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Wisconsin
NATURAL RESOURCES

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Porcupine

LEROY LINTEREUR, Area Wildlife Manager, Marinette

Many things can be said about porcupines but no one, except perhaps a confirmed porcupine lover would say they possess anything resembling grace and beauty. Deer, on the other hand have all these in good measure and it is generally agreed, with reason, that deer are the monarchs of our northern forest.

A porcupine, peering nearsightedly down from a hemlock, watching deer scrounge crumbs from his table would take exception to this evaluation. After all, lesser folk have been picking leavings from the nobles' table for a long time, and the reverse is, well, something akin to revolution. This is, however, what is going on right now, and has been ever since deer, hemlock, and porcupine appeared on the same range. Hemlock is prime browse for deer, but because of the tree's nature, and the tendency of deer to trim down every hemlock within reach, it is always in short supply-except, that is, under a tree where a porcupine has been chewing away. Porcupines are sloppy eaters and their feeding activity is always accompanied by a gentle rain of twigs that accumulate on the snow. Deer recognize this food supply. In winter, snow under every tree harboring a porky is trampled like a sheepyard with well packed trails leading between the trees.

It's not the quantity of browse that's important. It takes a lot of browse to feed a deer in a swamp. Hemlock is, however a welcome break in their diet, something green and nutritious, and a little goes a long way. "No man is an island" and neither is any animal. All are linked together, either in a subtle relationship binding them into a chain or an obvious partnership such as this.

"Partnership" is perhaps a poor word. A porcupine, waddling witlessly to his den after a hard day's work trimming hemlock, knows only that he has fed himself. A deer, eagerly snipping twigs off the well trampled snow knows better. This is dessert, something to walk a mile for. Deer can, of course, get along without the food that porky might let filter. But every little bit counts, and in a rough winter, these creatures make it just a little easier for deer to get along.

Painting by Robert Frankowiak

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Features

Front cover:
"White-tailed deer" by Richard Timm. For more on Wisconsin's favorite big game animal see pages 7 through 17.
Painting courtesy of Nature House, Inc., Griggsville, Ill. 62340

Back Cover:
"Cedar shelter-bobwhite" by Owen J. Gromme. Wisconsin has a population of about 51,000 quail in 16 southwestern counties. There is a 44-day hunting season (October 27 through December 9) in which about 5,000 are bagged. Populations vary with the severity of the winter.
Painting courtesy of Wild Wings, Lake City, Minn. 55041

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The glacier's gifts

DAVID M. MICKELSON
Department of Geology and Geophysics, UW-Madison

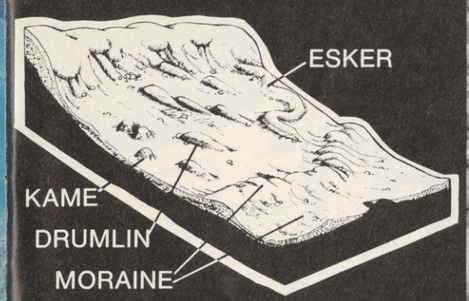


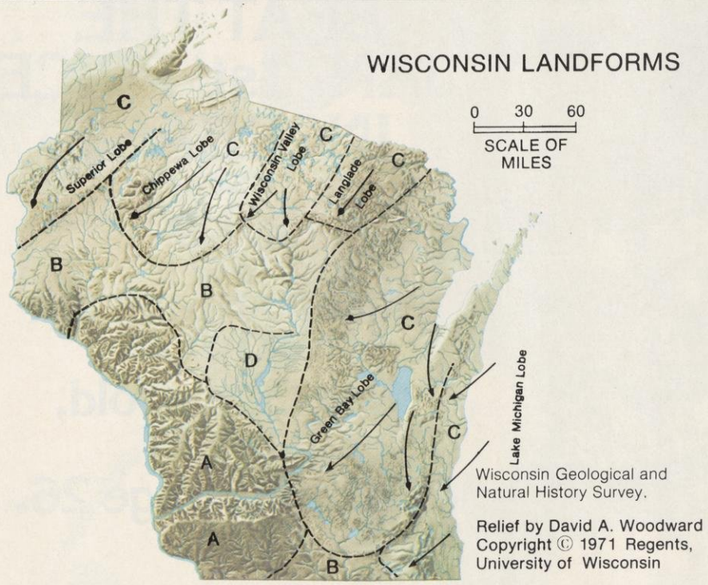
Illustration by Mary Ellen Sisulak from the book The Geology of Door County

These contoured crops in Jefferson County illustrate the typical drumlin shape. In some places drumlins are longer and narrower, but all are elongate in the direction of ice flow. They formed when thick glacial ice scoured the land surface. There are more than 5,000 in the south central part of the Green Bay Lobe.
Photo by David H. Thompson

Eskers, like this one in the Northern Kettle Moraine are long, winding ridges of sand and gravel. They form when meltwater at the margin of the glacier flows through a tunnel in the ice and deposits a load of sand and gravel there. When ice melts the ridge is left in the shape of the tunnel.

Esker forming beneath 100 feet of ice in Alaska. A stream flows on the bedrock surface. Its deposit of sand and gravel will be an esker when the ice retreats.

Photos by R. P. Goldthwait, D. Stetz and L. J. Maher unless indicated.



Wisconsin Geological and Natural History Survey.

Relief by David A. Woodward

The world was colder 15,000 years ago and a vast featureless plain of ice up to two miles thick crept inexorably into Wisconsin from Lake Michigan and Lake Superior. To the north, it extended to the Canadian Islands of the Arctic Ocean. In front of this glacier, vegetation was progressively displaced southward so that a narrow zone of tundra abutted the ice and separated it from a spruce forest. The forest covered most of unglaciated southwest Wisconsin (A and B). Then, between 15,000 and 12,000 years ago, the ice retreated and left a series of deposits and materials which greatly affect our lives today.

The southwestern part of the state, known as the "Driftless Area" (A) evidently was not covered. This area lacks glacial deposits (or drift) and has many narrow valleys with steep walls. Outside the Driftless Area, glaciers eroded off hilltops and filled valleys to produce the smooth surface characteristic of the productive farm lands in eastern Wisconsin. No one knows when the first glaciers appeared here. The oldest deposits found so far are located in the south near Monroe, and further north near Wausau. These deposits may be 700,000 years old. Even earlier glaciation may have taken place but there is no record. Other deposits range in age from about 30,000 to 200,000 years and represent several glacial advances. Area C was covered by glacial ice during Late Wisconsin time or about 15,000 to 12,000 years ago.

Thick glacial ice flows under its own weight and is partially controlled by the land surface over which it rides. Ice was funneled down lowlands like the Lake Michigan basin, the Green Bay — Lake Winnebago basin, and the Lake Superior basin. These tongues came out of a much larger ice sheet to the north and are called lobes. There were a number of them in Wisconsin. Across the north are deposits of the Superior, Chippewa, Wisconsin Valley and Langlade Lobes, and in the east and south, those from the Green Bay and Lake Michigan Lobes. When ice from the Green Bay Lobe collided with ice flowing from the Lake Michigan basin, the Kettle Interlobate Moraine was formed between the two. The Kettle Moraine State Forest preserves much of this interesting and scenic glacial feature.

Another striking glacial feature is the flat, sand plain of central Wisconsin (D). This is the lake bed of former Glacial Lake Wisconsin. When the Green Bay Lobe was biggest (about 15,000 years ago) rivers draining the central part of the state (primarily the Wisconsin) were dammed near Portage and Baraboo and a large lake developed which drained down the Black River into the Mississippi. It was the later emptying of this lake that in part produced the Dells of the Wisconsin. Another somewhat smaller glacial lake (called Glacial Lake Oshkosh) formed between Portage and Green Bay as glacial ice retreated. In its early stages this lake drained down the Wisconsin from Portage, then later drained into Lake Michigan. Its deposits produced the flat landscape around Lake Winnebago and west and north of Oshkosh and Appleton.

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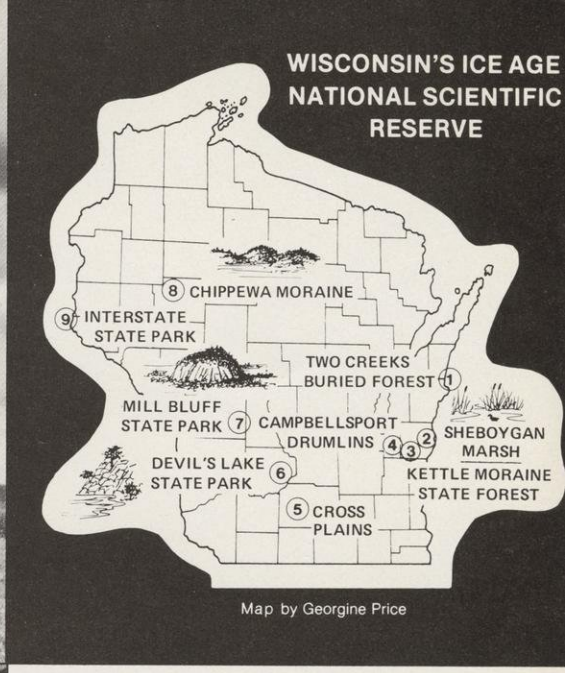
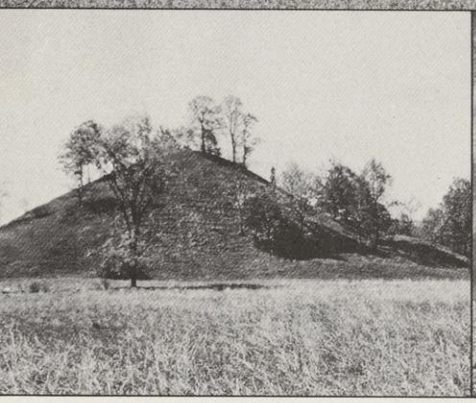
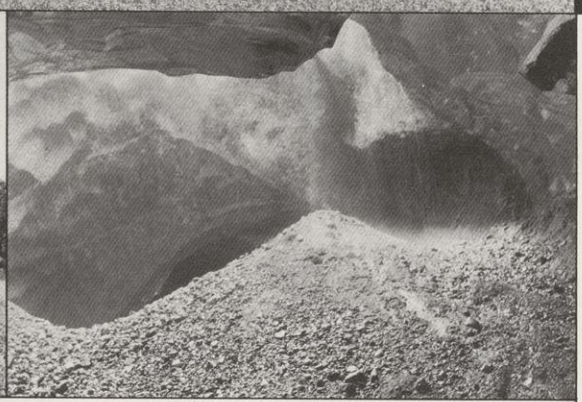


Map by Georgine Price





The sandstone hill near Cross Plains, (top) was never glaciated but is shaped deceivingly like a kame. It was formed by erosion. The true kame (above left) is located in the Northern Kettle Moraine. The symetrical form occurs when debris and water funnel down vertical shafts in the ice and are deposited at the base of the glacier. In the Alaskan example, (above right) , a kame is being built under more than 50 feet of ice. It was photographed from within an ice cave.

Top photo by Lewis Koch. 1820 1/2 Strong Ave. Beloit, WI 53511

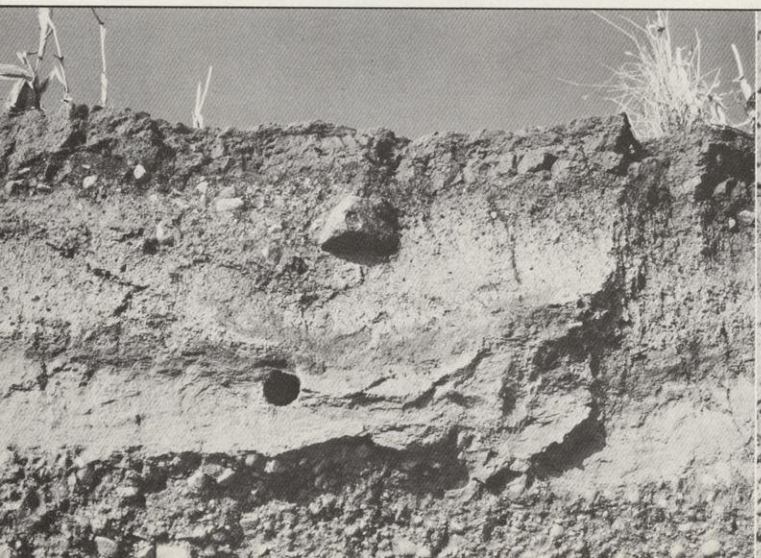
WISCONSIN'S ICE AGE NATIONAL SCIENTIFIC RESERVE. It consists of nine separate units. Each possesses features significant in the story of Wisconsin glaciation. Four are already open to the public: Kettle Moraine State Forest, and Devil's Lake, Mill Bluff and Interstate Parks. Lands for the other five are currently being acquired. All nine will eventually have interpretive facilities.

