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WISCONSIN NATURAL RESOURCES

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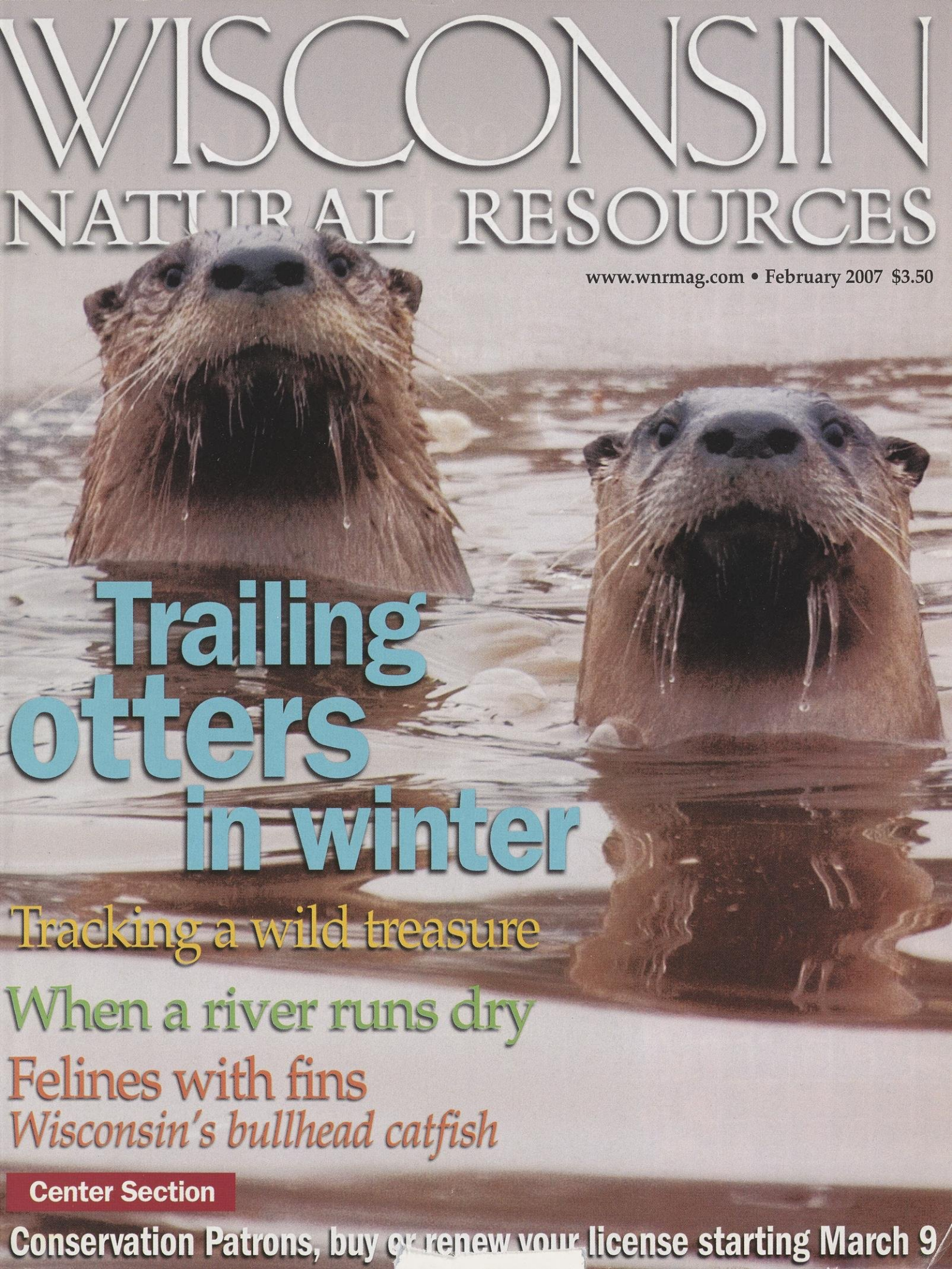

Trailing otters in winter

Tracking a wild treasure

When a river runs dry

Felines with fins
Wisconsin's bullhead catfish

Center Section

Conservation Patrons, buy or renew your license starting March 9

Keep neater feeders

A few steps can help keep songbirds healthy as they wing in for a little seed and conversation

Erin S. Larson and Simon R. Hollamby

Cold weather and snow cover lead songbirds to risk gathering at backyard feeders to supplement dwindling food supplies. Flocking birds keep a watchful eye for predators, but there are other potential killers lurking at the feeders — microbes!

Several diseases spread more readily as birds concentrate, defecate and have more beak to beak contact. One disease, avian salmonellosis, is caused by a variety of bacterial strains whose health effects can be moderated by a range of environmental and host factors. Infections can be transmitted in many ways which vary with the strain of salmonella and the feeding and behavioral pattern of the species.

Despite the widespread belief that birds are carriers of high levels of salmonella, surveys show that the prevalence of these bacteria in most wild bird populations is generally low. Most bird species rapidly eliminate salmonella from their intestinal tract. However, individual birds can excrete salmonella for weeks or months. These individual birds may remain lifelong carriers intermittently excreting bacteria into the environment. This can lead to persistent contamination of feeding sites during periods of greatest use, such as winter in Wisconsin.

Unfortunately, this parallels a period when songbirds are already under nutritional stress searching for adequate food supplies and are more vulnerable to disease. Outbreaks increase after birds ingest bird seeds, water or suet contaminated with the droppings of other highly stressed birds as they crowd around the feeders in cold weather. Young birds may be more susceptible because their immune systems are less well developed than those of adult birds.

continued on page 27

Songbirds don't normally carry high levels of salmonella, but some birds excrete the bacteria for long periods of time. Bird feeder and birdbath hygiene can limit the buildup and spread of disease where birds congregate. Follow these suggestions to keep feeding and watering stations healthy places.

WISCONSIN NATURAL RESOURCES

February 2007
Volume 31, Number 1


AL NIEBUR


JACK R. BARTHOLMAI


JOE SHEAD

FRONT COVER: River otters are curious, playful and fantastic swimmers. They feed on fish, crayfish, clams and amphibians primarily at night. Learn how aerial surveys of their unique tracks in winter are used to estimate otter populations, p. 9-12.

SHANE RUCKER, Pittsville, Wis.

BACK COVER: Brule River Boreal Forest State Natural Area in Douglas County. For more information, or to order a guidebook to State Natural Areas, contact the State Natural Areas Program, Bureau of Endangered Resources, DNR, P.O. Box 7921, Madison, WI 53707 or visit *dnr.wi.gov/org/land/er/sna*.

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Long disparaged as the strays of the piscine world, Wisconsin's bullhead catfish deserve some respect.

Felines with

Joe Hennessy

There is a species of fish that never looks at the clothes of the angler who throws in the bait, a fish that takes whatever is thrown to it, and when once hold of the bait never tries to shake a friend, but submits to the inevitable....That is the fish that the State should adopt as its trademark, and cultivate friendly relations with, and stand by. We allude to the bullhead...

— "In Defense of the Bullhead," by Wisconsin Governor George W. Peck (1840-1916)

It seems curious that a statesman would pen a treatise extolling the virtues of the lowly bullhead. Such distinctions usually are reserved for "more dignified" fish, like trout, whose perceived nobility arises only from the tweed jackets of its pursuers and the insistence of those anglers on capturing the quarry with a great deal of fluff. I digress. Let us return to the basics, and examine the nature of the bullhead. Then you, reader, may make your own judgment.

The bullhead catfish family ranges in size from the tiny madtoms to these flathead catfish that can top 100 pounds. Flatheads are toothless but fearsome predators that catch, ingest and crush live fish with chilling efficiency.

JOHN LYONS

fins

Ictaluridae

Ictaluridae is the Latin name for the bullhead catfishes. Mysterious, whiskered creatures with beady little eyes, the Ictalurids are the largest family of freshwater fish entirely native to North America. The family has existed for more than 60 million years, with records dating to the Paleocene Era. Among fish families found in Wisconsin, only the sturgeon, bowfin and paddlefish are older.

In Wisconsin, the representatives of the family include the familiar bullheads, channel and flathead catfish, and three small, reclusive species of madtoms. Our state is perched near the northern reach of the ranges of all eight of these species, so while some are locally popular or abundant, the attention afforded bullhead catfish is generally small compared to other Wisconsin fish, and the best-known members of the family — the channel and flathead catfish — don't enjoy the widespread glamour and status here that they do in Southern states.

All flatheads caught or netted are measured for length, weighed and tagged for future identification. Flatheads can live 24 years or longer.

LINDA HYATT

All species in Wisconsin possess eight soft barbels around the mouth — the whiskers that give catfish their name. Delicately soft and utterly harmless, barbels extend the fishes' senses of taste and touch. With mottled skin in beautiful hues of brown, black, gray and yellow, smooth and only slightly slimy to the touch, Ictaluridae is one of the few truly scaleless families of freshwater fish in North America.

The entire skin of a catfish — head, whiskers and body — is peppered with taste buds. It has been estimated that there are more than 100,000 on the skin of a black bullhead. Taste and touch are intricately related in catfish, playing almost indistinguishable roles in how food is located and assessed before ingestion. (Some have described Ictalurids as "swimming tongues.") The fish are able to detect chemical stimuli emanating from food from many fish-lengths away, according to George Becker, author of *Fishes of Wisconsin*.

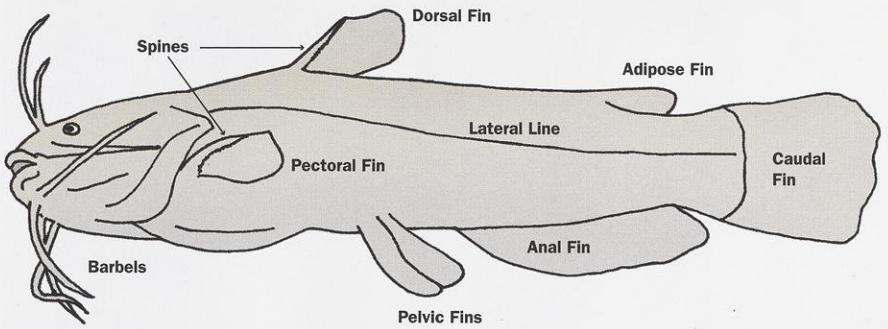
Other obvious features shared by Ictalurids are their hard, pointy spines on the pectoral and dorsal fins. It's the spines, not the whiskers, which you have to watch out for when handling these fish. The "spines" of a catfish are embryonically fused soft fin rays, sharply serrated, which can be locked into place in a defensive posture. To top it off, all madtoms and some bullheads have poison glands at the base of their spines, which intensify the wounds the fish can inflict.

With their unparalleled senses of taste and touch, Ictalurids are very sensitive to sound. Ictalurids also have Weberian ossicles — distinctive bony connections between their swim bladder and inner ear — that place them among

a group of fish called ostariophysans. All fish can detect vibrations through their lateral lines (the line of cells along the side of the body that responds to movement of water); in ostariophysans, the solid connection between the swim bladder and inner ear greatly enhances the range of sounds the fish can detect and their sensitivity to sound.

The exquisitely developed senses of taste, touch and hearing in catfish are wonderful adaptations for life and feeding in the dark, when the bullhead catfishes are most active. It's an interesting contrast to another night-feeder, the walleye. The walleye has large eyes with features specially adapted to collect light very efficiently, but evolution in catfish has eschewed sight in favor of the other senses.

Dispense with the image of catfish blindly rooting around for food on the bottom in the dark. While there are a few families of catfish in the world that actively suck bottom matter while feeding, Ictaluridae are not among them. While "bottom feeder" might be an apt description, "scum sucker" most certainly is not. Ictalurids are carnivores, and though the diets of different species vary, they include fish, insects, frogs and crayfish. Many species will scavenge on dead animals, but the stinky baits used by some anglers to catch catfish are more about overloading the fishes' sense of taste than their predilection for rotten food.



DNR FISHERIES MANAGEMENT

The bullhead catfish are night hunters that use "whiskers" or barbels and a keen sense of vibration to find and taste food in dark and weedy waters. Anglers need to handle bullheads and catfish carefully. Watch out for the sharp serrated spines on the leading edge of back (dorsal) and side (pectoral) fins that can inflict nasty pokes, scratches and cuts.

Radio receivers track long distance catfish migrations from the air. On the water, researchers tune-in to other sonic tags implanted in fish to pinpoint the structures and habitat that hold catfish. Once spawning and wintering grounds were located, divers learned that male catfish congregate in winter in groups of 30-40 fish in deep holes with strong currents.

AL NIEBUR

Meet the species

Wisconsin's Ictalurids can be classed into three broad groups. The **bullheads** — yellow, brown, and black — are closely related members of the genus *Ameiurus*. The **madtoms** — slender, tadpole and stonecat — all belong to the genus *Noturus*. The two large **catfish** — the channel catfish and flathead catfish — are not closely related, but are linked by their importance as sport and commercial species.

Cats with an image problem

Of all Wisconsin's Ictalurids, the bullheads are probably both the most familiar and most misunderstood. Some people see them as "dirty" undesirable fish, while others prize them for their local abundance and sweet flesh — described by some as "poor man's lobster."

The diversity of opinion partially stems from one of the strengths of the group: bullheads are amazingly resilient. All three species in Wisconsin are generally found in shallow lakes and ponds, backwaters of rivers, and slow-moving rivers. Within these types of habitat, bullheads tolerate much more disturbance and degradation than many other species; their ability to endure low dissolved oxygen, agricultural and urban siltation, and some industrial pollutants gives the impression that they are "dirty water" fish. Bullheads can live in some relatively foul places. That hardiness shouldn't be confused with any preference for such abodes. Nor should the mere presence of bullheads be seen as an indicator of degraded water conditions. However, if bullheads dominate a particular fish community it could be a sign that water quality is less than ideal.

A proper characterization of prime bullhead habitat is warm, weedy water less than ten feet deep, with soft bottoms comprising mud, silt and sand. During spawning, all three species build nests — usually shallow excavations under matted detritus and vegeta-

tion. Female bullheads construct the nests, but male bullheads provide much of the parental care. Among North American freshwater fish, bullheads provide one of the highest levels of parental care. The male bullhead will collect the eggs in its mouth and roll them around to oxygenate them. After hatching, young bullheads can be seen swimming in large compact schools. What's often missed by the casual observer is that the parents are nearby, maneuvering to keep the school together. During winter, bullheads of all sizes "mud up" — burrow into the soft bottom of their habitat for some warmth, leaving only a small opening above their mouths to breathe.

At first glance the yellow, black and brown bullheads look alike, but you can easily determine which fish is in hand. First, look at the chin whiskers: If they're yellow or white, you've got a yellow bullhead. If they're black or gray, you've got a black or brown bullhead. In black bullheads, the membranes between fin rays are jet black, but not so in the brown bullhead. Brown bullheads have distinctly mottled skin; black bullheads have solidly dark skin. Finally, brown bullheads have razor-sharp serrations on their pectoral spines — the same spines that poke you can also give you nasty scratches, to complete your fish-handling pleasure. The serrations are rounded, if present, on the pectoral spines of black bullheads.

"Kittens" that play hide and seek

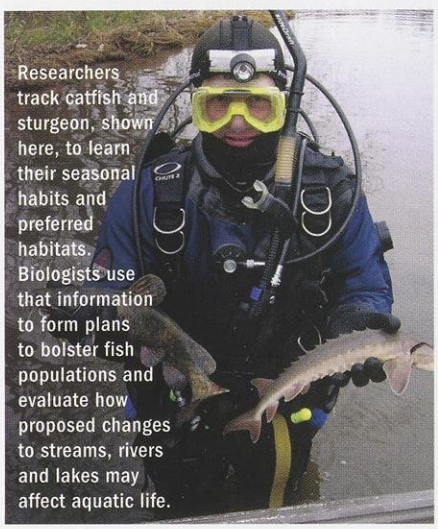
Small, secretive, and relatively scarce in Wisconsin, a madtom would probably generate a puzzled look from most observers. "A little bullhead," most might say, unless the person is an angler who is familiar with the "willow cats" that are prized bait in the Mississippi River. Wisconsin's three madtom species represent a much larger group of catfish: There are approximately 30 species of madtoms in North America, most in the southern and southeastern United States. Besides myriad colorations, the madtom is also renowned for "the most virulent stings" administered by members of the Ictalurid family, according to ichthyologist Robert Jenkins.

Wisconsin's madtoms prefer shallow, rocky riffles, and generally wriggle into crevices during the day, emerging after dark to terrorize aquatic insects and other small animals. Like the flathead catfish, madtoms will find a crevice or cavity in which to spawn, and are known to put sunken aluminum cans to good use. These fish are much more sensitive to habitat degradation than their bullheaded cousins, and the slender madtom is listed as a state endangered species. Agricultural, urban and suburban runoff and siltation of riffle habitat threatens madtom populations in Wisconsin streams.

Big cats on the prowl

The Ictalurid most commonly sought by Wisconsin anglers and commercial fishers is the channel catfish. Of legendary importance in the southern United States, the channel catfish enjoys great favor among its pursuers in Wisconsin as well. First described in 1818, the channel catfish has had at least 23 different scientific names, but contrary to legend, the renowned zoologist Constantine Rafinesque did not recommend *Misteras whiskeras*.

Channel catfish may be found in all three of Wisconsin's major drainages — the Mississippi River, Lake Michigan, and Lake Superior. It is most common in the Mississippi River and in the southern parts of the state. It prefers riverine habitat, but may be found in some lakes and reservoirs, and it is an



Researchers track catfish and sturgeon, shown here, to learn their seasonal habits and preferred habitats. Biologists use that information to form plans to bolster fish populations and evaluate how proposed changes to streams, rivers and lakes may affect aquatic life.

