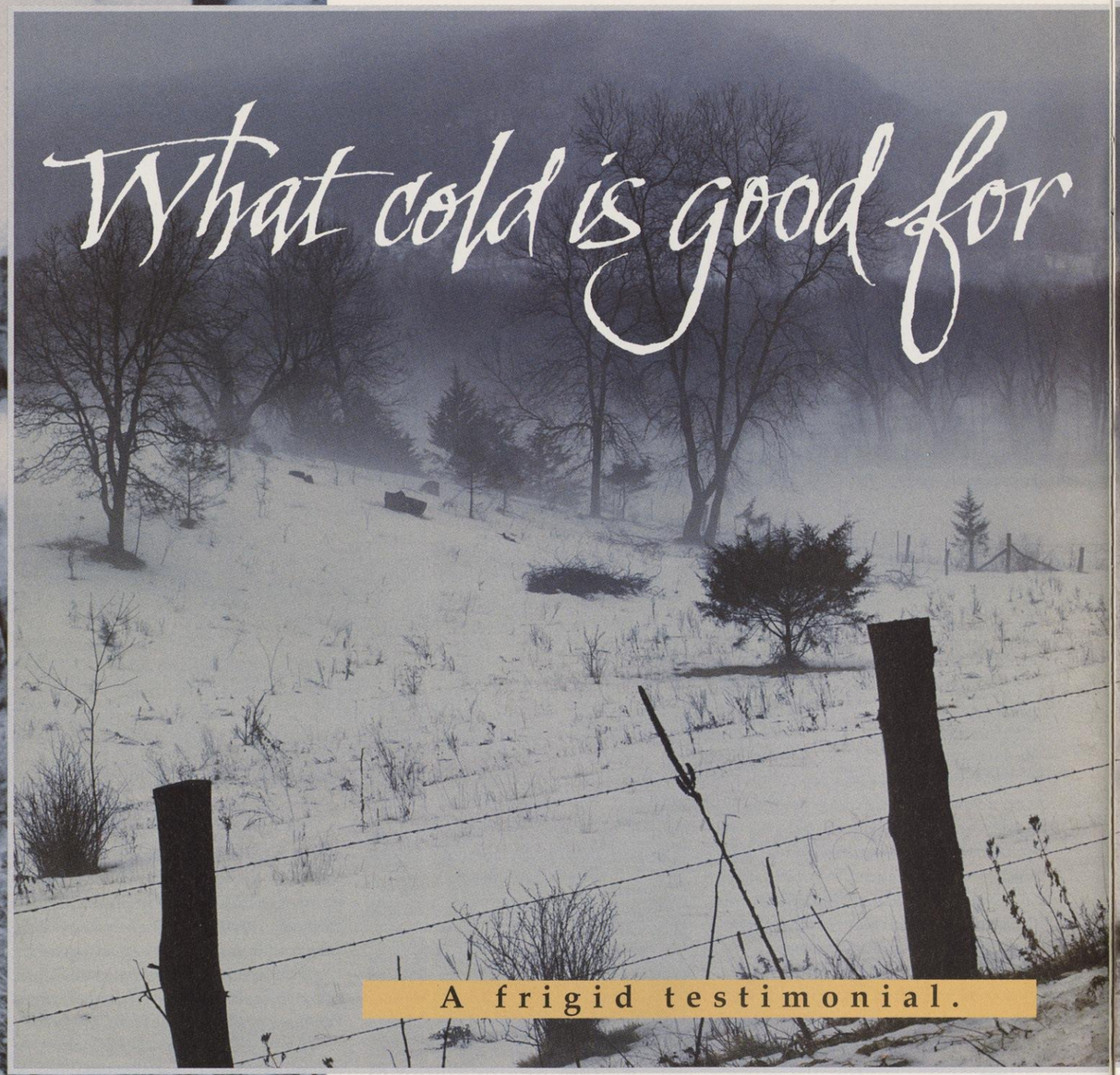
To me, this indicates the scientific community has a huge responsibility to present convincing evidence, in an understandable fashion that biological diversity is a big issue. And scientists bear the burden to work with the public to propose solutions.

