



Wisconsin natural resources. Vol. 10, No. 5 September/October 1986

Madison, Wisconsin: Wisconsin Department of Natural Resources,
September/October 1986

<https://digital.library.wisc.edu/1711.dl/WDI475V4RNI5J9D>

<http://rightsstatements.org/vocab/InC/1.0>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

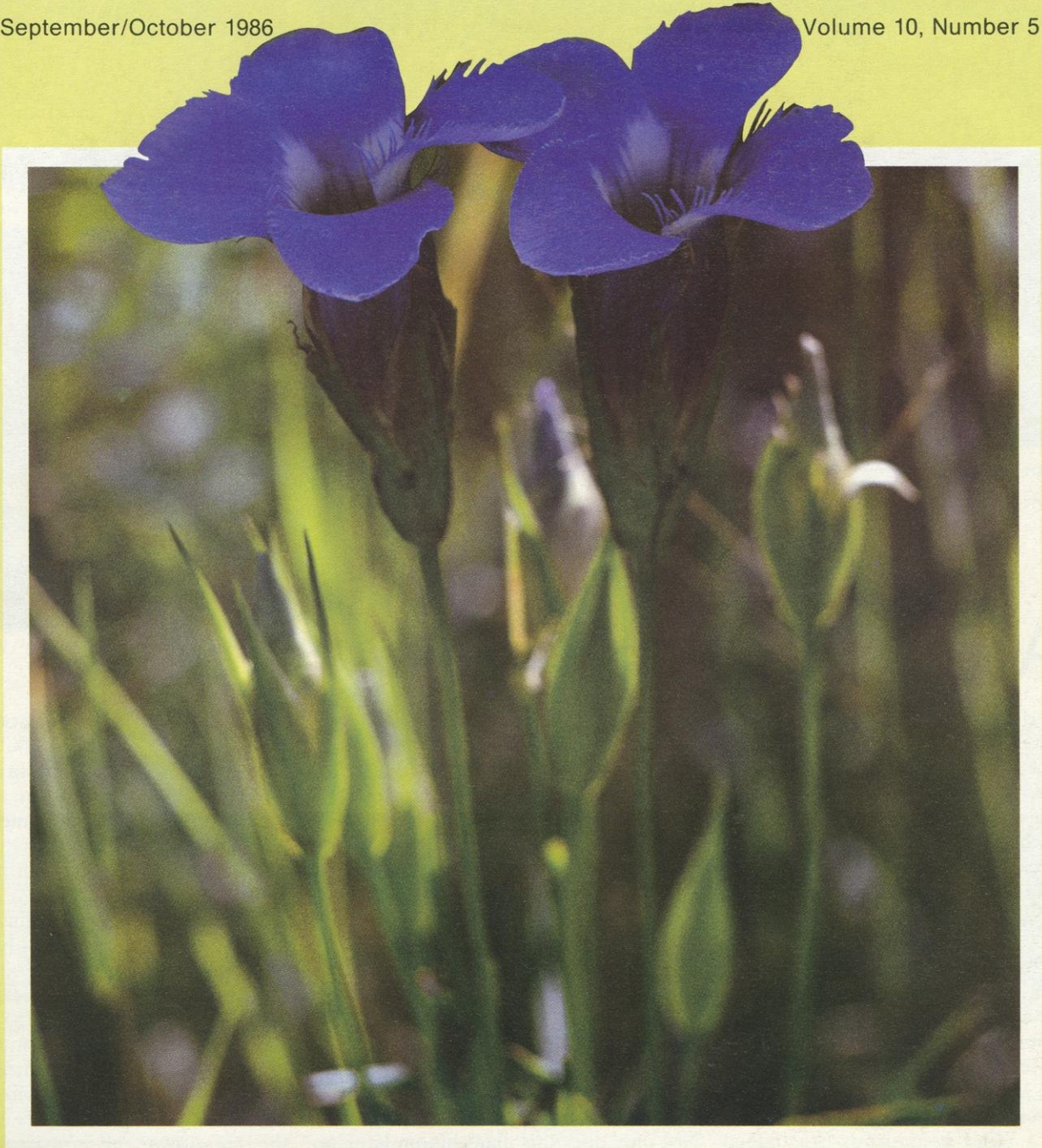
SPECIAL REPORT: The Kettle Moraine turns gold

WISCONSIN NATURAL RESOURCES

\$3.00

September/October 1986

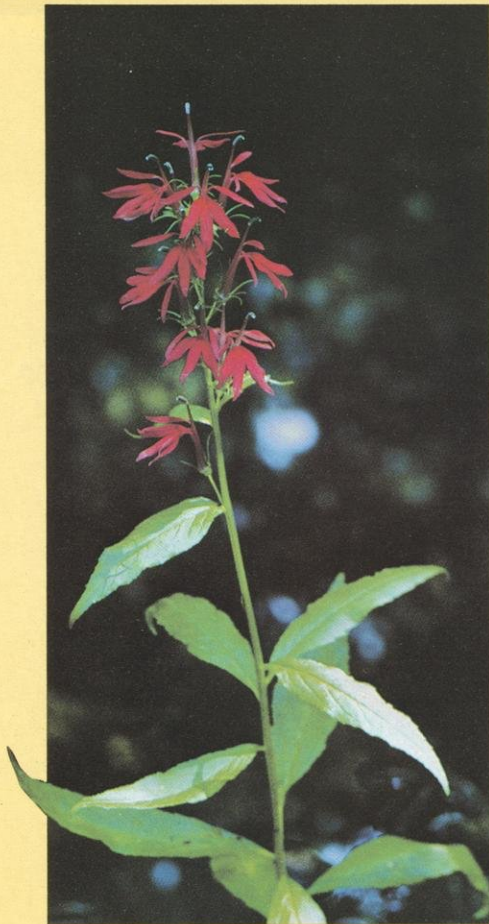
Volume 10, Number 5



Conspiracy against women hunters?

Acid rain umbrella opens.

Leeches. Ruffed grouse. Harrier hawks.



Cardinal Flower.

Photos by author unless otherwise indicated



Aster. Photo by Charles Fonaas



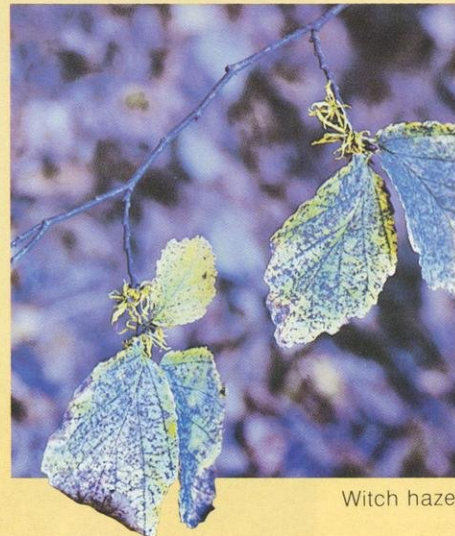
White snakeroot.



Sneezeweed. Photo by Laurie Osterndorf



Nodding ladies' tresses.



Witch hazel.

FALL WILDFLOWERS

As the days shorten, and the woods and fields begin to turn color in the mellow autumn sun, wildflowers come into bloom that you see at no other time. Not so numerous in kind as those earlier in the year, they nonetheless form a conspicuous and integral part of Wisconsin's native landscape.

Especially noteworthy are members of the Compositae—the sunflowers, asters, goldenrods, and other lesser known kinds. Sunflowers in bloom resemble miniature suns as they “illuminate” meadows and woodland edges; one species was poetically called “dawn plant” by the Fox Indians. Asters are also well named: these are the “star” plants. And goldenrods are indeed rods of gold as they light up the countryside with their clusters of golden flowers.

Sunflowers and their relatives comprise most of the late blooming wildflowers, but there are others. The gentians, for example, named apparently for an ancient king who supposedly discovered medicinal properties in these plants. Most species in Wisconsin have dark blue to purple flowers, but one has yellowish blooms. Certain species of lobelias, notably great blue lobelia and cardinal flower, are also late bloomers. And several of the 43 kinds of orchids that grow wild in Wisconsin flower in the fall.

The very last plant to bloom in Wisconsin does so in late September and it continues flowering for a month or so. Not only does this plant bloom late, its flowers emit a peculiar resinous odor—surely it must be bewitched. This is a

shrub resembling hazel. Hence its name, witch-hazel. By coming at the end of the season after the leaves have fallen, witch-hazel flowers secure an advantage similar to that of early bloomers like hepatica and bloodroot, which flower at the beginning of the season before the leaves have emerged.

The precious, hazy shimmery days of autumn with changing foliage, late blooming wildflowers, migrating birds and the final songs of insects are rich with nostalgia and anticipation. We treasure them always and must realize that in order to have such memories we must protect the places where plants and animals live, the woods and fields, the meadows and prairies and the marshes and swamps.

Kenneth Lange, Naturalist, Devil's Lake State Park

WISCONSIN NATURAL RESOURCES

September/October 1986

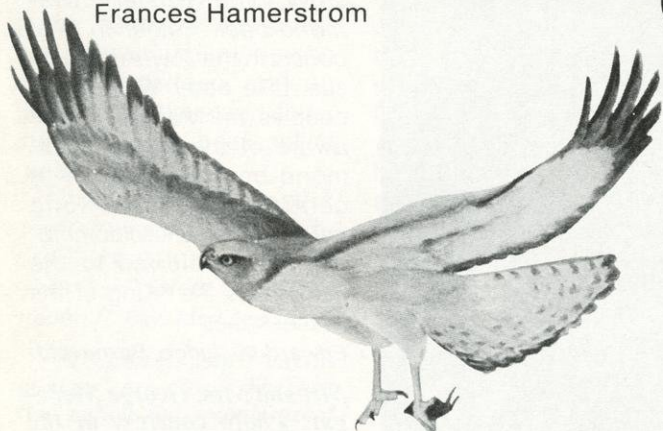
Volume 10, Number 5

Harrier, hawk of the marshes

The hawk that is ruled by a mouse.

Frances Hamerstrom

6

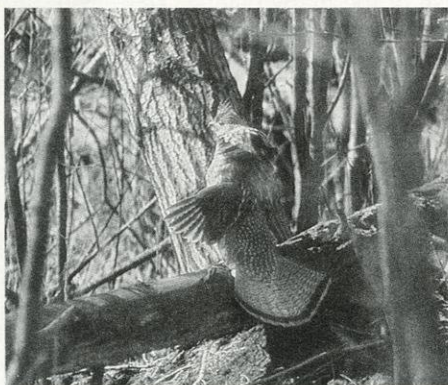


Ruffed Grouse: tumble or take-off?

Aspen and partridge are like birds of a feather.

John F. Kubisiak

11



Wisconsin leeches

The plus side of a bloodsucker.

Krista Iding

14

A diary of Sugar River waterbirds

Off-course fowl are a turn-on.

George S. Bachay

25

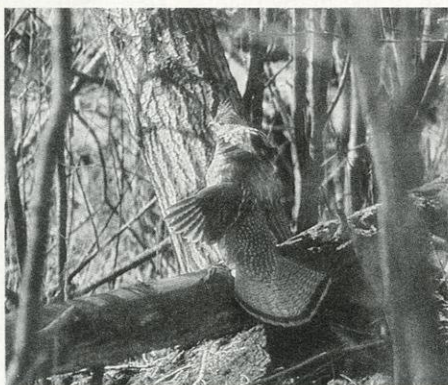


Ruffed Grouse: tumble or take-off?

Aspen and partridge are like birds of a feather.

John F. Kubisiak

11



Wisconsin's acid rain umbrella opens

Wisconsin takes the lead in new legislation to rescue threatened lakes.

T. B. Sheffy, Robert Martini

28

Where are the women?

Affirmative action afield.

Doris A. Rusch

35



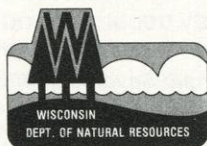
Editor • J. Wolfred Taylor

Business Manager • Laurel Fisher Steffes

Circulation & Production • Joan C. Kesterson

Art Direction • Jill Kerttula, SIQUIS

Editorial Assistant • Deana Hipke



Wisconsin Natural Resource Magazine (USPS #34625000) is published bimonthly by the Wisconsin Department of Natural Resources, 101 S. Webster St., Madison, WI 53702. Subscription rates are: \$6.97 for one year, \$11.97 for two years, \$15.97 for three years. Second class postage paid at Madison, WI. ©Copyright 1986 Wisconsin Natural Resources Magazine, Wisconsin Department of Natural Resources. All rights reserved. POSTMASTER: Send address changes to: *Wisconsin Natural Resources*, P.O. Box 7191, Madison, 53707.

Contributions are welcome, but the Wisconsin Department of Natural Resources assumes no responsibility for loss or damage to unsolicited manuscripts or illustrative material. Viewpoints of authors do not necessarily represent the opinion or policies of the Natural Resources Board or Department.

Natural Resources Board

John A. Lawton

Madison

Chairman

Richard Lange

South Range

Vice Chairman

Tom Lawin

Bloomer

Secretary

John Brogan

Green Bay

Collins H. Ferris

Madison

Richard A. Hemp

Mosinee

Helen Jacobs

Shorewood

Department of Natural

Resources:

Carroll D. Besadny

Secretary

Bruce Braun

Deputy Secretary

Linda Bochert

Executive Assistant

FEATURES:

Readers Write

4

Hunters' Almanac

17

SPECIAL REPORT

The Kettle Moraine State Forest
turns gold

Center

Readers Write

PRAISE FOR THE DOOR COUNTY ISSUE

■ I just purchased the magazine you put out about Door County. It is great — thanks for attempting to light a firecracker under those who feel we can do without zoning and planned growth.

Cy Annoye, President, Sturgeon Bay Information Center

■ Congratulations! This special report on Door County is the best single issue I can recall. It is truly a class act. I'm particularly impressed with the sensitive way you presented controversial issues—the incredibly complex tangle of social, cultural and economic problems that face the county. I'm sure this publication will go a long way toward focusing both local and statewide attention on the potential impact of unscheduled and unplanned development in Door County.

Paul Matthiae, Assistant Natural Areas Coordinator, DNR, Bureau of Endangered Resources

■ I read the May-June issue with great interest. I thought the variety of profiles you offered about Door County were particularly valuable. I have traveled there for some 10 years now, fishing the Lake Michigan tributaries for trout and salmon. Door County is very unique and it is easy for the various users to upset the fragile balance between man and the environment. I hope the cross-section of opinions and information in your report will enhance your readers' respect and appreciation for the area as it did mine.

It is far too easy to expect more from Door County than it really has to offer; that is, the best possible rewards are kept on film and in memory. It is easy for me to visualize over-commercialization. Door County, however, must always preserve its beauty and the harmony of the land, the lake and the air. We would like our children and grandchildren to see, feel, smell and taste its uniqueness as we have.

I truly hope we can learn from our past successes and failures with the environment and keep Door County's value in our hearts, our albums and our anticipations, but not in our pocketbooks. There are many things money can buy, but Door County should not be one of them.

John Beth, Reedsburg

■ Thank you for using my painting in your issue on Door County. The magazine was really a special one and I've received a lot of nice comments about it. The interviews with so many people I know in Door were fun to read — and informative.

Fawn Shillinglaw, Appleton

OTHER COMMENT AND CRITICISM

■ In response to your May-June 1986 Magazine on Door County, I feel that people no longer have a right to go there. They have ruined their opportunity, and for that reason, I think that the place should be closed to visitors. By doing this, the small county would be able to replenish itself.

James Fudacz, Evergreen Park, IL.



KING OF THE RATTLESNAKES

◀ Here is a photo of Mr. and Mrs. George Monegar who were mentioned in my story, *The Western Diamond-back Rattler in Wisconsin* in the July/August issue. Like other Winnebago peoples, the Monegars were aware of the western diamond-back's presence in central Wisconsin long before the scientific community. They referred to the serpent as the "King of the Rattlesnakes."