AL NIEBUR

Wisconsin's bullhead catfishes

STEPHEN J. LANG

Flathead catfish
Pylodictis olivaris

STEPHEN J. LANG

Channel catfish
Ictalurus punctatus

ALICE MONROE

Black bullhead
Ameiurus melas

DON BLEGEN

Yellow bullhead
Ameiurus natalis

JOHN LYONS

Brown bullhead
Ameiurus nebulosus

JOHN LYONS

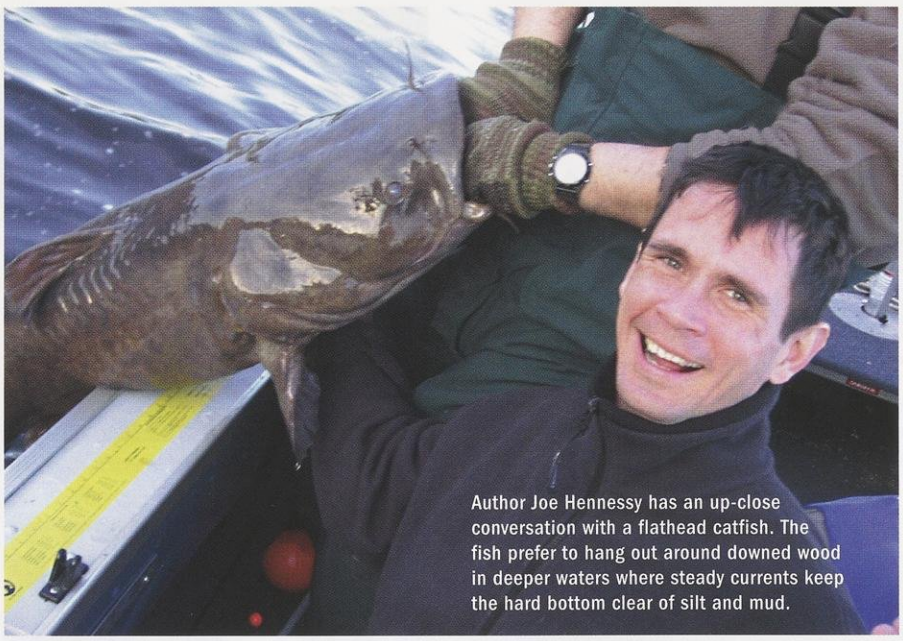
Slender madtom
Noturus exilis

JOHN LYONS

Tadpole madtom
Noturus gyrinus

JOHN LYONS

Stone cat
Noturus flavus



Author Joe Hennessy has an up-close conversation with a flathead catfish. The fish prefer to hang out around downed wood in deeper waters where steady currents keep the hard bottom clear of silt and mud.

TED TRESKA

opportunistic feeder, taking insects, fish, crayfish and amphibians. It is the single most important commercial species in Wisconsin waters of the Mississippi River.

The largest member of the catfish family plying Wisconsin's waters is the flathead catfish. Flatheads inhabit secluded shelters and dark places in Wisconsin's largest river systems. While the reputation of the muskellunge as a fierce predator is well documented, the flathead catfish proceeds with quiet, chilling efficiency, and its abilities as a predator are unsurpassed among Wisconsin fishes. It is the state's largest piscivore (fish-eater) and some fish may have historically exceeded 120 pounds in weight. The state record caught by hook-and-line was 74.5 lbs, in 2001 from the Mississippi River. In 1911, two fish caught by set line in Wisconsin were reported to weigh 118 and 125 pounds.

I, for one, would not call this fish a "bottom feeder" to its face. Young flatheads will eat insects and crayfish, but by the time they reach 10 inches they have switched to a diet consisting almost exclusively of live fish. Flatheads are not scavengers. The gaping mouth of a flathead is eerie to contemplate; a large man's hand is dwarfed by the capacity of the mouth of even a moderately-sized flathead. No razor-sharp teeth adorn the entrance to the cavity, but fearsome, crushing plates at the rear of the mouth ensure no escape for its prey.

DNR researchers Randy Piette, Al Niebur and Dave Bartz are learning about the long-term movements of flathead catfish in the Fox-Wolf system. During 2002-2004, 40 adult male flathead catfish were captured and outfitted with small radio transmitters. Males were chosen because male flathead catfish select and defend spawning sites, and handle all care of newly-hatched fish. Flying above the rivers and parts of the Lake Winnebago system with a radio receiver, the scientists were able to locate individual fish and plot their movements along the river.

The investigators identified spawning site locations, summer and winter habitat preferences, and the timing and distance of adult male flathead catfish movement. By knowing where the fish stayed during the spawning season, DNR researchers could later dive at those sites and assess the depth, cover and bottom substrate of the spawning site.

What's been learned so far is that individual fish are likely to return to the same spawning site and winter habitat every year. This high degree of "site fidelity" was previously unknown, and has ramifications for management of the species. Choice winter habitat is often occupied by dozens or more flatheads. "We find them in relatively deep holes," said Piette, "and they will be quite concentrated — thirty or forty fish of all different sizes sharing a single area. The fish seem to require a certain depth, and enough current to keep the bottom scoured clean. There's no silt. The bottom is hard sand and gravel, with mussel shells and large pieces of wood scattered."

The researchers don dry suits and dive into the frigid, turbulent depths to wrangle catfish in these winter congregations. "Wrangling" might be the wrong word: Piette says that once the water temperature is below 40° F, the fish are very lethargic. The divers choose and catch catfish by hand, put them into mesh bags, and haul the fish to the surface to be implanted with radio tags. "We're mainly capturing smaller fish this way," said Piette. "Tagging smaller individuals gives us an opportunity to learn about the behavior of juvenile catfish."

Overall, Piette thinks the Fox-Wolf flathead catfish population is below capacity for the system, but individual fish are in good condition for their length. Local fisheries manager Al Niebur adds that the fish are relatively slow-growing. Both see the flathead fishery as having fantastic potential for trophy fishing and consumption, but feel the current level of exploitation is too high for the fishery to truly meet its potential.

Niebur has been working with the Winnebago Catfish Advisory Committee, a citizen group formed in the late 1990s. Among their recomendations are ending the commercial flathead fishery in the Fox-Wolf system and lowering possession and daily bag limits for anglers. These biologists and concerned citizens are heeding George Becker's decades-old advice: "Little is known about the biology and the population structure of the flathead catfish in Wisconsin. To ensure sustained fishing and a viable population, a long-term, active research program is advised." Just as a closer look at the entire bullhead catfish family helps us appreciate how they have adapted to fill in an available niche in our fisheries.

Fisheries Biologist Joe Hennessy proposes policies and regulations to manage warmwater fisheries. When he isn't researching catfish biology, he occasionally hits the lakes and rivers to fish for them.

Spry slider

On clear winter days following a snowfall, wildlife researchers fly low over the landscape looking for telltale otter tracks when conducting aerial population surveys.

MICHELE WOODFORD

Judy Nugent

A secretive and shy animal, the river otter is not seen most of the year, but once sighted, provides an experience you won't soon forget. Known as *Lontra canadensis*, the river otter is the most playful member of the weasel family. It is most frequently seen in winter basking on ice near open water or running, hopping and sliding over the snow.

The spring thaw and lengthening daylight trigger a spring breeding season from March into April. Pups, also called kits, are born in April or May, though the female can delay embryo implantation for up to a year.

GREGORY K. SCOTT

As with so many other species, unrestricted harvest in the early decades of European settlement depleted populations of otters, which were trapped for their warm, luxurious fur. Uncontrolled, wasteful use of land and waters damaged fish populations causing otters to disappear from many parts of their natural range. Just as conservation practices have reintroduced and bolstered game species such as turkey, waterfowl and elk, active management is slowly restoring otter populations as well. In the past 20 years, nearly 4,000 river otters live-trapped with foothold traps in Louisiana and Mississippi were released in 18 states rebuilding healthy populations today. Wisconsin and states as far south as New Mexico and as far east as New York carry out active programs to recover these natural parts of our wild heritage.

Otters are found throughout Wisconsin with greater concentration in numerous wetlands of the northern half of the state. Otters are mustelids, in the same family of weasels as mink, martens, badgers, fishers and wolverines. Adult otters are three to four feet long with tubular, furred tails that make up nearly 50 percent of their total body length. The tail alone can reach 18 inches or more in length. Adult otters average 15 - 25 pounds. Their fur is short, dense and durable, setting the standard for the fur industry, making it extremely

desirable to trappers and fur buyers alike. Fur color varies from a light tan in the cheek, chin, throat and belly, to a rich, dark brown on the back. Five webbed toes, a long tail and streamlined body make otters nimble, adept and extremely efficient swimmers. You have to be a good swimmer when you catch live fish for a living! Stiff whiskers two to four inches long help them detect food in murky water. Petite diamond shaped noses offer a keen sense of smell to pick up the scent of other animals.

On the icy edge of winter

Though otters are often seen feeding or basking where an icy shelf meets flowing water, they are primarily nocturnal (active at night) or crepuscular (active at dawn or dusk). They live in abandoned beaver lodges, woodchuck burrows, muskrat dens, holes in the bank, or beneath the roots of upturned trees. Dens do not have to be near water for otters to use them.

Scavenging for food near open water or along the bank, otters can look awkward all hunched up. However, their humping lope can carry them along as fast as people can travel. Otters can run as fast as 15-18 mph. They conserve energy moving across the snow by taking a few bounds and then sliding on their tummies. From above, these tracks look a bit like Morse code, in a dot, dot, dash pattern. This telltale pattern is useful in tracking their movements.

On land, otters are both predator and prey. In winter they hunt mice, voles and red squirrels. Unfortunately, otters in turn are hunted by wolves, coyotes and bald eagles. By far, the otter's most common predator is human.

Even in winter, otters find safety staying near water. When fishing in the winter, they keep a hole or two open at all times. An opening just a few inches across is enough to give them access to the fish below.

Territorial during the short breeding season

The spring thaw and lengthening daylight provides the drive to trigger the breeding season. Otters reach sexual maturity by age two. Females can reproduce as yearlings though an average of 32 percent of them have litters compared to about 75 percent of adult females. Breeding occurs in March or April and brings increased competition among males.

Otters have a pair of scent glands located near the base of their tails. These glands produce a strong musky odor that males use to mark their territories. They also urinate on vegetation in their home range as a way of marking turf. Males can also smell when the females come into estrus. Otters communicate through touch, posture and a variety of vocalizations such as chirps, chuckles, grunts, whistles, hisses, growls, whines, coughs and screams. Fighting may occur when a female is near two adjacent males.

According to Amber Roth, currently a PhD student in Michigan and formerly a Wisconsin DNR wildlife research technician, otters, like other mustelids, can delay embryo implantation for 10-12 months depending on their health, food availability and the quality of available habitat. Active gestation is 60-63 days and females will mate again, usually within two months of having their litters. Breeding-aged females usually have one litter every year. The newborns are referred to as either pups or kits. Two to four pups are born in April or May, and are about 4 1/2 inches long and fully furred. Their eyes remain closed until they reach one month old.

The den is usually hidden from the male and is defended until the pups are old enough to depart. Males often set off from the females after mating, but may sometimes return to help rear the young.

Easy living in summer

Pups leave the dens in late spring and will stay with their mother for a year learning survival skills.

Otters are well adapted for swimming. Unlike muskrats or beavers, the otters barely make a ripple when swimming and hardly a splash when diving. Their ears and noses have valve-like skin that closes and keeps the otters watertight. Their eyes are specially adapted for underwater vision, so much so that they are nearsighted above water. River otters can stay underwater for four minutes, dive to depths of more than 40 feet, and swim at an average speed of 7 mph.

The main food an otter is after is fish. Suckers, minnows, carp, sunfish and bass make up nearly 77 percent of their diet, though they also dine on frogs and crayfish. Otters look for food near shorelines, overhanging banks and other aquatic cover. In Wisconsin, otters prefer slower moving fish like suckers to faster moving trout, but will feed on what is available. They grab prey with their mouths and may float on their backs holding smaller fish with their forepaws. Large fish are dragged on shore to be eaten.

By fall the pups have been weaned, but still stay close to their mothers. Young otters are sometimes seen playing with live fish and will catch a fish, release it, and catch it again; or they'll toss the fish between their paws or into the air. At first blush, otters appear to be tormenting the fish, but by passing fish to other otters those "games" improve their coordination.

As family groups, adult females and pups are very sociable. In addition to mutual grooming, otter family groups float down the river together in formations called rafts. These groups stay together until the mother is ready to have the next litter, then she will push away the pups encouraging them to find unclaimed habitat. Fighting may occur as young males establish these new territories.

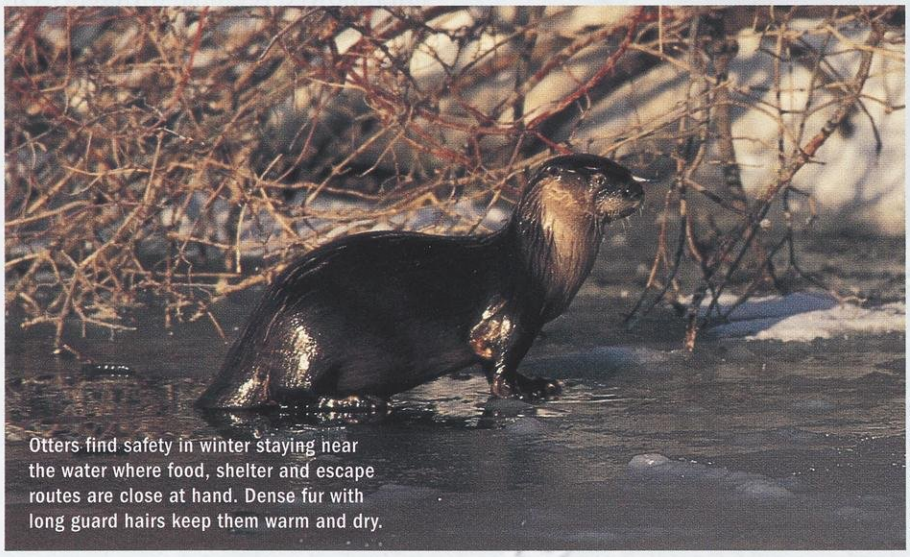
Keys for otter conservation

The river otter is sensitive to changes in its environment and is often found in areas far away from intense human activities. To conserve otter habitat, the national Otter Action Plan, drafted by research biologist Thomas Serfass of Maryland's Frostburg State University, calls to:

- reduce emissions that cause acid rain and affect otters' food chains;
- implement streambank fencing projects to keep grazing cattle farther

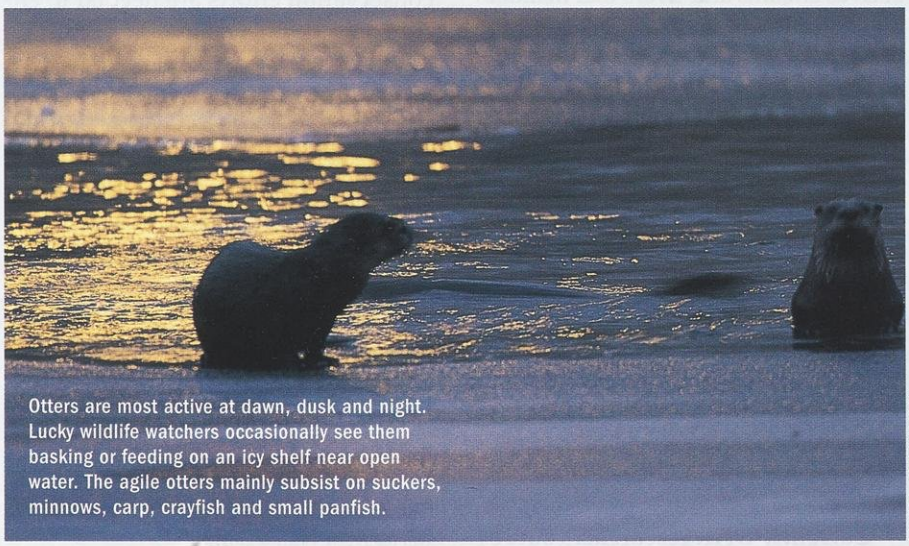
Former DNR wildlife researchers Amber Roth and Bruce Kohn developed and verified an efficient technique to estimate otter populations by taking aerial surveys over otter territories in winter.

PAULA J. HELLKAMP



Otters find safety in winter staying near the water where food, shelter and escape routes are close at hand. Dense fur with long guard hairs keep them warm and dry.

JACK R. BARTHOLMAI



Otters are most active at dawn, dusk and night. Lucky wildlife watchers occasionally see them basking or feeding on an icy shelf near open water. The agile otters mainly subsist on suckers, minnows, carp, crayfish and small panfish.

JACK R. BARTHOLMAI

from streamsides and nearshore aquatic habitats that otters use;

- enhance programs to protect wetlands and limit their loss;
- regulate mining activities nationwide that cause acid mine drainage and mitigate existing drainage that defiles streams; and
- enhance policies and enforce laws that reduce point source and runoff water pollution.