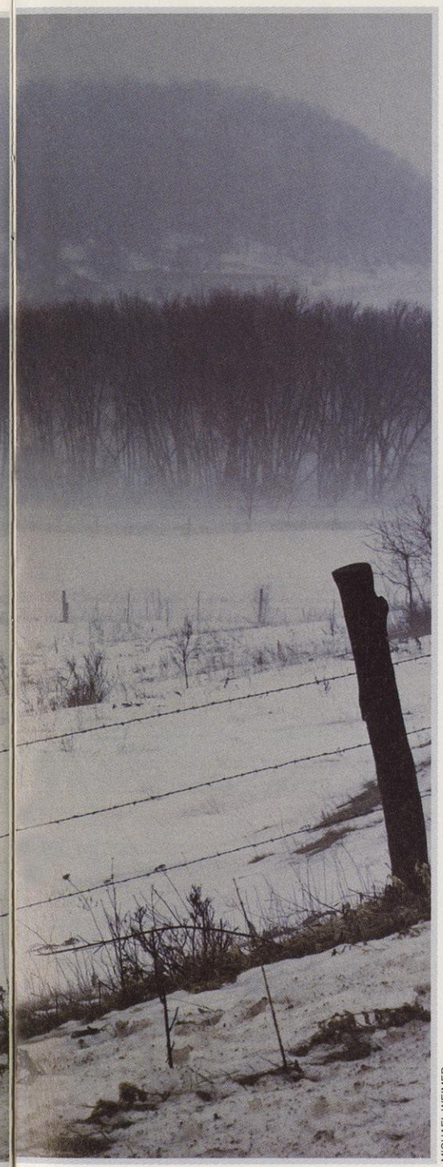
It has been said that each generation's most important responsibility is to be good ancestors. Being a good ancestor means passing on a world as biologically rich as the one we inherited. Conservation biology can help us meet this most important of obligations. □

Professor Stanley A. Temple, Beers-Bascom Professor of Conservation, teaches in the Department of Wildlife Ecology at the University of Wisconsin-Madison. *This article was excerpted from his keynote address to the Zoological Society of Milwaukee County's symposium on conservation biology on February 26, 1994.*

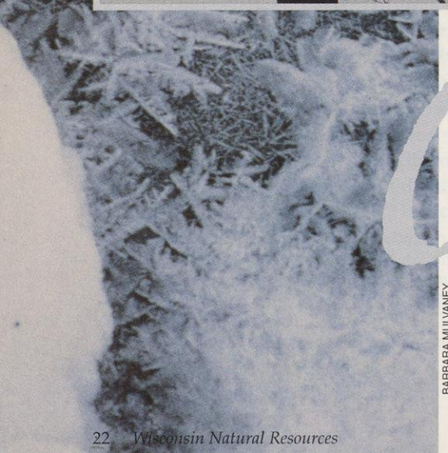
What cold is good for

A frigid testimonial.





MICHAEL WEIMER



BARBARA MULVANEY

Justin Isherwood

Cold is a test, physically and mentally. It challenges us to find something good to say about it.

Cold requires and spurs a variety of acts of genius to survive. Those who do, feel more worthwhile and more tenacious compared with the pathetic wimps who remove themselves annually to Florida or Arizona. Those who retreat at the first appearance of congealing mercury are not *true* Northerners.

Northerners convince themselves that surviving cold is how the higher order of intellect is sifted from the lesser. It's character-building, same as temperance or changing underwear.

Cold is healthy weather. Every doctor who is not a coward or does not hold antebellum sentiments will so testify. Many germs can't tolerate the simplest kind of cold. Zero degrees Fahrenheit is enough to drive them out. Viruses quit this country too, coming and going pretty much in tune with mud time; same as the sissies who traipse off to Dixie.

Cold requires no embalming fluid. This may not represent a big advantage now, but it helped in climes where the cemetery wasn't open for business till April.

Cold is better for friendship than any other weather known.

Noise carries better in the cold, even if it's a noise you don't necessarily want to hear. If acoustic quality truly mattered, more rock concerts would be held at -20°.

Cold is good for sleeping. So good in fact that hibernation seems entirely possible, even for those who aren't outfitted by nature to do so.

Cold is good for potatoes, baked potatoes slathered with sour cream and skins as crisp as a cuss word.

When it's cold up north, Illinois seems ever so much farther away. When the wind chill plummets to -80°, a weekend goes by without sighting a single Illinois plate. Real cold even shuts off the snowmobiles whose sound you don't want to suffer on a cold night.

Cold is proof that those who believe in woodpiles shall inherit the earth and those who practice oatmeal and long-johns will inherit their fair share.

Cold does not favor beautiful people but it makes mittens, scarves, stocking caps and ear flappers seem a lot more beautiful.

Cold is where the Boy Scouts learned the motto "Be Prepared." Failure anywhere else is inconvenient and forgiving, with cold it's more damning.

Cold is for heavier food that has fewer admiring clients ...stews, soups, goulashes, bouillon, Boston brown bread and baked beans can make an electric blanket unnecessary.

Cold is what wool-batt Amish quilts are really for, not to look at or store for speculative increase.

Cold is why otherwise neat, modern houses retain primordial fireplaces with the inconvenience of ashes and popping, messy bits of twig and tree that risk burn-holes in the carpet.

Cold is for books and readers, for long novels that even a week at the beach couldn't crack. Cold is for reading a story out loud bundled in a Hudson's Bay Point blanket or Great-Grandma's quilt while the fire brightly prances.

Cold is for root cellars and dark wines.

Cold is why Christmas candles shouldn't be put very far away.

Cold is why Finns, who are exceptionally brilliant on the subject, invented the sauna instead of the cotton gin. It was the cheapest flight to the Amazon they could find, relieving not only the cold but Calvinism.

Cold is exactly right for a dog at your feet and a cat on your lap.

Cold kills potato bugs deader than a malathion plastering.