Edward M. Judge, Barneveld

Mr. and Mrs. George Monegar. Photo courtesy of the Jackson County Historical Society

■ I subscribed to your magazine several years ago because of the many different and interesting articles in each issue. The last few issues have been devoted mainly to one subject. I do not find this format as interesting.

In the last issue, which you devoted to Door County, I would like to know how much Door County's Chamber of Commerce donated to your magazine for this 47 page ad?

When it comes time to renew my subscription, I seriously doubt that you will receive a donation from me.

Donald Severson, Milwaukee.

■ I was a little puzzled about the thrust of the various articles in your Door County issue. Were you promoting the county, or simply making an exposition of county problems, and looking forward to solutions? I tend to agree with Norb Blei (pages 46-47). Yet, I am not lily white — I came here in 1953 to build a new motel which I sold 10 years later.

Henry F. Shea, Ephraim.

WHUMP

■ I enjoyed reading your Door County issue; however, in the description on CAVE POINT (page 27) you failed to complete the sentence "Giant waves crash into caves underlying the limestone ledges, making the ground shake and causing what have been called great . . ."

I have visited the park several times. Great "tremors", "earthquakes" or what . . .? Great Scott!

Robert P. Fay, Madison.

"Tremors" and "earthquakes" are close. The lost line called the sounds great "whumping noises." Three "whumps" for the paster-upper on that one.

■ Correct me if I'm wrong. I was born and lived in Sturgeon Bay area for over 30 years. I haven't been up there since November, but I believe you have the centerfold map of Door County marked wrong.

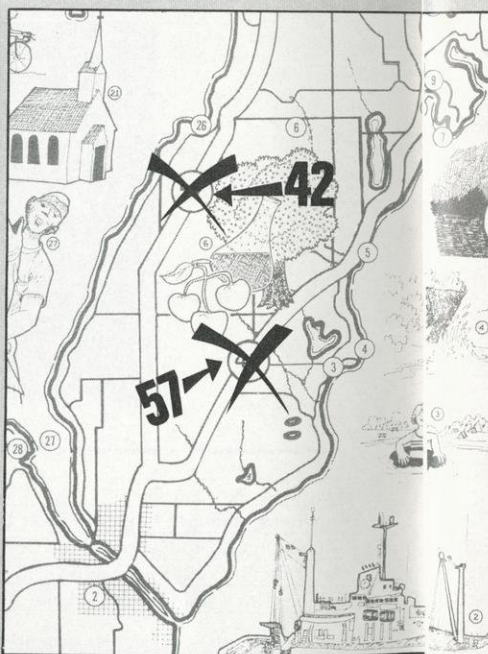
Mrs. Alfonse Herson, Milwaukee

■ Please check your "Map: A Door County Guide" in the May/June issue. It seems routes 57 and 42 have been switched around and will cause confusion in the travels of newcomers. Otherwise, I enjoyed the magazine!

Harold Brandlein, Rockford, Illinois

Several other letters came in chastising us for the Door County map mistake. How did the labels on Highways 57 and 42 get switched? The paster-upper and a half dozen proof readers missed it. They hang their heads and apologize. It was a great map otherwise!

MAP GOOF



Here's the way it should look.

■ Just received your magazine on Door County and noticed the map has Highways 42 and 57 just opposite of what they should be. We enjoyed reading the rest of the Door County edition.

Norman Kiehnau, Sturgeon Bay

WATERFOWL DECLINE

■ I read the Door County conversation with Roy Lukes in the May/June issue in which he referred to the decline of the spring migratory waterfowl flight. This problem is not peculiar to Door County. Up until the 1960s Sheboygan's Lake Michigan shoreline migrations numbered in the hundreds of thousands. The snow geese always moved through and lingered for a week or so. One flock always spent a week on our land at the mouth of the Pigeon River in the spring. But all of this is now history. We seldom see ducks in flocks and the geese are never seen at all. The Sheboygan Harbor used to hold a wintering flock of thousands; now there are less than 100. I used to enjoy many shoreline hunts, but now it doesn't pay to even put out the decoys because there is nothing to attract.

Ted Mancchen, Sheboygan Falls

PHEASANTS

■ Anyone interested in the future of pheasants had to be discouraged by Steve Miller, Director of Wildlife Management. In the article sizing up his new job, he wrote, "Pheasants are in big trouble due to loss of habitat from intensifying agriculture. Our New Private Lands Wildlife program may help us find ways to work cooperatively on this with farmers. If we're not successful, then the outlook for wild pheasants in Wisconsin is poor."

The present programs have not and will not be successful because they consist of releasing pheasants on the public battle grounds and then letting hunters blast them.

These programs sell hunting licenses but they do not build a pheasant population. Hunters, such as myself, who have enjoyed these "put and take" programs need to consider and implement less popular ideas. Programs to build a stable pheasant population might include the following ideas:

1. Reduce the pheasant hunting season to nine days or less, opening in early September so that plenty of cover is available. Set a one rooster limit and hunt from noon to sunset each day.

2. Raise and release a majority of hens and release them after the hunting season. Set aside some public lands as pheasant refuges.

3. Establish a \$7.50 pheasant hunting stamp to properly finance the wildlife program and predator control.

Pheasants can survive provided they have food, cover, and the absence of predators. Let's discard the traditional put and take programs and discover anew what the pheasant can do in Wisconsin.

Jim Laird, St Joseph

The basic problem with pheasants in Wisconsin is lack of suitable habitat. Alfalfa hay is now cut early before pheasant nests hatch, many wet meadows have been drained and converted to cropland and most cornfields are now weed free. The Department of Agriculture's Conservation Reserve Program is expected to restore some good pheasant nesting cover over the next few years by retiring highly erodible land from crop production for 10 year periods.

Very short, restrictive pheasant seasons won't restore pheasants if suitable nesting cover and functional winter food and cover are not present. It is only legal to harvest wild roosters, which are polygamous during the breeding season, so shorten-

ing the season to stockpile birds is not likely to work wonders.

Restoring wild pheasant populations using hens reared from breeding stock which has been captive for many generations and released in areas without suitable habitat has never resulted in success. In contrast, look at the wild turkey. Stocking only 15 wild trapped hens and five adult gobblers in suitable habitat resulted in a population of hundreds within four to five years. The Department is negotiating with the State of Iowa to obtain wild trapped pheasants whose offspring will be stocked in selected areas with good cover.

We're also considering a pheasant stamp but want it largely oriented toward developing cost-effective ways to restore suitable habitat. With less than ideal habitat conditions, the effects of predators on pheasant populations is a growing concern we would also like to look into.

The reason we continue the stocking of pheasants on Public Hunting Grounds is that it provides sustainable hunting recreation for a lot of people during a long pheasant season on a relatively small amount of land. Efforts to restore quality habitat and thriving wild pheasant populations over large units of range will be expensive and the degree of success is still somewhat unpredictable. We expect to continue Public Hunting Ground stocking programs while we continue to explore ways to restore habitat quality and wild populations.

Yes, pheasants can survive with proper year round food, water and cover. Currently, one or more of these things are lacking in sufficient quality and quantity to produce good pheasant populations. It will take a major effort to significantly change farming practices or patterns so pheasants and other grassland birds can once again flourish in southern Wisconsin.

FROM HER NEW BOOK:

Harrier, hawk of the marshes

The hawk that is ruled by a mouse*

BY FRANCES HAMERSTROM

Fran Hamerstrom's account of her long-term study of the mating habits of the northern harrier captures the serendipity and excitement of scientific breakthroughs. From her reverie as she watched the patterns traced by two "sky-dancing" harriers arose the question: Do they mate for life? That simple question launched twenty-five years of work that involved ingenious trapping and nest-finding schemes, marking techniques, and a hunch that meadow mice played a crucial role in harrier ecology.

Finding proof of bigamy and even "trigamy" in these hawks tempted Hamerstrom to settle on the study of a harrier's behavior toward his mate or mates and to correlate

this behavior with the cyclic density of neighboring mice populations. Despite a disastrous DDT-induced decline in the numbers of hawks in her study area, she went on to establish not only the true nature of the harrier's mating system but the sorts of environmental controls that affect its life cycle. Lively anecdotes about the daily routine of a wildlife biologist and her "gabboons" (assistants) add further appeal to this invaluable contribution to raptor research.

Roger Tory Peterson

*Harrier, Hawk of the Marshes is published by the Smithsonian Institution Press, Box 4866, Hampden Station, Baltimore, MD 21211. Price, \$24.95 for clothbound and \$10.95 for paperback.

CHAPTER 2

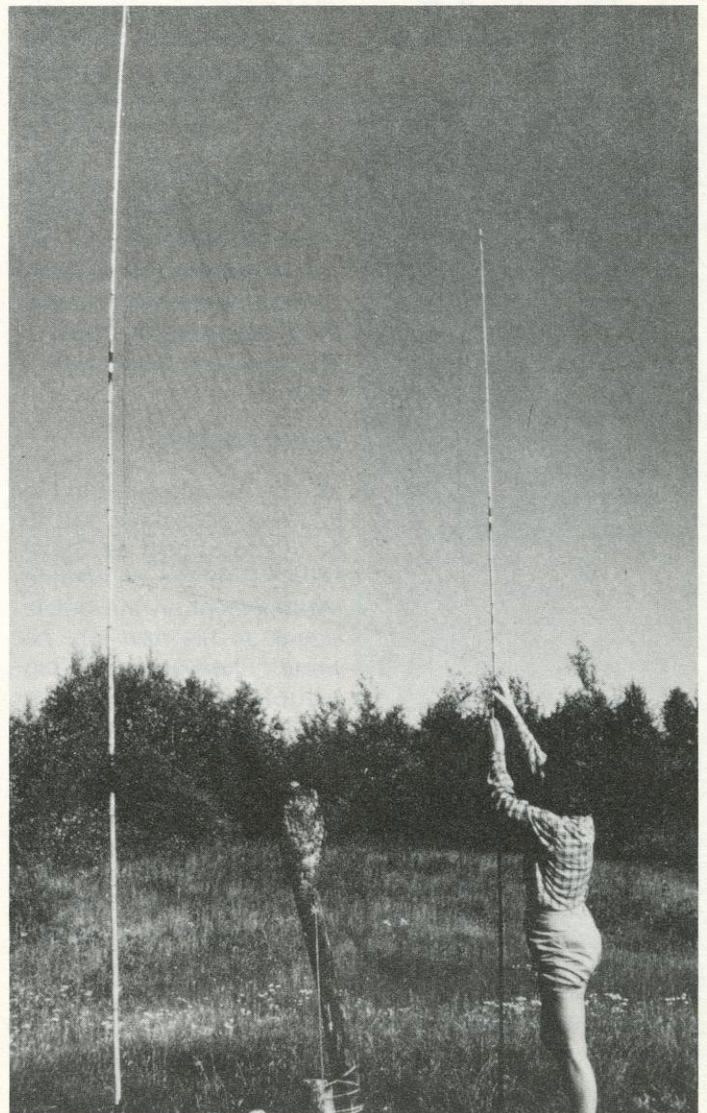
MAJOR BREAKTHROUGH, OR THE OWL AND THE DHO-GAZA

Pride goeth before a fall. Elated at having a method for catching harriers, I felt that the little matter of whether or not harriers mated for life was well on its way to being solved. I did have sense enough to realize that information from just one pair nesting on our farm was too small a sample for a pair fidelity study, so I expanded my endeavors to include the 50,000-acre Buena Vista Marsh Prairie Chicken Study Area as well.

Later, in 1959, Gary Hampton, a teen-ager, came to help trap. We decided to run a really big trapline. We both knew that mice were too inconspicuous for summer trapping, so in June we started out each morning with a large cage of bait birds in the back of my VW bus and all the bal-chatris we had on hand. We set the traps out near where we thought there were harrier nests and we actually found one nest in the process, just by chance.

Trapping in summer was very different from our spring trapping. Heat started to beat down by 10 a.m. almost daily, so we worried about the starlings. Pigeons take heat well, but I knew that starlings were better lures: alas, they are delicate in the hot sun. We decided to scatter our traps pretty much over the Buena Vista Marsh — and to change bait by visiting each trap about every two hours, taking out the tired starling and replacing it with a cool, rested starling from the bait cage in the bus. So now we had to carry two bait cages in the bus: one for tired starlings and one for rested ones so we could tell them apart.

Starlings not only do not take heat well, but they like to pry with their bills. This lively habit caused a number of starlings to pull nooses through the wire on top of the trap, get hung on a noose, and inadvertently commit suicide. To put a stop to this, we ran a wire along the bottom of the trap to which a small swivel was fastened. Each starling was fastened to the swivel by a collar so it could move to and fro easily along the floor of the trap, but could not reach up to seize a noose. We were no longer treated to the depressing sight of starlings dead from hanging.



Setting up the dho-gaza net with Ambrose the Owl tethered to a block perch. Photo by Frederick Hamerstrom



From the cover of *Harrier, Hawk of the Marshes*
 Painting by Artist Jonathan
 Wilde, Rt. 1, Belleville, WI 53508.

Nor were we treated to the exhilarating sight of captured hawks. The bal-chatris weren't working because much of the area that we were trapping was meadowland, interspersed with low, sedgy swales and areas of willow and trembling aspen (locally known as popple). As spring moved into summer, the growth of lush vegetation made it increasingly difficult to find bare spots where a harrier could find our traps, and the teeming wealth of songbird reproduction supplied the hawks with plenty of easily caught fledglings, if they wanted a bird diet. We set our traps on sandy mounds thrown up by badgers, on abandoned hay piles and we knocked down lush vegetation with machetes to fabricate bare spots.

Our lives moved into a pattern: get the traps out by sunup, gulp breakfast out on the marsh, check the traps and replace starlings, run the line, buy gas for the car, gulp lunch, feed starlings, water starlings, keep moving-keep hoping . . .

One evening after supper, I plunked down in our big red wingchair and announced, "We're not going to put the line out tomorrow."

"Huh?" Gary looked at me as though some previously concealed defect in my character had suddenly emerged. "What are you going to do? Quit?"

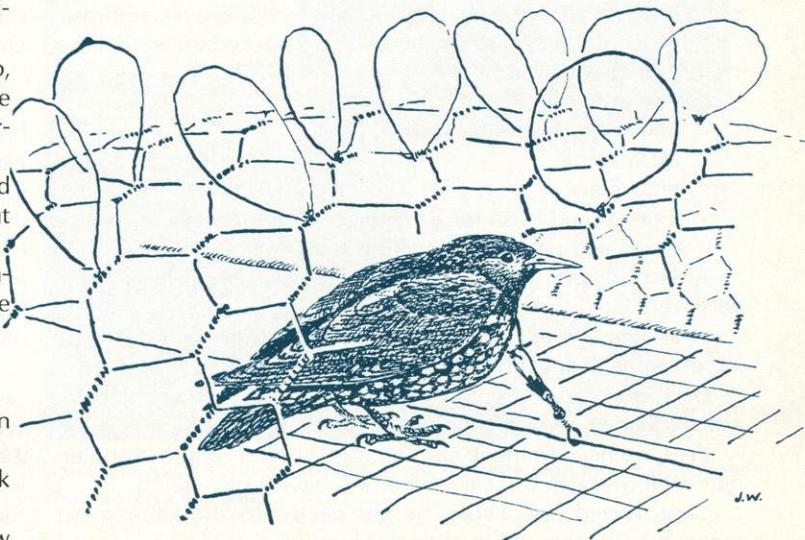
"I'm going to think."

He turned heel. "And I am going to bed."