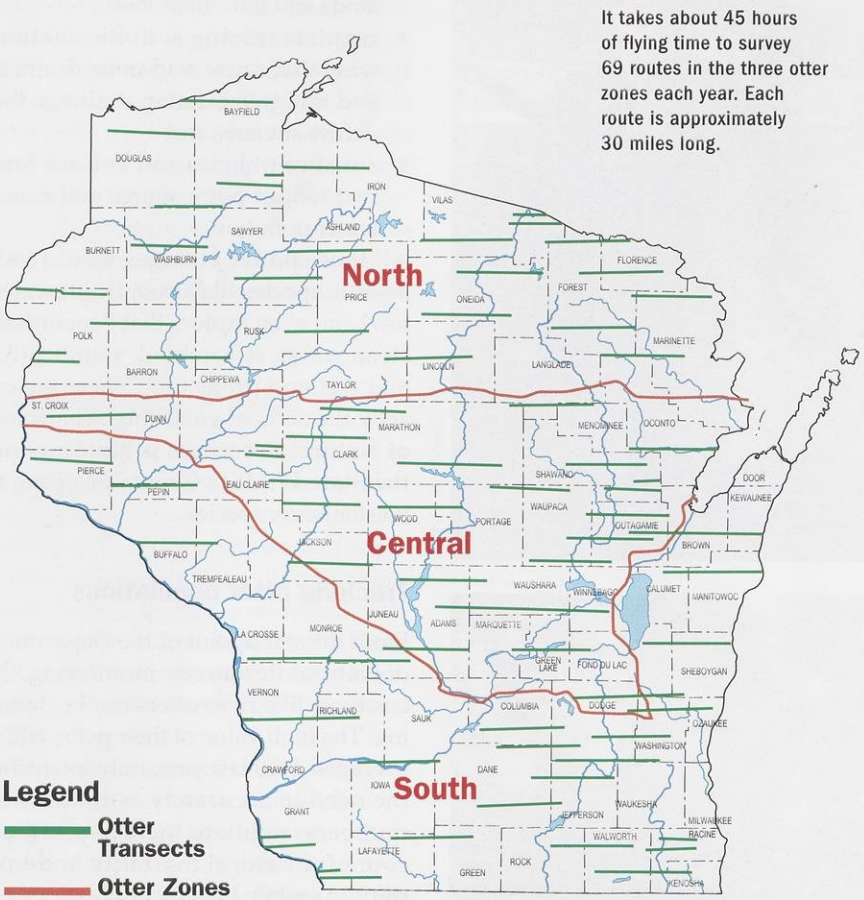
All these policy changes would help aquatic species like otter, trout, waterfowl and even raptors that benefit from clean water, streambank stabilization and wetland protection. These are exactly the sorts of goals the Department of Natural Resources is building into the State Wildlife Grants program to bolster many species.

Tracking otter populations

From the standpoint of the Department of Natural Resources, monitoring shy creatures like river otters can be daunting. The high value of their pelts, which averaged $110 last year, only intensifies the need to accurately estimate their numbers, regulate their harvest, account for natural mortality and take steps to sustain healthy populations.

DNR biologists use several different methods to estimate populations. The first is keeping up-to-date records of the number of otters trapped, registered (mandatory) and sold. A tightly controlled trapping season limits the number of permits sold in each of the three management zones. All otters harvested each year need to be registered with DNR conservation officers. The locations of kills, date, gender, type of trap used, and the name and address of the trapper are all recorded for each animal. These trapping numbers are cross-referenced and double-checked against the number of pelts marketed. Periodically, DNR biologists also require trappers to turn in otter carcasses for analysis. Wildlife researchers and health experts study the teeth and reproductive organs of the carcasses to age animals, determine how many pups each female has produced, measure skull size, estimate growth rates, note geographic variations in otter

Aerial otter transects in Wisconsin



DNR WILDLIFE RESEARCH

populations statewide and track population trends. Carcasses are also examined to monitor for contaminants in natural food chains. For instance, mercury concentrations in trapped otters provide important clues about where this environmental contaminant is accumulating in aquatic environments and food chains. Careful monitoring helps track animal health and sustain stable statewide populations. Otter carcasses are being collected statewide this harvest season.

The second method relies on ground and aerial census work. The aerial system was pioneered starting in 2001 by Bruce Kohn, a DNR wildlife researcher now retired. He conducted a three-year study to determine how and if observing otter tracks in the snow from airplanes could effectively, accurately estimate their populations. He selected 23 30-mile transects within each of the three otter management zones. The aerial studies were conducted on bright, sunny winter days within 1-3 days after a fresh snowfall when the pilots and researchers could best see the Morse code like ". . _" track pattern. The transects crossed areas where one would expect to see otters, such as streams and rivers that maintain a good flow in winter where the otters would find fish and other food sources.

At the same time, Kohn verified the aerial results by conducting traditional ground surveys. When the results were compared, the aerial surveys proved equally effective and far less expensive in gauging the population. To cover the selected transects each season takes a pilot, two observers per zone and a total of about 45 hours of flying time at an annual cost of $6,000. The Wisconsin Trappers Association saw the importance and need for this assessment for three years and offered to pay for the surveys.

Currently DNR researchers survey 69 transects statewide — 23 routes in each otter management zone. The biologists record the presence or absence of otter tracks at stream and river crossings along the 30-mile long routes. Each transect has eight or more stream or river crossings to provide adequate sample sizes and a greater chance of judging how populations are distributed. GPS locations for the western and eastern end points of each transect ensure that the same transects are surveyed each year.

In 1982, after the harvest season, otter populations were estimated at 12,600 animals, up to 15,600 by 1996, and back down to 12,500 in 2003. The harvest goals are set to maintain a minimum of 13,000 otters statewide before the season.

Analysis from the 2004 season results showed regional differences in otter reproductive rates and the sex and age composition of trapped animals. Fewer yearling female otters became pregnant in the central and southern Wisconsin zones, and the number of juvenile males harvested in the southern zone was lower than in other regions. If those trends continue, annual harvest goals will be refined to assure otter populations remain strong.

Given that each otter needs about three square miles of good quality habitat and ample supplies of fish to meet its daily needs, otters will never be as abundant as herbivores like beaver and muskrat that eat plants and can stand more crowded conditions. Sustained conservation efforts are needed to ensure a viable otter population throughout the state. If you would like to learn more about these secretive, playful animals, search "river otter" on the DNR website at www.dnr.wi.gov, search our EEK! site, or visit the River Otter Alliance web page at www.otternet.com/ROA/index.htm. And when you head out for a winter woods walk, bring a camera and look for telltale signs of the otter, a Morse code like track in the snow. Seeing these creatures in the wild is a memory you'll treasure for years to come.

Outdoor writer Judy Nugent crafts feature stories from Waukegan, Ill.

When the brook stopped babbling, neighbors started talking.

Keeping current

Cindy Koperski

An old schoolhouse, just east of Viroqua in Vernon County, is the peaceful place Paul and Laurie Wallace call home. Cook Creek, a small trout stream, splashes and gurgles by just a stone's throw from the house. However, one day in 2004, something didn't seem quite right: It was too quiet. Oh, there was the normal din of the day given two children and an outspoken yet friendly group of coon hounds, but something was missing.

On closer inspection, the Wallaces realized Cook Creek had ceased flowing. They immediately called the Vernon County Land and Water Conservation Department. A staff member came out, took photos and reported the incident to a Wisconsin DNR warden. The warden came out, looked around, determined no fish had perished and no laws had been broken, even though the water in the stream was completely gone. Within a few weeks, the stream began to flow again as mysteriously as it had stopped.

The unusual occurrence was probably one of nature's oddities, they thought — until it happened again, and again.

It was as if the waterway operated like a bathtub and someone had just turned off the tap and pulled the plug; the bubbling, rushing stream became an uneven, rocky ravine dotted with puddles of water. DNR biologists responded rapidly to a call of concern late in the summer of 2005, when water levels and flow rates were dropping fast, trapping fish in isolated pools. The fish were captured and moved downstream to places where sufficient water still flowed deep and fast. The fishery was salvaged, but there was still no explaining why segments of the stream drained twice a year.

Segments of Cook Creek in Vernon County would periodically stop flowing, stranding fish and aquatic invertebrates. It took teamwork by vigilant neighbors, a local business, DNR staff, a WGNHS hydrogeologist, and the Vernon County Land and Water Conservation Office to understand why the creek went dry.

One creek for many uses

Cook Creek is a Class I trout stream that contains naturally reproducing schools of brook trout along with healthy populations of mottled sculpin and an abundance of aquatic insects including mayflies, stoneflies and caddisflies. The creek is fed by a network of springs approximately a hundred yards upstream of the Wallace property. The stream flows in an easterly direction for nearly two miles before joining Maple Dale. These two waters both flow into a larger trout stream, Bishop Branch, which feeds into the web of waters forming the Kickapoo River.

The shallow upper end of Cook Creek serves as a spawning area and nursery for young brook trout. In the fall spawning season, adult brook trout seek out cold, oxygen-rich areas where groundwater seeps into the stream. The flowing springs bathe the fertilized eggs with fresh water throughout the winter while they grow. In spring, the young fish emerge from the gravelly streambed and swim freely, looking for food. As the young fish forage for insects and grow, they spend much of their time in the headwaters of Cook Creek adjacent to the Wallace home. As the fish approach adult size (approximately seven inches), they move downstream in search of larger prey.

Across the road and up the hill from the Wallace home lies the Mollett Quarry, owned by the Kraemer Company. Approximately twice a year, the company would pump water from a high-capacity well on the property to wash

big piles of gravel crushed from its pits; the cleaned gravel is used for specific concrete mixes and road projects. The Wallaces had noticed that the quarry's well was in use each time the stream went dry.

"Whether it's with a pump and tanker or a high-capacity well, no one should be able to dry up a creek simply because they need water," Paul Wallace said. Even so, the quarry was operating within the limits of its well approval issued in 1994.

To look for clues that might explain any connection to the water loss in Cook Creek, investigators reviewed the construction report detailing the well depth and descriptions of each rock layer encountered when the high-capacity well was drilled. The report raised the possibility that the well penetrated two distinct aquifers separated by a layer of impermeable rock. DNR groundwater specialists surmised it was possible that when the well pump was operated to wash gravel at the surface, it pulled water from the upper aquifer, which likely also supplied water to Cook Creek.

The well had been drilled properly and had the required 60 feet of steel casing and cement grout. The casing and grout keep the well from caving in and prevent surface water and shallow groundwater from contaminating deeper aquifers. An inspection of the well confirmed it met safety measures and complied with the groundwater law in place at the time the well had been drilled in 1994.

A change in the groundwater law

Due to concern that a proposed water bottling plant in Adams County could dewater neighboring trout streams, the groundwater law was updated in 2003 to require that high-capacity wells could not be sited closer than 1,200 feet from a trout stream. Permits for high-capacity wells that cannot be located outside this groundwater protection area of 1,200 feet could still be issued if the Department of Natural Resources could propose an alternative well location or add specific conditions on well construction to lessen the environmental consequences. Although the Mollett Quarry well is only 350 feet from Cook Creek, it was grandfathered under the previous regulations. Because this well predated the legal change, the agency approached the quarry operators to investigate further and determine if well modifications would reduce water level fluctuations in the creek.

To determine if there was a definitive link from the dried-up stream to pumping at the high-capacity well, the Kraemer Company agreed to notify DNR groundwater and drinking water staff the next time gravel washing dates were scheduled.

When the advance notice came, stream flow was measured in Cook Creek daily for one week prior to pumping in numerous locations to document the stream conditions. DNR staff was also on the scene to measure stream flows the day the well began pumping. Segments of the stream ceased flowing four hours after pumping began, and the water began to flow again over the weekend when the quarry well was not in use. When pumping began again on Monday morning, portions of the stream once again dried up.

DNR investigators met with Kraemer Company representatives and staff from the Wisconsin Geological and Natural History Survey (WGNHS) to discuss the problem. The survey provides objective scientific information about geology and water resources for informed decision making by government, industry, business and individual citizens.

With permission from Kraemer Company, WGNHS lowered special probes and equipment down the well to measure the characteristics of the rock in the borehole. They concluded the well intercepted a large fracture in the rock at 106 feet deep — the same approximate

Laurie and Paul Wallace alerted authorities when the trout stream next to their house periodically stopped flowing.

Cook Creek Schematic

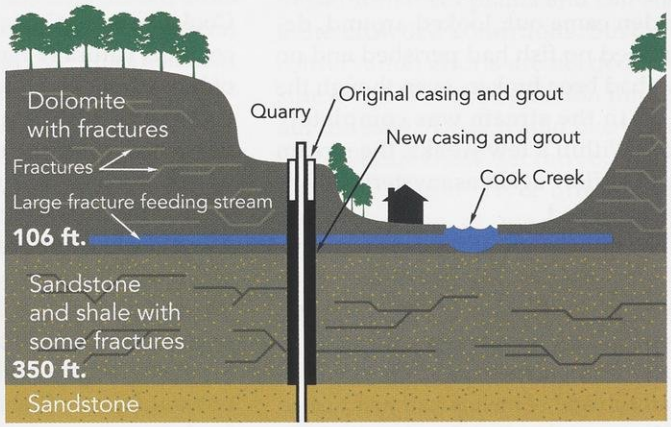
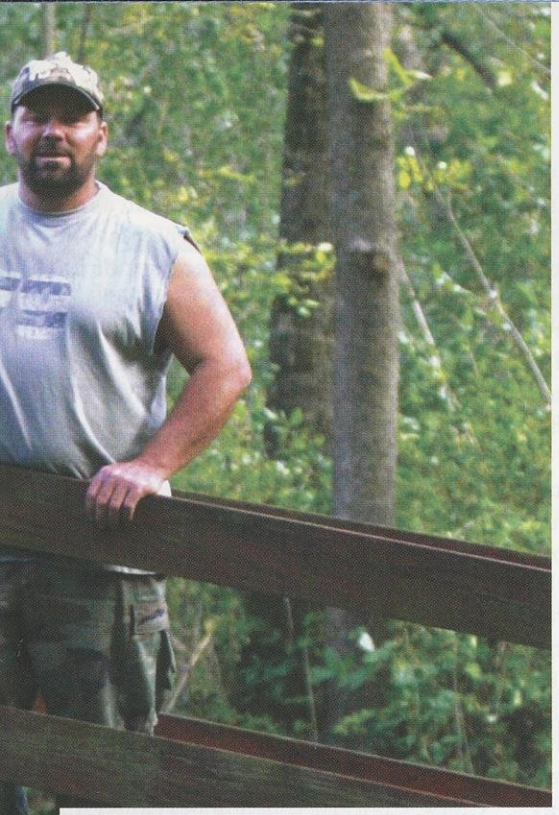
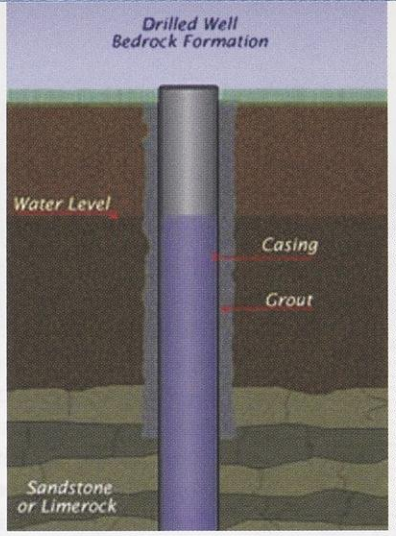


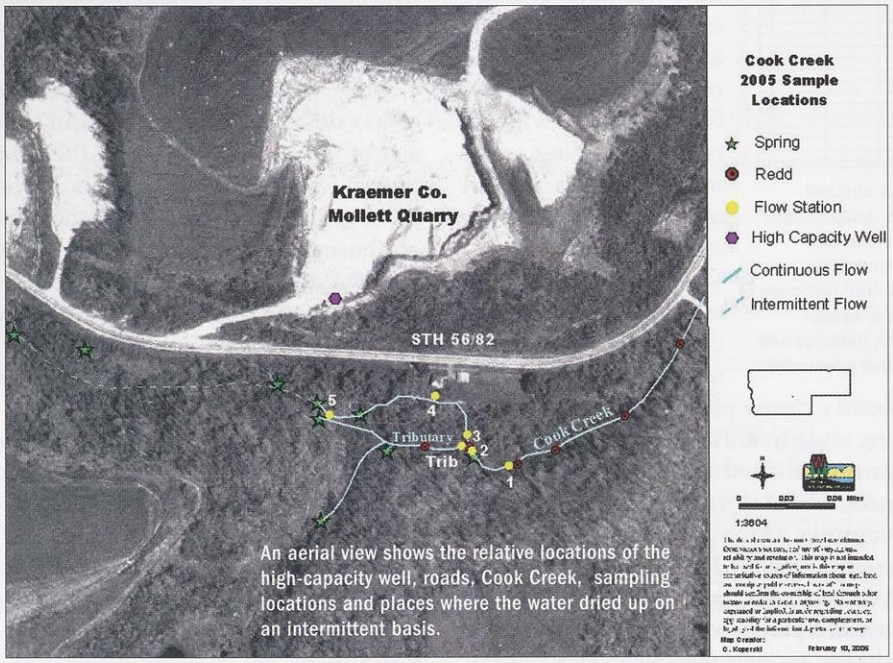
ILLUSTRATION BY WALDBILLIG & BESTEMAN FROM A DRAWING BY CINDY KOPERSKI





COURTESY OF DNR DRINKING WATER PROGRAM

Drinking water wells are surrounded with metal casing to keep loose soils and surface layers from collapsing into the well, seal out surface contaminants that could infiltrate into the well and stop the well from serving as a conduit that could carry contaminants into groundwater. Usually wells only need to be cased to 60 feet or so. Cement or bentonite grout around the casing anchor the well and create a watertight seal.



An aerial view shows the relative locations of the high-capacity well, roads, Cook Creek, sampling locations and places where the water dried up on an intermittent basis.

CINDY KOPERSKI

CINDY KOPERSKI

elevation as Cook Creek. Tests led investigators to conclude that water contained within this fracture drains to the bottom of the 550-foot-deep well at a rate of about 90 gallons per minute around the clock, even when the well isn't operating and is absorbed into the lower aquifer. The fracture could lose approximately 134,000 gallons of water every day. However, the well was used only about 20 days a year, and pumped an average of 80,000 gallons per day to wash gravel. On days when the well operated, the pump created suction in the borehole, which drew water more readily from the fractured part of the bedrock than from the bottom of the well. This drawdown lowered the normal water table in the well and surrounding rock and extended at least 350 feet away from the well, effectively draining portions of Cook Creek dry.