Cold brings sweeter maple syrup.

Cold restores empty to a landscape twice as well as its nearest competitor.

Cold makes church attendance easier and television sufferable.

Cold is still better than earthquake, hurricane, typhoon, monsoon, mud slide, drought, tornado, starvation, avalanche, smog, Washington D.C. traffic, the draft, calculus and unemployment.

Cold is what separates a good car from a merely pretty one.

Cold is for cross-country skis, so otherwise ground-bound animals can know what it is like to fly.

Cold is for cocoa and peppermint schnapps and ice fishing, whether you catch anything or not.

Cold is for shooting pool at a country tavern.

Cold is for scones and jam on the afternoon of the morning the barn cleaner froze up, resulting in hand-to-hand combat.

Cold is for building birdhouses in the basement.

Cold is for knitting, tying flies, throwing pots, baking bread (especially good for baking bread!), jigsaw puzzles, cleaning the basement, petting the dog, doing the taxes, writing to nephews, public television, murder mysteries and for getting old folks who forgot the pleasures of cuddling to try a batch.

Cold is why wars that were pretty awful slowed down. Some even stopped a while, which just goes to show the powerful good cold is. □

Cold is also when potato farmer Justin Isherwood gets time to craft his essays in Plover, Wis.

Scoping out the competition

Tips for picking the right binoculars for watching wildlife.

Story and photos by David Crehore

If you're a birder, good binoculars aren't just useful, they are indispensable. They define the pastime.

This activity is so pleasurable that it attracts thousands of new enthusiasts every year, all of whom need binoculars. But if you are new to the game and in the market for a pair, binoculars can be about as mysterious as those confusing fall warblers on page 251 of your bird book. Go to your local warbler woods, shorebird flats or duck pond, find a gaggle of birders and take a close look at the binoculars they are carrying. You'll see everything from $50 Coke-bottles to lordly Zeiss 10X40's that cost a grand or more.

Check out a well-stocked optics store or catalog and you'll find an equally bewildering assortment, their actual good and bad qualities shrouded by obscure numbers, jargon and the fog of advertising. It's enough to drive you to tears — or at least to eyestrain.

Binoculars are the outdoor enthusiast's equalizer. People lack the natural

Binoculars and scopes are available in a wide range of types, sizes, powers and prices. *(l. to r.)* For example, rubber-armored Minolta 10X50 binoculars, Bushnell Audubon 8X36, Swift Searcher spotting scope with interchangeable eyepieces, Bushnell widefield 8X30, Nikon 10X50 and Meade combo photo lens/spotting scope.

acuity of animals' senses: the eagle's vision, the turkey's sense of hearing and the whitetail's sensitive nose. Whether you are birding, "glassing" a hunting area for wildlife or even watching a sporting event, these same basics should help you get the right pair of binoculars.

What this country needs is a good, five-cent, reasonably knowledgeable and modestly opinionated field guide to binoculars for birdwatching, and here it is.

Here are the basics you should look for:

- Eight to ten power magnification
- Porro prism design
- An exit pupil of four to five millimeters
- Standard, hand-filling size
- A center-focus wheel with one individual eye focus
- A field of view in the range of 6.5 to 10 degrees
- Near focus of 15 feet or less
- If you always wear glasses, long eye relief and adjustable eyecups
- Medium price range: $150–400

Let's look at these characteristics one by one, decoding the numbers and jargon:

Power: Binocular magnification makes things look closer, not larger; for example, 10X glasses will make a bird 100 feet away appear as it would to the naked eye at a distance of 10 feet. I realize that 7X binoculars are widely viewed as the general purpose binocs, but for birding, I think binocular "powers" of 8 or 10 are best. There is little point in using binoculars with a magnification of less than 8X, and for most of us, 10X is the highest magnification that can be hand-held steadily.

Carefully compare 8X and 10X binoculars in the store or in the field. If you can hold 10X glasses steadily enough to concentrate on small details in the image, get them. If your hands jiggle too much, get 8X.

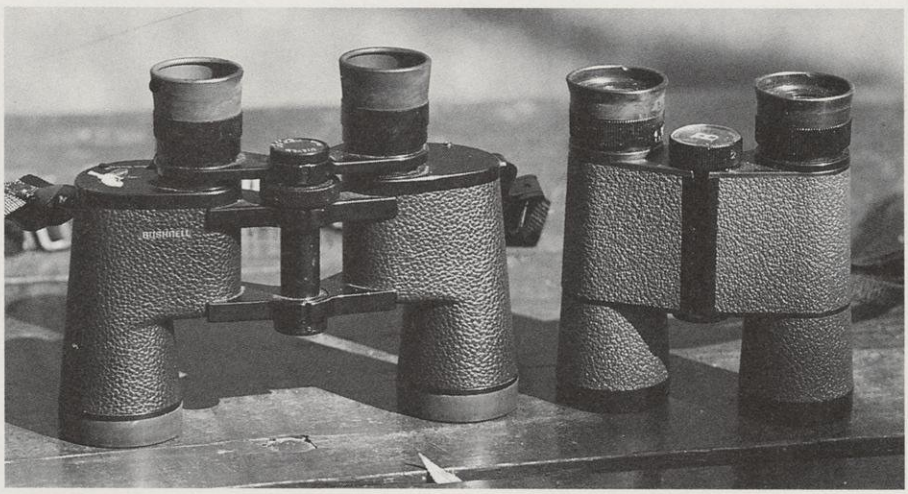
Porro prism design: Basically, modern birding binoculars fall into two categories: those with porro prisms and those with roof prisms. Porro prism binoculars are "typical"-looking: the front lenses are farther apart than the eyepieces. Roof prism binoculars have straight-line barrels.