(Bottom left)

Glaciation leaves two major materials: stratified drift deposited by meltwater streams; and till which is deposited directly by the glacier. Till typically has a wide range of particulate sizes. In some places it is clayey, some places sandy. Unless it contains a lot of boulders, till usually makes good farmland. Stratified drift, a prime source of aggregate for construction, is widely distributed. More than $50-million worth of sand and gravel were produced in the state last year. Because these materials were stream deposited, course gravel is often present only in localities where stream velocities were high. Therefore, some outwash deposits (left by streams flowing away from the ice) consist of course gravels and some only sand. In areas where outwash was capped by wind-blown deposits, prime agricultural land resulted. Kames and eskers are also composed of stratified drift and are formed against or start under glacier ice. They usually have abundant coarse materials. Photo by David H. Thompson

(Bottom right)

Wood from the buried forest near Two Creeks. A forest of spruce and hemlock grew along the shores of lake Michigan about 12,000 years ago. Glacial advance covered and preserved the vegetation which was later exposed by erosional forces. Photo by David H. Thompson



The second golden age:

A salute to deer people and deer*

People and deer get along and they're a lot alike.

CLAY SCHOENFELD

Only yesterday the deer was a wilderness symbol that had faded forever with the virgin landscape. With no thought of being contradicted, the Wisconsin Game Commission once announced, for example, that "deer are destined to cease to be a game animal in Wisconsin." Then almost overnight the whitetailed deer were back with us across the state.

How and why the comeback? There are many reasons, of course, not the least of which is the fact that the deer has a superb set of senses whetted by eons of pursuers.

The whitetailed deer first picked its way across the Asian-American land bridge in the Middle Miocene period. That was the first golden age of the deer, and the ancient plains and forests of North America swarmed with them. Despite droughts, glaciers, saber-toothed tigers, and even the first human hunters, the deer adapted and thrived. Forged by the stresses of some 15 million years, the whitetail has evolved into a large, strong, graceful animal of singular beauty, fecundity, and sense. A half-century ago it was almost decimated by axe and plow, but now it has bounced back with

* Excerpted by special permission from *Down Wisconsin Sideroads*, 1979, $7.95, available from your bookstore or from the copyright owner, Tamarack Press, P.O. Box 5650, Madison, WI, 53705.

Photo by Gregory K. Scott

all the resilience displayed by its ancestors. The second golden age of the deer is here.

Of all our animal colleagues, the whitetail has made a signal success of civilization. If you stop to think about such things, it is really quite remarkable that in a day of I-highways, there are vastly more deer than there were 50 years ago. What may be even more remarkable is the fact that in a day of supermarkets, some 500,000-plus Wisconsin citizens go back in the boondocks annually on the trail of a buck. Given favorable weather, the annual deer harvest can exceed 100,000. So flourishing is the Wisconsin herd that a take of that magnitude won't hurt a bit. In 1924 only 7,000 deer were shot, and the season was closed entirely in 1925.

It is quite probable that in prehistoric times Wisconsin deer ranged over the entire state, but north of what is now Wausau they were not found in great abundance. The virgin pineries of northern Wisconsin were, in fact, not exactly a haven for game of any kind. Pierre-Esprit Raddisson, who cruised the Lake Superior shores in 1658, wrote the earliest deer hunter's lament: *It is a strange thing when victuals are wanting, work whole nights and days, lie down on the bare ground, the breech in the water, the fear in the buttocks, the belly empty, the weariness in the bones.*

It was in central and southern Wisconsin, where the woods gave way to oak openings and prairie, that the whitetail flourished, for it is a creature of the brushy edges between forest and field. With the coming of the white man, the deer's southern haven in Wisconsin did not last long. Axe, plow, gun, dog, and snare made heavy inroads. When the first State Legislature convened in 1850, the "deer problem" was on the agenda.

Meanwhile the first lumbermen were creating openings in the north, and the deer population jumped. After the Civil War the railroads ran "sports specials" to Wausau and beyond. But by the turn of the century massive clean-cutting operations and devastating fires had wiped out the northern range. When the first Conservation Commission was appointed in 1927, there wasn't much in the way of a deer herd to conserve. Then nature and people began to team up. The northern cutover became one vast sweep of saplings, as reforestation and fire prevention programs took hold. In the south, game and farm management practices favored the creation of more edge. The deer bounced back, slowly at first and then with a rush. Now the sound of hunter's guns can be heard from the shores of Green Bay to the foothills of Dane County.

A lot of people take credit, and rightly so, for the current health of Wisconsin's deer herd. Something should be said, too, for the whitetail itself. The cougar and the wolf are gone, but like the cottontail, deer continue to thrive. Wariness, adaptability and good will have paid off.

The deer hunter deserves recognition, too. Ever since the days of James Fenimore Cooper's characters, deer-slayers have epitomized the American way. Roaming the frontier as wild and free as their quarry, they have represented that rugged individualism that has been the essence of a muscular young democracy. A deer hunt today has really very little to do with shooting a buck. It is a desperate attempt on the part of urbanized, computerized humankind to recapture the soul of our primeval past. But the price the deer hunter pays for the quest is staggering.

Creatures of the edge. Photo by John Kubisiak

We come closer today to representing a character out of Orwell's *1984* than we do Daniel Boone. No other American is so hedged in by restrictions as is the modern deer hunter.

First, deer hunters today are told to buy a special tag, which we then must display in the middle of the back like a human auto license. We are told to buy special clothing, at least 50% of which must be blaze orange or red. We are told when we can go — on three to 10 precious days in November, between prescribed hours. We are told where we can go — to certain counties or deer management areas. We are told what we can use — a rifle, a shotgun, or a bow, of certain strength, again depending on the area. We are told how we can hunt — no shooting from a road, no carrying an uncased gun in a car. If we are lucky enough to shoot a deer we must register the animal at a state checking station before we can bring it home. The only thing that isn't regulated is the number of hunters allowed in a certain area, and that regulation may be just around the corner. Not only must the modern deer hunter thread a way through manifold human-made restrictions; we must also combat the immutable laws of human health. Our chair-bound physique is suddenly called upon to exert itself in ways known only to the pioneers. The price is sometimes a heart attack.

According to all the theories of sociology, there should be no more deer hunters. Yet the fact remains there are more today than there were 50 years ago. There can be only one explanation. To drive away from the city, to get out of a chrome-trimmed car, to fade into the woods, there to see a gray ghost of yesterday drifting through the brush — this must constitute a primitive, heart-pounding thrill that can surmount any hazard civilization can place in the way of its search.

That there are plenty of deer to shoot in this second half of the twentieth century in mid-continent America is one of the marvels of nature. That there are plenty of deer shooters left in this day of plastic plumbing is one of the marvels of humankind.

The lure of the deer woods is compounded of many factors: the

camaraderie of the camp, the challenge of the drive through a strange swamp, the almost unbearable suspense on a stump to the flank of a well-trod run, the sheer beauty of a sleek gray coat and a white flag disappearing into a copse of aspen, the skill of the well-placed shot. But the special magic that surrounds the relationship between deer and people may very well stem largely from a subconscious realization that here are two species of the animal world that have been pitted against each other from time immemorial and have carved out success stories together.

Like humans, white-tailed deer are creatures of the edge. That is, they thrive best in the brush where woods and fields join. Plow up their openings and level their forests and the deer population slumps. But give them a nice combination of woodlots and meadows and deer rebound with alacrity. Just so we are coming to see that humans need edge to flourish. Crowd us into cities or spread us too thinly over the plains and we have problems. But give us environmental variety and we respond with a cultural eruption.

It is in their times and places of stress that we see most clearly the kinship of deer and humans. Ranging freely in summer over well-balanced terrain, deer thrive. Jam them together in a winter yard, and they eat themselves out of house and home. Ranging freely between city and country, Wisconsin people thrive. Jam us together in an urban inner core with no escape hatch, and we react with violence.

Half a century ago, the end of the Wisconsin whitetail was predicted. Then a combination of accidental habitat changes and purposeful hunting regulations began to produce a situation in which we literally have more deer today than there were in pioneer days — an estimated 800,000 plus. The return of the deer has been accompanied by the return of the deer hunter. Where less than 25,000 took to the woods in the 20's, we can confidently look forward to more than half a million in 1980. Other states cite the same facts. People and game have not generally flourished together. The whitetail story is different. Whether people can continue to survive the way the deer has is still another question. □

Winter Rendezvous, Whitetail Deer, Gary Sorrells, courtesy of Wild Wings, Lake City, Minn. 55041

Deer hunting is a family affair

Deer hunters go in groups, but not everyone can join. There are strict rules, tradition and social obligations. Learning about them is just as important as learning about deer.

ROBERT JACKSON and ROBERT NORTON, UW-La Crosse

Recent studies by sociologists like us have pretty well documented something you all know is perfectly obvious — that deer hunting is a social event. But scientists have given it numbers. Tom Heberlein from UW-Madison, for example, learned that 60% of all deer hunters couldn't find anything in their lives that would be a substitute for deer hunting. The pursuit of a trophy, the shortness of the season, the deep sense of tradition and the camaraderie fill a niche nothing else can equal.

Deer hunting is mostly a group activity and the group, it turns out, is uniquely important in controlling and influencing hunter behavior. As sociologists, we wanted to discover how this happens, the group dynamics — what the tradition and practices are and what part the hunting group plays in developing and facilitating them. To find out, we designed a study to help hunters reflect on the way they hunt, how they became hunters, what they anticipate from the hunt and how their association with a hunting party affects all these factors.

We tried to draw a picture of a typical Wisconsin hunter by generalizing statewide. But our study also looked at regional habit, custom and tradition.

Findings show attitudes and behaviors are indeed different in various regions. Acceptable methods or ethics in Bayfield county might be completely uncharacteristic of a state forest in central Wisconsin or agricultural land in Manitowoc County. For example, in the Bayfield-Douglas county region, hunting groups are seldom larger than two or three persons. In some of the rural farm localities, however, (La Crosse,

Continued page 12 . . .