Casing a solution

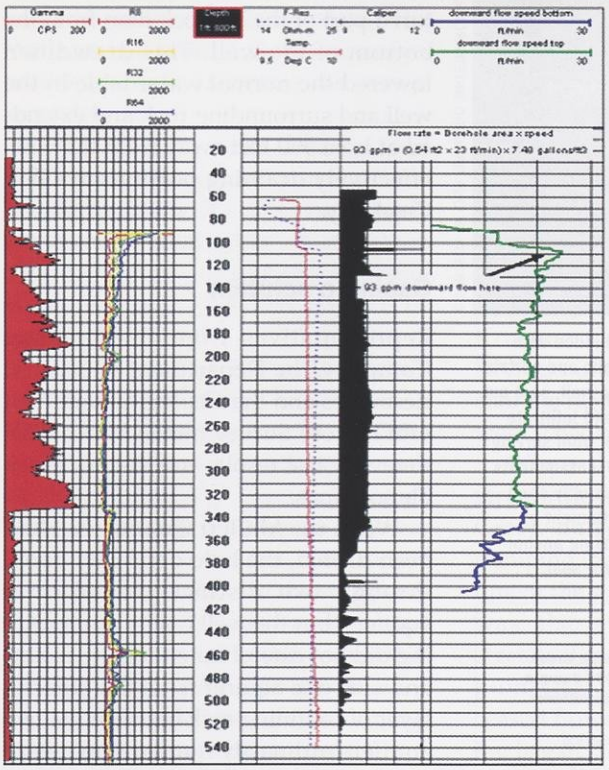
Representatives from the Kraemer Company, the Department of Natural Resources and the Geological and Natural History Survey met in March 2006 to review test results and discuss possible solutions.

When the Mollett Quarry well had been drilled, the hole definitely bored through two distinct groundwater aquifers, but the well casing and grouting did not extend far enough to isolate and seal one aquifer from the other. A layer of confining rock between the two aquifers ordinarily limited downward movement of groundwater from the upper aquifer into the deeper aquifer, so groundwater in that upper layer flowed laterally instead of vertically. This lateral flow supplies water to Cook Creek. Analysis showed the bored well provided a conduit that connected the two aquifers.

In situations where shallow aquifers become contaminated, environmental rules require new wells to be drilled deeper to tap into clean, uncontaminated water supplies. Those wells are cased and grouted all the way down into the deeper aquifer to protect the water supply from contaminated water in the shallower aquifer. The same concept was proposed for the Mollett Quarry: By casing and grouting the well much deeper, it would seal off the shallower aquifer feeding the stream. Then, when the pump drew water, it would only draw from the lower aquifer, which would not affect the stream flow. Kraemer Company agreed to the modifications and hired a contractor in April 2006 to add 300 feet of casing and grout to their Mollett Quarry well.

After the well renovation, the water flow in Cook Creek was again monitored for a week before the next gravel

Mollett Quarry Well Flow Rates



WIS. GEOLOGICAL AND NATURAL HISTORY SURVEY

Test results tell a tale. Probes lowered down the well take physical measurements of the borehole, measure water flow rates, temperature and electrical resistivity. The wider band on the left side measures gamma radiation and shows this well penetrated clean sandstone formations then reached clays and shale from about 100-330 feet deep before encountering another sandstone layer and a second aquifer. Interpreting other tests revealed the water flow rates, rock fractures and other clues about the underground "plumbing" that the well penetrated.

washing operation and was flowing just fine. On June 13, 2006 the well pump was turned on. The babbling brook continued its noisy way downstream, tumbling over rocks and against the steep hillside throughout the three weeks when gravel was washed. The volume of water in Cook Creek's headwaters remained steady and was unaffected by water withdrawal from the quarry well.

Thanks to this cooperative project among landowners, industry and government, water flows steadily in Cook Creek's spawning and nursery areas, and the quarry has plenty of water for gravel washing from its high-capacity well.

Understanding what can't be seen

Testing and research provided clues about the nature of groundwater near the well, but there are no detailed maps of underground geology and aquifers. Researchers envision underground conditions by extrapolating from the information gathered when wells are drilled and test holes bored. For instance, wells drilled in the vicinity of proposed high-capacity wells offer clues to the depth of groundwater and specific bedrock found in a given locale. Well construction reports filed by drillers for every well they bore detail the groundwater depth and kinds of rock encountered at every drill site. These reports document how variable geology can be even in wells that are very close to each other. Groundwater levels can change with increased pumping, so we must remain watchful and invest in groundwater monitoring.

Although we can't see underground, we can use every available source of information to build a clearer picture of what's happening underfoot. The WGNHS has studied and published detailed geology and groundwater reports for Wisconsin counties. An advisory committee of county officials, DNR staff, University of Wisconsin-Extension staff and other interested parties review these reports. The studies are consulted when local officials examine proposals for high-capacity wells, municipal wells, community pools and other developments that might draw significant amounts of water.

As we gather more information about groundwater, and as we become more knowledgeable about our groundwater resources, we can periodically refine the groundwater law to better protect streams and springs through the permitting process. A recent proposal for a high-capacity well located approximately 375 feet from a classified trout stream in La Crosse County is a case in point. The property owner's land did not extend the minimum distance of 1,200 feet from the stream as required by the new groundwater law. A WGNHS study, "The Geology of La Crosse County," noted the average depth to bedrock in the area was reasonably shallow. If the proposed well was cased and grouted to a depth of 170 feet, regulators reasoned the well would be sealed off from the upper aquifer that fed the stream. Based on that study, when the permit was issued, it required additional casing. Without the benefit of the detailed report, permit drafters would have required only 60 feet of casing, which may not have been enough to protect water levels in the stream.

Many people share the credit for restoring a steady flow of water to Cook Creek. Concerned neighbors called for investigators. Investigators called for additional technical help. The Kraemer Company granted access to its well to collect detailed bedrock data, and once a problem was discovered, the firm took quick, decisive action on its own to fix it. Collaborative work by landowners, business owners, the Vernon County Land and Water Conservation Department, the Department of Natural Resources and the Geological and Natural History Survey unraveled the problem and devised a solution.

It's fun to be a part of the solution when we can explain what happened and the owners are ready to do what needs to be done to resolve the situation, says Dave Hart, hydrogeologist, who examined the borehole for the Wisconsin Geological and Natural History Survey.

We are drawn to water, to the comforting sound of water tumbling over rocks, and to the sight of fish rising to the surface to feed. Water quenches our thirst, and a steady supply of clean drinking water forms a connection and a lifeline to the natural world around us. Now Cook Creek once again flows through the daily lives of the Wallace family, and the fish and insects that also call it home.

Cindy Koperski helps manage watersheds as part of the Western Rivers Team from DNR's La Crosse office.

For Our Patrons

NEWS FOR CONSERVATION PATRON LICENSE HOLDERS AND POTENTIAL PATRONS

Four easy ways to purchase

Thanks for your interest in renewing or buying a **hunting, fishing or Conservation Patron license**. These licenses expire each year on **March 31st.** The Wisconsin Department of Natural Resources offers four convenient ways to quickly buy recreational licenses starting March 9, 2007. Choose an option:

1. BUY ONLINE

Visit **dnr.wi.gov** on the Internet to purchase recreational licenses online. From the main page, look for the Online Services heading, then choose "Hunting and Fishing Licenses." That brings you to the Online Licensing Center. Choose the "Purchase a License" option. After you verify your name, address and a few other simple questions, you can start your online shopping. The very first option on the form under the "Combination" heading is the Conservation Patron license.

Online orders may be billed to either MasterCard or Visa credit cards for a $3 handling fee. Make sure your computer is hooked up to a printer before purchasing your licenses so you can print your receipt.

2. CALL US

Purchasing a license by phone is a snap. Call toll-free 1-877-WI LICENSE (1-877-945-4236). Phone orders can be billed to either Visa or MasterCard for a $3 handling fee. At the end of your transaction, you will receive an authorization number that provides immediate license privileges during open seasons, except those that require a carcass tag.

3. VISIT US

Recreational licenses can be purchased at more than 1,500 sporting goods stores, merchants and resorts as well as at DNR offices. Don't know where the nearest DNR Service Center is located? The locations and phone numbers of all centers are listed on page 4 of this publication. You can also find a listing online at **dnr.wi.gov** under the heading "About." Click on the icon "Service Centers" listed under the "Contacts" list. You can search by county or city for DNR offices and businesses that sell recreational licenses.

4. BUY BY MAIL

For Conservation Patrons who prefer to renew their CP license through the mail, fill out the form on the reverse side and mail it to: DNR - Attn: Conservation Patron Renewal, P.O. Box 7924, Madison, WI 53707-7924. Be sure to include a $3 handling fee in your check that is made payable to DNR, or pay by MasterCard or Visa credit card. DNR will start processing these mail-in applications on March 9, 2007. Allow 4-6 weeks from this date to receive CP license renewals sent by mail.

RESERVE A BACKTAG NUMBER?

Conservation Patron and Sports License holders have the option of reserving a four-digit backtag number for a $5 annual fee on a first-come, first-served basis. Reserve your backtag number before buying or renewing a license. That backtag number will continue to be reserved for your use until you request otherwise or do not purchase a Conservation Patron or Sports License for two consecutive years. To reserve or relinquish your backtag number, call Patron/Sports License Coordinator Sue Meyer at (608) 266-7030 or e-mail her at sue.meyer@wi.gov.

2007 Wisconsin Conservation Patron License Renewal Application

Form 9400-356R Rev. 1/07

Resident — $165.00 Nonresident — $600 Junior Resident CP (12–17 yrs.) — $75.00 Junior Nonresident CP (12–17 yrs.) — $77.00

Notice: Information collected on this form is required for any application filed under Chapter 29, Wis. Stats., and may be used for eligibility for approvals, participation in surveys, law enforcement and other secondary purposes. Credit card data will be kept confidential and will only be used to process this license request, under S.29.024 (2g), Wis. Stats.
☐ Check here if you want personal identifiers collected on this form withheld from disclosure on any list of 10 or more individuals that the DNR is requested to provide to another person (s.23.45, Wis. Stats.)

Name (Last–First–Middle) (Please print or type) DNR Customer# *(required)*

Street Address

City, State, Zip Code Hunter Safety # and State ( ) Daytime Telephone Number

Date of Birth (Mo–Day–Yr) Eye Color Hair Color Weight Height Gender (M–F)

Please answer the following questions: (Circle your answer)

Yes No 1. Do you wish to make a contribution to the Fish & Wildlife Fund? If yes, enter amount $ _____

Yes No 2. Do you wish to make a donation to food pantry venison processing? If yes, enter amount $_____

Yes No 3. Do you intend to hunt ANY migratory birds? If yes, you must complete **Section A – HIP Certification** (required annually for questions 5 and 6 below)

Yes No 4. Residents only: Do you intend to trap? If yes, indicate which of the qualifications you meet:

- ☐ Trapper Education graduate
- ☐ Previously purchased a license, which authorized trapping prior to 1992
- ☐ I actively engage in farming (per s. 102.4(3), Wis. Stats.)

Yes No 5. Do you want an Early Season Canada Goose permit?

Yes No 6. Do you want to hunt the Regular Canada Goose Season? If yes, choose ONE of the following:

- ☐ Horicon or Collins Zone (complete the application in your Patron packet)
- ☐ Exterior Goose Zone (permit will be received with Conservation Patron license)
- ☐ Undecided (complete the application in your Patron packet)

Yes No 7. Will you fish for sturgeon using hook and line? Which tags would you like?

☐ Inland (includes Mississippi River) ☐ Wisconsin/Michigan Boundary ☐ Both

Section A — HIP Certification

Circle the quantity of birds bagged last year (for each species):

	Quantity Bagged			
Ducks	Did Not Hunt	0	1–10	>10
Geese	Did Not Hunt	0	1–10	>10
Woodcock	Did Not Hunt	0	1–30	>30
Rails/Gallinules	Did Not Hunt		Hunted	
Coots/Snipe	Did Not Hunt		Hunted	
Mourning Doves	Did Not Hunt	0	1–30	>30

Conservation Patron license:

Resident ($165)	$ _____
Nonresident ($600)	$ _____
Jr. Res ($75)/Nonres ($77)	$ _____
Fish & Wildlife Fund Contribution	$ _____
Food Pantry Venison Donation	$ _____
Reserved Backtag *(optional)* *(Fee, $5.00)*	$ _____
Application handling fee	$ 3.00
Total Amount Due	$ _____

Payment: Credit card information will be kept confidential and only used to process this license request.

Make checks payable to "DNR" or please charge my: ☐ Visa ☐ MasterCard Expiration Date:_____

Card Number ___ ___ ___ ___ - ___ ___ ___ ___ - ___ ___ ___ ___ - ___ ___ ___ ___

I hereby certify that I have complied with all of the laws regulating the issuance and purchase of this license and that my license privileges are not otherwise revoked.

Signature of Applicant _____ Date Signed:_____

Mail to: DNR–Attn: Conservation Patron Renewal, P.O. Box 7924, Madison, WI 53707-7924

2007 Wisconsin Hunting & Trapping Seasons

Get your regulations faster!

Visit dnr.wi.gov to view and print regulations up to one month before they are available in print.

Some seasons may be subject to change. Consult the hunting regulations pamphlet(s) before going hunting or check the DNR's website at dnr.wi.gov.

WISCONSIN DEPT. OF NATURAL RESOURCES

PUB-WM-153 2007

Ruffed Grouse

Zone A Sept. 15 - Jan. 31, 2008
Zone B Oct. 20 - Dec. 8

Bobwhite Quail

Statewide Oct. 20 (noon) - Dec. 12

Sharp-tailed Grouse

Oct. 20 - Nov. 11

Pheasant

Statewide Oct. 20 (noon) - Dec. 31

Woodcock

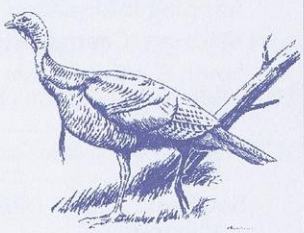
Sept. 22 - Nov. 5

Wild Turkey

Youth Turkey Hunt Apr. 7 - 8

Open Zones

Spring	Period A	Apr. 11 - 15
	Period B	Apr. 18 - 22
	Period C	Apr. 25 - 29
	Period D	May 2 - 6
	Period E	May 9 - 13
	Period F	May 16 - 20
Fall		Sept. 15 - Nov. 15



Mourning Dove

Statewide Sept. 1 - Oct. 30

Waterfowl

Season dates for waterfowl vary annually. Duck and regular season goose regulations will not be available until August.

Canada Goose

Early Goose Season Sept. 1 - 15

Hungarian Partridge

Statewide* Oct. 20 (noon) - Dec. 31

* Closed in Clark, Marathon and Taylor counties

Crow

Sept. 15 - Nov. 15 and
Jan. 19 - March 20, 2008

White-tailed Deer (non-CWD units**)

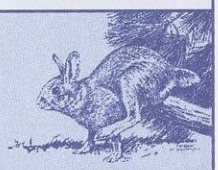
Due to pending rules, these deer seasons may be modified.

Bow	Sept. 15 - Nov. 15 and Nov. 26 - Jan. 6, 2008
Gun	Nov. 17 - Nov. 25
Muzzleloader	Nov. 26 - Dec. 5
Youth Deer Hunt	Oct. 6 - 7
Statewide Antlerless Only	Dec. 6 - Dec. 9

** See the 2007 Deer Hunting Regulations for a list of Herd Control and Earn-a-Buck units, and for CWD hunt dates.

Jackrabbit

Statewide Oct. 20 (noon) - Nov. 15



Cottontail Rabbit

Northern Zone Sept. 15 - Feb. 28, 2008
Southern Zone Oct. 20 (noon) - Feb. 28, 2008

Squirrels, Gray and Fox

Statewide Sept. 15 - Jan. 31, 2008

Raccoon

Resident Gun/Trapping Oct. 20 - Jan. 31, 2008
Non-Resident Furbearer Nov. 3 - Jan. 31, 2008

Black Bear

Zone C where dogs **are not** permitted:
Sept. 5 - Oct. 9

Zones A and B and subzone A1 where dogs **are** permitted:

Sept. 5 - Sept. 11
- with aid of dogs only

Sept. 12 - Oct. 2
- with aid of dogs
- with aid of bait
- with other methods

Oct. 3 - Oct. 9
- with aid of bait
- with other methods **not** utilizing dogs

Keep the traditions alive! Take a kid hunting.

Coyote

Hunting
Continuous open season except closed in the northern Wisconsin wolf management zone during the regular gun deer, December anterless only, and muzzleloader seasons.

Trapping
Northern Zone Oct. 20 - Feb. 15, 2008
Southern Zone Oct. 27 - Feb. 15, 2008

Fox (all species)

Northern Zone Oct. 20 - Feb. 15, 2008
Southern Zone Oct. 27 - Feb. 15, 2008

Beaver

Trapping only

Zone A (Northwest)	Nov. 3 - Apr. 30, 2008
Zone B (Northeast)	Nov. 3 - Apr. 30, 2008
Zone C (South)	Nov. 3 - Mar. 31, 2008
Zone D (Mississippi River)	Day after duck season closes to March 15, 2008

Mink

North Zone	Oct. 20 - Feb. 29, 2008
South Zone	Oct. 27 - Feb. 29, 2008
Winnebago	Oct. 27 - Mar. 15, 2008
Mississippi River	Begins the day after duck season closes or the second Monday in November, whichever occurs first, and ends on February 29, 2008

Muskrat

North Zone	Oct. 20 - Feb. 29, 2008
South Zone	Oct. 27 - Feb. 29, 2008
Winnebago	Oct. 27 - Mar. 15, 2008
Mississippi River	Begins the day after duck season closes or the second Monday in November, whichever occurs first, and ends February 29, 2008.