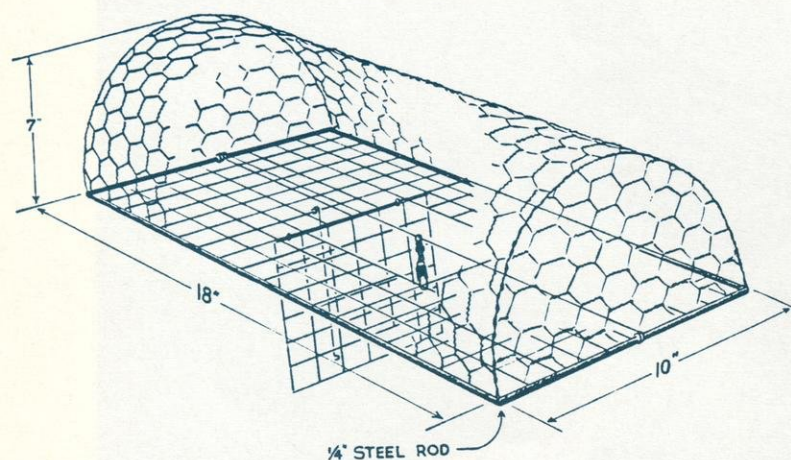
Frederick, my husband, and my boss on the Prairie Chicken Project, emerged from his study. "It is bedtime, Fran."

"No! Six weeks of this type of effort and not a single hawk caught means that something is very, very wrong."

The house was quiet. Ambrose, my pet great horned owl, flew to the transom over the front door, hoping to be let into the living room to romp — pouncing on pillows and "killing" rubber dolls. This time, for once, I ignored him.



Starlings were finally fitted with little collars to prevent them from committing suicide by hanging. Sketch by Artist Jonathan Wilde



The bal-chatri bait cage. Sketch by Artist Jonathan Wilde

The old house seemed smothered by enormous quiet. The red chair was soft and comfortable, but I was just exhausted by our failure to catch any harriers: I was not sleepy.

A whip-poor-will crashed into his noisy chant close by, and then I listened for his "sub-song". Whip-poor-will, whip-poor-will . . . but the sound of the sub-song is muted — like the gentle twanging of low notes on a guitar, and it is uncommon. I felt oddly alert, and was drawn to a bookcase. Christian Ludwig Brehm, 1855, *Vollständige Vogelfang* (11) — *A Complete Compendium of Trapping* — was the book I felt drawn to. I read far into the night — long after the whip-poor-will stopped calling.

I skipped quickly over passages like, "Magpies are sly and harder to catch than crows," or "Blue-throats are caught like nightingales." And then I stopped abruptly and read intently, "Concerning work in the *Encyclopedie-Boret*, entitled "The Bird-catcher or secrets ancient and modern of the hunter of birds" . . . catching a bird of prey with an owl . . . one often uses an eagle owl to catch birds in nets . . . the owl should be in motion and trained to fly under the net from perch to perch."

The method of the French bird catcher was plainly being pooh-poohed, but the author was German, and I knew that most Germans held the French in low esteem in those days. Something like this was worth a try. I spread an old dho-gaza out on the floor to make sure that the net was hung even and flat. Unlike Monsieur, I intended to use one net stretched vertically over Ambrose.

Quietly, not to disturb the household, I packed the car for the next morning's venture:

- ✓ one dho-gaza
- ✓ an axe to cut popple (aspen) poles
- ✓ extra string
- ✓ binoculars
- ✓ a perch and leash for Ambrose
- ✓ bread and peanut butter for the trappers

At last I slipped into bed beside Frederick. He grumbled, "It is very, very late."

I was already wide awake when the alarm went off. After heating up some coffee, I banged on Gary's door.

Gary emerged promptly, looked out of the kitchen window, and exclaimed, "It's still dark!"

"Yes, we need to move fast. Put this leash on Ambrose and tie him somewhere in the car where he'll have a nice perch."

Gary moved fast. When he got back into the kitchen we downed lukewarm coffee, slipped silently out of the house, and drove toward the big marsh on our farm.

"We need to find where that harrier nest is. Let's get up into some of the oaks along the road to pinpoint it."

Gary selected one oak and I picked another about a quarter of a mile away. (We didn't know then that harriers dislike having people perched in trees in the nesting territory.) We perched for some 40 minutes — from almost deep dark, until direct sunlight set the sedges in the marsh a gleam. Almost-white wings of a male harrier flashed high over the marsh, a brown harrier seemed to appear from nowhere; the male dropped the prey he was carrying; the female swept under him and neatly caught it high in the air. She swooped downwind in an arc, and then — after flying low over the sedges — she suddenly side-slipped to the ground near a small clump of willow.

Gary and I slithered down out of our trees and he came running toward me calling, "I've got it! I've got it!" Then he started off toward the nest.

"Wait," I shouted, "get the axe out of the car and cut me two straight popple poles about eight feet long."

By the time he returned with the poles, I had Ambrose tethered to the block perch. He was about to become a working owl . . . Gary and I tied the dho-gaza firmly to the popple poles. Gary carried this rig, and I followed with Ambrose and the perch.

We plashed across the marsh, and just after we passed the willow clump, the female flushed — laboring up out of the sedges. Three small, downy young crouched comfortably on a broad, dry nest of grass and sedge.

I pushed Ambrose's perch deep into the muck. Then Gary and I pushed the butt ends of the popple poles into the muck so that the net between them was flat and taut. The poles wobbled a bit, but I said, "That's just right. They've got to fall when the hawk hits."

My pole was very wobbly, so I wove some sedges to brace its base. The female circled over our heads, cacking during the whole process. Finally we ran back to the car to hide—and to watch. She circled the nest, stooping at Ambrose, but swinging over the net, rather than into it, and then, as though she'd had enough of this nonsense, she flipped around and plunged straight into the net. Both poles broke free and toppled, crossing behind her back so there was no earthly way she could get out. But we rushed in to secure our catch as though every precious moment counted.

Gary started to admire her, but I ordered, "Put her in something and help me set up for the male."

"What'll I put her in?"

For just a moment I examined our vicinity helplessly. Then I said, "Put her in one of your socks." (Before long we were all carrying nylon stockings to store hawks and many other items in.)

Gary had her in one of his socks in a moment or two, and we set up again. I gave Ambrose a swift, soft fingerstroking on top of his head in appreciation of good work done, and we ran to the car again. We had barely caught our wind when the male appeared. He did no circling, but made one swift, direct stoop into the center of the net and — like the female — was securely caught.

Time to pick up the set and band the birds. Joyously, we traipsed back to the car. And it wasn't till we were about to band the female that we noticed that she was already banded!

She was one of the 17 females we had caught on our farm!

We had also caught nine males there that spring. I couldn't actually tell which ones had been sky-dancing, but it was plain that most of them had just been passing through on spring migration, and that male harriers not only sky-dance to advertise their territories—males sky-dance on migration!

It was also plain that summer trapping near nests was the only way to solve the problem of pair fidelity. Gary reached in his pocket and pulled out a dead meadow mouse, which he offered Ambrose. "Here," he said, "I hand-grabbed this for you."

Ambrose took the mouse in his right foot, held it like an ice cream cone, closed his eyes, and swallowed it whole. The mouse's short little tail and hind feet went down last.

That mice would soon influence my life and give me an insight on the pair-fidelity problem of harriers never entered my mind at the moment, but it turned out to be the key that unlocked some major mysteries.

Gary said, "Let's get on with the show."

I agreed.

"Let's find another nest to trap."

"No! Let's move fast. We'll go to that nest we've already found."

We dashed off over ten miles of dirt road, set up by the nest (which was in nettles) and caught both the male and the female with dispatch. I looked at my watch: 9:50 a.m. We had caught two pairs before ten o'clock in the morning!

This glorious performance was never again to be repeated in the next 24 years.

But it provided, in time, an important first answer to my basic question. Both birds caught at this second nest were recaptured the next year. Each had a new mate.

CHAPTER 6 ON THE CARE AND FEEDING OF GABBOONS

The Gabboon system, says the author, was devised by raptor biologists and is "actually a splendid revival of the apprentice system of earlier times. Gabboons get excellent training."

The Harrier Project has always been confronted by challenges. Even the relatively simple matter of how to apply plastic jesses was a problem. At least we had both hands free, as jesses can be put on when the hawk is resting in a tube. First we tried knotting the jesses, but stiff plastic makes for plump knots, and we feared that the females might not be able to incubate properly with lumpy knots on their tarsi. Next we turned to Speedy Rivets. Each half of a Speedy Rivet will fit nicely into a little hole punched into the plastic, and all it takes to make the jess secure is a solid substrate and a sharp blow with a hammer. I put the leg of the tubed hawk up close to a brick, get the rivet in position, and give a sharp blow with a hammer. It sounds easy. But the sharp blow from the hammer must hit the rivet dead-center — and dead-center is unnervingly close to the leg of the harrier. I never missed once, but always dreaded the moment of the sharp blow.

Teaching the gabboons the art of the sharp blow was another matter. All of the gabboons had a deep love for birds of prey, and many of them were falconers and felt personally involved with each hawk they handled. One day Frederick appeared and overheard a typical conversation.

"Look," I ordered in exasperation, "you can't just give that rivet little taps. You've got to whang it home."

I'm afraid I'll break the bird's leg."

"Well, you'd better not."

"Fran, I wish *you'd* do this."

"If you're ever going to amount to anything, you'll do it." By now I was shouting. "You won't have me around as a nursemaid for the rest of your life."

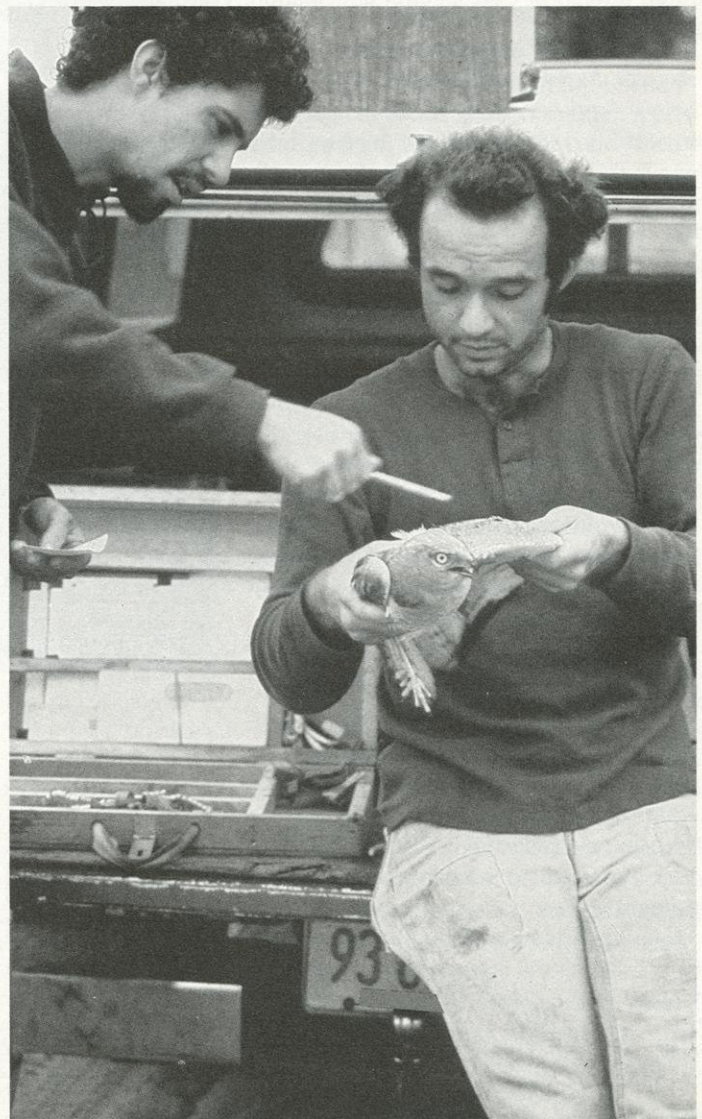
Frederick gave a little cough. He does not like shouting.

The gabboon, his hairy chest glistening with effort, crouched hammer in hand, and cast Frederick an imploring look.

Frederick's voice is always quiet. "Just a moment. I have an idea." Frederick rummaged in the tool box, found a pair of vice-grip pliers, adjusted them, and snapped the rivet shut. Vise-grip pliers became standard equipment.

With a 50,000-acre study area to cover, we worked in pairs only at the very beginning of the season: one as a teacher and the other as a pupil. Everyone was supposed to be able to do everything, and to work alone most of the time. One exception was Tom Ahlers. He was already on the project before I discovered that he was color-blind. So various children, bird watchers, and novices had to accompany him to the field to read colors of jesses and imps.

Imping a hawk without a helper is moderately complicated because, unlike jessing, it cannot be done with the bird in a tube.



Gabboons Mark Kopeny and Bill Gilbert examine molt of a male harrier.
Photo by Elva Paulson.

The system is to sit, or kneel on the ground and hold the hawk's legs firmly between one's knees, as in a gentle vise. This leaves both hands free for imping the wings. I gave the new gabboons a demonstration. The next day John Hart successfully trapped a female harrier. He weighed her, measured her, jessed her, and then he brought her into headquarters saying, "I don't know how to imp her. I can't hold her."

"Of course you can. She won't hurt you if you hold her firmly between your knees."

I was pretty disgusted that anyone as muscular and capable-looking as John would mind the slight danger of getting footed by a hawk that weighed little more than a pound.

John tried to tell me something, but I interrupted, saying, "Here's Frank, he'll show you."

Frank, a Senior Gabboon, has a real knack for getting other people to do things. I went into the kitchen to cook lunch. After I got the mulligan simmering and plopped a bread pudding in the oven, Joe Platt called, "Frank needs your help."

Frank seldom needed help so I went back into the study with dispatch. All the gabboons (we had four that summer) demonstrated a mien of disrespectful anticipation. Were they ganging up on me?

Frank waved a languid hand toward John. "You try, Fran."

I pulled the hawk out of the tube and handed her to John.

"O.K., you're holding the feet right, now put your knees together." John tried. His mighty thigh muscles kept his knees about three inches apart.

"Kneel down on the floor and try it," I said in a very different tone.

Four gabboons hooted in delight at my discomfiture.

The selection of a crew for field research is always fraught with problems. From now on I had to size up potential gabboons not only for stamina, dedication, and a knack for handling hawks; but also as to color vision and the anatomy of their legs.

Gabboons need to be watched. One of the most important things that they need to be taught is caution. For example, "Fran, the same bird was there again today."

Gently, I inquire, "How do you know?"

"It was sitting on the same fence post."

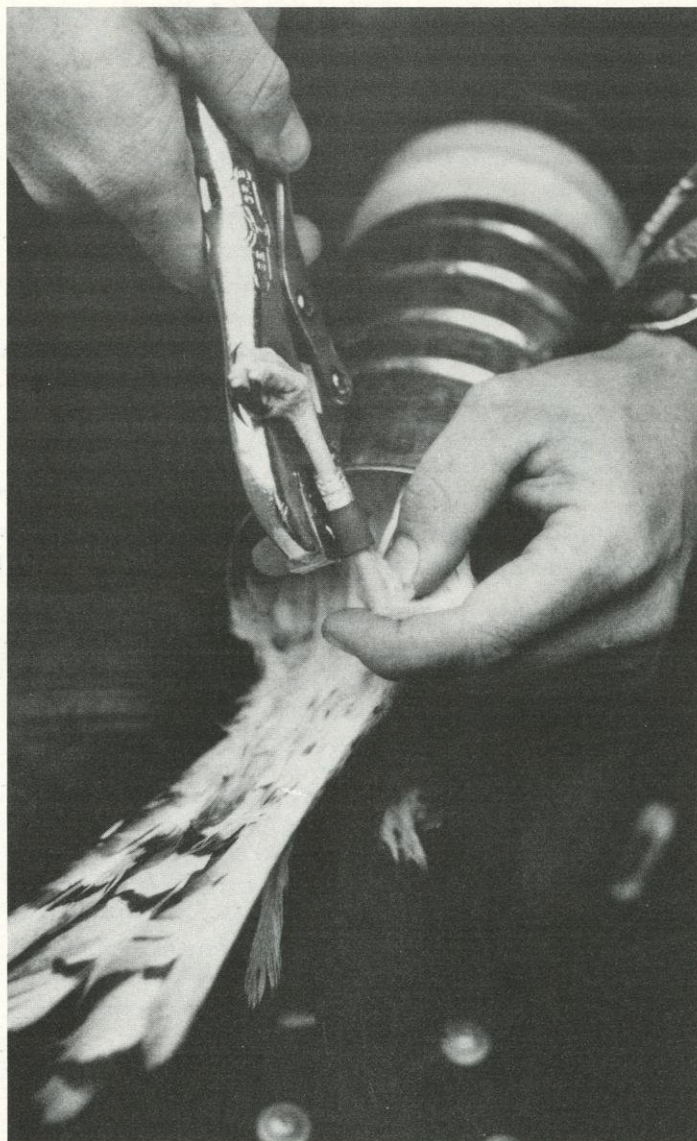
"Look," I have to point out, "recognizing the same bird that way is not a sure thing. You wouldn't recognize people by which chairs they sat on, would you?"