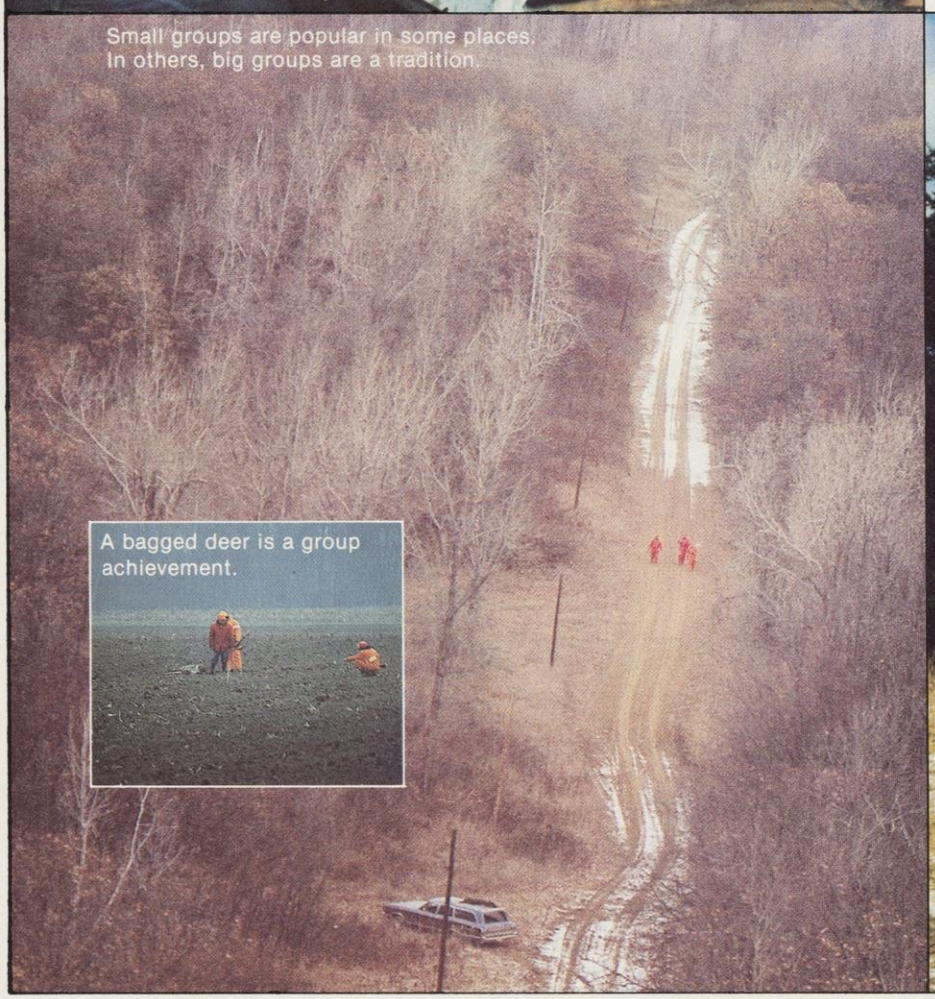
Startled Trio-Whitetail Deer, Owen J. Gromme
courtesy of Wild Wings, Lake City, Minn. 55041

A social event. Photo by Dean Tvedt

Waupaca) group size is usually eight or more and companionship is the highlight of the hunt.

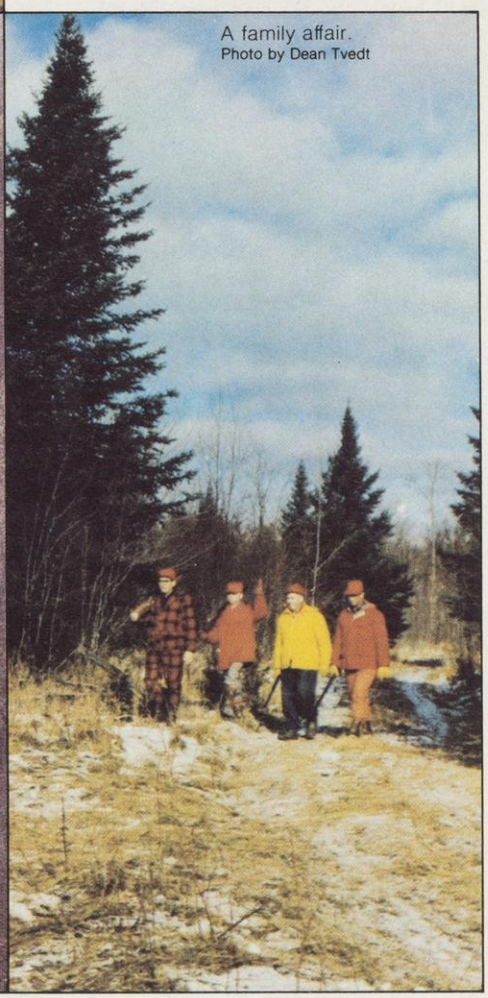
The investigation focused on men and women who were actually hunting on 10 different management units. The units were 2, 37 and 49 in the North, 55, 65 and 67 in the central part of the state and units 59, 70, and 64 representing agricultural counties. Approximately 100 hunters in each of these units were contacted in the field at the end of their hunting day and approximately 20% of these were interviewed a second time in their homes after the season.

Of those interviewed 75% said they started to deer hunt because of family ties. For 54% the major influence was the father. Brothers, sisters, and relatives were credited by another 21%. These strong family ties are key factors in developing interest and establishing



Small groups are popular in some places. In others, big groups are a tradition.

A bagged deer is a group achievement.



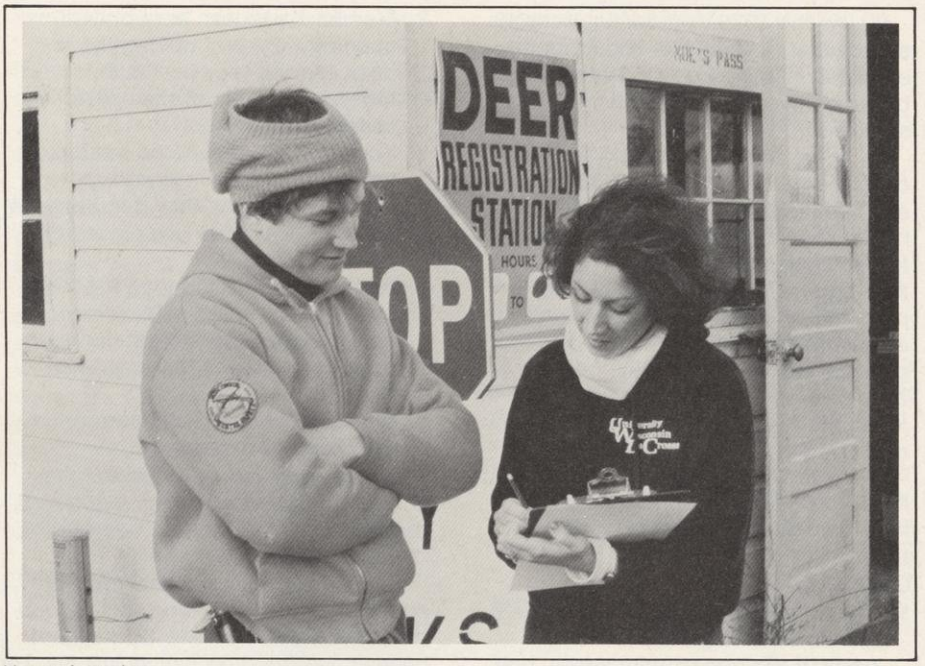
A family affair.
Photo by Dean Tvedt

tradition. Hunters talked about them at length and with strong feelings. Many indicated the deer season with its Thanksgiving holiday was the only time of year the entire family assembled. One hunter reported that a brother flew in all the way from Alaska to sustain the tradition. Despite our mobile society that tends to separate families, 56% of those interviewed were still hunting with at least one family member. Many said the only way to get into the group was through family name or marriage. And 70% reported that the most important influence on their lifelong deer hunting development was a family member. A La Crosse county hunter, made this comment:

"My father not only taught us to be hunters but also my cousins. Together we make a party of seven that all hunt the same way, think the same way and wait all year to be together for the deer hunt."

Why does the group relationship grow closer and stronger as time passes? Two key factors must be present: productivity and cohesiveness. The group has both. Hunting together gets more deer; 77% of all those interviewed reported they hunted in a party of three to eight persons. Even larger groups are common in some regions. In La Crosse county 35% indicated they hunt with a party of 10 or more.

The hunting group lends itself well to a plan where members can effectively contribute. Individuals have assigned roles: leader, driver, or stander. They do their task and share in the success. A deer bagged by any individual is a group accomplishment. The more success, the greater the accomplishment; productivity and group cohesiveness strengthen each other. As the group continues to hunt together the backlog of experience, accomplishment, and enjoyment builds.



Hunter interview.

Eventually the relationship has an intrinsic satisfaction of its own. Many experienced hunters reported their greatest satisfaction was to see a son, daughter, or other young hunter, get a buck; or, ultimately, to see fellow party members fill their tags. Nearly half said they had hunted with the same group for more than five years and 79% reported they continue to hunt with the group because they enjoy the companionship, the family tradition, and because they know each other well. Asked if there were any special satisfactions derived from hunting with their party, 68% said the primary satisfaction was social. Said one man, "we really take pride in our group. We tell each other when we're doing a good job. . . ."

Almost four out of five groups had set standards of behavior for safety and alcohol. Such exemplary practices are not infrequent and often are established as conditions for group membership.

These were some of the standards used in the best groups:

ALCOHOL:

1. There is no alcohol before the hunt.
2. There is no alcohol during the hunt.
3. Members cannot be seen in a place where alcohol is served during the hunting day.

SAFETY:

1. Apprenticeship is required. Beginning hunters carry an empty gun or no gun at all for an entire season to demonstrate competence and earn the right to hunt.
2. Rifles with more dangerous actions (lever, automatic) are forbidden to beginning hunters.
3. Novices are always placed near experienced hunters who monitor their actions throughout the season.
4. Loading and unloading of weapons among both beginners and experienced hunters is supervised and checked constantly by all members of the party.
5. Hunting from a productive stand is a privilege to be earned. Beginners must prove through an entire season that they can "stay put" before becoming eligible for high probability stands.
6. When hunting as partners, the experienced member may call out "freeze" and the beginner must stop and hold position. His behavior is then discussed in light of good safety practices and effective hunting methods.

As the 1979 deer hunting season approaches, it should be important for each deer hunting party to evaluate itself based on the ideals suggested by these standards.

In relation to group bag there is a conspicuous gap between regulations and hunting practice. While technically a hunter should quit once he fills his tag, few actually do. More than 80% who filled tags continued to hunt with the party. Many contend the regulation against this is unenforceable. They describe an obligation to the party to drive or even shoot for other members to repay the group for its work and for their own good luck.

Within this framework of continued hunting for the party, however, groups have conspicuous standards. Among them:

GROUP BAG:

1. **The hunting party agrees that the goal is to fill tags for the entire party. If the opportunity arises, one hunter will shoot more than one deer.**
2. **Members who can hunt only on opening weekend will tag the first deer, leaving tags available for those who can hunt the entire season.**
3. **Young or inexperienced hunters typically get stands less likely to produce deer. As they demonstrate shooting skill, they are placed on better stands.**
4. **As the goal of filling tags for the entire group nears achievement, unsuccessful hunters get higher priority for stands that produce deer.**
5. **Successful hunters drive more as the season progresses.**

Many hunters talked about the unhappy prospect of giving up the hunt because of success. Exclaimed one "What do I do now?"

He had bagged a deer early on opening day. Another who shot a good buck in Unit 49 after only 3½ hours of hunting described his day as just fair. He had seen more than 30 deer, but claimed his most satisfactory experience was drinking a beer at the end of the day. A persistent interviewer however, finally got the hunter to blurt out that he just didn't want to give up hunting for the season. Being successful early on opening day was almost too great a price to pay.

Hunting groups are not very likely to have defined rules or practices in regard to violations. Only 68% indicated they have such rules but many of these merely said that an individual who violates is on his own. It seems to the writers that few hunters or hunting parties have really come to terms with violators. More than a third of those studied said they had seen a violation during the 1978 season. Apparently violating, if not by definition, then by lack of definition is either acceptable or a matter of indifference.

It seems to us that attitudes and behavior of deer hunters are the most difficult of all hunters to change because of the strong influence of the group. To affect change, management and education must impact on the group as

Photo by Staber Reese

Photo by Dean Tvedt.

Usually, the objective of a group hunt is to fill every tag.

well as the individual. The hunter in a party behaves in a way defined and approved by the group. Sometimes this behavior is in conflict with the hunter's personal values. It was reported by some that they no longer hunted with a particular party or with any group at all because of conflict of this kind. Said one interviewee:

"I used to hunt with the group but I got tired of all the arguing and decisions of how and where we were going to hunt. I've hunted alone now for the last couple of years and like it."

One thing is clear: the deer hunting group is *the* key factor in understanding and changing individual deer hunting behavior. If change is indeed desirable, the next step will be to decide exactly what needs to be different and then find a way to affect the group dynamics of the hunting party to achieve it. It might take awhile! □

PARTY PERMIT CHANGED, HUNTERS CHOICE ADDED, BOTH FREE.