Although the very finest binoculars made — Zeiss, for example — are roof prisms, the best examples of this design also cost $700 and up. And that points out one of the inherent problems of roof prism binoculars: although the barrels don't have the right-angle turns you find in porro prisms, the light is actually bounced around more in roof prisms. As a result, the overall quality of the glass and lens coatings in roof prisms must be very high to give the same performance as medium-price porros.

It boils down to this: roof prism binoculars are somewhat smaller and lighter than porros, and they have a certain snob appeal because they are — or at least look like — the best. But the reality is that porros selling for $300 or less are better than comparably priced roof prisms. Medium-priced roof prism binoculars in the $300–700 class have improved greatly in recent years, but aren't really necessary. If you are planning on spending $300 or less for binoculars, I'd strongly advise you stick to porro prism designs.

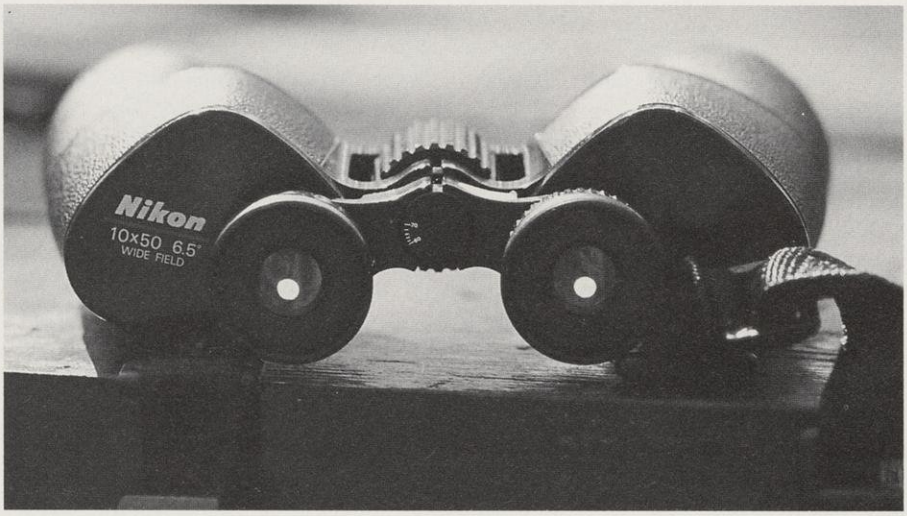
Exit pupil: The exit pupils measure the beams of light transmitted to your eyes from the eyepieces of the binoculars. They are a function of the size of the front lenses and the binoculars' magnification. Suppose you have a pair of binoculars designated 8X40 or "eight by forty". The eight is the magnification, and the 40 is the diameter of one of the front lenses in millimeters. To figure out the exit pupil of a pair of 8X40 binoculars, for example, divide 40 mm by eight; the exit pupil is 5 mm.

The larger the exit pupil, the more light the binoculars can transmit. But how much light can your eyes really use? When fully dilated, the iris of the human eye can "open up" to a diameter of about seven millimeters, although age will reduce this maximum aperture to about five. Outdoors on a bright, sunny day, your irises will contract to about two millimeters. So realistically, an exit pupil of 5 mm is sufficient; in practice, binocular exit pupils of four to five are preferable and will really pay off in low light conditions.



Porro prism binoculars *(left)* are a little bulkier but they transmit more light and offer a sharper image in moderately-priced binoculars. Roof prism binocs *(right)* are lighter but are usually more expensive. The author recommends porro prism designs for those who want to invest $300 or less in birding binoculars.

The limited light transmission of the popular "mini" binoculars is their biggest failing, and is a good reason to avoid them. 8X40 standard binoculars have an exit pupil of five; 8X24 mini-binoculars have an exit pupil of three — 40 percent less. You won't notice much difference between 3 and 5 mm exit pupils in bright sunlit conditions, but in the early morning and late afternoon — when much birding and wildlife "glassing" is done — the superiority of the larger exit pupils will be obvious.



Tilting binoculars focused on a bright object shows the exit pupil, which shows how much light passes through the binocs to your eye. Larger exit pupils are especially useful when using binoculars and scopes in low-light conditions when birds and animals are often most active.

Finally, when you are shopping for binoculars, you may run across numbers called "brightness factors" or "twilight factors" used to compare the low-light performance of optics. Disregard these numbers; they are meaningless. What matters is the exit pupil.