Bobcat, Otter and Fisher

Permits required

Bobcat	Hunting/ Trapping	North of Hwy. 64	Oct. 20 - Dec. 31
Fisher	Trapping only	Various Zones	Oct. 20 - Dec. 31
Otter	Trapping only	North Zone	Nov. 3 - Apr. 30, 2008
		Central Zone	Nov. 3 - Mar. 31, 2008
		South Zone	Nov. 3 - Mar. 31, 2008

Opossum, Skunk, Weasel and Snowshoe Hare

No season limits, bag limits, size limits or possession limits.

Protected Species

Hunting Protected Species such as badger, woodchuck, and flying squirrel, is prohibited. See Small Game Regulations for more details.

Permit Application Deadlines

Horicon & Collins Zones Goose Seasons	August 1
Fall Turkey	August 1
Sharp-tailed Grouse	August 1
Bobcat	August 1
Otter	August 1
Fisher	August 1
Spring Turkey	December 10
Bear	December 10

Drawing Dates

Horicon & Collins Zones Goose Seasons	Late August
Fall Turkey	Late August
Sharp-tailed Grouse	Mid-September
Bobcat	Mid-September
Otter	Mid-September
Fisher	Mid-September
Spring Turkey	Late January
Bear	Early February

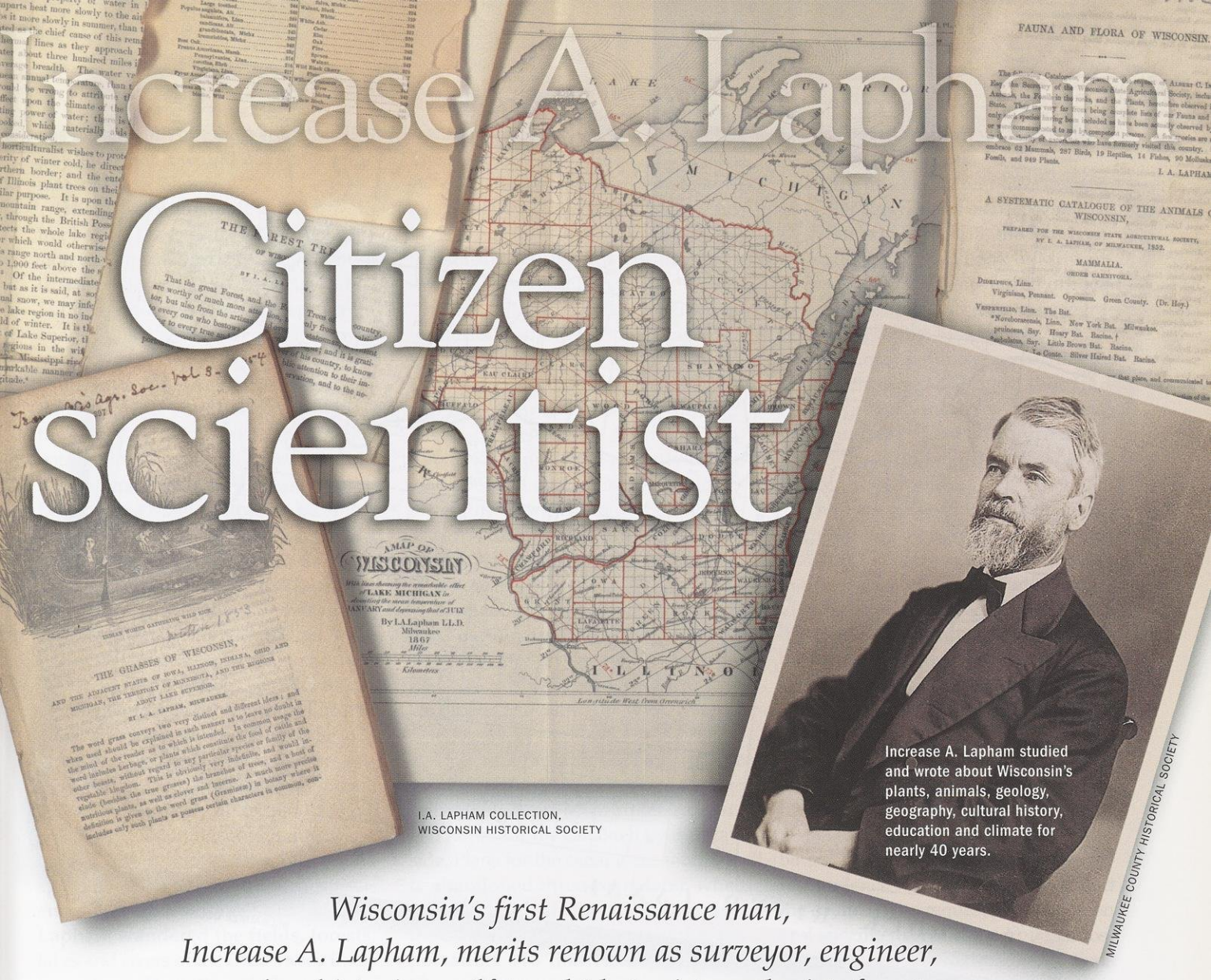
To check permit drawing results, go to: *dnr.wi.gov*

DNR Service Centers

Office hours vary by location. For general hunting and trapping information call 1-800-282-0367 or:

Madison (Central Office)	608-266-2621
South Central Region (Fitchburg)	608-275-3266
Dodgeville	608-935-3368
Horicon	920-387-7860
Janesville	608-743-4800
Poynette	608-635-8110
Southeast Region (Milwaukee)	414-263-8500
Plymouth	920-892-8756
Sturtevant	262-884-2300
Waukesha	262-574-2100
Northeast Region (Green Bay)	920-662-5100
Oshkosh	920-424-3050
Peshtigo	715-582-5000
Sturgeon Bay	920-746-2860
Wautoma	920-787-4686
West Central Region (Eau Claire)	715-839-3700
Baldwin	715-684-2914
Black River Falls	715-284-1400
LaCrosse	608-785-9000
Wausau	715-359-4522
Wisconsin Rapids	715-421-7800
Northern Region (Spooner)	715-635-2101
Antigo	715-627-4317
Ashland	715-685-2900
Cumberland	715-822-3590
Hayward	715-634-2688
Ladysmith	715-532-3911
Park Falls	715-762-3204
Rhinelander	715-365-8900
Superior	715-392-7988
Woodruff	715-356-5211

Increase A. Lapham
Citizen scientist



I.A. LAPHAM COLLECTION, WISCONSIN HISTORICAL SOCIETY

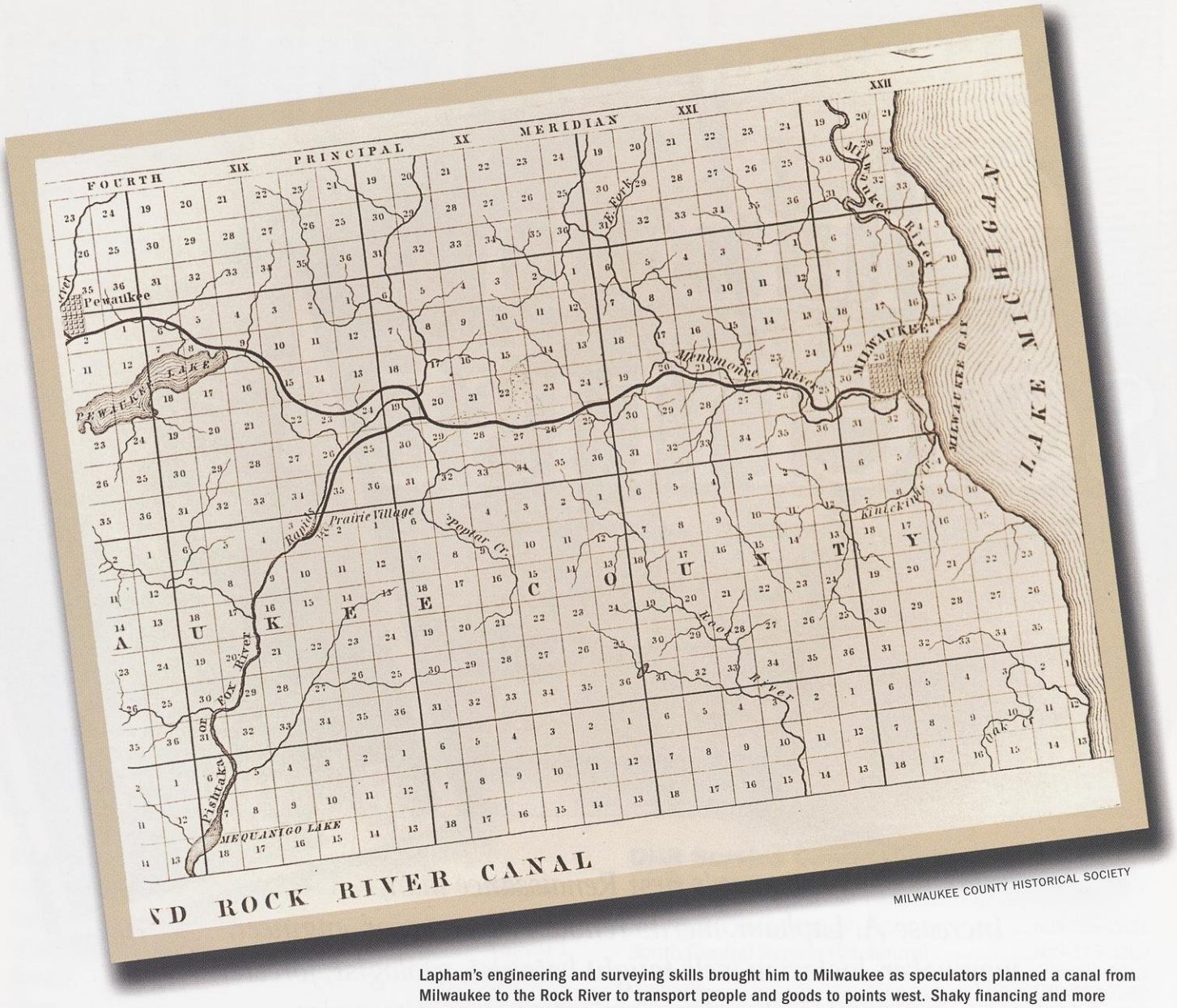
Increase A. Lapham studied and wrote about Wisconsin's plants, animals, geology, geography, cultural history, education and climate for nearly 40 years.

MILWAUKEE COUNTY HISTORICAL SOCIETY

Wisconsin's first Renaissance man, Increase A. Lapham, merits renown as surveyor, engineer, mapmaker, historian, self-taught botanist, geologist, forester, meteorologist and a prescient conservation voice.

Erika Janik

On an early summer evening in 1836, the steamship New York docked on the Milwaukee lakefront and a young naturalist and engineer stepped ashore. Only 25 years old and already gaining notice for his scientific skills, Increase A. Lapham had come to Milwaukee from Ohio to help dig a canal. Barely two years old when Lapham arrived, Milwaukee was a bustling settlement of nearly 1,200 people. With skyrocketing land prices and immigrants pouring into the surrounding countryside, lakeshore promoters had proposed constructing a canal from Milwaukee westward to the lead region as a way to ensure Wisconsin's continued prosperity.



MILWAUKEE COUNTY HISTORICAL SOCIETY

Lapham's engineering and surveying skills brought him to Milwaukee as speculators planned a canal from Milwaukee to the Rock River to transport people and goods to points west. Shaky financing and more rapid growth of railways ended the project. Above is a sample of Lapham's survey map showing portions between Milwaukee and Pewaukee.

The canal was never built but young Lapham, like thousands of other new settlers, decided to cast his lot with the new Wisconsin Territory. By the time he died in 1875, Lapham had spent nearly 40 years observing and recording the Wisconsin landscape and writing his life upon this land.

Something about this place attracts generations of people committed to Wisconsin's environment in a passionate way. Yet while Sigurd Olson, Aldo Leopold, John Muir and Gaylord Nelson are familiar names, the state's first great scientist and naturalist — a man who saw the need for conservation a generation before his peers — is often forgotten.

There is much for which Increase Lapham might be remembered. He authored the first book published in Wisconsin, drew the first published map, investigated Wisconsin's effigy mounds, native trees and grasses, helped establish a public high school and the Milwaukee Female Seminary, led the State Historical Society, served as chief geologist, and founded the National Weather Service. For all these accomplishments he was respected in his own day and should be remembered in ours.

Perhaps Lapham's more important contributions, however, were his exhortations to protect Wisconsin's natural resources, particularly its forests. Lapham believed that the landscape was a source of great national wealth, providing benefits to people, animals and climate, all of which he feared were under threat of permanent destruction.

His abiding senses of history and of the historical value of the landscape underlay his urgency to record and preserve the world around him and prevent its destruction. He encouraged people to connect with nature and to observe the wonders around them. And he encouraged them to teach their children to love and appreciate nature.

Lapham developed an intimate knowledge of Wisconsin through an obsession with scientific inquiry. In a letter to his brother in 1844, he apologized for not writing sooner because his "head

has been so full of topography, geography, etc., that it would not contain the material for a letter."

His sense of a natural world vanishing before his eyes informed his mission to record his adopted home before it was too late. Like Aldo Leopold, Lapham understood that every action changes nature and the question was not *whether* to change nature, but *how*.

Increase Allen Lapham was born in Palmyra, New York, on March 7, 1811, the fifth of 13 children. His Quaker parents could not afford to have their children attend school so Increase, whose father was a canal contractor, became a laborer on canal construction crews.

He got his first job at age thirteen, cutting stone for lock gates at Lockport, New York. Even without formal education, Lapham demonstrated an early talent for topographical sketching. When he was fourteen, Lapham began supplementing his dollar-a-day income by drawing and selling plans of the lock to townspeople. He became so proficient that in 1828, when only seventeen, he drafted virtually all of the plans for the canal at Shippingsport, Kentucky.

Surveying and excavating canals sparked an interest in the natural sciences that would define his adult life. Lapham wandered the fields, forests, lakes and rivers of the Ohio Valley in his spare time. He gathered plants, rocks and shells that he tirelessly classified and recorded in a diary he called "A Journal of Science and Arts with Miscellaneous Nonsense by the Auther."

Lapham also kept notes of the many books on natural history, geology, and botany that he read to educate himself on his surroundings. At the age of sixteen, he published his first article on the geology of the Old Northwest in the *American Journal of Science and Art*.

On the strength of his drafting skills, Lapham rose from a common laborer to an engineer and surveyor of canals in the 1830s. He surveyed part of the Ohio Canal, and in 1835, he was appointed deputy surveyor of Franklin County, Ohio. Though the job was low-paying, the position gave him plenty of free time each day to devote to his scientific pursuits.

By this time, Lapham had become well-known in several scientific fields. The Historical and Philosophical Society of Ohio commissioned him to compile a catalog of the state's plants, animals and minerals, and the Ohio legislature sought his counsel on a statewide geological survey.

Early in 1836, Lapham received an invitation from his former employer, Byron Kilbourne, to come to Milwaukee. Ten years before, Lapham had worked under Kilbourne on the engineering crew of the Miami (Ohio) Canal. Kilbourne had recently begun land speculating in Wisconsin and believed the construction of the Milwaukee and Rock River Canal would allow Milwaukee to become the preeminent lakeshore city.

Lapham, initially reluctant to leave his position in Ohio, accepted Kilbourne's offer and arrived in Milwaukee, a town "improving as rapidly as the timber will allow" he wrote, on July 1, 1836.

Only months after Lapham arrived, however, financial panic jolted frontier optimism about Milwaukee's future and hopes for the canal fell by the wayside. Plans for the canal were completely abandoned three years later, when railroad development quickly trumped the canal as a superior means of transportation. No matter, Lapham had plans of his own.

Despite the hardships of the frontier and the urgings of his brother to return home to Ohio, Lapham decided to stay in Wisconsin. Lapham had moved around enough: in October of 1838, Lapham and his new wife, Ann Maria Alcott, settled in Milwaukee.

Over the next 20 years, Lapham helped his new hometown grow from a village to a booming city. Appointed deputy surveyor for Wisconsin Territory, Lapham surveyed city plots and registered land claims until the government land office opened in Milwaukee. He arbitrated land claims and drew the basic plat of the city.

At the same time, Lapham pursued the scientific work that truly captivated him. Within a year of his arrival, he published Wisconsin's first scientific imprint, a *Catalogue of Plants and Shells Found in the Vicinity of Milwaukee* (1836). He also began work on what he called a "Gazeteer of Wisconsin."