Hunters choice, elimination of the $5 fee, and more precise use of the party permit have been authorized by the Wisconsin legislature. The new laws were enacted in response to hearings, surveys and studies.

Hunters choice will probably be used for the first time next year. It limits a hunter to a **single** deer of either sex in contrast to the party permit which allows an **extra** deer in addition to one on the basic license. Like party permits, hunters choice permits will be issued in limited numbers and apply only in specified management units.

The revised party permit eliminates the requirement that there be at least four members in the party. There now may be any number DNR specifies from one on up.

And starting this year there will be no charge for either permit.

The biggest deer in the world is a badger

It was shot in Wisconsin. For a long time Minnesota got credit but a Minneapolis newspaperman tracked down the hunter and found the truth.

ROB IRWIN, Editorial Intern

In November, 1914, James Jordan, then 22 years old, shot a remarkable deer on the banks of the Yellow River near Danbury, Wisconsin. Like any proud hunter, he showed off the trophy to friends. It dressed out on the lumberyard scale at 400 pounds. Each antler measured over 2½ feet long and was more than six inches in circumference at its base. No one could remember ever having seen a larger deer or a larger rack. People came for miles to view it.

One man, a sometime taxidermist named George Van Castle from nearby Webster, Wisconsin, offered to mount the head. Jordan paid him $5 and the man took it home to work on it. Little did Jordan know that it was the biggest deer in the world and that 65 years would elapse before he would be recognized as the hunter who had shot it.

Not long afterward, the taxidermist's wife died. The widower moved to Hinckley, Minnesota, and then to Florida. Jordan had no idea what had happened to his deer. Unknown to him, the world record antlers languished dusty in the attic of the taxidermist's former Hinckley home for nearly 50 years.

In 1958, a man named Robert Ludwig from Sandstone, Minnesota, bought an exceptionally large set of deer antlers at a garage sale for $3. His wife, he remembers, was angry with him for wasting the money.

Continued next page. . .

WORLD RECORD WHITETAIL DEER
(TYPICAL ANTLERS)

Score: 206 5/8
Locality: On the Yellow River near Danbury, Wisconsin.
Date: 1914.
Hunter: **James Jordan.**
Owner: Charles T. Arnold.

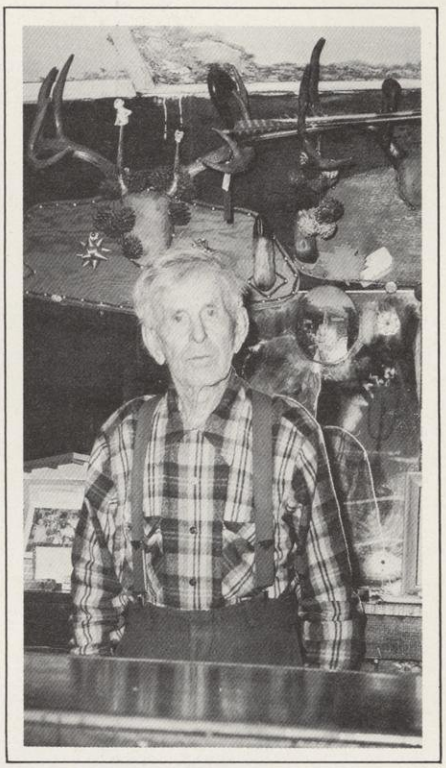
Boone and Crockett trophies are scored by a sum of measurements including the number and size of all the points as well as the length, spread, and circumference of the antlers. The previous Wisconsin record whitetail scored 191 3/8.
Photo courtesy North American Big Game Awards.

When he got them home, Ludwig invited a distant relative to view the huge rack. That relative was James Jordan. Jordan immediately recognized the deer as the one he had shot fifty years before on the banks of the Yellow River near Danbury. The trouble was proving it. Not even Ludwig believed him.

Ludwig had the antlers measured by an official from the Boone and Crockett Club. They scored an incredible 206 ⅝ points — a new world record whitetail. But lacking any documentation, it went into the record book as having been shot near Sandstone, Minnesota, date and hunter unknown.

When Ron Schara, outdoor columnist for the Minneapolis Tribune, saw the "unknown" designation his curiosity was piqued. He hoped he might track down the Minnesota hunter who had shot the fantastic buck. It would make a good Minnesota story . . . . something more for the Gopher state to be proud of. By the time Schara started his detective work the rack had been sold to a New Hampshire dentist, Dr. Charles Arnold, for $1,500. Through Arnold, Schara located Ludwig and wrote a column on the bargain basement world's record deer discovery.

A friend of Jordan's phoned Schara to tell him that he knew the hunter who had shot the deer — James Jordan. Schara interviewed the old man, by now in his eighties, in his tavern near the St. Croix River. He tried to trip Jordan up, twist his story around, but the old man remained steadfast. It was his deer. He'd shot it. He knew it. He wanted the recognition if he could get it, but he didn't really care if anyone believed him or not. As much as he didn't want to,



James Jordan behind the bar of his tavern near Danbury a few months before his death in 1978.
Photo by Bernard A. Fashingbauer.

Schara believed him and wrote a column saying so.

Bernard Fashingbauer, the Boone and Crockett official who measured the rack, saw the column and visited Jordan as well. Fashingbauer is a naturalist for the Minnesota DNR. He also hated to see the world record leave Minnesota, but he believed Jordan too. "I talked to Jordan. I'm probably in a better position to judge the truth of his claim than any living man," says Fashingbauer. "I can't prove he shot that deer, but I think it's very probable that he did."

"After all, when Jordan shot that deer in 1914, it made a lot of ripples in that community. It's unlikely that someone in the area could have shot a second deer, equally as large, sometime later without making just as much of a commotion."

The new issue of the North American Big Game records book will set the story straight, giving Jordan the credit he felt he deserved. But James Jordan will never see it. He died in October, 1978, at the age of 86, without knowing of the decision. □

WISCONSIN'S RECORD DEER BY COUNTY*

Adams - 1	Florence - 1	Marinette - 3	Rusk - 4
Bayfield - 4	Forest - 2	Menominee - 2	Sawyer - 4
Buffalo - 6	Grant - 1	Oconto - 1	Sheboygan - 1
Burnett - 2	Jefferson 2	Oneida - 2	Trempealeau - 2
Crawford - 2	Juneau - 2	Pepin - 2	Vernon - 1
Dane - 2	La Crosse - 1	Polk - 1	Vilas - 4
Dodge - 1	Lafayette - 1	Price - 3	Waupaca - 1
Douglas - 1	Lincoln - 2		

* From Boone & Crockett

WISCONSIN RECORD TYPICAL WHITETAIL DEER ANTLERS

SCORE	HUNTER	COUNTY	YEAR	POINTS
206 5/8	James Jordan, Danbury	Burnett	1914	10
191 3/8	Robert Hunter, Galesville	Vilas	1910	11
186 1/8	Fred Penny, Sheridan	Waupaca	1963	13
185	Harold Christianson, Viroqua	Vernon	1968	10
184	Keith Miller, Neopit	Menominee	1969	13

WISCONSIN RECORD NONTYPICAL WHITETAIL DEER ANTLERS

SCORE	HUNTER	COUNTY	YEAR	POINTS
245	Elmer Gotz, Fountain City	Buffalo	1973	30
233 7/8	Homer Pearson, Almena	Polk	1937	31
231 2/8	Bob Jacobson, Crandon	Forest	1958	30
228 2/8	Charles Berg, Ashland	Bayfield	1910	23

Wisconsin's non-typical record. The deer was shot in Buffalo County in 1973 by Elmer Gotz of Fountain City.

Photo by Charles Newhouse.

Environmental issues hang tough

Although inflation and the energy crunch are like death and taxes these days, people aren't willing to give up on 10 years of environmental improvements. They want even more.

DOUG KING, Chief
State Water Resources Policy Section
*Bureau of Planning**

"Earth Day — 1970" pushed "environment" and "ecology" into the minds and onto the tongues of nearly every Wisconsinite. Sometimes it pushed them into the streets. In those days, it was almost easy to protect natural resources. Public support was strident, demanding. Government agencies listened to local citizens, got help from lawmakers, looked for advice from engineers, and followed the leadership of a dozen or so influential conservation organizations. The skids were greased and even ponderous bureaucracy moved kind of fast.

Things have changed a bit since then, quieted down. We don't all fit into the same simplistic pigeonholes anymore. But we still care about the world we live in! Concern for the environment isn't dead. It's not even in ill health. It's quieter, more personal, and still very strong.

Call it alive and participating rather than alive and kicking. The process is not as noisy, nor as glamorous, but it is much more effective. The average citizen still does not want to run the government. Most find it a tedious business at best. Put a dam in his backyard or channelize his favorite trout stream and you are still likely to end up with a "concerned citizen." But give him unconvincing reasons for it and you've got an angry one.

Since that first Earth Day, citizens have had more opportunity to participate in government decision making. We've had congressional reform, open meeting laws, citizen advisory committees, suits against the government, new access to information, the 18-year-old vote and a lot more.

Today there are new guarantees government must give citizens about their environment. Public participation in natural resources decisions is a must. Before any action is taken adequate public notice has to be given and public participation invited. The environmental impact process is mandatory.

Fueling all this participation in government is an unprecedented flow of information. Never before has so much information on such a variety of issues been available to so many people. Not just public relations effort either, but real "down to earth" explanations of problems and issues, alternatives for dealing with them and the social, economic and environmental consequences. In short, we are now participating "smarter" than ever before.

DNR recently decided to find out more about this new breed of public participation. To do so, it sponsored two major public opinion surveys in August, 1976 and July, 1978. The UW-Madison Survey Research Laboratory was hired to do the work. A grant from the United States Water Resources Council paid for the surveys. They were the largest of their kind ever undertaken by DNR. Randomly sampled Wisconsin households were contacted by telephone. The idea was to get a representative cross-section of Wisconsin resident income, education, occupation, age, sex, community size and geographic location.

The two surveys differ, but together they demonstrate that concern for the environment is still very much alive. The one in 1976 addressed pollution control, land use, and nuclear power plants. The 1978 survey dealt with outdoor recreation, water management, hunting and fishing. Both asked about the performance of DNR.

Surveys are necessary for many reasons. Elected officials are not always well aware of constituent views on all issues. Public hearings sometimes attract only a small segment of the general population and may disproportionately reflect their opinions. Citizen advisory groups cannot always be counted on to reflect ideas of the average person. But surveys can't replace these mechanisms. Surveys have shortcomings too. They're expensive and time consuming. They often miss many well informed professionals and experts who have something to say. Those directly affected by a decision are not always heard. And survey results tend to reflect what's popular or unpopular at the moment, not necessarily the best thing in the long run. Consequently, surveys are most useful when combined with other forms of public participation and that's how they're handled in Wisconsin.

The surveys show we're still just as concerned about environmental quality as ever. Take a look at the highlights! Most Wisconsin people:

- feel high taxes are the single most important problem facing the state today. But air and water pollution run a strong second.
- are willing to pay higher prices and taxes to reduce pollution, but would like to see a special pollutors' tax rather than an increase in sales, income and property taxes.
- would support stiffer regulations and economic penalties on polluting industries and municipalities.
- are willing to accept land use controls to reduce water pollution as long as they're locally administered.
- believe no more nuclear power plants should be built in Wisconsin unless they're proven perfectly safe, their wastes can be safely disposed of, and unless liability insurance covers all damages from nuclear accident.
- would like to see more public land along Wisconsin lakes and streams.
- would like to ban power boats in the late afternoon and evening on most small lakes in the interest of peace and quiet.
- almost unanimously support zoning some larger lakes to reserve areas for specific activities like swimming, fishing, sailing, power boating and water skiing.

Wisconsinites also:

- support setting aside some small lakes entirely for quiet activities. Under this proposal, all power boats (except electric motors) would be prohibited at all times.
- overwhelming favor protecting the remaining natural wetlands in Wisconsin.