Another type of caution is also necessary. Throughout the years only two gabboons have had to be hospitalized. Keith Janick ran up a fever that stayed near 104°, but he got well in a few days. Then Larry Crowley rolled Frederick's car on a curve, but even on crutches was well enough in a week or two to trap harriers.

We lent the gabboons our cars, and due to the multitude of accidents, we finally didn't dare collect insurance — lest our rates go up. We just paid the bills. Some summers this cost more than feeding the crew.

Gabboons, almost without exception, have magnificent appetites — and some have a taste for expensive delicacies. It has been my policy to hide these. This works well enough with cakes and pies, but it's hard to hide ice cream anywhere other than the freezer. We rationed ice cream.

Feeding a crew well is important. It keeps the morale up. The cook in a lumber camp is said to have a good deal of power. I, the Harrier Project leader, confess that I sometimes baked pies as rewards for accomplishing difficult missions.



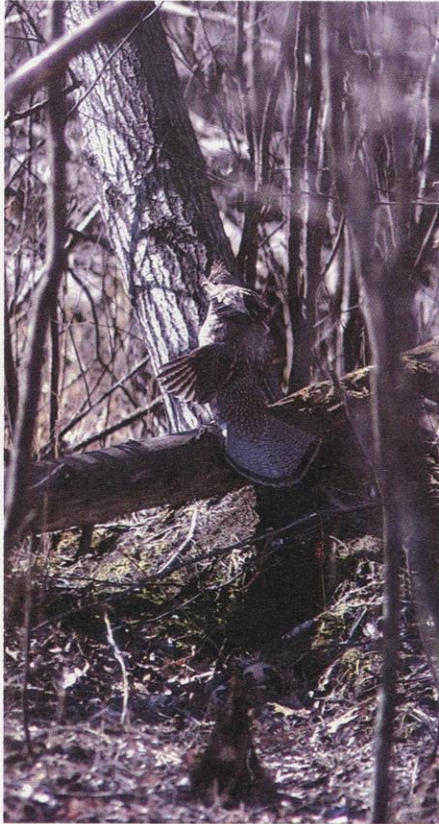
With the harrier resting safely in a tube, a Vise-Grip is used to rivet a jess or band to the hawk's leg. Photo by Frederick Hamerstrom

Ruffed grouse: tumble or take-off?

The ruffed grouse is Wisconsin's most abundant upland game bird and lives just about everywhere except in a few southeastern counties. Our state has some of the highest populations in North America and some of the best hunting. In addition to providing quality sport for over 200,000 hunters, ruffed grouse attract bird watchers, photographers, and many other wildlife enthusiasts.

The bird's abundance in Wisconsin is due in large part to a long history of aggressive pulp cutting, particularly on public and industrial forests in central and northern parts of the state. As the leading pulpwood producer in the Great Lakes Region, Wisconsin harvests mostly aspen (popple), which makes up 25% of the state's forest. Fortunately, aspen is not only the most extensive forest type in the state, it also meets all of the seasonal requirements of ruffed grouse. A lot of other wildlife depend on aspen too, but no other tree is as valuable to ruffed grouse or as easy to manage.

Oak-hickory forests occupy 19% of Wisconsin's woodlands and occur mostly in the southern two-thirds of the state. Clear cutting or shelterwood cutting where a few seed trees remain are the most effective methods of regenerating oak. Cuts of 20 acres or less are most beneficial for grouse but larger cuts are acceptable. Small groups of scattered older oak trees should be left uncut to provide acorns for new seedlings and valuable food for grouse and other wildlife. The older oaks also provide cavities for a vari-



Workshops are available to landowners interested in management. Photo by author

**Wisconsin's best
game bird will
continue
undiminished if the
gradual decline
in aspen and
oak-hickory is
counteracted by
management
techniques.**

ety of wildlife including squirrels, raccoons and song birds. In addition, oaks keep their leaves most of the winter and these furnish shelter and concealment.

Other forest types are important in Wisconsin primarily because of their acreage. Northern hardwoods—sugar maple, basswood and yellow birch—grow on 24% of the state's forest land and spruce fir and pine occupy 19%. In these types, management potential for grouse may be limited by the cutting practices required. Research has shown that these habitats produce far fewer birds than either aspen or oak.

While aspen is still aggressively cut in many parts of Wisconsin, ruffed grouse managers are concerned. Some aspen forests are naturally converting to red maple and other hardwoods, to balsam fir, or to white pine—habitats all considerably less productive of ruffed grouse than aspen. These problems are most prevalent on lands owned by private individuals, but 50% of the state's aspen acreage is in this category. Trees are dying in older over-mature stands. Unless cut at age 50 to 60, aspen produces less vigorous sprout growth and if left standing will eventually convert to less desirable grouse habitat.

In the final analysis, the bird's density is directly related to the quantity and quality of its important habitats, particularly aspen, oak, alder, and upland brush. However, long range trends suggest that these are declining because of natural or forced conversion to less pro-

John F. Kubisiak, DNR Research Project Leader, Babcock

ductive cover. Forced conversion is the indiscriminate elimination of forest lands for use as crop fields. As loss or deterioration continues, the need to develop and implement effective habitat management programs increases. If grouse are to be maintained, management programs on public, and most importantly on private forests need to focus on keeping or improving the bird's valuable habitats.

Given this perspective, what can be done to maximize grouse management efforts on any given parcel of land? First and foremost, aspen must be maintained wherever practical. Second, the size, shape, spacing and timing of habitat treatments should be manipulated to increase habitat diversity. Landowners should strive for a continuous supply of dense sapling patches scattered throughout their property. Clearcutting is the best prescription for maintaining aspen and cuts of 20 acres or less are most desirable for ruffed grouse.

The size of the fall grouse population depends on the number of breeders surviving over winter and the success of the hatch. Both of these are related to habitat quality. Highest grouse survival and greatest densities usually occur where heavy thickets of tall shrubs, greater than six feet in height, are associated with aspen. The trees should be six to 25 years old—about one to five inches in diameter. Mixed forests of young aspen, oak and evergreens with dense, tall shrub cover may also be suitable. In addition, several other factors affect an area's potential for grouse management. They include, among other things, its size and location relative to adjoining habitat types, the variety of plant species present and the landowners' management goals.

The best grouse habitat occurs where aspen 30 years old or older is mixed with a dense cover of tall shrubs and young trees. The buds of mature aspen provide nutritious food while shrubs and saplings furnish shelter and concealment. Where there is no mature aspen, grouse eat the buds, twigs, and catkins of several other plants such as birch and hazel. The leaves of succulent leafy plants and the mature



Photo by Kenneth Lange.



The size of the fall grouse population depends on the number of breeders surviving over winter and the success of the hatch. Birds do best where heavy thickets of tall shrubs are associated with aspen. Photo by Kenneth Lange.

fruits and seeds of wild and agricultural foods are also eaten. Foods in this category include clover, dewberry, strawberry, blueberry, cherry, thornapple, wild grape, acorns, and waste grains, among others. Common tall shrubs which

Facing Page, Bottom: The most abundant upland game bird in Wisconsin. DNR photo.



Aspen meets all seasonal requirements of ruffed grouse and makes up 25% of Wisconsin's forest cover. Managers are concerned that much privately-owned aspen

acreage is converting to maple, balsam, white pine and other less productive habitat. Photo by author.



provide good cover or food include alder, winterberry, hazel, dogwood, sumac, willow and mountain maple.

Good grouse habitat usually exhibits good "vertical" structure. Structure is the arrangement of vegetation as it affects shelter or concealment. Good vertical cover has a high density (2,000 or more per acre) of woody stems taller than six feet. This permits grouse to easily walk on the ground while creating a physical obstruction for avian predators. Where dense vertical cover is inadequate or absent, such as in park-like forests, other cover near the ground may be beneficial by providing protection from the elements or predators. Examples include slash, tipped or blown down trees, debris on the forest floor and other impenetrable cover. Exceptions occur in some areas where ground cover is too dense. Here grouse may have difficulty moving on the ground or seeing and avoiding predators.

While this review of long-term trends suggests a decline in ruffed grouse habitat, there is an increasing groundswell of support for doing something about it through management. Efforts are underway on several fronts. Landowners interested in preventing conversion of their aspen and oak forests to hardwood or spruce-fir-pine and to increasing habitat diversity can see how it's done at any of several DNR demonstration areas around the state. Or they can attend special workshops sponsored by the Ruffed Grouse Society, UW-Extension and DNR. In addition, the department's recently-hired private land management specialists will soon be making contacts to drum up interest and get projects going wherever possible. Of most help may be Wisconsin's new Managed Forest Act under which foresters and wildlife managers can help interested landowners create and maintain habitat for grouse.

Many opportunities exist and the concerted efforts of various public agencies and private groups evoke an encouraging future for ruffed grouse in Wisconsin. For more information contact your local Department of Natural Resources wildlife manager, forester or other qualified individual.



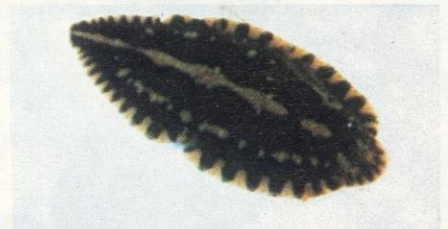
Cocoons of the bait leech are commonly found on the underside of floating vegetation such as the lily pad.

Wisconsin Leeches



The bait leech *Nephelopsis obscura*, commonly called the "ribbon leech" due to the flat, firm edges of its body.

For all of their negative symbolism and squirmy demeanor, leeches do us an amazing amount of good.



This *Placobdella* species, a turtle leech, is one of the most brightly colored and attractive leeches.

Leeches have two suckers, two to five pair of eyes, up to 80 teeth, and may range in length from one-fifth to 18 inches long. They are slimy, sucking, segmented worms. Yuck! Revolting? Well, yes. But not altogether.

Often collectively called "blood-suckers" because of their medicinal history, this term is not really representative. Of the 50 or so freshwater

Photos by Linda L. Holmstrand and Hollie L. Collins, Biology Department, University of Minnesota, Duluth

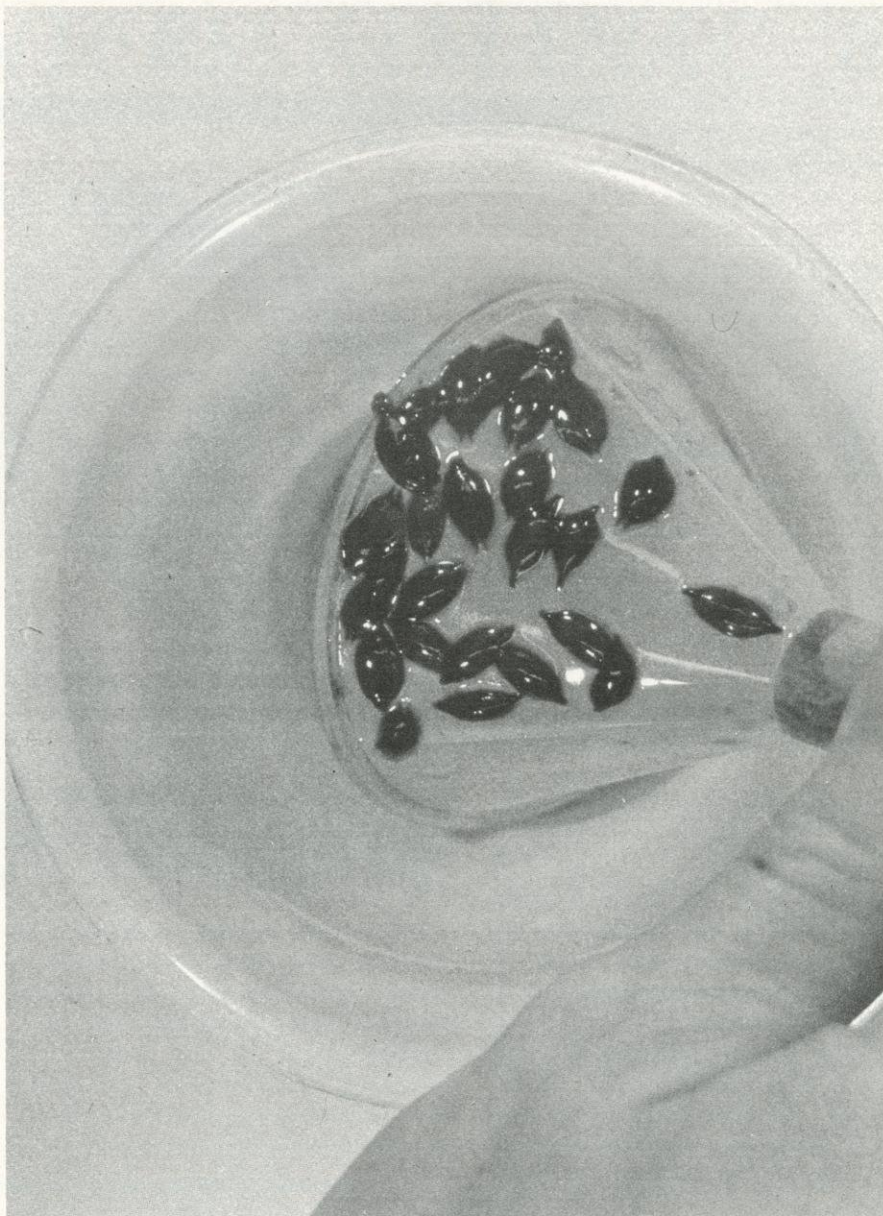
Krista Iding, Editorial Intern

species of leech in the United States, only a small minority would actually suck a meal from warm-blooded animals. *Macrobdella* and *Philobdella* are the two most common United States leeches that take human blood. Most prefer cold meals. They prey on bits of dead animal flesh or kill and eat tiny cold-blooded critters like snails or shellfish. Like their cousins the earthworms, they are recyclers who break down dead organic matter, making it available as nutrients for plants and other aquatic organisms. Some leeches temporarily attach themselves to larger cold-blooded animals like frogs, fish and turtles. They ride about on these new companions looking for a meal of scraps. Once it is found, they depart.

Wisconsin has about 39 species of leech made up of four groups or families: parasites of fish, frogs, snails, turtles and other invertebrates; free-living scavengers of ponds and lakes; and many species that live off natural foods and only occasionally supplement their diet with a blood meal.