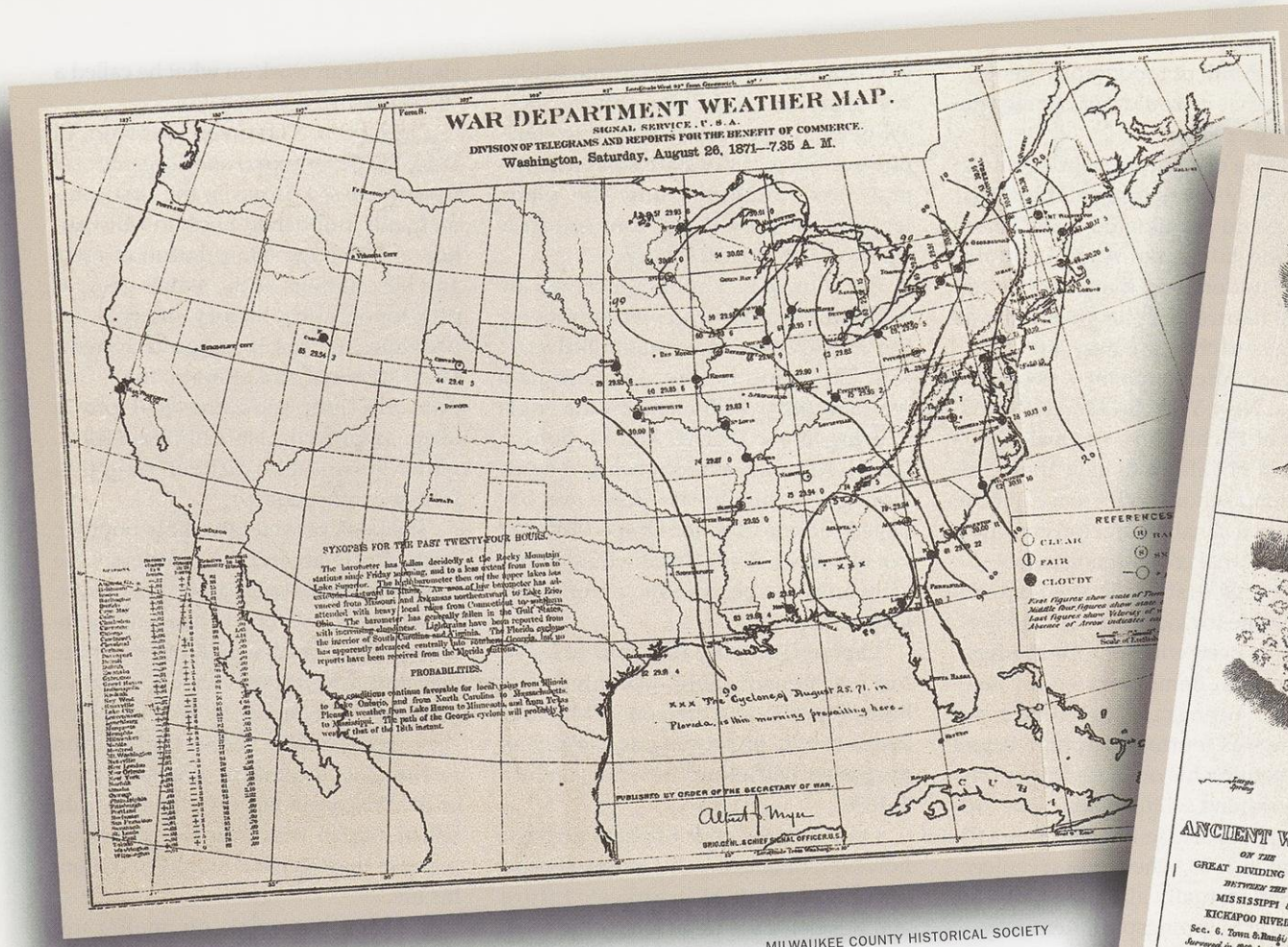
Lapham's "Gazeteer" became, in 1844, his *Geographical and Topographical Description of Wisconsin*, the first commercially published book in Milwaukee. A 255-page compilation of facts and descriptions of the state's geography, topography, history, internal improvements, geology, government, lands, schools and climate, that "furnish...in a cheap and convenient form, a large amount of useful information, which it would be difficult to obtain from any other source."

The book proved incredibly popular, particularly among new settlers. One thousand copies were printed and within two years, a second expanded and revised edition was needed to meet the demand. Immigrants used Lapham's book to learn about the area in which they were to live. The second edition featured an accurate and detailed map of the Wisconsin territory, the first published map in Wisconsin. He produced many of these general maps throughout his life.

Besides his work on maps and books, Lapham kept up a growing correspondence with people from around the country who requested information and specimens. He shared plants, fossils, rocks, meteorological observations and fish with such leading scientists as botanist Asa Gray and naturalist Louis Agassiz. No request was too great and no person too insignificant to receive a response. Lapham even sent Agassiz two live turtles.

Lapham took great interest in city improvement and in the diffusion of learning on the Wisconsin frontier. In 1840, he helped establish a lyceum that met every Friday for lectures and debates on various topics. Besides lecturing on science at the lyceum, Lapham spoke at the Milwaukee High School, which he had helped found, and the Unitarian Church. Lapham was also one of the founders of the Milwaukee Female College, a pioneering institution for women's education, and served as president of its board of trustees.

Lapham had his hand in institutions outside Milwaukee too. He donated an



MILWAUKEE COUNTY HISTORICAL SOCIETY

LEFT: Lapham first proposed monitoring weather conditions and establishing a system of reporting stations. He envisioned how forecasts would be useful to farmers planning and planting crops, and Great Lakes shippers containing their losses from storms. The first system was developed by the federal War Department that collected meteorological reports from forts across the nation. The reporting system developed into the National Weather Bureau, forerunner of the National Weather Service.

RIGHT: Lapham located and mapped hundreds of Indian effigy mounds that were subsequently destroyed in the westward expansion. His findings showing that the mounds were constructed by ancestors of Wisconsin's Native American tribes were published by the Smithsonian Institution in an 1855 book, *The Antiquities of Wisconsin*.

MILWAUKEE COUNTY HISTORICAL SOCIETY

herbarium of over 1,000 plant species to the newly established University of Wisconsin and supported the State Agricultural Society. He also helped found the State Historical Society of Wisconsin and served as its president for 10 years.

During one of his many trips outside Milwaukee, Lapham discovered something that would inspire one of his most important books: a man-shaped mound near Waukesha. Distressed that advancing settlement was destroying the mounds before they could be studied, Lapham began a comprehensive survey to "delineate accurately their form and proportions [before] it will in many cases be forever too late!" At the time, no one knew the origin of these mounds, but many believed that they had been left by a "lost race" of superior peoples.

Eager to discover their origins, Lapham found and mapped hundreds of circular, animal and man-shaped mounds. Traveling north to Lake Winnebago and west to the Mississippi, he discovered skeletons and artifacts that he compared with known Indians living in Wisconsin. The Smithsonian Institution published Lapham's findings in a book called *The Antiquities of Wisconsin*, in 1855. In it, he concluded that the mound builders were not a lost race but were, in fact, the ancestors of Wisconsin's own Indian tribes.

The Antiquities of Wisconsin provided an invaluable detailed record of Wisconsin's archaeological heritage and effectively ended the debate on the origins of the mounds. Archaeologists continue to use it to help reconstruct Wisconsin's ancient cultural landscape.

Unfortunately, like so many of his projects, the mound survey brought him little financial reward. The Smithsonian did send Lapham 50 copies that he could sell for a small profit if he so desired.

Lapham followed this archaeological accomplishment with a pioneering

work in forest conservation. His brief survey of Wisconsin forests, published in 1855, celebrated the importance, utility and beauty of trees. Lapham strongly encouraged people to plant trees, which he hoped would one day become a civic duty.

At the time of his survey, Wisconsin's lumber industry had penetrated deep into the Chippewa and Wisconsin River watersheds. Although the forests seemed limitless to most people, Lapham urged that greater care must be taken if Wisconsin were to have an adequate supply of lumber for the future. "Though we have at present," he wrote, "in almost every part of Wisconsin an abundant supply of wood for all our present purposes, the time is not far distant when, owing to the increase of population, and the increased demands from the neighboring states...a scarcity will begin to be felt."

Another decade would pass before Lapham's words prompted any action. In 1867, the legislature appointed him chair of a special forestry commission to study the conditions of Wisconsin's forests and make recommendations for government action. The report title said it all: "On the Disastrous Effects of the Destruction of Forest Trees, Now Going on So Rapidly in the State of Wisconsin."

With prophetic insight, Lapham forecast a time — growing increasingly closer—when Wisconsin's natural resources and history would be lost to short-sighted needs of a rapidly developing state. He urged state government to intercede for the good of the people and develop a plan to actively manage "timber as shall be needed for future use by her people." He further recommended that "scientific experiments or investigations should be made to ascertain the best methods for growing and managing forest trees."

Despite his foresight, Lapham's report fell on deaf ears. As long as the pursuit of profit drove farmers to clear land for cash crops and logging companies to clear-cut lumber from northern forests, Lapham's arguments would be totally ineffective. Not until after his death, when much of the north had been turned into a wasteland, would Progressive Era policy makers begin to appreciate the magnitude of the situation that Lapham had first identified nearly a half century earlier.

Lapham's report on forest trees had included a plea for a more widespread system of weather observations. His close study of weather patterns had convinced him that weather could be predicted if the meteorological data was reported, recorded and mapped. He emphasized the value of weather predictions to farmers and to Great Lakes shippers who often suffered disastrous financial blows and loss of life from fierce storms. With Lapham's help, the National Weather Bureau, forerunner of today's National Weather Service, was established in 1870.

Lapham, never one to stay in one place for long, left the Weather Bureau in 1872 and began another large project — a geological survey of Wisconsin. Commissioned by the legislature, Lapham began mapping and collecting rocks, soil, ore and clays in 1873.

Unfortunately, the survey soon became mired in political controversy. Although Republican Governor C. C. Washburn had appointed Lapham to the post of State Geologist, his appointment had never been confirmed by the legislature before Washburn left office. So in 1875, when Governor William Taylor, a Democrat, appointed party loyalist O.W. Wight to the position, Lapham was left without a job and without credit for his years of work.

Lapham retired to his farm on Oconomowoc Lake, near Milwaukee, where he continued to collect data on the lake and its fish. Suffering from heart trouble, Lapham was found adrift in his rowboat, dead from a heart attack on a September evening in 1875. His death, proclaimed a "sad calamity" by the Wisconsin State Journal, marked the end of a life unceasingly devoted to Wisconsin's resources.

From the moment he had arrived on the Milwaukee lakefront in 1836, Lapham worked to make Wisconsin known to both itself and the nation. For Lapham, the study of the natural sciences provided "pure and unalloyed pleasure...seldom found anywhere else."

Lapham's pleasure has been our gain for over a century as his work provided the foundation for countless educational institutions and a body of unparalleled scientific knowledge and insight. His lifelong interest in outdoor observation and investigation provides a model for how each of us can learn to use, protect and conserve natural resources for today and for future generations.

Freelancer Erika Janik writes about arts, culture and history from Madison. She also makes historical publications accessible for digital use for the Wisconsin Historical Society.

The search for shed antlers adds fun to a late winter-early spring walk. It's a chance to get some exercise, hone your powers of observation, and entice your family to take part in a scavenger hunt with a pointy prize.

As bucks give antlers the drop, eagle-eyed shed hunters can pick up a seasonal souvenir.

Track down a crowning

Story and photos by Joe Shead

Shhh! Maybe I shouldn't admit this, but I "bagged" several bucks last year. And I didn't buy any out-of-state hunting licenses, either. Heck, I didn't even bother to affix a back tag to the antlers, and I found the best hunting was in the spring when I had the woods all to myself!

OK, wait! Before you call a conservation warden, let me explain. I respect and adhere to Wisconsin's conservation laws. In fact, I wasn't poaching deer out of season; I was "shed hunting."

treasure

Each year, sometime between December and April, white-tailed bucks shed their antlers. No one is really sure why male species of the deer family shed and regrow antlers each year. What we do know is this annual process happens, triggered by decreasing day length, and in turn, decreasing testosterone levels. Bucks that are stressed or malnourished will drop their antlers before those that are in better health. Then, sometime in April, bucks begin growing a new and usually larger rack.

People have long gathered antlers in the spring, but shed hunting has grown very popular in recent years. I believe the increased interest can be attributed to the quality deer management movement — through which landowners are taking greater interest in managing their lands and studying deer on their property — and the craft and cabin décor industry. Artisans routinely make antler knife handles, cribbage boards, lamps, fireplace tool handles and an endless array of other antler crafts and decorations like buttons, drawer pulls and door handles.

No matter your motivation, shed hunting is a nonconsumptive activity that anyone can enjoy. You don't have to be a deer hunter and you needn't own land to find sheds. All you need is a desire to take a walk through the spring woods. Plus, shed hunting is a great way to introduce people to the outdoors and spend time with the whole family. It's an outstanding opportunity to learn about the forests and fields in your area, and how deer and other animals relate to that habitat.

Where can I look for antlers?

OK, so maybe you're intrigued by the notion of looking for antlers in the woods. It may sound like looking for a needle in a haystack, and some days I wish it were that easy! On the other hand, you can learn by doing, and the best shed hunters may find dozens of antlers each year. If you'd like to try your hand at it, first you've got to have a place to go.

If you're a deer hunter, it's only natural to start looking for antlers on familiar hunting land. You'll know from experience where and when deer travel on the property. The hunt for antlers can also give you a good idea of which bucks survived the hunting season. You may be pleasantly surprised to discover that there are more bucks on the hunting grounds than you knew.

But what if you don't own land? Fear not, there are plenty of places to search for sheds. First, think of where you routinely see deer. Most likely the best places are on private land. Though gaining access to hunt deer on a stranger's land is getting increasingly difficult in an age of big-buck mania, high land prices, and land leasing, you stand a better chance of getting permission to simply walk and look for sheds in winter. It can't hurt to ask. Most people simply don't have the time to poke around their woods and fields looking for antlers. In fact, if you come across a farmer who has had a tractor tire punc-

tured by a shed antler, he may welcome you on his property.

Some of the best places to seek sheds are on lands that hold a lot of deer, but don't allow hunting. Private parcels, business holdings like gravel pits, golf courses, and public spaces like suburban parks and camping areas are all good bets. If the land is privately owned, make sure you acquire permission first. Other places to try include public hunting grounds, and state and national forests that see fewer visitors this time of year. Though these areas are often considered "crowded" during hunting season, I'm amazed at the number of sheds I find on public hunting areas. In fact, more than 90 percent of the sheds I find come from these areas.

Where do I find deer in winter?

One key to consistently finding deer antlers is to teach yourself about deer behavior. Before you pick a place to walk, form a game plan so you can recognize areas that are more likely to hold deer. Scout out where deer spend most of their time in late winter and early spring. Keep in mind that in the northern part of the state where snows stay relatively deep, deer may move to deeryards in thick stands of white cedar or other conifers where less snow reaches the ground. These are not necessarily the same places you would see them at other times of the year. To find sheds in the spring, monitor deer movements in the winter, but do your best not to disturb these winter-weary whitetails. You don't need to actually see the deer; just look for tracks, beds and droppings that indicate areas that deer frequent during winter.

Deer have two basic activities in winter: eating and resting. As a result, the best places to look for cast antlers are in feeding areas, bedding areas and the trails that link them.

What deer eat depends on what's available in your area. In our southern agricultural areas, winters are milder and deer often find adequate food nosing around for waste corn, alfalfa and other farm crops. They will also eat acorns if they can find them, and they browse on various plants such as red osier dogwood. In the north, deer will prefer agricultural foods if they are available, but in big-woods areas, they must often subsist on natural browse. White cedar is the top winter deer food in the north, and it provides both food and cover. Across the state, people enjoy feeding deer in winter. Feeding stations have a significant impact on deer movements, and it's not uncommon to find antlers near them. No matter what deer eat, if you can pinpoint preferred food sources, you're well on your way to finding shed antlers.

Bedding areas are the other major part of the winter deer equation. A deer's metabolic activity slows in winter and it spends a lot of time bedded down, trying to conserve energy in an effort to stay warm enough to survive brutal weather.

An ideal bedding area protects deer from harsh winds and cold temperatures. For these reasons, deer often bed down in coniferous forests. The branches of these trees catch the snowfall and prevent it from reaching the ground. If you've ever hiked through a stand of pines on a snowy winter day, you may have noticed that the snow depth is less among the conifers than in stands of deciduous trees or in the open. The needle-covered branches of pines, spruce, fir and cedar also block the wind and form a thermal canopy that holds in heat, making coniferous forests just a tad warmer than the surrounding areas, which makes all the difference if you're an animal trying to make it through a severe Wisconsin winter.

But deer don't always bed down in thick cover. In fact, sometimes they prefer open areas, particularly south-facing hillsides or the north edge of a forest opening. Just like house cats, deer seek out the places where they can soak up winter sunlight. The sun hits these areas most directly, and you can see where snow depth has been greatly reduced. In fact, these areas may have no snow cover while shady areas just a few yards away could hold as much as a foot of snow.