* Doug King has been a planner with DNR for 10 years, has a B.S. in Sociology and Master's degrees in Water Resources Management, Urban Planning and Regional Planning.

- support legislation to prohibit draining or filling them.
- favor the acquisition and preservation of more wild and scenic areas.
- would rather see high quality recreation sites preserved far from cities than lower quality sites close to urban areas.
- would like snowmobiles prohibited from operating after 10:00 p.m. and before 8:00 a.m.
- would willingly pay more for a fishing license to reduce water pollution in Wisconsin.
- think Wisconsin is a good place to live*.
- feel the DNR does a fair or good job, 71% feel DNR is helpful to the people of Wisconsin, and a majority don't believe "DNR is ignorant of local needs." Most think DNR is honest, dependable and helpful. Wisconsinites say DNR has done a good job on 59 different assignments. The thing most often mentioned is pollution control.

Clearly, concern for environmental quality and enthusiasm for environmental protection has not died since Earth Day - 1970. Opportunities for participation in decision making, such as these surveys, have become more common but not so visible, more effective but also quieter than they were on Earth Day.

Environmental issues are now so complex that they are no longer resolvable nor even addressable through public demonstrations alone. Concerns have become more sophisticated, issues more subtle. Things are not as simple as "dirty vs. clean" environment anymore. We talk not just about the cost of cleanup but also about who pays, how much and in what form.

We feel strongly about "socio-ecological" issues like what kind of recreation should be allowed on a lake and when.

We're even concerned about environmental quality measured in terms of such variables as peace and quiet. As one aquatic biologist was overheard to say: "Oh, for the simple days of dead fish per mile!"

Some observers in the media have suggested that support for environmental protection is not merely quieter but has actually diminished in recent months because of concern about inflation and the energy shortage. They point to congressional attempts to weaken existing environmental protection laws and block new legislation. They talk about increased timber cutting in national forests, easing of air pollution controls on coal-fired power plants and loosening the federal rule that restricts lead in gasoline. The Washington based Natural Resources Defense Fund says "the forces assailing environmental programs are very strong . . . there is certainly a lot of nibbling around the edges."

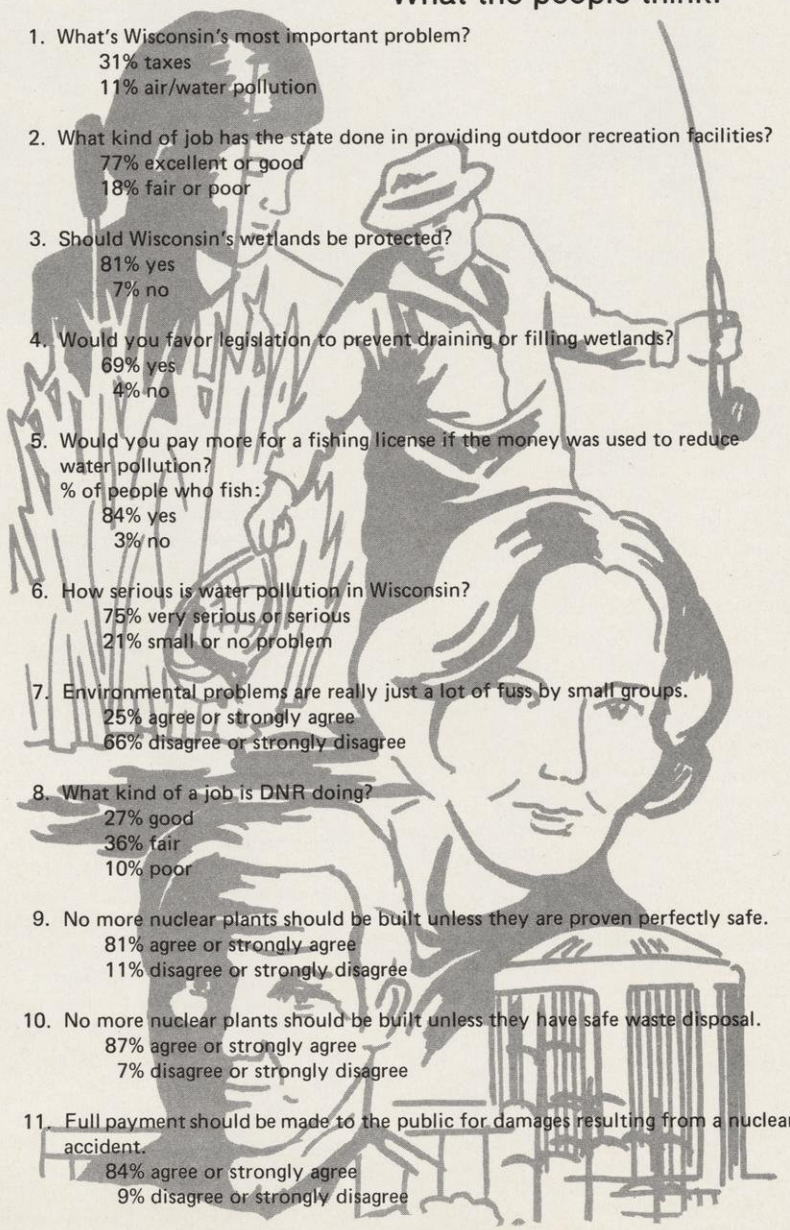
But despite these events, Wisconsin public opinion surveys conducted since 1978 show that concern for the environment remains very strong. Separate surveys on mining, on water quality and on energy all show strong support for protecting things like water quality, shoreline areas and wetlands. They show strong opposition to trade offs of environmental quality for economic growth, to underground storage of radioactive wastes and to construction of nuclear power plants unless safety questions are resolved.

Still another survey discovered that people not only want to learn more about their environment, they are willing to spend tax money to do it. People are especially interested in information on energy resources, energy saving, water improvement and Wisconsin's trees, plants and flowers.

So what does all of this mean? It means that we've moved from the boisterous clashes and confrontation of the beginning of this decade to quiet, legitimate, public participation in government decision making. It means that as a public we are abandoning the shotgun approach to directing our concerns. Instead, we quietly target those concerns toward key points in the system to which we now are *guaranteed* access. It means an elite environmental movement has matured into a healthy concern by average folks. It means that concern for our environment is still alive and well. It means we still care. □

Illustration by Georgine Price

What the people think:

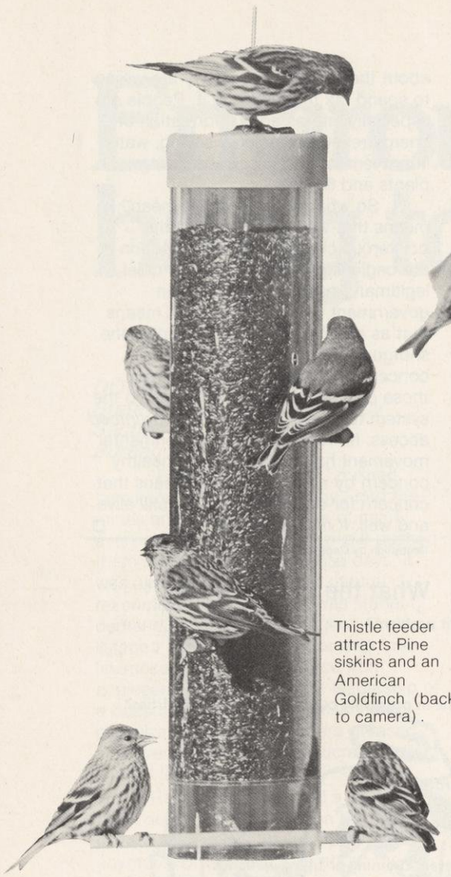


1. What's Wisconsin's most important problem?
   - 31% taxes
   - 11% air/water pollution
2. What kind of job has the state done in providing outdoor recreation facilities?
   - 77% excellent or good
   - 18% fair or poor
3. Should Wisconsin's wetlands be protected?
   - 81% yes
   - 7% no
4. Would you favor legislation to prevent draining or filling wetlands?
   - 69% yes
   - 4% no
5. Would you pay more for a fishing license if the money was used to reduce water pollution?
   % of people who fish:
   - 84% yes
   - 3% no
6. How serious is water pollution in Wisconsin?
   - 75% very serious or serious
   - 21% small or no problem
7. Environmental problems are really just a lot of fuss by small groups.
   - 25% agree or strongly agree
   - 66% disagree or strongly disagree
8. What kind of a job is DNR doing?
   - 27% good
   - 36% fair
   - 10% poor
9. No more nuclear plants should be built unless they are proven perfectly safe.
   - 81% agree or strongly agree
   - 11% disagree or strongly disagree
10. No more nuclear plants should be built unless they have safe waste disposal.
    - 87% agree or strongly agree
    - 7% disagree or strongly disagree
11. Full payment should be made to the public for damages resulting from a nuclear accident.
    - 84% agree or strongly agree
    - 9% disagree or strongly disagree

*On a scale of zero to ten (zero the worst and ten the best) 51% of us rate our living conditions as eight or above and 95% call it five to ten. About 65% say living conditions are better now than ten years ago and 75% expect that living conditions will be better yet 10 years from now.

Suet, seed and field guide: birdwatching made easy

A feeder outside the window is all-winter entertainment. Here's how to go at it.

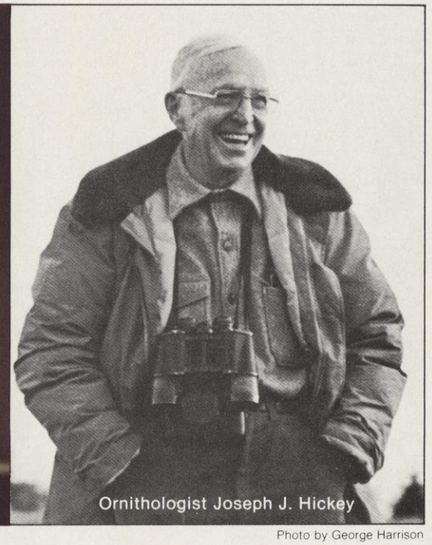


Thistle feeder attracts Pine siskins and an American Goldfinch (back to camera).

Suet feeder brings a Red-breasted nuthatch and . . .

a Black-capped chickadee.

Evening grosbeaks at window feeder.



Ornithologist Joseph J. Hickey

Photo by George Harrison

KIM ERWAY, UW-Extension

A backyard feeding station properly set up and managed can help birds survive the difficult winter season.

Wildlife ecologist Joseph J. Hickey, professor emeritus UW-Madison, has a number of hints for making the most of your bird feeding station.

It's all right to begin feeding birds before the first snowfall, but it's best to wait until early December, when migrating species are sure to have left the area.

Premature feeding contributes to the problem of "ecological delinquents" by preventing migration of some birds, says Hickey.

Also, once you begin feeding, you have an ecological obligation not to shut down the feeding station in the middle of the winter, leaving dependent birds stranded.

Continue feeding until the snow melts in the spring. Of course, there's nothing wrong with operating a year-round feeding station.

The type of feeder you select doesn't matter much, so long as there is shrubbery nearby for a safe retreat when danger threatens.

Discarded Christmas trees shoved into the snow near a bird feeding station provide emergency shelter as well as alternative feeding sites.

In addition to feeding on strung popcorn and cranberries that may already hang from the branches, birds find the cast-off Christmas tree an excellent place to feast on bread crusts and other delicacies you leave for them.

Locating several feeders in a group is an ideal way to eliminate the problem of aggressive birds that dominate the feeding station, intimidating smaller, shyer birds.

Many species will use windowsill feeders which give birdwatchers an excellent opportunity to study birds closeup. Be sure to provide escape cover for sill-feeding birds.

Windowsill feeders have the advantage of being easily restocked through the open window.

Cracked corn is an inexpensive and nutritious feed which attracts many birds including slate-colored juncos, blue jays, cardinals, tree sparrows, pine siskins, goldfinches and mourning doves.