A common Wisconsin species of parasitic leech is *Myzobdella moorei* — a greenish creature rarely more than one inch long. Its period of infestation (early spring and late fall) is short and damage to the fish population of any one area is slight. These parasitic leeches are much smaller than those found in a lake's shallow area, and as many as 200 have been seen stuck to the head of one walleye. But this is no cause for alarm. Fish parasitized by leeches can be used for food. No damage is done to the fish's flesh and leeches carry no parasites which are harmful to humans.

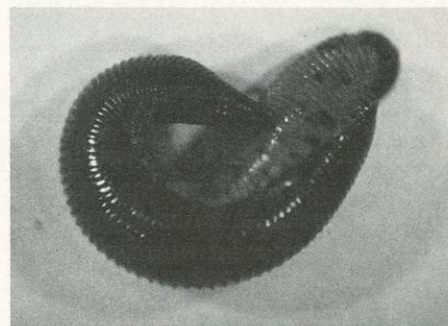
Some types of leeches are excellent fish bait. *Nepheleopsis obscura*, called the "ribbon leech," is the most common bait leech in Wisconsin. This non-bloodsucking leech is distinguished from others by the firm ribbon-like edges of its flattened body. It is usually three to four inches long, gray to brown in color and spotted with black. This leech, an active swimmer, continues undulating movements even after it has been pierced by a hook. While



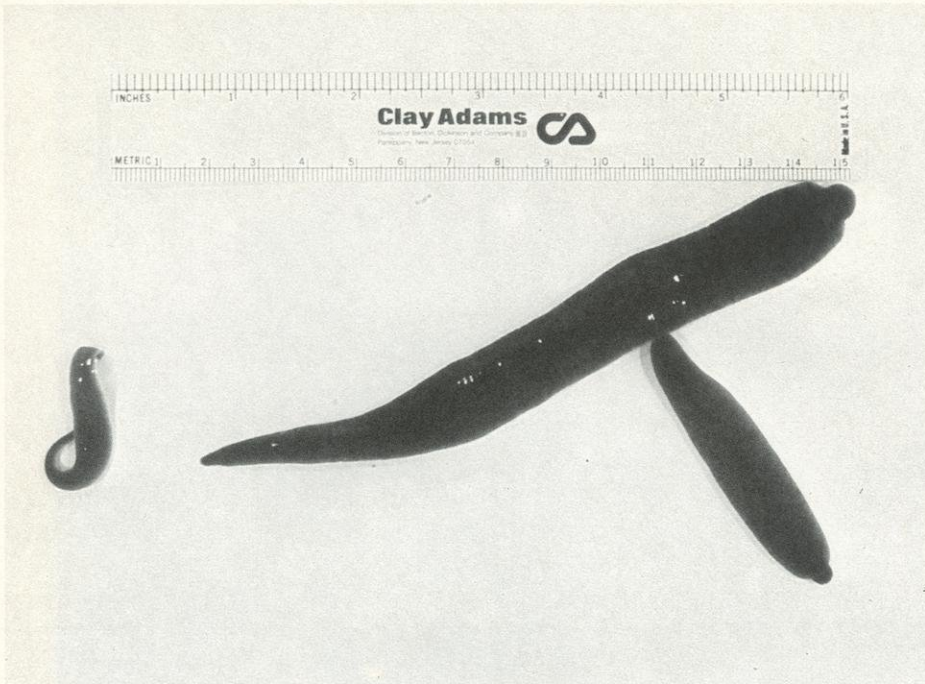
Above: Bait leeches will spawn on the bottom or walls of laboratory glassware.

this continual motion has always attracted fish, most anglers didn't pick up on the secret until the early 1970s, when a bait leech craze began.

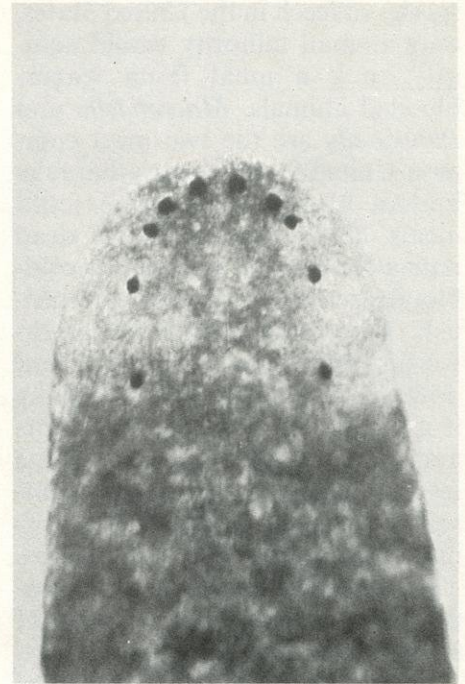
A popular method of trapping leeches for fishing is to bait a can with fish or meat scraps, flatten the open end and place the can in a shallow pond with a muck or silt bottom. Leeches feed actively at night, so traps that are not designed to confine the leeches must be tended before they leave at dawn. But the fisher must beware, for all leeches are not effective bait. Leech specialists have noted that gamefish, including walleye, crappie and small-mouth bass, can differentiate between leech species. For instance, although a common Wisconsin



The medicine leech is still used throughout Asia and Europe to remove evidence of a black eye or bruise. It is also used experimentally in surgery on reattachment of severed appendages.



Three sizes of bait leech. Left to right: a juvenile too small to be used as bait, a "jumbo" and typical marketable leech.



The horse leech has five pairs of eyes.

leech, the *Macrobodella decora*, strongly resembles the ribbon leech, fish ignore it. Oddly enough, fish most likely snub this leech because of its bright coloring. Experts say its reddish-orange belly and red-spotted back probably developed as protective mechanisms.

Despite its worthlessness as a fish bait, the *Macrobodella decora* is undoubtedly the most historically useful of all leech species. Because it has been used to treat various ailments, the *Macrobodella decora* has come to be known as the "medicine leech." The earliest recorded use of this leech was in 100 B.C. by an ancient Syrian medical sect. The Romans and Greeks followed suit, and by the Middle Ages, leeches were medically indispensable.

Primarily, the medicine leech was used to draw loads of "bad blood" from patients. What dictated "bad blood" was left to the discretion of the medicine men or doctors. Because the leech attaches wherever it is guided, and because it produces an anti-coagulant that keeps blood flowing even after the leech has been detached, its popularity steadily grew. In fact, blood-letting became so popular in the Middle Ages that physicians themselves were called "leeches." The leech obsession continued, and by the 19th century it is

estimated that over 60 million leeches were used annually in Europe alone.

If you haven't encountered leeches while fishing in Wisconsin, chances are you will while swimming. Leeches inhabit ponds, marshes, lakes and slow streams. Disturbances in the water like splashing or swimming attract the bloodsucking type. Once a leech chooses its target, it fastens itself to an unsuspecting victim with its rear suction cup while exploring for thin areas of skin with its front (the narrower) end. Then, it tightly attaches its front sucker and makes three painless incisions.

By the time it finishes its meal, a leech may be five times heavier than when it began. Because bloodsuckers form a powerful seal, plucking them off your skin is usually difficult. However, they can be eliminated easily with a sprinkle of salt and be returned to their habitat.

Today the medicinal leech is still used throughout Europe and Asia to remove the evidence of a black eye or bruise. It is also being used experimentally in micro-surgical procedures like the reattachment of severed appendages. Some leeches have been found to yield a chemical blend of anti-biotics, anti-coagulants and anesthetics which may be

useful in the treatment of cancer and cardiovascular diseases.

Because of its ecological importance as an aquatic scavenger, and its economic significance in a growing bait leech industry, researchers continue to study the *Nephelopsis* species to determine management and culture techniques which will be most effective in preserving the leech's role in nature.

HUNTERS' ALMANAC '86

Prepared by Kathy Kahler

Layout by Georgine Price

Typeset by Kathy MacDonald

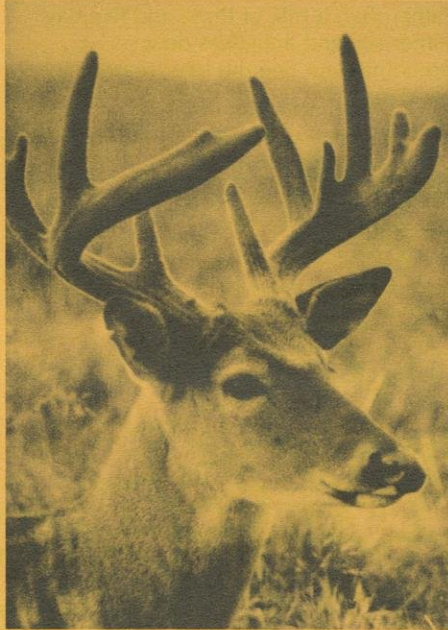
Gun deer rule changes

New deer hunt rules this fall will require a hunter's choice permit to take an antlerless deer everywhere in Wisconsin except in four deer management units along the Mississippi River. The changes also reduce a hodgepodge of major hunting zones from six to two. Besides establishing a more uniform gun deer hunt, the new rules make minor boundary shifts on 44 management units to fine-tune similar habitat types. Part of the package also includes new overwinter population goals for 30 management units, which will be reflected in the number of hunter's choice permits issued.

The new rules were put together jointly by the Natural Resources Board, the Conservation Congress, DNR wildlife managers, law enforcement personnel, and various hunting groups. They were prompted by recent record high deer populations, a rising number of car-deer collisions, and increasing agricultural damage complaints.

DNR officials say the new uniform rules will result in increased deer hunting opportunities and better herd control, as well as better administration and enforcement of the hunt.

Steve Miller, DNR's director of Wildlife Management, says the most significant change will be in southeast Wisconsin which will go from a five-day



either sex deer season to a nine-day buck and hunter's choice season. This means hunters in the southeast will now have to apply for a hunter's choice permit to shoot an antlerless deer. Milwaukee County will remain closed to gun deer hunting.

Southwestern Wisconsin, which formerly had three- and five-day buck

hunts plus hunter's choice, will change to the nine-day buck hunt with hunter's choice. This basically increases the season by four to six days.

The four Mississippi River block management units, which will be designated "Zone B" will continue to have a two-day either sex hunt followed by seven-days of bucks-only. This will also include unit 74B, (primarily Crawford County) where formerly the season ended after the first two days.

DNR officials point out that the 44 shifts in management unit boundaries sound more major than they really are. Actually, there were only nine basic changes, however, each change affected the boundary of one, two, three, or sometimes even four of its neighbors. Thus, the 44 total.

The department says that to prevent confusion, no further management unit boundary changes will be made for at least three years and preferably five. Hunters are advised to double-check the new management unit map before applying for a hunter's choice permit.

Other deer hunt changes voted by the Natural Resources Board for this fall will allow rifles, shotguns, muzzle-loaders and legal handguns as well as shotguns in unit 22A in western Wisconsin and set a nine-day buck season with hunter's choice permits for management unit 60A.

1986 permit deadlines

Permit applications are available at most hunting license outlets, unless otherwise stated.

Apostle Island deer hunting — Received by August 25, Supervisor, Apostle Islands, National Lake Shore, Route 1, Box 4, Bayfield, WI 54814. Hunters interested in a permit must write the Apostle Island supervisor for an application.

Canada goose hunting

a) Horicon Zone or Central Zone — Postmarked no later than September 12 or received by the DNR License Section, Box 7924, 101 South Webster, Madison, WI 53707, no later than 4:30 p.m. that day.

b) Mississippi Valley Population (MVP) Zone (counties surrounding Horicon Zone) — Apply any time before hunting.

c) Theresa Zone — Apply in person at DNR Station, Theresa Wildlife Area between 9:00 a.m. and 4:00 p.m. during the five days before the goose season or

between 5:30 a.m. and 3:00 p.m. throughout the season.

Sandhill Wildlife Area deer hunt — Postmarked no later than October 3 or received by DNR, Sandhill Project, Box 156, Babcock, WI 54413, no later than 4:30 that day.

Hunter's choice deer hunting permit — Postmarked no later than October 3 or received by the DNR License Section, Box 7924, 101 South Webster, Madison, WI 53707, no later than 4:30 p.m. that day. Permit applications are attached to deer or sports licenses.

Bobcat — Postmarked no later than October 3 or received by the DNR License Section, Box 7924, 101 South Webster, Madison, WI 53707, no later than 4:30 p.m. that day.

Fisher — Postmarked no later than October 3 or received by the DNR License Section, Box 7924, 101 South Webster, Madison, WI 53707, no later than 4:30 p.m. that day.

Otter — Postmarked no later than October 3 or received by the DNR License Section, Box 7924, 101 South Webster, Madison, WI 53707, no later than 4:30 p.m. that day.

Turkey (1987 season) — Postmarked no later than November 7 or received by the DNR License Section, Box 7924, 101 South Webster, Madison, WI 53707, no later than 4:30 p.m. that day.

Disabled persons (permit to hunt or shoot from a standing automobile) — Apply to your local warden at least 10 days before you plan to hunt. NOTE: A disabled hunter is one who is unable to walk without the aid of a wheelchair or prosthetic appliance. If you are disabled, special hunting opportunities may be available to you. Contact any DNR warden for more information.

Pheasant hunting on select properties (includes tags) — Apply and receive any time before hunting.

Bear harvest permit — The 1986 deadline was July 11. The deadline for 1987 is July 10.

New hunting and trapping rules

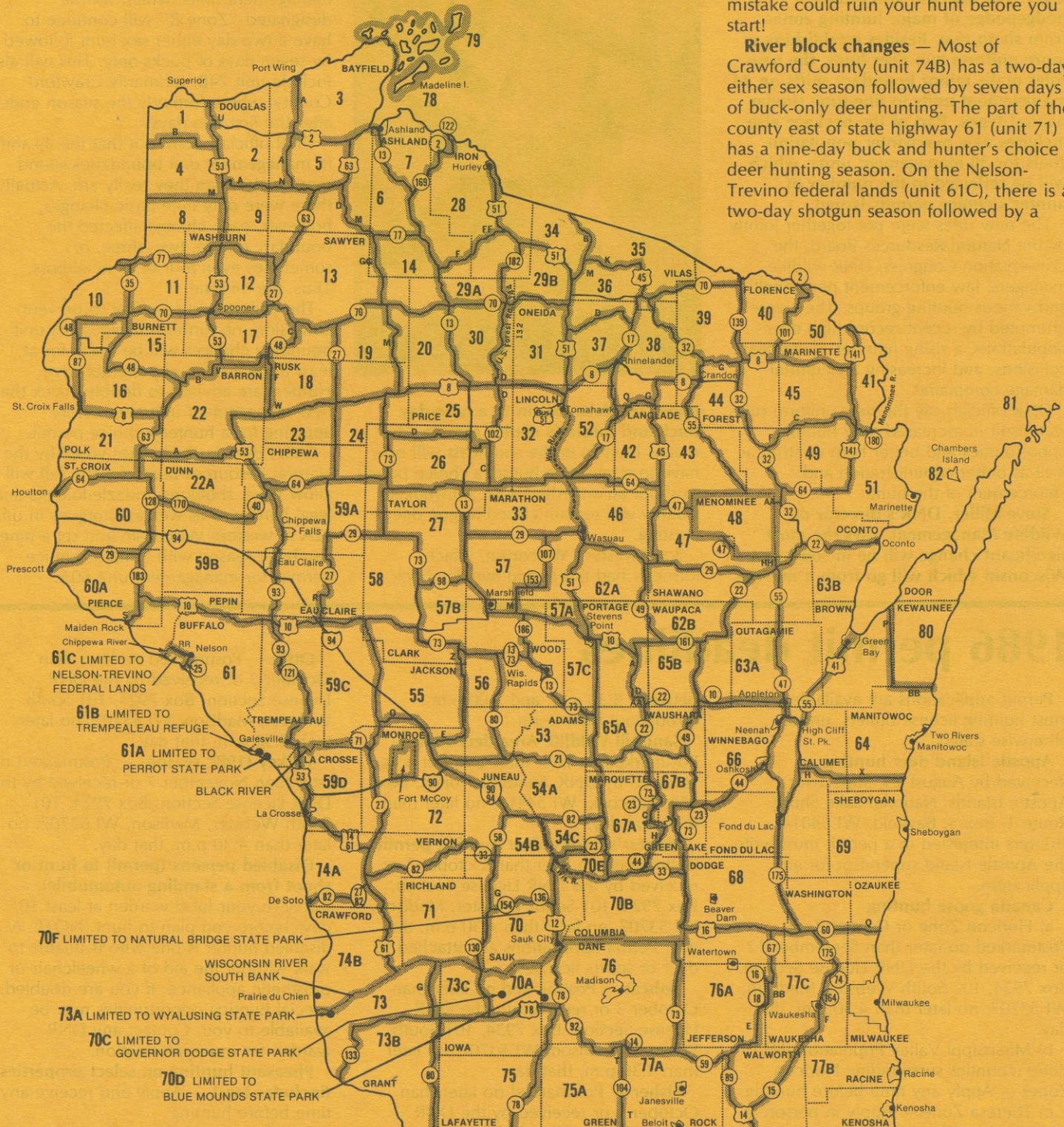
David Gjestson, Wildlife Staff Specialist

Most changes in hunting and trapping rules are presented at annual fish and game hearings conducted in each county the fourth Monday in April. Wisconsin residents with an interest in hunting or fishing are encouraged to attend those hearings.