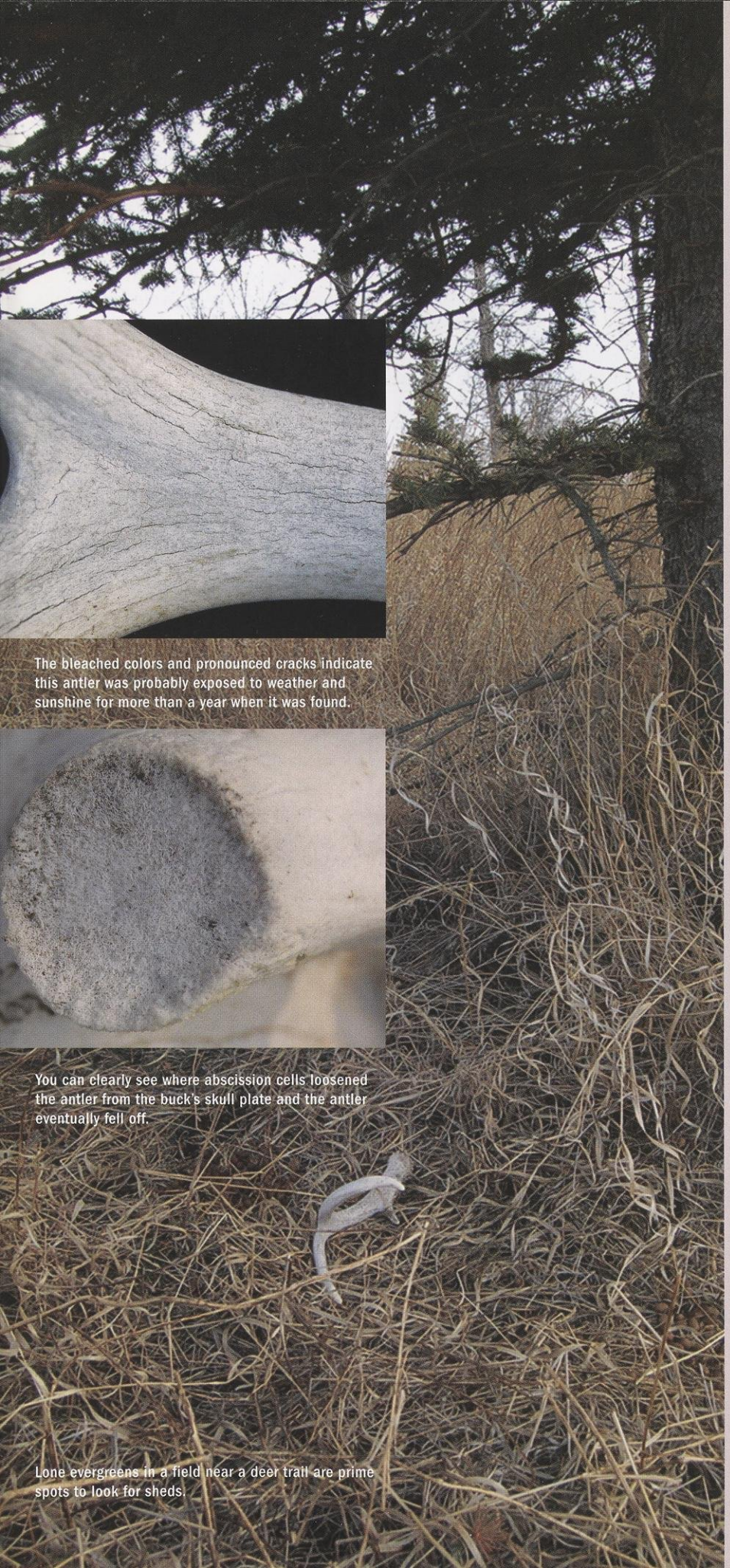
You'll know you've found a bedding area when you see a concentration of oval depressions in the snow or leaf litter. Bucks often segregate from does and fawns in winter, so if you find large beds surrounded by one or two smaller beds that would indicate a doe and her fawn(s), keep searching. Bucks often bed together, or at least in close proximity to each other in winter. Signs of a buck bedding area include buck rubs on the trees, scrapes in the snow or antler imprints in snow. You can also often distinguish deer gender by examining urine patterns in the snow. Bucks leave a line of urine and may dribble while they walk, while does usually burn a single urine hole into the snow.

A winter game with a bony prize

Shed hunting is sort of like an Easter egg hunt, without all the candy. Your goal is to walk through the woods or fields, searching for a hidden prize. As you might expect, an antler lying on the ground isn't easy to see, especially if it's small and it has been there a while.

Deer antlers often look very much like the cornstalks and tree branches covering the ground where they are found. Therefore, it is important to walk very s-l-o-w-l-y when you're looking for antlers and sweep your eyes back and forth. You have to give your eyes time to pick apart the landscape and find that object that just doesn't quite look right lying on the ground. Don't scan too far ahead. You should be focusing only about five to 10 yards in front of you. If you're in an open field you can look a little farther ahead, but even when you're consciously looking for antlers on the ground, it's amazing how you can sometimes literally step on them before you see them. Unless the antler is large, I'm usually within 10 feet of it before I see it.

Most often people spot antlers when they see a series of tines projecting up from the ground. Antlers are less conspicuous when they land tines-down. When they do, look for a curving main beam or the parallel lines formed by the series of antler tines. As you search, you'll see a lot of "antlers" that turn out to be sticks, but sometimes it works the other way. If you see a stick that looks like it might be an antler but you're not sure, make the effort to confirm what it is. My motto is, "When in doubt, check it out!"



The bleached colors and pronounced cracks indicate this antler was probably exposed to weather and sunshine for more than a year when it was found.

You can clearly see where abscission cells loosened the antler from the buck's skull plate and the antler eventually fell off.

Lone evergreens in a field near a deer trail are prime spots to look for sheds.

Antlers are easiest to spot on a cloudy day after a rain. The clouds allow you to look without squinting and the wet ground mats down the surrounding vegetation and gives antlers a sheen that stands out from their drab background. If you're shed hunting while snow still covers the ground, you'll want to look for tines projecting from the snow in cold weather. If it's above freezing, the snow will melt around the antler, revealing your prize.

Most of the antlers you'll find in Wisconsin will appear somewhat white. Most of our bucks carry light-colored racks (as opposed to, say, the chocolate-racked bucks of Saskatchewan or Alberta). Also by late winter, sunlight will have bleached a buck's antlers somewhat while they're still attached to the deer's head. Antlers that have lain on the ground for a year or more (and survived gnawing rodents, who chew on antlers for their calcium content) will be bleached from the sun and will be bright white if found in high, dry areas. Old antlers found in wet areas turn green from algal growth.

As you walk, follow the deer trails where hoof prints leave a path and the vegetation is parted a bit. Look for places where a buck has to jump to cross an obstacle, such as a trail going over a fence or a stream. As deer get ready to shed their antlers in winter, a thin layer of tissue forms above the base (pedicle) that anchors the antler to the skull plate. This tissue, called an abscission layer, forms as testosterone levels drop in bucks. As the tissue dissolves, the antlers loosen over a two- to three-week period and the bone-to-bone connection between antler and skull plate gets wobbly. The jarring that occurs when the deer lands after jumping can knock an antler loose.

Another choice spot to look for sheds is under a lone evergreen, whether it's standing in an overgrown field or it is the only conifer in a deciduous forest. Deer go out of their way to bed under lone pines and cedars. And they are not alone in this habit. Odd features on the landscape attract animals like deer and coyotes the same way that an underwater rock pile or weedbed draws fish. If

Corn fields are great places to look for antlers, but they can be hard to see as sheds blend in with the bent, decaying stalks.

Buck signs like rubs, scrapes and tracks in the snow along a path tell you you're on the right track.

You'll often find sheds along trails that connect deer bedding and feeding areas.

you find a shed under a lone evergreen, it will almost always be on the south side, where the buck bedded to take advantage of the sun's warmth.

Brushy areas are also great bets. Look for a brushy transition between a bedding area and a feeding area. A dense stand of red osier dogwood, alder, willow or other brush along a farm field edge provides good cover for deer, and the dense network of branches can knock antlers from the buck's head. These shrub species are frequently rubbed by bucks. If you find a lot of rubs, you know you're looking in a good spot.

As you go from place to place, follow deer trails to maximize your time. Trails are easy to cover because there's no guesswork. If the antlers are there, they'll be right at your feet. In more open areas, such as when you're trying to cover a field, make passes back and forth over an area until you're sure you've covered it.

Hang in there!

Shed hunting isn't easy. It takes a lot of time, patience and luck. Maximize your opportunities by searching in places with plenty of deer sign. Don't be disgruntled if you don't find an antler right away. It took me a long time to find my first, mostly because I really didn't know what I was doing. As you learn more about deer and how they travel, you'll get a better idea of where to look for antlers. Keep at it and keep your spirits up. If you try hard enough and long enough, you will find an antler.

Antler hunts offer welcome breaks from winter. It's a fine time to scout hunting lands for deer trails and other signs. It's also a great opportunity to take kids with you to work off some energy, breathe a little fresh air, learn a little patience and hone their powers of observation. Pick a mild day and take along kids who have the stamina for a decent walk, say 9- to 15-year-olds, and just go. A slow, quiet walk allows plenty of time to also watch birds, look at animal tracks, learn to read deer sign, follow a few burrowing trails and listen for the natural buzz of squirrels, crows, chickadees or watch woodpeckers rapping up some dinner under tree bark.

Shed hunters also justify their pastime to friends and spouses by saying they're taking their dogs for a walk. This may be so, but there may be more to it for some folks. Just as police officers train dogs to find drugs or bombs, or hunters train dogs to find birds, some shed hunters have learned to teach their dogs to find shed antlers. The dog's keen sense of smell can pick up the scent of an antler, even when it's buried under dead grass or snow. Training a shed dog, like training a bird dog, takes repetition and patience, but it can make shed hunting much more enjoyable.

Even when shed hunting is slow, I thoroughly enjoy my time spent outside on a late-March day when geese are returning, robins appear and spring peepers serenade me with their evening song. If nothing else, shed hunting is a great excuse to stretch the legs after a long winter cooped up inside. And the antlers you find provide a year-long reminder of the peaceful searches as winter quietly passes into spring.

Joe Shead (yes, it's pronounced "shed") is a shed-hunting fanatic and managing editor of Deer & Deer Hunting *magazine in Iola. For more information on shed hunting or to order his book,* "Shed Hunting: A Guide to Finding White-Tailed Deer Antlers," *visit www.goshedhunting.com.*

Keep neater feeders

continued from page 2

Feeders with flat platforms especially ought to be wiped clean, washed and disinfected weekly.

DAVE CREHORE

There are no distinctive signs of salmonella in wild birds. You may notice a combination of several signs including ruffled feathers, lethargy, unsteadiness, rapid breathing and diarrhea. Often you won't see any unusual signs, yet the affected birds die very quickly.

Large scale die-offs of wild birds are usually isolated to songbirds at feeding stations and colonial nesting birds, such as gulls. Before the 1980s, large scale mortality of songbirds at feeders was rare. The increase in salmonella at bird feeding stations may be due to increased contact birds have with sources of environmental contamination like garbage, wastewater discharges from livestock and poultry operations, sewage, greater bird concentration, more feeding opportunities, and population changes in songbird species that are especially susceptible to salmonellosis.

Birds that feed around contaminated areas may become carriers and spread salmonella to other bird feeders, especially when maintenance and disinfection of the bird feeder is poor. Storing bird seed and beef suet in containers that are not rodent- and insect-proof can also be a source of salmonella at bird feeding stations.

Salmonella can potentially be contracted by humans through contaminated bird feeding stations. However, a much more common source of salmonella in people is food poisoning that brings on abdominal pain and diarrhea.

Follow a few simple guidelines to help protect yourself and the birds you are feeding from diseases such as salmonella:

1. Wear disposable gloves when you clean feeders, feeding areas and birdbaths.
2. Clean feeders and the area under them weekly. Rake spent seed and feces away from areas where seed may drop to the ground and attract birds. When cleaning feeders outside, wash them off using plastic buckets of hot, sudsy water with disinfectants. If it is really cold outside, clean off the feeders in a utility sink, not in the kitchen sink near food preparation areas. Do not use kitchen sponges or any other cleaning utensils or towels that might subsequently be used for food preparation. Clean feeders with disposable towels, wear disposable gloves and move soiled materials to the garbage immediately. Also wash your hands well and vigorously after cleaning feeders and birdbaths.
3. Disinfect feeders using a 10 percent bleach solution (nine parts water to one part bleach). If the feeder is small, soak the cleaned feeder in a pail of bleach solution for 10 minutes or more before thoroughly rinsing the feeder with fresh water. Let it air dry before refilling it with fresh seed.

If the feeder is too large to submerge in water, clean it well, then fill a spray bottle with the disinfectant solution. Make sure to spray hidden corners! Make up fresh solution each time because it loses its strength after 24 hours.

Wear eye protection as well to keep the bleach solution out of your eyes and off your skin.

Platform feeders need more frequent cleaning than tube feeders because they hold feces and other excreted wastes. On the other hand, the deck or soil under tube feeders allow water and fungi to mix in with spilled seed on the ground. This mix may attract a whole different group of ground-feeding birds and mammals compounding contamination. Also inspect the feeder for sharp points and edges that might injure a bird. Small scratches and cuts allow bacteria and viruses to infect otherwise healthy birds.

It is best to clean the feeders away from the immediate feeding area so the droppings you scrape off don't infect any seed on the ground under the feeder.

4. Dispose of seed hulls that collect under feeders. They make good mulch.
5. Consider moving feeders periodically to prevent buildup of waste underneath the feeder.
6. Keep seeds and other bird food dry and in sealed, watertight, animal-proof containers. Discard any food that gets wet or moldy.
7. Replace water in a birdbath every 2-3 days.
8. If sick or dead birds are observed at a feeder, take it down, discard all seed, and give everything a thorough cleaning. Wait at least a few weeks before setting up the feeder again to allow healthy birds time to disperse. This lessens the possibility of disease transmission. Report sick birds to local wildlife officials, many of whom monitor wildlife health.
9. Give seed feeders a good shake before refilling them to dislodge any compacted seed. Dump out and discard any wet clumps. Offer hulled sunflower hearts or bits when the weather is dry or put them in a tube feeder or hopper feeder. Wet weather causes hulled, oily seeds to spoil.
10. If you provide suet, reduce the amount you offer in hot weather. Suet turns rancid in heat and becomes unhealthy for birds. Runny suet can also stick to birds' feathers making them harder to keep clean. Homemade suet will keep longer if you render the fat first. Heat-resistant suet blocks are also available at pet supply and bird supply stores.
11. Don't use oil, petroleum jelly or similar greasy substances on feeder poles or wires to thwart squirrels, ants and other feeder raiders. It's impossible for birds to preen or wash off these greasy solutions from their feathers. Gooey feathers are useless for flight and insulation putting the birds at risk to predators, extreme weather and disease. To stop squirrels, consider pole-mounted baffles. Commercial ant guards are also available at stores, via mail-order and on the Internet.
12. Reduce window kills by placing feeders a safe distance away so birds don't see their reflections. If birds regularly strike a window pane, screens, netting and stencils can break up the reflection pattern. (See our April 2006 story "Threshold of pane" for more ideas).

Erin S. Larson and Simon R. Hollamby wrote this piece for DNR's Wildlife Health Team. Larson is now CWD Data Coordinator and veterinarian Hollamby currently lectures about wildlife and exotic animal medicine at the University of Edinburgh in Scotland.

AL CORNELL

Creature Comforts

Welcome to Creature Comforts, a new column devoted to those creature comforts in our lives. You know them – the dogs that drool but rule our lives, the finned and feathered, reptilian pets that enjoy the sometimes slimier side of life. Some move fast; others, slow. We find them all moving. Sometimes moving us to laugh, other times to cry or test our good nature. In this column we explore some ways to wind down the winter with our pets.

Winter is for the birds

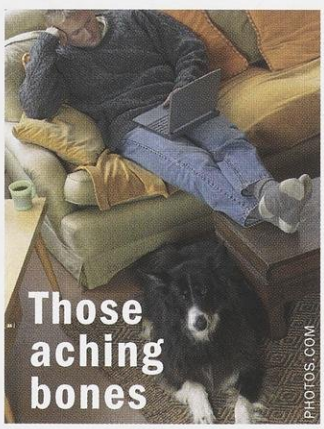
Get a jump on spring by attracting birds to your backyard with a bird bag. Fine-meshed bags can be filled with birdseed. Adding finely crushed eggshells to the mix will provide the birds with calcium. Or create suet loot in a similar way. Melt beef fat and before it cools mix in birdseed, peanut butter, dried fruit or granola. Fill a mesh bag with the mix for a great suet container that is easy to hang.

A fat goodie for a feathered friend

With the onset of cold weather, our resident insect-eating birds appreciate a handout. Woodpeckers, chickadees and nuthatches love this mix you can make at home or at school. You can make as small or as big a batch as you need based on proportions and measurements below. It's also fun to make your own suet feeders. Just take three- to four-inch diameter birch logs about a foot long. Drill one-inch diameter holes about an inch deep in various spots around the log, then spread the mix in the holes. Put a hook or eyelet on the top and hang it up in the schoolyard or on a backyard tree. Keep the leftovers for refilling.

1 part crunchy peanut butter
1 part shortening or lard
1 part flour
3 parts cornmeal
1 part cracked corn
1 part hulled sunflower seeds

Mix in a small bowl and store in an old peanut butter jar or other lidded container.

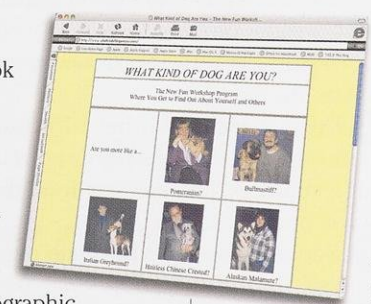


PHOTOS.COM

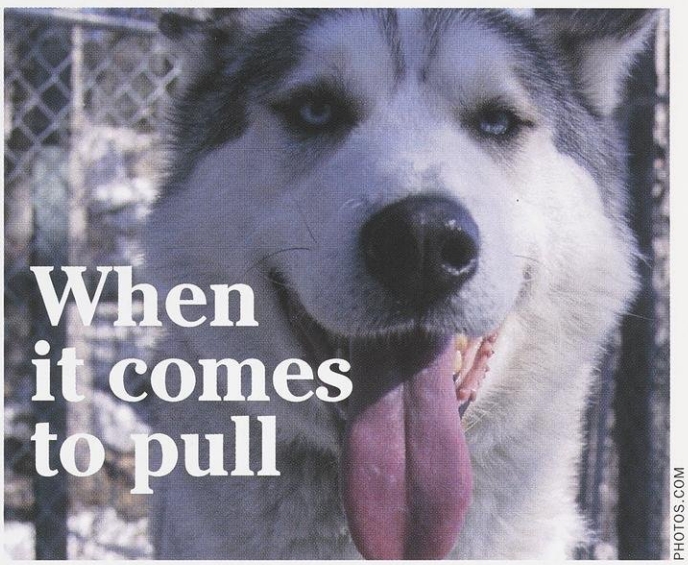
Those aching bones

Think you're the only one that aches in damp winter weather? What about those with four legs to complain about? Aching joints and arthritis plague some of our older pets. Homemade or store bought pet stairs can ease your aging pet onto a bed or into the car. No more leaping for the lap. Pet stairs come in a variety of sizes and carpeting. Find them online or at a pet supply store.

Who you calling a pug, pug?