Besides filling the feeder, spread some feed on the snow underneath for species which normally feed on the ground, Hickey advises.

Sunflower seeds will draw cardinals, jays and evening grosbeaks to your feeding station.

Beef suet in hanging baskets attracts woodpeckers, nuthatches and chickadees, which ordinarily feed on insect eggs in the bark of trees. Birds you can expect to see on your suet feeder include downy, hairy and red-bellied woodpeckers and white- and red-breasted nuthatches, in addition to the well-known and entertaining black-capped chickadee.

Suet attached to the bark of a tree may be damaging to the tree, cautions Hickey. The bark becomes soft and decayed, leaving the tree vulnerable to attack by insects or disease.

When a robin shows up at your winter feeding station, put out raisins or currants for him. Robins usually migrate south for the winter, but if you see one after the first of December, you can be sure he's here to stay, says the wildlife ecologist.

Hickey says there is very little you can do about undesirable species, such as starlings and house sparrows, which invade your feeding station, consuming large quantities of feed and discouraging more desirable species from visiting the feeders.

Squirrels, on the other hand, another invader of feeding stations, can be discouraged by including baffles in the design of your bird feeders.

A baffle is an aluminum or sheet metal cone tacked to the post of a feeder. You can also wrap a metal sheet around the pole, but this method is less effective as a squirrel deterrent than the cone shape.

Of course any feeder within jumping range of an overhanging tree is fair game for squirrels, so position your feeders accordingly.

Because squirrels are such lovable clowns, you may not want to discourage them completely, but just make it difficult for them to get to your feeders. Suspending a feeder on a wire stretched between two trees forces squirrels to work for their meal, entertaining you with their antics on the tightrope.

You may even want to attract squirrels to your feeding station by putting out ears of corn for them. Impale

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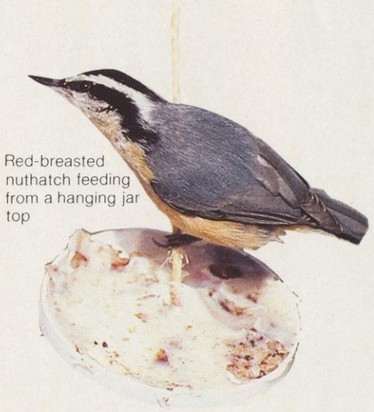
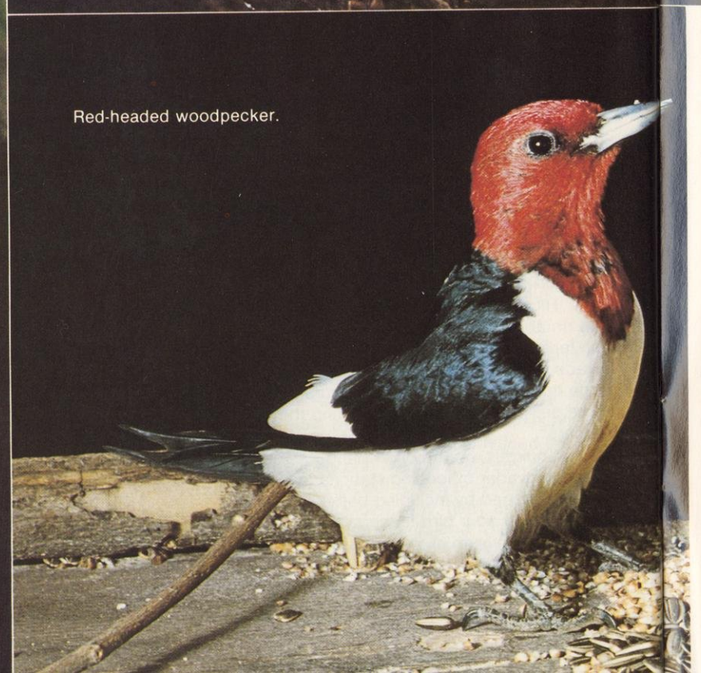


Red-breasted nuthatch feeding from a hanging jar top

Midnight bandit caught in the act.

Sparrows at windowfeeder.

A Bluebird will sometimes stay all winter, but its extremely rare.



Red-headed woodpecker.

the ears on headless spikes driven into a pole or a plank on the ground.

Birds — and squirrels — visiting winter feeding stations quickly establish feeding patterns, returning to the feeders at regular intervals throughout the day.

Occasionally a rare or unusual bird comes to a backyard feeder. It may be a "straggler" — an individual of a migrating species which has remained in the area — or a bird from a different region, blown off-course during its migration.

Hickey recommends using Peterson's *Field Guide to the Birds* as a good way to find out who's visiting your feeding station. Keep binoculars near your window to spot identifying marks. □

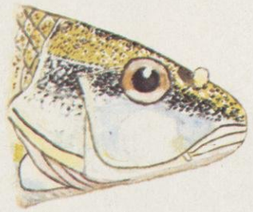
Photos by Roy Lukes and Richard Joel Wunsch

Jawbonin' about fish mouths

Immature paddlefish

Chestnut lamprey *(Ichthyomyzon castaneus)*

Mottled sculpin *(Cottus bairdi)*

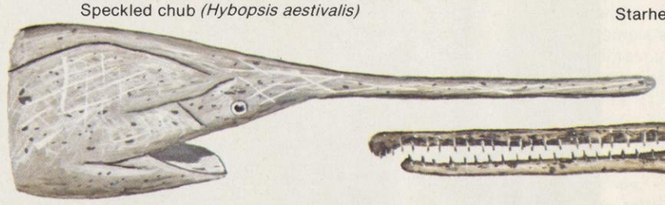


Hornyhead chub *(Nocomis biguttatus)*

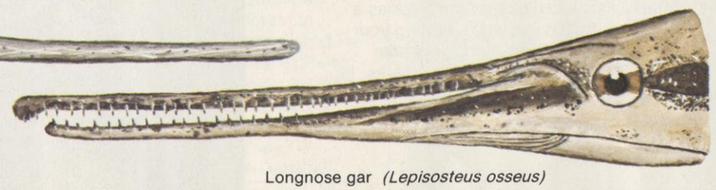
Blackside darter *(Percina maculata)*

Speckled chub *(Hybopsis aestivalis)*

Starhead topminnow *(Fundulus notti)*



Paddlefish *(Polyodon spathula)*



Longnose gar *(Lepisosteus osseus)*

RICHARD E. BERG and
JON A. SHAPIRO
Vertebrate Zoology, Milwaukee Public Museum

The first fish-like vertebrate came into existence approximately 360 million years ago. From this primitive jawless vertebrate, much like today's non-parasitic lamprey, fishes have increasingly evolved into thousands of diverse and often very specialized species. The variety of habitats that has arisen is endless: lakes, streams, swamps, and rivers of all sizes and descriptions. To survive, a fish species has often developed a mode of feeding dependent on particular foods, which in turn may occupy a very specific ecological niche.

Adaptations have allowed fishes to feed on many types of flora and fauna found in the aquatic world. Certain species have evolved to feed on insects, plants, crustaceans, plankton, fish, and many other organisms. Specifically, there are scale eaters, plant scrapers, parasites, leaf choppers, rock scrapers, fin choppers, eye biters, subterfuge hunters and many other feeding adaptations. Most of these adaptations occur in the tropics and don't exist in Wisconsin. However, we do have examples of parasitic, planktonic, omnivorous, bottom feeding, surface feeding, and fish eating species here. It is unfortunate that fish with the most specialized (and interesting) adaptations often face uncompromising environmental requirements and therefore end up endangered.

Chestnut lamprey *(Ichthyomyzon castaneus)*
A parasitic species, the chestnut lamprey is fitted with numerous strong, sharp teeth for grasping and piercing the body of a host. It is ideally suited to feed off body fluids of other fishes. However, only the adult can feed in this fashion. The juveniles, called ammocoetes, have mouth parts that form a sieve to feed on minute plankton. The chestnut lamprey reaches a length of about 13 inches and can be found throughout the upper Mississippi River Valley drainage.

Hornyhead chub *(Nocomis biguttatus)*
Many fish eat both plants and animals and are classified as omnivorous feeders. An example is the hornyhead chub, a member of the cyprinid or minnow family. This wide-mouthed species feeds at any depth on flora and fauna of clear water creeks and smaller rivers. Items as large as small crayfish are eaten. This unspecialized fish is rather common in Wisconsin streams, and reaches a maximum size of a little over eight inches.

Speckled chub *(Hybopsis aestivalis)*
This highly specialized member of the cyprinid family is a bottom dwelling species. It likes riffles in large rivers. Its sucking mouth is ideally adapted to feed on immature insects that live among the rocks and gravel. The mouth is large in relation to the head and allows the fish to suck up various life stages of the dobsonfly, caddisfly and stonefly. The speckled chub seldom exceeds three inches in length and is considered to be threatened in Wisconsin.

Paddlefish *(Polyodon spathula)*
Plankton are very tiny plant and animal organisms, a preferred food for many juvenile fish and some adults. The paddlefish is uniquely adapted to filter such organisms out of the water as it swims along with its mouth open. Often shaking its head, the fish will engulf a vast amount of water to strain out the food. The "paddle" probably acts as a stabilizer. Otherwise, the drag caused by straining action would make the fish dive to the bottom! The paddlefish seldom exceeds 39 inches in length and has been placed on the Watch List by the Endangered Species Committee of the DNR.

Mottled sculpin *(Cottus bairdi)*
Blackside darter *(Percina maculata)*
Other bottom dwellers grab free floating food as it comes by rather than sucking it up from the bottom. Examples are the mottled sculpin and blackside darter. The mottled sculpin has an exceptionally large mouth that allows it to feed on both mature and immature aquatic insects and, occasionally, on unwary small fish. Common in streams and lakes, it reaches four inches in length. The blackside darter has a much smaller mouth and must eat smaller prey, with mature and immature insects and crustaceans desirable foods. About four inches in length, it lives in small rivers throughout Wisconsin. These fish have another adaptation for living on the bottom. The sculpin has a flattened body while the darter is rather slim and elongated. In both cases, streamlining evolved to reduce resistance from water flow.

Starhead topminnow *(Fundulus notti)*
A species ideally suited for life just below the water's surface. Terrestrial insects that land on the water are particularly desirable prey. Feeding topminnows often leap out of the water chasing after escaping insects! Other foods usually found on surface vegetation include crustaceans, aquatic insects and algae. The starhead topminnow is always associated with vegetation. It reaches a length of 2½ inches. Found in only a few areas of Wisconsin, this fish is on the Wisconsin Endangered Species List.

Longnose gar *(Lepisosteus osseus)*
Some fish are entirely predacious and feed mostly on other fish. In no other Wisconsin species is this so pronounced as in the longnose gar. Armed with a long and slender snout filled with sharp unspecialized teeth, the longnose gar takes cover and lies in wait for prey to come by. Prey is usually impaled crosswise but eventually righted, moved backwards and swallowed by constant movements of the jaws. The longnose gar is often a good biological control for small undesirable species. It can be more than three feet long and is a widespread Wisconsin species.

Editorial:
An upbeat pain in the neck.

This will be an upbeat editorial even though it's about an old downbeat pain in the neck—price increases. And at Christmas time to boot! On January 1st, a subscription to Wisconsin Natural Resources magazine will cost $6.97 per year. That's a $2.47 increase. But the rest is good news.

Most important is for your pocketbook—before January 1st you can continue to subscribe at the old rate of $4.50. No matter when your magazine expires, a renewal now will add another year—a good way to beat inflation! Which is what this editorial is about.

Wisconsin Natural Resources magazine belongs to you and it will now be able to keep on publishing, be able to afford last year's 24% increase in printing costs, be able to afford the recent 60% rise in magazine postage rates and the crazy boosts in paper and production prices. Look at it this way: split up annually, the rise amounts to only about 85¢ a year for the magazine's three years of existence. If you renew now for another year, it'll be even less, about 62¢. And remember, most other things you buy (like gasoline and fuel oil) go up the very moment production costs rise.