Deer season length — Southern Wisconsin now has a nine-day buck and hunter's choice permit season framework rather than a mix of three and five-day either sex and antlerless deer combinations. See the deer season story for details.

Deer management unit boundaries — The boundaries of 44 deer management units have been changed to reflect areas containing similar land use, soils and vegetative cover. Hunters are urged to carefully study the deer management unit map included in the Almanac before applying for a hunter's choice permit. A mistake could ruin your hunt before you start!

River block changes — Most of Crawford County (unit 74B) has a two-day either sex season followed by seven days of buck-only deer hunting. The part of the county east of state highway 61 (unit 71) has a nine-day buck and hunter's choice deer hunting season. On the Nelson-Trevino federal lands (unit 61C), there is a two-day shotgun season followed by a



DEER MANAGEMENT UNITS

Season dates and outlook

seven-day rifle framework. Unit 61C hunters are limited to one buck per season or the hunter's choice permit limit.

Landowner deer hunting — Qualified resident landowners now have first preference for 30% of the deer hunting permits issued in any unit open to permits. To qualify, you must own at least a 50-acre parcel in the deer management unit you're applying for and you must reside on that parcel at least 51% of the year.

Chambers Island deer hunting — This island off Door County is now open to regular season bow hunting. Hunters should also note that during the gun season, they are restricted to one spike buck or a hunter's choice permit limit.

Road shooting restriction — Hunters may no longer discharge a firearm, shoot an arrow from a bow, or shoot a bolt from a crossbow from or across a highway or within 50 feet of the roadway's center. This rule applies to all paved public roads and to unpaved roads (dirt, sand or gravel) if they are shown on a current Department of Transportation highway map. Unpaved fire lanes aren't restricted. Anyone hunting small game with a muzzleloader or shotgun loaded with shot size BB or smaller are excluded from this prohibition if the roadway is unpaved.

Hunters are reminded that the rule prohibiting hunting within 50 feet of the centerline of concrete and black-topped public roads or the existing fence, whichever distance is shorter, is still in effect.

Bear season — The bear hunting season has been restored after being closed for one year in 1985. See the Almanac's bear season article for details.

Hunting license fees

Sports License — \$27.00
 Conservation Patron — \$100.00
 Resident Small Game — \$8.50
 Resident Deer — \$13.00
 Resident Archer — \$13.00
 Resident Bear — \$6.50
 Trapping — \$12.50
 Turkey Stamp — \$11.75
 Nonresident Small Game — \$61.50
 Nonresident Small Game (5-day) — \$31.50
 Nonresident Deer — \$86.50
 Nonresident Archer — \$66.50
 Nonresident Bear — \$21.50
 Nonresident Furbearer — \$126.50
 Waterfowl Stamp — \$3.25

Species	1986 Locations and Dates	Game supply compared to 1985	Hunting prospects compared to last 5 years
Coyote	Statewide, all year	No change	Fair to good. Best in north.
Snowshoe Hare	Statewide, all year	Improving	Fair to good. Best in north.
Turkey	7 units — 4 hunting periods between Apr. 22 and May 17, 1987	Up	Good. Best in south-west.
Ducks	Opens Oct. 4 statewide; dates published about Sept. 15	No change	Fair. Best along Mississippi R. and in east counties.
Canada Goose	Statewide, dates published about Sept. 15	Improving	Very good. Best in east central portion of the state.
Woodcock	Statewide, Sept. 13—Nov. 16	Improving	Good. Best in northern 1/3 of state.
Bear	Statewide baiting without dogs (bow and gun), Sept. 13—Oct. 3. North zone only with dogs (bow and gun), Sept. 20—Oct. 10. Other methods, Sept. 13—Oct. 10.	Up	Best in northern counties.
Gray and Fox Squirrel	Statewide, Sept. 13—Jan. 31	Improving	Good. Best in southern 2/3 of state.
Jackrabbit	Statewide, noon Oct. 18—Nov. 15	No change	Poor. Not abundant in any region.
Cottontail Rabbit	North: Sept. 13—Feb. 28 South: Noon Oct. 18—Feb. 28	No change	Fair to Good. Best in southern 2/3 of state.
Ruffed Grouse	North: Sept. 13—Dec. 31 South: Sept. 13—Jan. 31	Improving	Good. Best in central and western Wisconsin.
Sharp-tailed Grouse	North only (some closures), Oct. 18—Nov. 9	No change	Poor. Not abundant in any region.
Raccoon	Residents statewide, Oct. 18—Jan. 31 Nonresidents statewide, Nov. 1—Jan. 31	Improving	Very Good. Best in southwest and west central.
Bobwhite Quail	Statewide, noon Oct. 18—Dec. 10	Down slightly	Poor to Fair. Best north of Wisconsin R. in southwest Wisconsin.
Pheasant	Statewide, noon Oct. 18—Dec. 10	No change	Poor to fair. Best in southeast 1/4 of state.
Hungarian Partridge	Statewide, noon Oct. 18—Dec. 10	No change	Fair. Best in counties near Lake Winnebago and Lake Michigan.
Red and Gray Fox	North of Hwy. 64: Oct. 18—Jan. 31 South of Hwy. 64: Nov. 1—Jan. 31	Improving	Good. Best in west-central and southern Wisconsin.
Bobcat	North of Hwy. 64: Oct. 18—Dec. 31 (permit only)	No change	Poor. Not abundant in any region.
Deer	Gun: General Nov. 22—Nov. 30 Bow: Statewide Sept. 20—Nov. 16 Dec. 6—Dec. 31	Down slightly	Excellent in most areas. Best in southern 1/2 of state. Trophy opportunities in north.

1986 Bear Season

Kathy Kahler, Information Assistant

After a shutdown in 1985 because there was no system that could limit the number of participants, Wisconsin's bear season reopens in September of this year for 860 randomly selected hunters. The hunt was made possible by a new law that allows DNR to restrict participation to prevent overharvest. Those who didn't receive a permit will have a better chance to do so in following years under a new permit preference system.

To qualify for a permit this year, hunters had to apply for bear hunting licenses before July 11. All license applications submitted by that date were automatically considered for permits. Those selected had until August 25 to send in the permit fee. If they failed to do so, the permit was forfeited to the next hunter on the list.

Fees for residents are \$32, which include \$6.50 for the license and \$25.50 for the harvest permit. Nonresidents paid \$21.50 for the license and \$100.50 for the permit. Hunters who bought a bear hunting license, but weren't picked for the permit can participate in this year's hunt by "assisting" someone who has a harvest permit. "Assisting" means helping a permit holder by handling dogs, tracking, trailing, locating the bear, or otherwise aiding while accompanying the



permit holder. The permit holder is not required to be present when assistants are putting out bait.

Special regulations have been established for opening week so that neither dog nor bait hunters will have the advantage. This year and in future even-numbered years, hunters using bait will hunt the first three weeks of the four-week season, while dog hunters follow in the last three weeks. This sequence will reverse each year with dog hunters starting the season in odd-numbered years. Hunters using dogs may hunt only in the northern zone outlined in the 1986 hunting regulations pamphlet. Separate

bear dog permits are required. They are available free from local wardens or DNR offices. Hunters using neither dogs nor bait may hunt throughout the season.

The new preference process for issuing bear permits that started this year is unique in that it is cumulative. Hunters chances of success increase with each year they apply. Those who don't resubmit or who miss the deadline date in next year's round lose their accumulated preference. Hunters can decline to accept a permit in any given year and still maintain preference. However, there's no guarantee they'll receive a permit again the next year.

Turkey hunt expands

An extra five days of hunting and an almost two-fold increase in the number of turkey permits available for the 1987 spring season reflect the continuing success of Wisconsin's turkey program. DNR will increase permit levels in seven hunting zones from last year's 3,500 to 6,040. In addition, a fourth five-day hunting period will be added to the season framework.

Hunters took 793 turkeys in 1986, up 296 from last year. The increased harvest

and an observed growth in turkey numbers provided the justification for DNR wildlife managers to expand the season.

Wisconsin's wild turkey program enters its fifth season in 1987. The program's success stems from a volunteer education program combined with efforts of DNR's wildlife managers, the Wisconsin Chapter of the National Wild Turkey Federation and the turkey study committee of the Conservation Congress.

Turkey hunting zones and 1987 permits

Hunting Zones	Permits for April 22-26	Permits for April 29-May 3	Permits for May 6-10	Permits for May 13-17
1	220	220	220	220
2	250	250	250	250
3	300	300	300	300
4	300	300	300	300
5	100	100	100	100
9	120	120	120	120
10	220	220	220	220

Beaver contracts for 1986-87

DNR will again contract with Wisconsin trappers to control beaver where the animals have played havoc with trout habitat. Under contracts for this fall, trappers agree to take only a certain number of animals larger than 28 inches and only in certain areas. In return, they're paid \$25 for each pelt (which they can keep) after submitting the pelts to designated stations for marking. **Contracts in the North will run from October 18 to December 5; and in the South from November 1 to December 5.**

Contracts issued for spring and summer, from April 1 to September 30, allow trappers to take a specified number of beaver of any size. Payment is \$10 for each animal. Contractors who wish to keep the pelts instead of being paid are allowed to do so.

The 1986 Wisconsin trapping regulations show season dates and areas where beaver populations need to be controlled. Special season maps are available at DNR field stations.

1986 Waterfowl numbers improve but still low

Kate Isbell, Wildlife Technician

Duck season opens October 4

Since 1979 continental duck populations have been plagued by drought. Some of the worst has been in prairie areas of Canada which are major duck breeding grounds. Drought conditions in these areas drastically decreased duckling production. Wetland breeding conditions have improved in some locations in the past two years. Other areas remain dry, including southern Alberta where duck numbers declined this year to the lowest level ever recorded. **Overall, total breeding duck numbers increased 14% over last year to 35 million, but that's still 12% below the 1955-1985 average.**

Hunting restrictions in 1985 reduced the harvest by 27%, very close to what was planned. Last year's 40-day season and tightened bag limits aimed at stopping a decline in continental breeding populations will remain in effect this fall. **Opening day will be Saturday, October 4.** The planned season for the northern

duck zone is October 4 through November 12. Dates in the southern zone may be October 4 through October 12, probably followed by a five-day closure, reopening on October 18 and then running through November 17. Final season dates and regulations will be published in the 1986 "Migratory Bird Regulations" pamphlet.

All duck season point values will remain the same as in 1985, except that there will be no season on canvasbacks, statewide. This was ordered by the US Fish and Wildlife Service (FWS) for the Mississippi, Central and Atlantic Flyways after a three-year decline in canvasback numbers.

The continuing drop in breeding numbers of mallards and pintails that prompted last year's restrictions has been reversed, but populations are still well below the long-term average. **Mallard breeders have increased from an all-time low of 5.5 million in 1985 to 6.4 million, which is still 24% below the 30-year average. Pintails are 44% below average**

this year even though the number of breeders is up 300,000 from the 1985 record low of 2.9-million.

Of the 10 major species surveyed, eight showed marked increases over 1985. Exceptions are American wigeon and scaup which are almost unchanged. Six species, mallard, pintail, American wigeon, blue-winged teal, canvasback and scaup, remain below the 30-year average. Species with breeding populations above the long-term average are gadwalls, green-winged teal, shovelers and redheads.

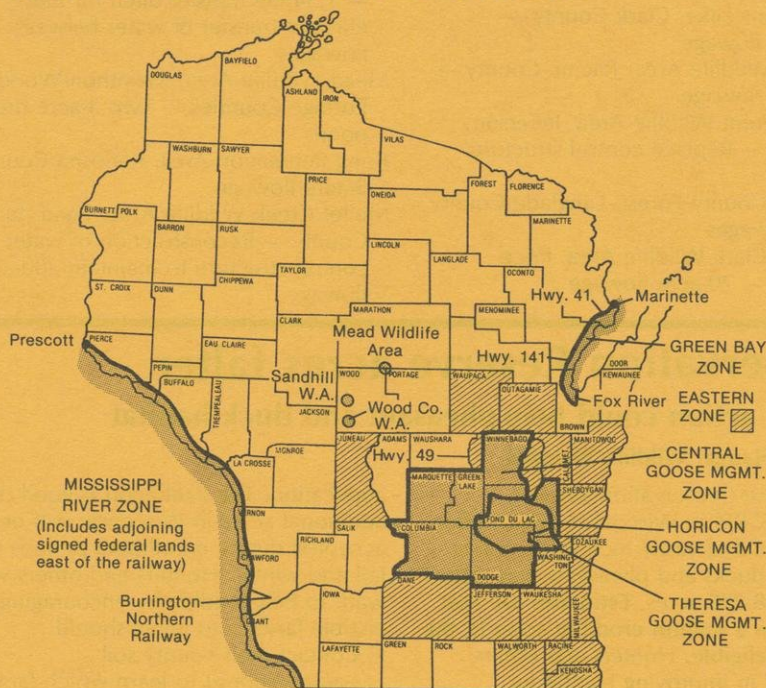
Statewide Canada goose quota increased

Wisconsin has been given a 45,000 statewide Canada goose quota for 1986, up 80% over last year's 25,000. Of the proposed 45,000 harvest, 30,000 will be for the Horicon-Central tag zone compared to 15,000 in 1985. The season will be lengthened to 50 days in the tag zones. Outside the tag zones, 20-day seasons will be allowed in the western part of the state and 12-day seasons in eastern Wisconsin. A 70-day season on the Mississippi River will coincide with Minnesota and Iowa. The Mississippi Valley population (MVP) of geese was estimated at 619,000 in December, up from the 1984 estimate of 477,000 and surpassing the winter goal of 500,000.

Severe restrictions were imposed on Wisconsin's goose season in 1984 after an unprecedented eight straight years of only fair to poor production of young goslings. To allow the breeding population to rebuild, the FWS and MVP states cut season lengths and quotas. Though the 1984 quota for Wisconsin was 25,000, harvests approached 40,000 as large numbers of birds and ideal hunting conditions prevailed throughout northern and central Wisconsin. In 1985, despite considerable growth in the MVP flock, the flyway voted to again restrict harvests until the goal of 500,000 birds was reached.

Flyway states were also concerned about a 15,000 over-harvest in Wisconsin and last year the FWS limited Wisconsin's quota to 25,000 geese statewide. Now that the midwinter count has exceeded 500,000, all production will be applied to harvest objectives. The increased quota will give Wisconsin waterfowlers more hunting opportunity, stabilize and begin to reduce the Wisconsin MVP goose populations to the desired goal, and assist east-central farmers by reducing crop damage.