Visit doyoulooklikeyourdog.com and find out. This tail-wagging website developed by Gini Graham Scott features photographic evidence that people can begin to look like their pets. The site offers tips for applying dog training techniques to working with humans!



PHOTOS.COM

When it comes to pull

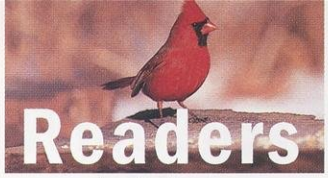
Skijoring, which means "ski-driving" in Norwegian, combines dog mushing and cross-country skiing. It's one way for a dog and its owner to enjoy winter together. Any breed of dog has backwoods skijoring potential, but larger breeds tend to have greater strength. Skijor competitions range from sprints of three to 10 miles to 50- and 20-mile endurance events. Some people assume the dogs do all the work while the skiers just enjoy the ride. But a skijorer must work in tandem with the dog or dogs, using muscles to maneuver and guide them. You don't have to compete to enjoy skijoring with your dog — with minimal equipment, an energetic dog and a pair of cross-country skis, you're on your way. Pulka driving, aka Nordic-style dog mushing, is skijoring with a small sled (pulk) attached between skijorer and dog. The pulk can carry supplies over a distance. Pulka driving, like skijoring, has world championship races organized by the International Federation of Sled-dog Sports. Check out mushwithpride.org. on the web. Upcoming sled dog events in Wisconsin include the Three Bear Winter Sled Dog Races in Land O' Lakes Feb. 3-4 (visit landolakes-wi.org) and the Perkinstown Winter Races in Medford Feb. 10-11 (visit medfordwis.com).

Coldweather woes

Outdoor cats and kittens often nap on car engines for warmth. Knock on the hood and honk the horn; then wait a few minutes before starting your car. Pets also like the sweet smell and taste of antifreeze, but even a small amount can kill them. Thoroughly clean up spills at once. Tightly close containers and store them where pets cannot get to them. Also, remove ice, salt and caked mud from your pet's paws and coat at once. Contact your veterinarian immediately if you suspect your pet has frostbite. Frostbitten skin may turn reddish, white or gray, and it may be scaly or sloughing.

Natasha Kassulke, senior public affairs manager, has shared her home with pets from cats to collies, turtles to iguanas, and birds to butterflies.

STEPHEN J. LANG



Readers Write

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@wisconsin.gov

RESIDENT QUAIL

Regarding bobwhite quail, ("Silent whistle," June 2006), I just wanted to let you know I live in Rock County a few miles west of Janesville, and we have our own little population of bobwhites here on our property. We planted a section of our five acres in prairie grass and wildflowers when we moved here 13 years ago, and I started hearing the quail about three or four years ago and seeing them last year. This year they have been all over our yard and even up in the oak trees. They do a lot of "whistling!" They are a lot of fun to watch and will come out in groups to forage around the oaks.

Angela Hansen
Plymouth Township

Wildlife Biologist Mike Foy of DNR's South Central Region reports that bobwhite numbers seem to be picking up on other state properties in that region as well, probably in response to our recent string of mild winters. "It is a lot of fun to hear their whistle again," Foy said. "Having good habitat is of course necessary for the birds to take advantage of the break in the winter snows — keep up the good work!"

ABOUT THE PHEASANT OPENER

No doubt the guy hunting pheasants on Bill Klein's land ("The well-mannered hunter," October 2006), having asked permission only to hunt deer was in the wrong, but for the life of me, I can't figure out his reference to the "9 a.m. daily opener on pheasants." Could you please clarify that for me? I've always hunted pheasants (except for opening day) beginning at the crack of dawn, and can't find anything in the small game regulations to suggest otherwise.

David Seligman
Ripon

Thanks for pointing out what we should have clarified in the story. Bill Klein is from Minnesota and was referring to that state's regulations which allow pheasant hunting from 9 a.m. to sunset during the season. In Wisconsin, except for opening day when hunting begins at noon, hunters can start hunting pheasant a half-hour before sunrise. Be sure to consult the small game hunting regulations for an explanation of how hunting hours change as days shorten throughout the season.

DEER SEASON EXTREMES

I read your article ("Weather the weather, whatever the weather," October 2006) with interest. I've only been deer hunting for 16 years, but I've seen some extremes in that time. You mention that in some years, the weather switches from autumn to winter during the week of deer season. I'm curious whether you know the largest temperature swing during that week.

Jim Rudd
Neenah

Author Dick Kalnicky delved into his data and came up with this report: The largest temperature swing was 65° F in 1977, at both Menomonie and La Crosse. On day two of that season, Menomonie reached 54° F and La Crosse 56° F. On day eight, the low temperature at Menomonie was -11° and at La Crosse -9°. The next most notable year was 1982, with swings of between 48° and 60° — with the warmest temperatures on days one or two and the coldest on day eight. In almost all the years where large temperature swings occurred, the swings went from the warm side to the cold side as we transitioned from autumn to winter.

What made 1977 quite memorable, and was a factor in the large temperature decrease, were two or three days of measurable snowfall between days two and eight at each station — from about three inches at Superior to over eight inches at La Crosse. The radiation cooling from the statewide fresh white snow cover no doubt helped temperatures fall considerably. In 1982, only the northern part of the state experienced snowfall.

FATHER AND DAUGHTER TEAM

As I was reading the October 2006 issue, I was drawn to the article titled "The well-mannered hunter." Much to my surprise, one of the accompanying photos was of my daughter and me, from an article written in 1996 about women in the outdoors ("Forging their own trails," August 1996). Jennifer was chosen for the article because of an essay she wrote for the Ducks Unlimited Greenwing Camp. As Jen graduated from college in 2003 and started her science teaching career, she got involved in the DU Greenwing program on a much higher level, becoming the co-chair for Wisconsin. She is now finishing her third year and has asked me to help her as co-chair for the past two years.

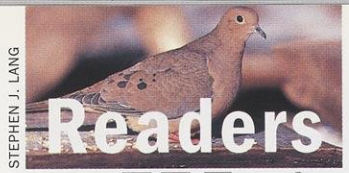
The young hunter is our future. Jen's brother, Scott, has also become a hunter and whether or not we harvest game isn't important, it is the time spent together. Jen's fiancé is now taking hunter safety classes and will join us for deer hunting this season. All we need to do is take a youth into the outdoors and we will help the future of hunting.

Bob Foster
Sheboygan

MUSKY STOCKING LOGISTICS

I read the story about musky stocking in the August 2006 issue ("Keeping the fight in the king of fishes"). I was wondering which seven lakes in the St. Croix River basin are to be stocked with muskies. Have they already been stocked and did the muskies come from Minnesota?

John Steele
Hudson



STEPHEN J. LANG

Readers Write

continued from page 29

Northern Lakes Ecologist Martin Jennings explains that the study mentioned in our story will evaluate performance of muskies from two sources. Some are taken from the Chippewa River drainage basin and raised at the Gov. Thompson Hatchery, and others are offspring of muskies from Minnesota's Leech Lake, also raised at the Gov. Thompson Hatchery. None of the seven lakes has native musky populations and all are located in the St. Croix River basin, are managed for muskies and have been stocked with Chippewa River basin fish in the past. Stocking began with both strains of fish in late September in Sand Lake (Barron County) and Des Moines Lake (Burnett County). Deer Lake (Polk County) was stocked with only Chippewa basin fish because our production of Leech Lake stock fell short. Each of these three lakes is scheduled for stocking with both strains of fish again in 2008. The other four lakes in the study are Shell and Matthews (Washburn County), Benoit and Twenty-six (Burnett County). Each is scheduled for stocking from both sources in 2007 and 2009.

TRESPASSING HUNTERS

I've subscribed to your magazine since 1988 and read each issue cover to cover. Thank you for the wonderful article, "The well-mannered hunter" (October 2006) by Bill Klein. We moved to a "country subdivision" one mile from Manitowoc about four years ago. In the past four gun deer hunting seasons, we have twice had hunters, with their guns, within ten feet of our backyard. We own three acres and have a small fenced-in yard for our two dogs. It was scary and disheartening to me to see these hunters so brazen and disrespectful of our property. All hunters should be required to read the wonderful article by Bill Klein.

Chris Heironimus
Manitowoc

We're disheartened to hear your story, too, Chris. However, many hunters we know and hear from remind us of Bill Klein. Private property deserves respect and there's plenty of opportunity to build trust and responsible behavior that opens many doors. We hope by carrying Bill's story that we reinforced the habits we aspire to for all outdoor activities.

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UPDATE

LAND LEGACY REPORT WINS AWARD

The Wisconsin Land Legacy Report ("A path of our own making," December 2005) won a Scenic Beauty Award from the Citizens for a Scenic Wisconsin in October, 2006. The nonprofit organization promotes conservation of natural scenery and vegetation along roadsides and responsible land-use planning. Lowell Klessig, chairman of the awards committee, thanked DNR staff for the multiple ways they contribute to the beauty of Wisconsin.

"The legacy report can serve as a guide to those efforts for many years," Klessig said.

FCC SEEKS COMMENT ON SAFE PASSAGE FOR MIGRATORY BIRDS

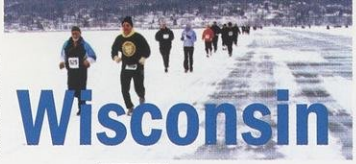
In our February 2000 issue ("Battered by the airwaves"), we reported how the rise of digital and cellular communications towers was adding to the growing risks faced by migratory birds during their seasonal flights. Since then, the problem has grown and the U.S. Fish and Wildlife Service now estimates that as many as 50 million birds are killed each year, mostly when night-migrating birds are attracted to and orient themselves to the lights that mark the towers for pilots. The birds have been observed flying around in circles, and many strike the guy wires that support taller towers, and possibly hit the towers themselves.

The Federal Communications Commission (FCC) in early November 2006 said it will begin to develop rules and asked for public comment on how to reduce the number of migratory bird collisions with communications towers. The FCC is asking for comment in four areas:

- whether it has the legal authority to address tower-bird collisions in rules
- the role of tower lighting in bird strikes and how lights can be changed without compromising aircraft navigation safety
- the role of other tower factors — such as height, location, use of guy wires, and collocation of new antennas on existing towers — on migratory bird collisions
- whether FCC should require tower applicants to prepare environmental assessments for towers or antennas that might affect migratory birds.

Commenting on the commission's action, Commissioner Michael J. Copps said, "Communications towers are essential to modern American life, we all understand that. But we also must be mindful of the effects we have on the nation's fragile ecosystem. Through hard work and a willingness to learn from both conservationists and tower operators, we will find ways to encourage communication technology while minimizing avian death tolls."

For more information, visit FCC's website at www.fcc.gov.



Play n...ice

Declining outer temperatures seem to kindle the inner child in most adults. No doubt you know these scamps well...personally, perhaps. When he thinks no one is looking, he'll fall backwards into a fresh snowbank and create a snow angel. She sends snowballs whizzing toward unsuspecting targets, or sticks out her tongue to taste snowflakes as they fall. Any incline, no matter how small, is fair game for their makeshift briefcase sleds.

Cold and snow have a way of firing up the fun inside us all. But why? You won't find the answer here — just a few ways to fan the flame.

Snowbound forests and fields provide hours of delight for those who can put one foot in front of the other without stepping on their shoes — snowshoes, that is. Clamp on a pair and ply the winter trails by day or night. On February 11 and 18, **Ledge View Nature Center** in Chilton offers naturalist-guided **snowshoe hikes** focusing on winter ecology. Bring your own shoes or rent them from the center; guides will gladly teach you how to walk all over again. See www.co.calumet.wi.us or call (920) 849-7094.

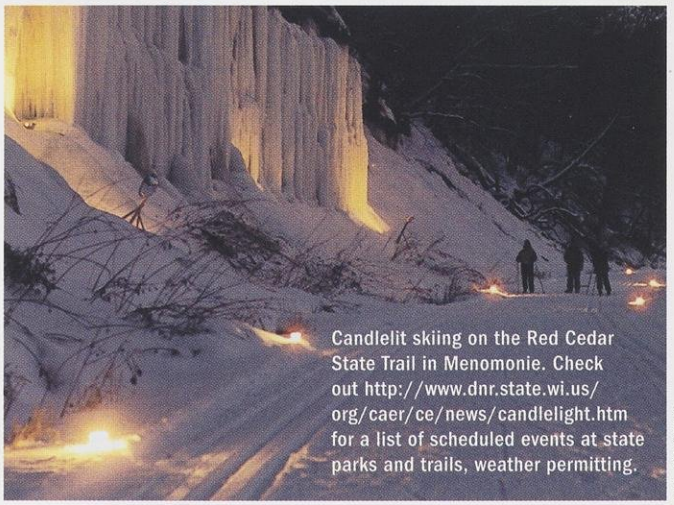
Let the moon shed light on your web walking technique at Wisconsin's state parks and forests. Many host evening **candlelight snowshoe hikes**:

Strap on your snowshoes for a quiet walk or a romping race this winter.

RJ & LINDA MILLER COURTESY OF WIS. DEPT. OF TOURISM

On February 10, **Rib Mountain State Park** in Wausau (715) 842-2522, and the **Northern Highland American Legion State Forest** (Clear Lake Campground, Boulder Junction, (715) 385-3352) will light trails by the soft glow of wax. After your stroll, enjoy a hot chocolate or steaming apple cider. Grills provided; BYOB (Bring Your Own Brats). Bid winter a fond adieu on March 24, when **Amnicon Falls State Park** in Superior hosts the **Vernal Equinox Candlelight Snowshoe/Hike** at 7 p.m. (715) 398-3000. See dnr.wi.gov for a complete list of winter candlelight events.

Should the competitive spirit inspire your winter imp, try your luck in Luck, where the **New World Championship Snowshoe Races** take off on February 10. Participants will hoof distances of 5K, 10K and a 20K half-marathon; look for some of the sport's top competitors from around the country to challenge Wisconsin's finest 'shoers. Races begin at 10 a.m. at the Luck Golf Course.

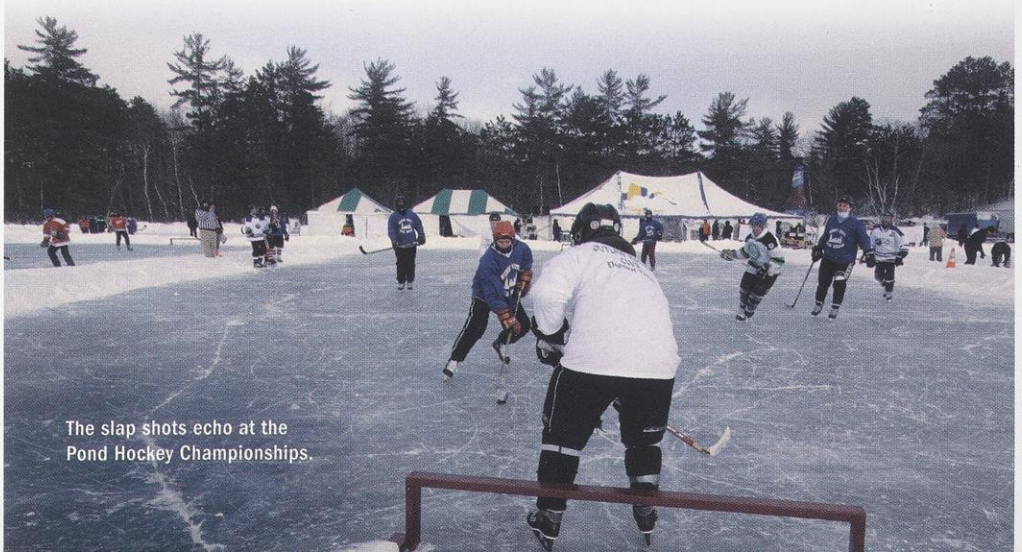


Candlelit skiing on the Red Cedar State Trail in Menomonie. Check out http://www.dnr.state.wi.us/org/caer/ce/news/candlelight.htm for a list of scheduled events at state parks and trails, weather permitting.

JIM JANOWAK

(715) 472-8231. The 15th edition of **Run on Water** takes place on February 10 at 11 a.m.; racers of all ages snowshoe, run or ski across frozen Lake Superior in a mad dash from Bayfield to Madeline Island and back. Call (715) 779-3335 or visit bayfield.org/visitor/runwater.asp on the web. On the evening of February 17, make the trek from Ashland to Washburn with more than 1,700 other snowshoers and skiers as they **Book Across the Bay**, navigating 10K across Chequamegon Bay by star and candlelight. See www.batb.org or call 1-800-284-9484.

If you really want to rouse the kid within, head over to the Chanticleer Inn in Eagle River on February 18-19, where the **2nd Annual LaBatt Blue U.S. Adult Pond Hockey Championship** promises to bring back those pick-up hockey games of yore, when your best friend stickhandled like Gretzky, your little sister was the neighborhood's toughest netminder, and your dog was the best puck thief on ice. Forty teams of four players each will battle it out for glory and bragging rights on six ice rinks cleared on Dollar Lake. No fair bringing your big cousin Duke from Anchorage to play defense. (715) 479-3955.



The slap shots echo at the Pond Hockey Championships.

TIM GAFFNEY

Wisconsin, naturally

BRULE RIVER BOREAL FOREST
STATE NATURAL AREA

Notable: Boreal forests of white spruce, balsam fir, white pine and balsam poplar line the banks, terraces and tributary ravines of the Bois Brule River on its last reach before flowing into Lake Superior. Twinflower, Canada mayflower, bunchberry, rabbitberry and purple clematis are typical understory plants of this forest type, one usually found much farther north. The state-threatened wood turtle and several species of warblers — among them Nashville, black-throated green, and pine — are residents of the coniferous forest.

How to get there: Within the Brule River State Forest. The area is best seen by canoe. Put in at the Highway 13 landing. Walk-in access is available from parking areas along Brule River Road, 11 miles north of Brule, west of Highway 13.