Size: Most buyers spend too much time fussing about the size and weight of binoculars they're shopping for, and in the process, cut off a pound to spite their eyes. The things to be concerned about are optical quality, construction quality, and practicality for use in the field.

When you think about it, most birding is done out of cars, or on short walks along trails of one kind or another. Western hunters who pack eight-pound rifles, drinking water and assorted other gear on day-long hikes need to be concerned about binocular weight; most birders don't.

Typical 8X40's weigh about 1.5 pounds, and even big porro prism 10X50's won't weigh more than 2.5 pounds. The brightness, precision and ease of holding standard-sized binoculars will more than make up for their weight. So avoid mini-binoculars unless you are really fragile.

Focusing method: Look for the traditional center focus wheel that adjusts the focus of both barrels at the same time. Such binoculars will have a dioptric adjustment on the right barrel that will allow you to adjust the focus for differences between your eyes.

I avoid the tricky "fast-focus" levers or rockers featured on some binoculars. They allow you to focus rapidly — but not precisely. Avoid at all costs any binoculars called "auto-focus" or "focus-free". Usually these are fixed-focus binoculars which do not permit close focusing, or any focusing at all.

Field: Field of view is important at close range and when looking at flying or rapidly moving birds. Binocular field of view is expressed in feet at 1,000 yards or in degrees of angle. A typical pair of 8X40's might have a field of view of about 400 feet at 1,000 yards. One degree at 1,000 yards is 52.5 feet, so a field of view 400 feet wide is also about 7.5 degrees in width.

Obviously, you don't do much wildlife observation at 1,000 yards; what matters is the performance at 100 yards or 10 yards, where a too-narrow field of view can make small critters hard to find in the binoculars, and fast-moving ones impossible to follow. Most birders agree that the field of view of practical birding binoculars should fall between 6.5 and 10 degrees, which works out to a width of about 34–53 feet at 100 yards or 3.4 to 5.3 feet at 10 yards.

Close focusing ability: We usually think of binoculars as something to be used on distant critters — but people interested in making accurate identifications of small birds need binoculars that will focus in as close as 15 feet, and even closer if possible. For example, if they're not singing, you need to get really close to sort out sedge and marsh wrens, mourning and Connecticut warblers, and LeConte's and sharp-tailed sparrows, among others. It's amazing that even when viewing birds at a nearby feeder, you need binoculars to spot characteristic coloration, eye stripes, wing shape and other characteristics. Also birds and animals concealed in brush or shrubs less than 15 feet away take a close look to distinguish.

A prediction: during your binocular shopping, you will find at least one pair of binocs that is ideal in almost every respect, but won't focus closer than 25–30 feet. Recommendation? Keep looking.

Eye relief: Eye relief is the distance between the rear lenses and your eyes. To use binoculars efficiently, the pupil of your eye and the exit pupil need to match up. Older binocs, and some inexpensive current ones, have rear lenses that are recessed into the lens barrels, giving you short eye relief. You will find it difficult to see the entire field of view with such binocs, especially if you wear glasses.

Most modern binoculars have the rear lenses mounted almost flush with the rear of the lens barrel, and have rubber eye cups that can be folded down, providing longer eye relief. If you don't wear glasses, leave the eye cups in their normal position; if you wear glasses, fold them down. The important thing is to make sure you can adjust the binoculars and eyecups sufficiently to see the entire field of view, from side to side, while wearing your normal glasses.

Price: You are going to have to pay a minimum of $90 to get decent binoculars, and you should pay $150–400 to get the best combination of price, quality and suitability for birding.

Shopping tips

Use the binocular characteristics listed as "basics" as your guide. Once you find a pair in the medium price range that meets those specifications, you have made your selection. However, field experience is valuable. If

possible, join a group of experienced birders, talk to them about binoculars and look through their optics. Also, during your initial shopping, be patient and cast a wide net. Good binoculars are sold by "traditional" binocular companies like Bushnell and Swift, camera manufacturers such as Nikon, Pentax and Minolta, and also by companies largely known for rifle scopes, like Leupold and Burris.

Once you have narrowed the field to a couple of choices, check camera, birding supply, sporting goods and discount stores to see who has the best price. Also check with the optical mail-order firms that advertise in birding magazines.

Spotting scopes

If you really get into birding, eventually you will want a spotting scope — a small, portable telescope that will reach out beyond the range of your binoculars. The problem with scopes is that they transmit much less light than binoculars. For example, the front lens diameter of most birding scopes is 60 mm; at 20X that yields an exit pupil of three mm, which is the absolute minimum useful exit pupil in overcast or other low-light situations.

When you start shopping for a scope, you'll be urged to buy one with a 15–60X zoom eyepiece. But before you give in, compare the brightness and clarity of fixed-power 20X and 40X eyepieces with the zoom optics at the same magnifications and decide for yourself. Fixed-power eyepieces are invariably brighter and sharper.