The important thing, though, is that you 70,000 subscribers out there have made the magazine thrive and grow. You've paid every cent of its way—an accomplishment to be proud of these days. Almost all other state resource magazines are heavily subsidized by taxpayers. This one is not! So congratulations! Together, you've all made it possible to publish a fine magazine about nature, environmental issues and natural resources. The editor and staff feel humble and warmed by your support.

To deserve it even more, there are big plans for 1980: special supplements on Wisconsin coastal management, on endangered amphibians, mollusks and plants, and on fish and wildlife. There will be more pages, more color and more issues probed in depth. Stick with us. It will be an exciting season.

And have a happy, painless holiday.

J. Wolfred Taylor

The readers write

In your July-August issue of *Wisconsin Natural Resources* the picture of Doc Chase in full uniform and the description of the uniform do not match. The article says the badge belonged "on the outside of the coat on the *left* hand side." His was definitely not. Which is correct? ***LORI WOCKENFUS, Neenah.***

Several alert readers caught this. Doc Chase really wore his badge on the left side, even though the picture shows it on the right. The negative was reversed in the printing process, making him look backwards.

I would suggest that the author of the mushroom hunting story, "The Morelist", in your spring issue, is too modest. While Mr. Isherwood identifies himself as "farmer", certainly an essential and honorable profession, the identification should also include the terms poet, philosopher and humanist. I look forward to future contributions by Mr. Isherwood. ***J. H. LASHBROOK, Black Creek.***

An article by Justin Isherwood appears elsewhere in this issue.

I have just read your May-June issue from cover to cover. It is a beautiful issue, well-balanced and nicely edited. I am looking forward to receiving your next one. I have xeroxed your article on PCB's and circulated it among our staff. It is the best treatment that I have seen on this subject, well researched and fair. We have a similar situation in New York with our salmon in Lake Ontario. I imagine that publishing this article took some courage on your part. If you have been dodging brickbats ever since, you at least have the satisfaction of having called a spade a spade.
JOHN J. DU PONT, Editor: *The Conservationist* ***magazine, Albany, New York.***

A few of your recent issues discussed our disappearing wetlands and marshes. What can a person do about this? I own a small 20 acre marsh. It is filling in not by man's hand but by natural erosion. The costs to deepen it and replant the necessary wildlife foods are too high for a person to carry. Why doesn't the government help? The small wetland areas are just as important as the large state-owned marshes. If you know of any federal or state assistance available, please publish the information.
MARK S. GALASSIE, Appleton.

The state constitution prohibits spending state tax dollars on private lands. However, DNR's inland lake renewal or wildlife management personnel, or your county agricultural agent can offer technical advice and assistance. If you qualify, the U.S. Agricultural Stabilization and Conservation Service might be able to help. Give them a call.

Thanks to you and your staff for your excellent warden centennial commemorative issue of the magazine. It's a keepsake! ***HOMER E. MOE, warden, Milwaukee.***

My congratulations to the editor and staff of your magazine. The July-August issue was just excellent.
RICHARD A. WARDER, Hayward.

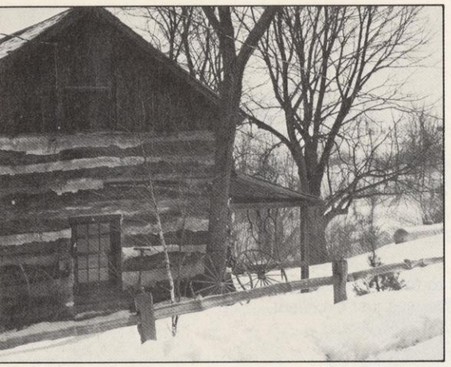
"One Hundred Years a Warden" receives this discipline's commendation. Since the first copies hit the field we have heard many fine accolades. It is not only great for morale within but the message carried 100 years of citizen participation and philosophy which cements our relationship and role to the people of Wisconsin. ***HAROLD HETTRICK, deputy director of law enforcement, DNR, Madison.***

I'll concede that snowmobiles have their place in winter recreation in Wisconsin. However, due to the large number of snowmobile accidents each winter, I feel that those snowmobile TV commercials should be toned down a bit. Last winter the back cover of your January-February issue showed a man on an airborne snowmobile. Was that part of DNR's winter safety program? ***WILLIAM H. DOYLE, environmental consultant, Milwaukee.***

Today I received my first copy of your magazine. After reading a few articles and scanning through this issue I will be looking forward to reading them from cover to cover from now on. Truly this is a good Wisconsin publication.
REGINA PETERSON, Monona.

A previous issue contained an article on DNR monitoring Exxon for possible pollution at their proposed mine near Swamp Creek. Some companies might try to discourage DNR's environmental monitors from doing their work. But in the long run, working together saves everybody a lot of money, trouble and time in court. It would be nice to see other companies follow Exxon's lead.
MICHELE VAN SANT, UW-Stevens Point student, Wisconsin Rapids.

I would like to express my pleasure with your July-August issue. I have a picture of my father, the late Warden Harry Hasford, with a deer that is almost identical to your cover picture. It brought back many memories from the days when I was growing up in Wisconsin! ***MRS. R. W. ANDRAE; Los Alamos, New Mexico.***



Winter is home.

Toward a north country winter

In Wisconsin, cross-country skis have opened winter's door. This is an appreciation by a writer who has done it, thought about and felt it.

JUSTIN ISHERWOOD, Farmer, Rt. 1, Plover

The cross-country ski began to emerge in the late 60's and early 70's. Societies seem to have a switch that clicks simultaneously as if ideas rise spontaneously from each individual out of a common need. People have always looked longingly to winter. Downhill skiing, skating, ice fishing and snowmobiling are evidence. But by chance some discovered cross-country skiing. As a sport it appeared improbable, lacking the dash of downhill skiing and the speed thrill of the snowmobile. We had been conditioned to think of skiing as having nothing to do with flat Wisconsin townships.

But cross-country gathered its faithful one by one, spreading like a contagion that radiates its effects as people talk and sneeze. It began with a few infections, then moved through the population.

The ski was not like the snowmobile, which was sold to its audience. As a device the snowmobile did several positive things. One was to relate people to winter. The machine helped transfer people to outdoor activities. The ad campaign unwittingly sold winter as well as the snowmobile. The machine was an alternate mechanism, in many ways and for special purposes, better suited to winter than the automobile. Unfortunately, a utility was swapped for a brash hot rod character that did not foster a bond to winter, instead only to be passengers through it.

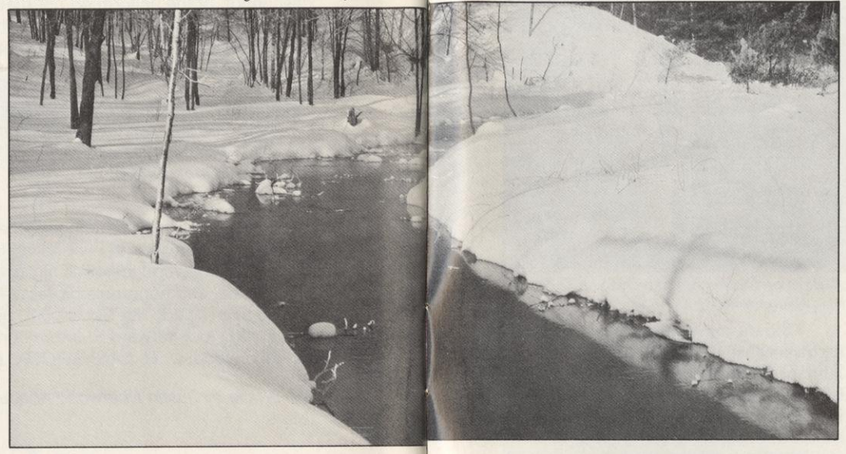
The north country skier should thank the snowmobile, though, for creating just enough distaste, just enough unfulfillment to make the alternative an attractive one. Skis filled voids the snowmobile could not. They made no noise. They were within economic reach of many average Americans. The places it could be practiced were not remote. Suburban areas with parks and golf courses permitted near access to cross-country skiing. Nor was the clothing particular; blue jeans, flannel shirts, turtle necks, mittens and home knit wool socks were the precise costume.

The ski permitted entry into a winter world not as an alien, dressed like a space visitor with helmet and an insulated suit that might double as lunar lander apparel. The skier goes at a speed that does not blur the world to his eyes. Skiing becomes a method, a way of knowing. A system by which one identifies, relates,thus forges kinship, the fruit of knowledge, whether of man or of earth. A process, in theological terms, like biting the apple.

The skier goes at a speed that does not blur the world.

Black and white photos courtesy of Wisconsin Division of Tourism.

In Wisconsin north country winter refurbishes the earth.



Our culture, long insulated from winter has a hostile consideration of snow: the reason for high fuel bills, snowtires and shovels. Snow to the skier takes an individual character. Snow is not just snow. Some snow is perfect; exact six sided crystals so carefully wrought that each has the prideful signature of its creator. Some snow is larger than others, like spired monuments from falling through warm air. Some tiny, made by cool brittle hammers on nights when the woods boom. There is snow in the form of pellets, unable to decide whether it should be rain or snow. Snow which is but the broken pieces of flakes, the wind having undone the steeples and packed all the broken pieces in drifts behind the township snowfence.

Conditions vary, from new snow sharp as green sandburs to the planed edge of old snow wounded by the wind. The English language has but few words for snow: sleet, slush, snow. In contrast the Eskimo have a hundred words for snow. Words like *perksertok*, drifting snow; *apingaut*, the first snow fall; *anio*, clean drinking snow; *sitidlorak*, crusted snow; *pokaktok*, sleet; *massak*, rain and sleet; *monyak*, new fallen snow; and *ayak*, a word strangely similar to what a suburban mother might coin meaning the snow that sticks to your clothes and boots when entering the house. These words reflect a literacy and an intimate sophistication with the environment.

The cross-country skier learns some of this. For instance, there is wax.

To the onlooker, ski waxing appears to be an obscure chore. A kind of hocus-pocus alchemy of mysterious importance.

Wax on the bottom of the ski acts as a gear or a cog that engages against what teeth the snow has.

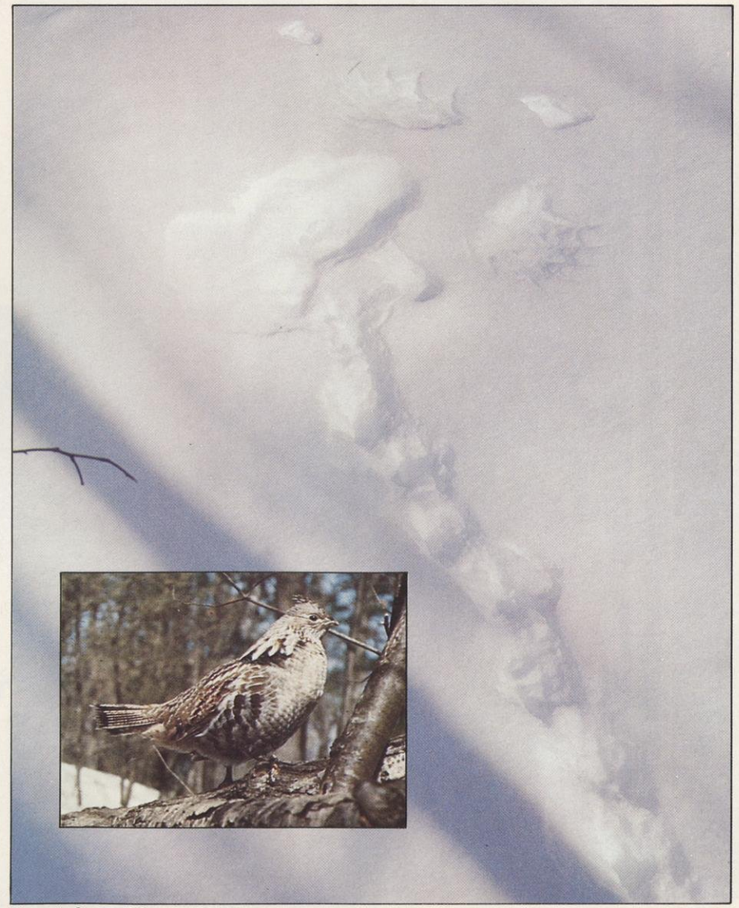
A skier learns to match mind and wax to the snow, aware of conditions changed by temperature, wind, age and nearby vegetation. Warm weather wilts the crystal cathedrals so a softer, more engaging wax is necessary. Wax compounds exist that permit travel on ice, others on the mushy wet snow of approaching spring. Still others on new snow and snow worried with age. Combinations of wax allow travel on a variety of pastures. The skier sprouts subtle tentacles to touch winter, to sense the minute occurrences, the little battles waged. In the field, shards of snow rattle like broken pottery. Snow in the woods is softened from oak leaves drifted into the groove of the trail. The leaves absorb light rather than reflect it to warm the surrounding snow. And there is snow left intact and perfect in the dim windless shelter of a pine grove.