1986 Steel Shot Zones



- Within these zones, hunters must use only shotshells loaded with steel to take, kill or pursue ducks, geese, brant or coot. It is illegal to possess any other kind of shotshells while hunting these species.

- In the Eastern and Green Bay zones, steel shot rules apply only within 150 yards of water. In all other zones, steel

shot must be used within the zone regardless of distance from water.

Check the 1986 Wisconsin migratory waterfowl regulations for more information.

Beginning in 1987, steel shot rules for waterfowl will apply statewide.

Stop the Poacher

Report Violations
TOLL FREE HOTLINE
1-800-TIP-WDNR
(847-9367)
24 Hour — Confidential

Project WILD in demand

Dolly Zosel, Project WILD Coordinator

Since April of 1985, more than 2,600 Wisconsin educators have participated in a series of "Project WILD" workshops aimed at incorporating wildlife education into the school curriculum. The 125 workshops allowed teachers to participate in hands-on learning sessions designed for their students. Many wildlife professionals participated to provide insights about local species and issues.

Wildlife can be especially useful in classrooms, providing unique, motivating approaches to traditional subjects. Project WILD (Wildlife In Learning Design) provides activities that incorporate wildlife concepts into all major subject areas (math, science and language arts) from kindergarten through high school.

The program was developed by the Western Regional Environmental Education Council and the Western Association of Fish and Wildlife Agencies. Thirty-seven states now endorse and use Project WILD. In Wisconsin, it is sponsored by the Departments of Natural Resources and Public Instruction with additional support from the state Wildlife Federation, the Wisconsin Chapter of the Safari Club and other organizations.

If you want to know more about the program, obtain a workshop schedule or learn how to become a workshop leader write: Project WILD, Wisconsin DNR, Box 7921, Madison, WI 53707; or phone (608) 266-0870 or (608) 267-2463.

Waterfowl habitat gets help from private organizations

Kate Isbell, Wildlife Technician

DU's MARSH program

More than \$400,000 has been allocated to Wisconsin by Ducks Unlimited (DU) in the last two years for waterfowl habitat improvement. The money came through DU's nationwide MARSH program which provides money to state wildlife agencies for acquisition, development and enhancement of waterfowl habitat. **Under MARSH (Matching Aid to Restore States Habitat), each state is eligible to receive 7.5% of the income raised by DU volunteers.** Wisconsin is one of 13 states qualified to receive grants outright and isn't required to provide matching funds. This is because Wisconsin donates \$1 from each state duck stamp sold to DU for habitat improvement in Canada. These funds currently go to develop the 36,000-acre Summerberry Marsh Project in northwestern Manitoba. States that contribute less money to the Canadian effort are required to match the DU grant.

Wisconsin's DU MARSH projects 1985

Collins Marsh, Manitowoc County — 70-acre flowage
Mead Wildlife Area, Marathon County — 70-acre flowage
Sportsmen's Lake, Clark County — 25-acre flowage
Tichigan Wildlife Area, Racine County — 60-acre flowage
Princess Point Wildlife Area, Jefferson County — Replace control structure

1986

Langlade County Forest, Langlade County — 3 flowages
Kimberly/Clark Wildlife Area, Price County — 70-acre flowage

Theresa Wildlife Area, Washington/Dodge Counties — 50-acre flowage, 25 pair ponds and nesting islands, fire break
Tiffany Wildlife Area, Buffalo/Pepin Counties — Rip-rap protection for brood habitat
Fish Lake Wildlife Area, Burnett County — 2 flowages
White River Wildlife Area, Green Lake County — 40-acre flowage
Blue River Unit, Lower Wisconsin River Wildlife Area, Grant County — 2 brood ponds, 15 pair ponds

Wisconsin waterfowlers association

DNR has received \$38,700 from the Wisconsin Waterfowlers Association (WWA) for five waterfowl development projects on public lands. The WWA is a statewide organization "dedicated to the preservation and restoration of waterfowl nesting habitat in Wisconsin and in the return to a position of respect for the Wisconsin Waterfowler."

WWA projects

Amsterdam Slough Wildlife Area, Burnett County — 19-acre flowage
Fish Lake Wildlife Area, Burnett County — 1.3-mile transfer ditch for more efficient transfer of water between flowages
Mead Wildlife Area, Marathon/Wood/Portage Counties — Two 3-acre brood ponds
Bong Recreation Area, Kenosha County — 5-acre flowage
Mullet Creek Wildlife Area, Fond du Lac County — Reconstruction of water control structure to maintain 200-acre flowage

Conservation Reserve acres falter

Hunter action could help pheasant and duck habitat

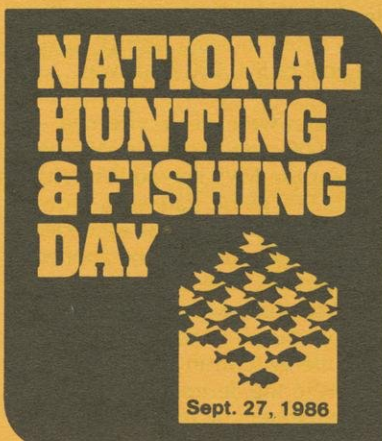
Thomas Hauge, Wildlife Biologist

So far the Conservation Reserve Program (CRP) in Wisconsin, which offers the potential of vastly increased nesting cover for ducks and pheasants, has signed up only 38,000 acres. **Estimates are that more than a million erodible acres in the state are eligible.** Hunters and others interested in improving habitat for grassland nesting birds are urged to encourage farmers with qualifying lands to apply for CRP enrollment.

The program, passed last year, allows farmers with lands that meet erodibility requirements to sign up for a 10-year period and receive annual payments for not growing crops. Annual payments are based on bids landowners send with the

application. The likelihood is good that additional acres in Wisconsin will be accepted during enrollment periods this fall and winter. Hunters and others who want to help wildlife by encouraging eligible farmers to apply should:

- Contact their county soil conservationist to learn which farmers may have eligible acreage.
- Call or write these farmers and encourage them to consider the Conservation Reserve for 1987.
- Emphasize the benefits not only to the farmer, in terms of guaranteed income and reduction of crop surpluses, but to soil and wildlife as well.



Pittman-Robertson— The Sportsman's Legacy

Every time a hunter buys a new rifle or shotgun, every time a target shooter purchases a box of new loads, every time an archer buys a new bow — they make a very real and direct contribution to wildlife conservation.

How?

Since 1937, the Pittman-Robertson Federal Aid in Wildlife Restoration Act has provided for a manufacturers excise tax on sporting arms and ammunition and later on archery hunting equipment. Funds collected are distributed by the US Fish and Wildlife Service to state wildlife agencies for wildlife management and hunter education. More than half the money goes to acquire land for public

hunting and wildlife management. More than \$1.5 billion dollars has been spent on restoration of wildlife — an investment by sportsmen and women in the future of America's natural legacy.

Over \$41,000,000 in Pittman-Robertson funds have been spent in Wisconsin on projects varying from game habitat development to protecting endangered species. The year 1987 marks the 50th anniversary of the Pittman-Robertson Federal Aid in Wildlife Restoration Act. The November-December issue of the Natural Resources Magazine will be devoted to celebrating this important event.

Bringing Wildlife Back The First 50 Years 1937-1987



The Pittman-Robertson Federal Aid
in Wildlife Restoration Act

Hunter education mandatory

23,000 graduates

Kathy Kahler, Information Assistant

Attendance at Wisconsin hunter education classes during the past year was up by about 5,000 because of a new mandatory hunter training law that took effect January 1, 1985. **Most of the 23,000 graduates last year were youngsters who turned 12 during 1985. The training is required of anyone born after January 1, 1973.** Wisconsin residents who successfully complete the course can hunt small game free for one season.

Besides teaching new hunters how to handle firearms safely, the state's 2,200 volunteer instructors also give lessons in hunter responsibilities. Students learn not only the principles of wildlife management, but also about their responsibility toward wildlife, landowners and other hunters.

Success of the hunter education program can be judged by the continued sustained decline in the number of Wisconsin shooting accidents. **When hunter safety legislation first passed in 1966, accidents happened at the rate of 44 per 100,000 licenses issued. That rate has steadily dropped to a low last year of under 11 accidents per 100,000 licenses.** These figures, seen in light of the higher deer kills of recent years, pay tribute to the DNR professionals and dedicated volunteers who have built Wisconsin's hunter education program over the past 20 years.

Hunters pay farmers \$1-million

Thomas Hauge, Wildlife Biologist

Wisconsin hunters this fall will pay out \$1-million to help farmers whose crops or livestock are hurt by deer, geese, or black bear. **All hunting licenses include a \$1 surcharge for abatement of agricultural damage caused by these species.**

Surcharge funds collected from license sales will go to participating counties for damage abatement supplies, damage claims and administrative costs. **Forty-one counties have signed up under the program so far and DNR expects more than 50 to be involved during 1987.**

To date, counties have spent most of the money for electric fencing to keep deer from browsing on expensive specialty crops. Farmers who have installed the fences find them to be a cost-effective solution to serious damage problems. Landowners must pay for the fence installation and maintain them in good condition for a specified number of years.

To be eligible for a damage payment, landowners must allow two hunters on each 40 acres of their land daily. Hunters can get a list of participating landowners by contacting the land conservation department or agricultural agent in the following counties: Barron, Buffalo, Burnett, Calumet, Chippewa, Clark, Columbia, Crawford, Door, Eau Claire, Grant, Iron, Jackson, Kewaunee, La Crosse, Lincoln, Manitowoc, Marinette, Marquette, Oneida, Polk, Price, Richland, Rusk, Sauk, Sheboygan, Trempealeau, Vilas, Washburn, Waupaca, and Winnebago.

Wildlife damage dollars

	1984	1985
Counties participating	18	41
Administration costs	\$ 36,073	\$ 65,312
Abatement supplies (fencing, etc.)	158,285	331,711
Claims	0	220,154
Total	\$194,358	\$617,177

Disabled advisory council

DNR is looking for advice on the needs of disabled hunters, anglers and trappers. That's why Secretary C. D. "Buzz" Besadny appointed a seven-member Disabled Advisory Council early this year. Besides advising DNR and the legislature, Besadny asked the council to find ways to increase public awareness and sensitivity to the needs of disabled persons who hunt, fish and trap.

Council members include chairperson Richard Welsh of Boscobel, vice-chair Jeff Pagels of Green Bay, Ken Anderson of Eagle River, William Hatcher of Brown Deer, Representative Joe Tregoning of Shullsburg, Ryan Wernberg of Arpin, and

Alvin Stewart of Menomonie.

During its half-year of existence, the council has looked at:

- the need for publicity to raise sensitivity toward the impaired recreationist
- what other states have done
- the criteria for crossbow permits for deer hunting
- how "disabled" should be defined
- education courses for impaired outdoor recreationists

If you'd like to share your ideas on these issues or add to them, contact DNR's Bureau of Law Enforcement or one of the council members.

Wildlife diseases

Sue Marcquenski, Project Specialist

Diseases are usually transferred from person to person, or animal to animal. Sometimes, though, ailments usually found in wildlife can be transmitted to people. Likewise, an illness common to domestic animals can cause wildlife to become sick. ***Baylisascaris procyonis* is a raccoon roundworm that has only recently been shown to cause illness in people. Canine parvovirus is a relatively new disease of young dogs that has shown up in some Wisconsin wildlife.**

Raccoon roundworm

The parasite *Baylisascaris procyonis* doesn't harm raccoons, but can cause serious illness in people. The six- to eight-inch adult worms are found only in a raccoon's intestine. There they lay tiny, microscopic-sized eggs that are passed in the scat or feces. **Depending on the number of female worms present, one raccoon can spread up to six million eggs a day. The eggs withstand freezing and can stay alive up to five years waiting to enter another host.**

If accidentally eaten, the roundworm eggs may infect other wildlife or people. Larvae hatched from the eggs penetrate the intestines and migrate to many areas of the body. **If the larvae make their way to the eye or brain, they can cause blindness or central nervous system disease in humans.** Infected wildlife may develop signs similar to rabies, like loss of fear of people, uncoordination, and walking in circles. To be safe, consider animals exhibiting these signs to be rabid until testing proves otherwise.

Several cases of *Baylisascaris* infections have occurred in people. Larvae in the eye — reported most often by infected adults — can be treated only by laser surgery. Infections in young children can be very serious and have caused death in two extreme cases. **Because of a child's natural tendency to put things in their mouths, it's especially important for adults to keep a watchful eye on youngsters in areas where raccoons are common.** Some symptoms in children are extreme lethargy, respiratory infection and a persistent low-grade fever.

Infections in humans are most likely with exposure to high concentrations of the parasite's eggs. **In one case where a child died, eggs were found on wood chips and soil around the home. In the other instance, scat had accumulated in the fireplace from wild raccoons nesting in the chimney and to compound the problem, the family had had a pet raccoon for a period of time.**

Baylisascaris is very common in midwestern raccoons. In Wisconsin, the

roundworm is most prevalent in the southern half of the state because of the high raccoon densities.

Advice for hunters and trappers

Wear gloves when handling raccoon pelts. The roundworm eggs may stick to the animal's fur. If you absolutely can't work while wearing gloves, be sure to wash your hands thoroughly after working with raccoons.

Disinfect work areas frequently. It takes 30 days for eggs to reach the stage when they can cause infection. Eggs in scat that leaves the animal during processing are not yet active, but if left alone can develop and infect people or other animals at a later date.

Disinfect traps by searing them with a propane torch, or dipping in boiling water and a disinfectant, such as Lysol. Do this before storing traps, after the season ends. *Baylisascaris* eggs can survive freezing and may stay infective for up to five years.

Cook game thoroughly. Though the parasite doesn't affect raccoon meat, it's wise to follow the old rule of cooking wild game until well done.

Advice to rural and suburban homeowners

Don't keep raccoons as pets. If a raccoon must be held in captivity (for rehabilitation, or at a game farm) it should be dewormed regularly. Consult a veterinarian for medication.

Discourage raccoons from visiting your home or yard by eliminating access to garbage cans, bird feeders and other tempting food sources. Raccoons may establish latrines in attics, barn lofts, garages or on wood piles. Seal entrances to these areas when the animals are away and remove accumulated feces. Disinfect the area with boiling water and a commercial disinfectant. It's important to wear disposable gloves, boots and a face mask when handling the fecal material. Burn the feces and any other contaminated material such as hay or straw.

Canine parvovirus (CPV)

Dogowners can help maintain healthy populations of coyotes, foxes, wolves and raccoons by making sure their pets are vaccinated against canine parvovirus (CPV). **CPV is more widely known as a viral disease of young dogs, causing**

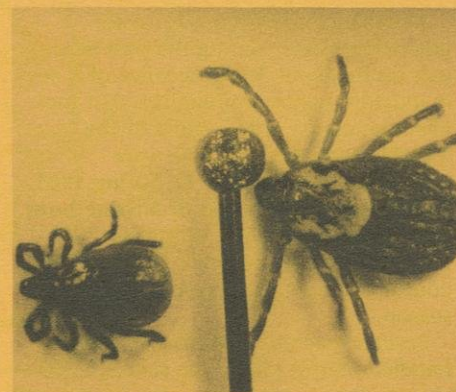
intestinal hemorrhaging, severe diarrhea, heart complications and eventual death. It has only recently been found in wild canines.

Spread of the disease could not only affect the ecological balance of a community, it could also seriously harm Wisconsin's \$8-million fur industry. DNR and UW-Madison and Stevens Point have studies underway to determine CPV's effect on certain wildlife species. In 1983 and '84, the Wisconsin Trappers Association collected blood samples for the studies from coyote, fox and raccoon. Their cooperation helped define the extent of CPV in Wisconsin. In addition, DNR biologists sampled wolves in northern Wisconsin.