In the field, you'll find 20X the best combination of magnification and brightness for almost every situation; at powers beyond 30X, the image will darken dramatically, and "mirage" from rising warm air can break up the image and make it difficult to focus, even in the winter. If you don't mind looking at a dark, wobbly image of a big bird like an eagle, 60X is OK, but if you want to sort out "peep" sandpipers, a bright, clear 20X image is better.

So look for a scope that takes interchangeable fixed-power eyepieces and has a front-lens diameter of 60 mm or more. Get a 20X eyepiece first, and later add 15X, for low-light conditions, and 40X for the few situations in which it will come in handy.

Many spotting scopes can be attached to window mounts or tripods. Scopes make animals appear closer, but they transmit less light than binoculars. Refracting scopes (left) use lenses to bend light rays. Reflective or mirror scope (right) use mirrors. Reflecting scopes are lighter, but more delicate. They are more often by those who want to watch birds and do some star gazing.

Final points

• To repeat: Don't be seduced by mini, lightweight binoculars. Usually they have mini, lightweight performance.

• An easy way to reduce the apparent weight of standard-sized binoculars is to throw away the tiny little neck strap that comes with them and substitute a wide, spongy camera harness or neckstrap such as those sold by Optech. Also, keep your binocular neck strap adjusted about as short as it will go. A short strap reduces apparent weight and keeps the binocs from swinging around and hitting things.

• Retain and use the case and lens caps that come with your binoculars. Clean the lenses often with a camel's hair brush and photographic lens tissue.

• After you have adjusted the right-barrel focus of your binoculars to suit your eyes, use a strip of electrician's tape to hold the eyepiece where you have turned it.

• Don't buy cheap binoculars "to get started." You'll soon want better ones —but few merchants take inexpensive used binoculars in trade.

• Expect to be selective and picky when shopping for binoculars; do not expect to find suitable birding binoculars easily. Most of the binoculars you'll find in stock at stores are too cheap or otherwise unsuitable. Trust your eyes to tell you if the combined clarity, resolution and sharpness suit you. Don't be in a hurry — you may have to order what you want, or buy it through a specialized mail order dealer.

Good binoculars are indispensable, and it pays to buy all the quality you can afford. But even the best binoculars are only tools. As Jack Connor wrote in his book, *The Complete Birder*, "much of the satisfaction in birding comes from the sense that the world of birds is larger than we can ever explore. No matter how expert we become, there will always be more to see and more to learn. What matters is the birder and the binoculars." □

David Crehore is DNR's Public Information Officer stationed at the Lake Michigan District office in Green Bay, Wis.

Slick, slippery and full of stickies

ALL PHOTOS BY DAVID BLESSUM

Magazines and catalogs are recyclable, but a few things had to be sorted out.

David L. Sperling

Getting magazines and catalogs into the house is easy…they tantalize us to try a new hobby, buy some clothing, take a trip or sightsee from the lounge chair. Getting catalogs out of the house is another matter. We stack them on shelves, dog-ear a copy on the bed stand, put a reading rack in the bathroom or just "file" them under the bed.

As more items are banned from state landfills starting January 1, more communities will require residents and businesses to separate magazine and catalogs along with newspaper and cardboard from other materials.

In the past, "recycling" them meant passing them on to a friend, donating them to a library or letting the kids cut them up for a school art project. Now there's another way. The paper industry is investing in special de-inking plants to add magazines and catalogs to the list of paper products that are recycled into still other paper goods. This means markets for the magazines and catalogs we would just as soon get off the coffee table and pull off the shelves in the garage. And local community recycling programs are gradually discovering these new markets.

The same qualities that make slick, glossy magazines and catalogs attractive have made them challenging for paper mills. The paper is coated with clay to make it smooth and opaque, but the clay and inks have to be removed to retrieve the paper fibers. Most mills did not have the equipment to do the job. The rich inks that provide vibrant colors contain a complicated mix of pigments, oils and binders. Ultraviolet coatings that provide the sheen and gloss on some covers act like a varnish that adheres to the paper and reduces air emissions during printing.

And then there are the "stickies." Thick magazines are bound together with glue, rather than stapled. Many magazines use adhesives to enclose product samples. Too many stickies can gunk up the recycling equipment and bring it to a standstill.

Even though magazines and catalogs are printed on beautiful, bright, heavy paper with strong paper fibers, it's no wonder that papermakers said "no thanks" to recycling them.

Times and technology change

So what changed? Several factors drove papermakers to find a way to retrieve the usable fiber by recycling slick publications. First, disposal costs continued to rise and a glut of old newspapers were too costly to dispose of in landfills. Second, state recycling laws, particularly in California and New York, added heat to find new uses more quickly. Newsprint has to contain at least 40 percent recycled fiber by the year 2000. Papermakers across North America had to change the way they made newsprint.

Magazines and glossy catalogs found their day in the sun. The bright, white fiber was needed in the recycled newsprint mix. But how to do it?