Sounds complicated but is not. Waxing is no more difficult than coordinating the right tie to the suit, the right wine to the meal or matching color and style of furniture in a living room. Waxing has been known to be sufficient reason for bad blood between various cross-country ski experts. But those of us who might match an orange tie to a blue checked suit and who wax imperfectly are still able to function and enjoy. The universe neither requires nor expects perfection from its rural locations.

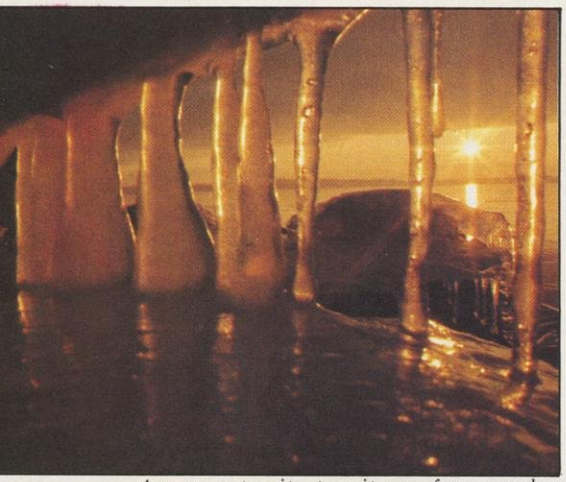
In Wisconsin north country, winter refurbishes the earth. A liberal time, when snow and wind make fancy and exotic shapes behind every bush, corn stubble and weed.

The Wisconsin skier beholds our land in its fullest measure of peace. The white truce, universal and rigidly enforced. Of course there are outlaws who do not abide by this or any armistice. Bits of hair and frozen blood

The snow embossed with winged evidence of how a grouse levered itself out.



Photos by Gregory K. Scott



An opportunity to witness from angles, scenes only hoped for.
Photo by Gary Knowles

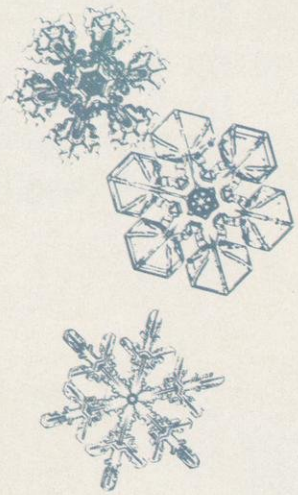
give good account of the deermouse strafed by a horned owl. Fox tracks take a crooked sweeping path like a sub-chaser searching. The skier sees where nose was put to sniff for the supper beneath. Cottontail and snowshoe hare gird young maples, and become a partner of sorts to the planned parenthood admired in good sugarin' woods. And the grouse who made a bedtime dive into the snow; there, where it rose, the snow embossed with winged evidence of how it levered itself out.

Between storms the snow holds gossip of every life and every path taken. It records the wind, its direction and strength. The number of sunny warm days told in the sheer number of holes squirrels scratched open when lured from their sleep to dig up meal tickets scattered in another season. Even leaves acquire toes and dimple whimsical tracks, granted movement by the wind. Seams of tunneling deermice ripple the township blanket. Trucks on a distant highway issue a pained sound of cold tires on impassive concrete.

The skier has new nerves with which to view the world. The modern ski is a thin split of laminated hickory, birch or fiberglass about as long as its owner's widespread reach. Because of skis, the canoeist and the jogger need not ache for that familiar motion, need not feel marooned by winter, cast up on a climatic sand bar. Snow and water are related rivers though snow is wider and more accessible.

A pair of leaves become an icicle.
Photo by Robert Gurda

Skiers come to think of skiing as flight, a sense of hovering over the landscape. Skiing is a slick lubricated feeling of welcome passage. Dreamlike in the ability to cover distance with ease. An uncanny activity, able to stride up one side of the hill then quick slide down the other. Cross-country skiing indicates our incomplete civilization. Something old within us loves the effort, the cadence of arms and legs working together. Enjoys the heat puddling in armpit, brow and



An otter's slide is nothing less than signature of exuberant life.

Photo by author /Snowflake photos by Bruce Mulvaney

chest, the damp evidence of muscle and blood at last set to work, pleased to be used.

The winter and its mantle give opportunity to witness from angles, scenes only hoped for. In summer the coast of Lady Lake Superior is ragged and seems dangerous, too much like teeth, the water beneath the rocks armored with jaws, a tense distance between coves. Winter silences the breakers, icicles slip over the precipitous face like hoary fingers. Winter gives a chance to see the sacristy domes worn into the Lady's sandstone shore, the land-edge monopolied in birch — trees that blend into the weave of the winter garment till only the black scars show. Voyageurs called them angel eyes. To stand there is to be infected with the silence of a northern Wisconsin winter. To be touched by the simple fabrication of its cold remote sun. To see water in rigid disguises and always to feel the presence of patient, patient rock.

On the ice below Superior's Shovel Point I once found a deer. Dead. Killed by a fall from the high rock walls, the eyes already taken up by crows. What was that doe doing on Shovel Point? As pasture it affords little browse and is rawly open to winds. Was it there like all the rest of us, a sightseer, wishing to perceive this earth's gentle roundness, or perhaps see a sunset?

An otter's slide is nothing less than signature of exuberant life sallying down the esses and chicanes of Amnicon Falls. An envy develops, to have a body so slick as to course easy around the rocks. Cross-country skis can approximate it, give us the chance to ride the same river. Best beware! Your world view may warp having seen the otter's conscious enjoyment, the Canada jay's stoic cheer. Or chickadees standing on first one foot then the other, the same as uncounted multitudes at chill bus stops. Sojourners to the winter woods return with a palpable notion that Man is not the only species to fathom joy.

There are nights when the moon lights winter ground to conjure the skier away from easy chair and book. Eyes narrow in the surprising brightness. Shadows acquire an odd blue hue, a strangeness, as though winter is a different cosmos altogether. The snow reflects and turns sky the color of old jeans. Orion, the old hunter tracks its edge, keeping what cover the horizon and trees afford. The lantern of Betelgeuse balances on his shoulder. The little bruin of the north pivots on its tail. The skier stops, often for more than rest, caught staring like a country kid mingled among the famous and powerful. Aware of his own wisp of breath from the warm well within, absorbed so easy, so rude and quick by the deep cold. The stars seem close, such long sharp shafts protruding, it's surprising they don't scratch your back. Cold creeping in moves the skier home. Otherwise, like Lot's wife, one could be rendered immobile from gawking wonder.

Strange what simple things do to those who live in the north. To stand on an oak ridge and listen to snow falling, a subtle krinkled sound that strikes loud among the tempered brittle leaves. Snow makes less sound in pines and is almost mum in maples. There is speculation that earth-spin itself is what you hear reverberated in the cold hollow of January. Sooner or later the skier hears another music from the snow, a smooth pale sound in his slats. It is the melody earth plays at your soul, like the Sibelius tune, "Finlandia:"

My country's skies are bluer than the ocean
And sunlight beams on clover leaf and pine
But other lands have sunlight too and clover
And skies are everywhere as blue as mine
Hear my song thou god of all the nations
A song of peace for their land and for mine.

So winter is home, made so partly by the skis. It is also peace and beauty. And somehow, it is uniquely Wisconsin. □

Winter is peace, beauty and uniquely Wisconsin.

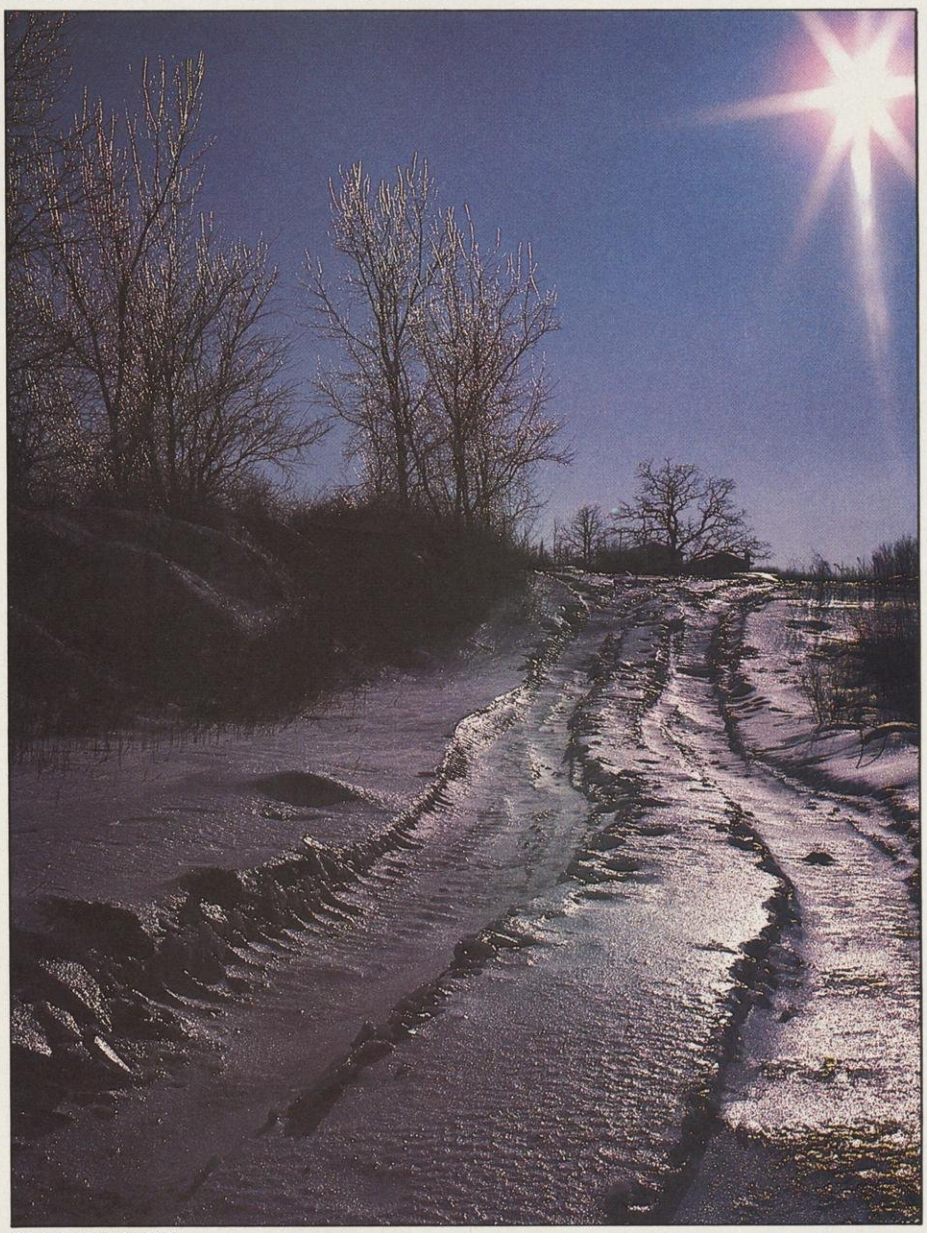


Photo by Gary Knowles

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