U.S. recycling mills were de-inking newspapers by extensive washing. But that process did not do a thing to remove the ink and coatings on magazines and catalogs. North American mills turned to a process used for nearly 30 years in Europe and Japan, a de-

inking method called flotation.

Recycled pulp is screened to remove staples, sand, grit and large particles. De-inking cleans the pulp and disperses the inks.

The fibers in paper pulp naturally absorb water and the oily inks naturally repel it. Flotation technology blows huge volumes of air which float bubbles through the paper pulp. The clay from glossy paper strengthens the bubbles. Inks adhere to the bubble surface, but the wet paper fibers stick more tightly to the water. Under controlled conditions, the inks will float up to the surface on the bubbles and the dark, inky froth is repeatedly skimmed, leaving cleaner and cleaner pulp.

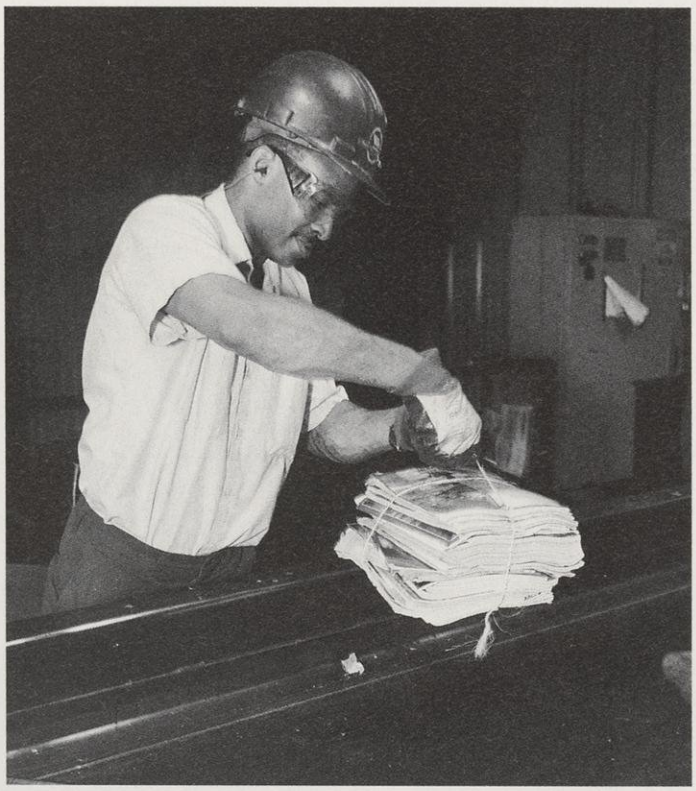
The recovered pulp can be used in newspapers, comic books, tissues, toweling and even copy paper. Recycled magazine and catalog pulp is also used in a lot of food packaging. Take a look at a cereal or cracker box. Outside the boxes have bright printing on white paper, but the insides are dull brownish-gray with specks — recycled pulp with the ink still visible.

As flotation systems were installed, there were new markets for unsold magazines from newsstands. The demand for old magazines and catalogs is exploding and will require collection from consumers. A report done for the Magazine Publishers of America estimates that by the end of the decade, nearly two-thirds of all magazines and catalogs produced will be needed by recycling mills. Communities are beginning to find those markets, collect magazines and catalogs, and save the cost of landfilling them.

The timing couldn't be better for Wisconsin residents. The state's 1989 recycling law bans magazines and catalogs from state-regulated landfills after January 1, 1995. More than 700 Wisconsin communities are already collecting magazines and catalogs. Madison's program, for instance, asks residents to bundle magazines and catalogs (No comic books, phone books or newspaper inserts, thank you!) in six-inch stacks next to the bag of recyclables on trash day (or is that resource recovery day?).

It's enough to ease a magazine reader out of the easy chair to start emptying the attic, and the basement, and the storage bin and that pile that's holding up the plant stand and... □

David L. Sperling stores a few magazines and edits this one.



(above) More than 700 communities in Wisconsin already collect magazines and catalogs.
(below) Manufacturing techniques have opened the door to making a wider variety of paper products and packaging from these glossy papers. Computer papers, newsprint, comic books and food packaging are a few examples.

Readers Write

KNOTWITHSTANDING

Love your magazine! Your story about pine knots ("Pine knots," December 1993) prompted me to relate this anecdote from my youth.

The indestructible quality of the knots brought a remarkable cycle to our farm. Some of the knots escaped the fire when new land was cleared. They lay on the field until the side-delivery rake rolled them into the windrow. Then they were caught up in the hayloader and delivered to the haymow. Next, they were thrown with the hay into the manger. Mangers were cleaned and the refuse was usually thrown under the cows for bedding. The pine knots eventually fell to the gutter, then were removed with fork and wheelbarrow to the manure pile, where they remained until late summer when we hauled the "gold dust" back onto the field.

Thus the pine knots were returned to the soil and the cycle ended, only to begin again the next haying season. However, these impervious pieces of pitch and fiber were often slung from the beaters of a manure spreader to whack the teamster with amazing accuracy.

Paul Nagel
Eau Claire, Wis.

FLYING SQUIRRELS

Just wanted you to know how much I enjoyed the June 1994 issue, especially "Furry Fly-By-Nighters." A year and a half ago we moved to our current home and while we were on our deck this squirrel flew by! We got a good look at it as it landed on a tree trunk. I've never seen it since. We have so many grey squirrels, I wonder if they caused the flying squirrel to move away.

I also enjoyed the "At Readers' Feeders" photos. We used to live by the Mississippi River and had so much wildlife and so many birds nearby. I miss them very much.

Yvonne Whiteman
Onalaska, Wis.

JUNE IS BUSTIN' OUT ALL OVER

Just by chance, at the Senior Center of Sheboygan, my eye caught the picture of the beautiful oriole on the cover of your magazine (June 1994) lying among many other books. Inside, the articles were exciting and interesting. I'm anxious to see more of your magazine!

Marie Winscher
Sheboygan, Wis.

LOON CROON

In the August 1994 issue I just received and read, I really enjoyed the article "Loons at night." It brought back memories of boyhood days in Northern Wisconsin. I was wondering if there was some way to get a tape of the calls of the loon? I have read the magazine cover to cover since I started receiving it several years ago. Keep up the good writing and beautiful pictures.

William E. Kluetz
Magnolia, Texas

"Voices of the Loon" features a call-by-call analysis on one side and collected loon recordings on the other. Produced by the North American Loon Foundation, it's available on record ($9.75), cassette ($9.95) or CD ($14.95). Add $2 for shipping and handling. To order, call the foundation at (603) 528-4711 or write the North American Loon Foundation, 6 Lily Pond Road, Gilford, NH 03246.

The NorthStyle Catalog offers a "Loon Talk" cassette ($9.95 + shipping) or CD ($15.95 + shipping). Write NorthStyle Catalog, Box 1360, Minocqua, WI 54548. Or call 1-800-336-LOON.

THANKS FOR THE MEMORIES

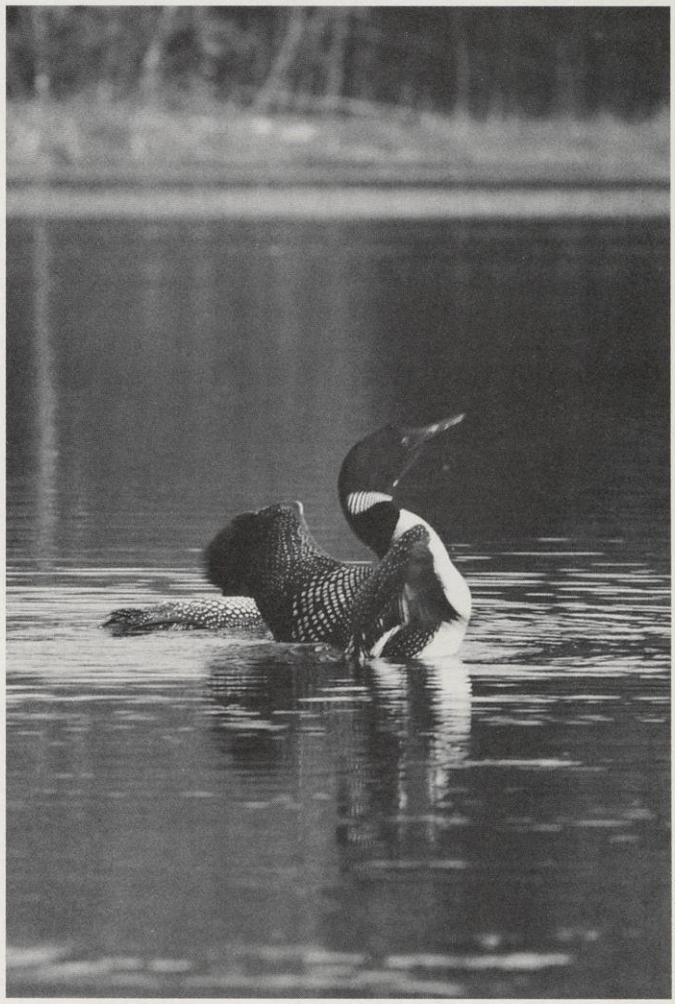
I enjoy your magazine so much! I'm a single parent, age 49, of a four-year-old. I can only work part-time, due to health problems and my son's need for care, so I've had little money available for entertainment. Your inexpensive magazine was a gift to me from me that I'd gladly pay much more for now that I've been getting it for a time. It's so well written, and covers so many important issues. It strikes memory chords from my childhood to be shared with my son, and the photos are superb. I just love it! In our society today, it's all too easy to feel there is no one "out there" who shares your values and beliefs. I'm comforted I'm not alone each time I read *Wisconsin Natural Resources.*

Kit Deubel
Elkhorn, Wis.

CORRECTION

The plant depicted on page 15 of the April 1994 "Stewardship" section is rough blazing star, not wild bergamot as stated. We regret the error.

The Common loon has an uncommon croon.



STEPHEN J. LANG

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