Because dogs are the primary host for CPV, it's important to prevent any spread from them to wildlife. You can help by vaccinating your dog and keeping booster shots up to date.

Lyme disease

Lyme disease is a bacterial malady spread by the bite of the bear tick, *Ixodes dammini*. The ticks are smaller than the common wood tick, and it's easy to



overlook them. However, the rash caused by the bite of an infected tick rarely goes unnoticed. **Lyme disease starts as a red rash that increases in size. As it spreads, it becomes clear in the center, giving it a donut-like shape. Painful joints, fever, chills, and a stiff neck in conjunction with the rash should alert you to the possibility that you are infected.** The ailment is easily treated with tetracycline or penicillin. If it isn't treated, arthritis and heart complications can occur.

The best way to prevent Lyme disease is to check yourself for ticks whenever you spend time outdoors. Lyme disease has also caused dogs to become lame, so be sure to include your pets in your tick checks. Dogs can also be treated with antibiotics if they develop the disease.

A diary of Sugar River waterbirds

On March 6, 1983 two of our grandsons, Tony and Tad Heller, observed four brant. The boys, age 15 and 12, were fishing for suckers and redhorse on the Sugar River in front of our home north of Albany.

"Grandpa!" Tony yelled with excitement as he and Tad rushed into the house. "We just saw four brant flying past the boathouse. Where's your bird book?"

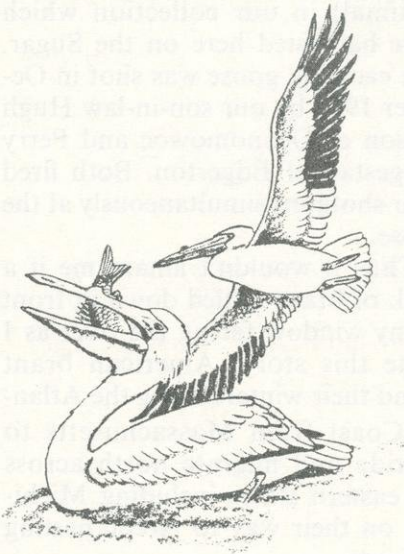
As Tony hurriedly paged through the bird book looking for a picture of brant and other geese, I explained that brant rarely migrate through Wisconsin. I've never seen a brant in Wisconsin I told the boys, but I did observe some in Alaska while working for the US Fish and Wildlife Service in the Bristol Bay area at Juneau and Kodiak Island.

"Here's what we saw," Tony declared, pointing to a color print of American brant in the book. "They were just a little bigger than mallards. I'll take the binoculars and see if I can find them, maybe they landed on the pond."

We didn't see the brant again, but it's difficult to doubt Tony's keen observation because during the past years he has shown us other rare birds on the Sugar River. I painted the picture of brant flying past our boathouse on an overcast day just as Tony described them.

On June 11, 1978 Tony and his brother Tad were picking up dry sticks along the river for a weiner roast in our outdoor fireplace. The rest of the family was inspecting the garden when I heard Tony shouting.

Careful records kept
by the author
over the years
show that brant and
other unexpected
waterfowl stop in
Wisconsin all the time.



White pelican

"Grandpa, grandpa!" Tony pointed toward the treetops. "A white pelican just flew over the boathouse. That's him up there, see his black wing-tips? Gee, I hope he comes back so my mom and dad can see him."

I hurried to the house for binoculars while Tony kept watching the

big bird circling high above the marsh. As our son-in-law Dick Heller, daughter Terry and Mrs. Bachay watched with me and the boys, the pelican suddenly turned back toward a lagoon near our house and landed. It swam buoyantly like a white pillow less than a hundred yards from the boathouse. Its orange beak was like a beacon.

I asked Tony how he knew it was a pelican, and he said he saw a picture of one in his bird book. That made me happy because when our eight grandchildren were youngsters (now two of them are in college) we gave them books on birds, mushrooms, fish, etc., hoping they would learn to appreciate our natural resources.

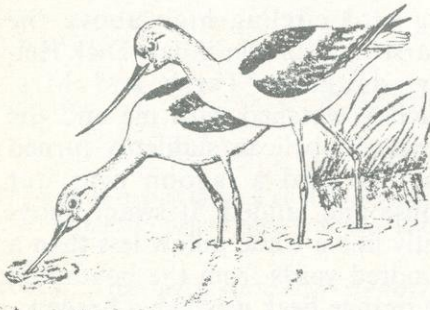
The pelican stayed on the upper end of the pond until the following day. We called Tom Hall of Rt. 1, Albany to come and see the pelican as a witness. Hall was thrilled to see the rare bird. The pelican left at 1:30 p.m., springing out of the water like a teal, circling higher and higher, heading north, apparently to resume its flight to Canada.

More than 35 years ago, while working as a game warden at La Crosse, I observed flocks of white pelicans on the Mississippi River when they stopped to rest during spring migration.

During the past 16 years, while living beside the Sugar River adjacent to a marsh, we have seen many uncommon migrant birds. When an interesting species appears we invite guests to verify the observance.

On May 19, 1967 three avocets showed up on a mudflat along the river, and on June 5, 1968 a lone avocet came to feed in the same place. Wilbur Dehmer of Rt. 1, Albany was kind enough to come and witness the unusual occasion. That same day an upland plover perched on a post in our yard to sing.

On August 13, 1974 two avocets were seen in the same place by our daughters Pat Swanson of Beloit, Kathleen Jenson of Oconomowoc, and six of our grandchildren.



Avocet

On August 29, 1974 Mrs. Bachay spotted a little blue heron (*Florida caerulea*) wading in the shallows. During the following week, Mrs. Tom Hall of Rt. 1, Albany, the late John Heller, his daughter Helen, Mayme Gregory of Janesville, and Gary Eldred, a DNR forestry employee, also came to watch the little blue heron.

On May 15, 1971, while watching a semipalmated plover and Baird's sandpipers with conservation warden James Washburn (retired), Gary Eldred and Ross Halverson, a lone marbled godwit circled the marsh and alighted on a mudflat about 100 feet from our boathouse where I was fishing for carp. Later that afternoon a rare Hudsonian godwit appeared to join the larger marbled godwit. The Hudsonian godwit winters as far south as the Falkland Islands and the southern tip of Argentina.

Every few years, in springtime along the Sugar River we have seen dowitchers, willets, ruddy turnstones, red-backed sandpipers, a greater and lesser yellowlegs, Bonaparte's gulls, eagles, osprey and other unexpected visitors. In late



Willet

summer and autumn it's not unusual to see Wilson's phalarope, black-bellied plover, least bittern, horned grebe, red-necked grebe and osprey. Once I saw white-winged scoters, one surf scoter and one cackling goose. Tony Heller also observed a surf scoter.

I have the skin of a female surf scoter and a mounted specimen of a cackling goose (*Branta canadensis* minimal) in our collection which were harvested here on the Sugar. The cackling goose was shot in October 1966 by our son-in-law Hugh Jenson of Oconomowoc and Perry Helgestad of Edgerton. Both fired their shotguns simultaneously at the goose.

Thus it wouldn't amaze me if a flock of brant settled down in front of my window facing the river as I write this story. American brant spend their winters along the Atlantic Coast from Massachusetts to Florida and migrate north across the eastern states including Michigan on their way to Arctic nesting grounds.

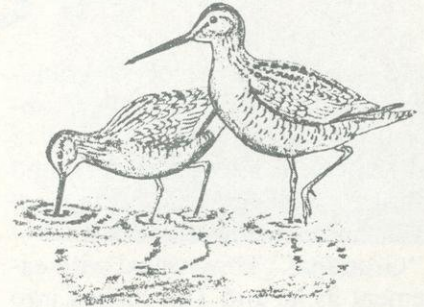
I discussed the four brant seen on the Sugar with our local DNR conservation warden Larry Johnson of Monroe.

"I've never seen a brant in Wisconsin," Johnson admitted. "But I heard of a brant shot in 1966 by Clark Amundsen. Perhaps I can get more information on brant for you."

With Johnson's cooperation I received verification from his colleagues regarding brant shot or observed by waterfowl experts.

Conservation warden Clark Amundsen of Park Falls informed me that he shot a brant on Horicon Marsh on October 16, 1966.

"The brant was turned over to Richard Hunt, a research biologist at Horicon who identified it as a male Atlantic brant in immature plumage," Amundsen wrote me. "The skin of this brant is in the reference collection at Horicon. Several years prior, on November, 1959, Eddie Mathews of the old Milwaukee Braves baseball team



Dowitcher

shot a brant near Horicon which was donated to the Milwaukee Public Museum."

Richard Hunt, DNR Wetlands Wildlife Research group leader at Horicon, informed me that he observed adult brant at the Horicon Refuge on four different occasions. On October 20, 1959 he saw two, one on October 30, 1964, another on November 14, 1967, and four October 23, 1969.

"Although there are not many records for brant in Wisconsin, the hunting regulations through 1948 included the bird in the Canada goose bag limit," Hunt wrote me. "Some people nowadays probably confuse brant with the small size Canada goose. However, I'm inclined to think that in the old days brant were more common and were shot in some numbers. Surely, some of the well-to-do hunters from the east coast who came to Koshkonong, Horicon, Puckaway, and other sites to hunt in the late 1800s knew what brant were. And, there were knowledgeable people in DNR in the old days who knew how to identify brant so the bird was included in the hunting regulations."

Hunt also sent me excerpts on Lake Koshkonong history written by L.C. Whittet in 1919 which



Tony and Tad Heller observed these four brant flying over Sugar River north of Albany.
Painting by author.

states, "The Canadian honkers and brant are found here in great flocks during the late fall months when these birds are migrating from the Hudson Bay country south."

Sam Robbins of Medford has accumulated brant records for a book he is writing about Wisconsin birds which is due for publication soon.

Robbins shared the following records of brant including some mentioned earlier in this article. Others include one shot October 17, 1951 in Dodge County and saved by Laurence R. Jahn for the University of Wisconsin-Madison museum. A brant shot in October, 1966 in Dodge county was verified by Conservation Wardens Burhans and Amundsen. Another was shot October 18, 1970 in Iron County by W.F. Sievert and donated to the Milwaukee Museum.

Robbins also informed me of early spring sighting records of brant including two birds which spent three weeks in late April and early May 1933 in Oconto County observed by C.H. Richter. There was also a brant seen among other geese near Delavan by S.P. Jones in April 1938 and five were observed in May 1950 at Sheboygan by A. Quimby and I. Lohman. Other spring records: May 30, 1954 at Sheboygan by M. Reichwaldt; April 15, 1961 in Dane County by T. Albers, and April 5, 1972 in Dane County by D.D. Tessen.

Autumn sight records include a flock of seven observed on October 3, 1953 in Dodge County by L.R. Jahn, three birds in Burnett County seen on October 2, 1954 by Norman R. Stone and a flock of 24 brant in

Milwaukee on October 12, 1954 by G. Roux. From 1954 to 1980 there were half-a-dozen other records ranging in size from one bird to a flock of 16 in Burnett, Chippewa, Dane, Jefferson and Oconto counties.

"I believe that nearly all these records are birds of the eastern race of brant," Robbins concluded in his letter. "The only one that was identified as *branta nigricans* was the October 31, 1959 bird in Burnett County noted by Norman R. Stone. *Nigricans* is no longer recognized as a separate species, but is considered a race of *bernicula*."

Personally, I missed the opportunity to see brant flying over the Sugar River, but I'm happy two of my grandsons witnessed the rare occasion that day in March. Have you seen a brant lately?



Photo by Bob Queen.

Wisconsin's acid rain umbrella opens

Wisconsin's seven year acid rain debate resulted in a victory for the environment. The State Legislature enacted a tough new law to protect threatened lakes and other resources. It was a long journey and it may not be over yet.

T.B. Sheffy, DNR Air Management, Madison
Robert Martini, DNR Water Resources Management, Rhinelander

In June, 1979 researchers from DNR's North Central District and the Duluth and Washington offices of the Environmental Protection Agency (EPA) met in Rhinelander to discuss acid rain.

It was apparent by then that acid rain was a serious problem in eastern North America and Scandinavia. But the sensitivity of Wisconsin lake systems had not been documented. It was expected to be high and work was necessary to find out.

To start gathering data quickly, the group decided to participate in a project already scheduled for the summer of 1979. A lake water quality survey by The Upper Wisconsin River Basin Task Force was expanded to cover acid rain. By 1980, precipitation monitoring sites had been established at Rhinelander, Spooner and Trout Lake. This was the beginning of a research effort that spanned seven years, involved at least 15 agencies and included dozens of projects.

In early 1980, Governor Anthony Earl, who was then DNR Secretary, created a special Acid Deposition Task Force and reprogrammed \$35,000 to support its investigations. For help, the Task Force turned to the federal agencies that had bud-

C. D. Besadny
DNR Secretary:



"When we were fighting water pollution in the 1970's, we recognized that it was cheaper to prevent pollution than to clean it up after the fact. We learned the same lesson with toxic wastes. Wisconsin's acid rain bill is designed to prevent damage to our natural resources rather than bear the enormous cost of restoration if it is allowed to continue unchecked."

gets, and expertise. It received grants, equipment, computer time, and technical assistance from them.

By then, acid rain had become an important national issue fueled by the movement to convert power plants from high-priced oil to coal, by a growing controversy between environmentalists and the new na-

tional administration and by concern in Canada as a result of damage occurring there.

While public debate increased, DNR resource managers reviewed the rising tide of data which was accumulating on this issue. The product of this review was a publication entitled the *Wisconsin Interpretive Assessment Document on Acid Deposition*, which contained a comprehensive analysis of the acid rain phenomenon and identified possible courses of action to be taken by the Department in light of this analysis. DNR's public education effort culminated in a special supplement to this magazine, *The Acid Test . . . Is Wisconsin Threatened?* Published in November/December of 1984, it was a comprehensive report and helped crystallize public opinion on the issue. A study guide of this publication is available for students and teachers.

One of the most important research findings was that between 35 and 50% of the acid deposition falling on Wisconsin's most sensitive northeastern region is homemade. And it originates with coal burned right here in Wisconsin boilers. This significant finding helped scientists, lawmakers, utilities and others conclude that unilateral action by Wis-

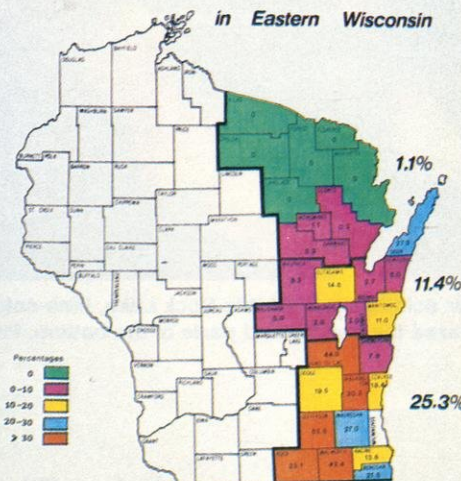
FORESTS

Some forests are also susceptible to damage from air pollutants. The damage is well documented in Germany and concern is mounting in the United States. We have reviewed the literature regarding the potential for air pollutant damage in Wisconsin. We have also surveyed white pine plantations in eastern Wisconsin to quantify damage from air pollution. The results of our survey show that 25% of the white pines examined in the seven county area around Milwaukee were damaged by air pollutants. The damage observed was tip burn on the needles. It is currently believed that this damage is due to ozone and SO₂ gas, and is not due to acid rain. However, since the exact mechanisms of forest decline and death in Germany and in the eastern U.S. are not fully understood, we cannot be assured that Wisconsin forests will be free from the combined effects of acid rain and other air pollutants. We conclude that Wisconsin forests could be damaged by the combined effects of acid rain and other air pollutants. It is very important that we gather more information on this situation.

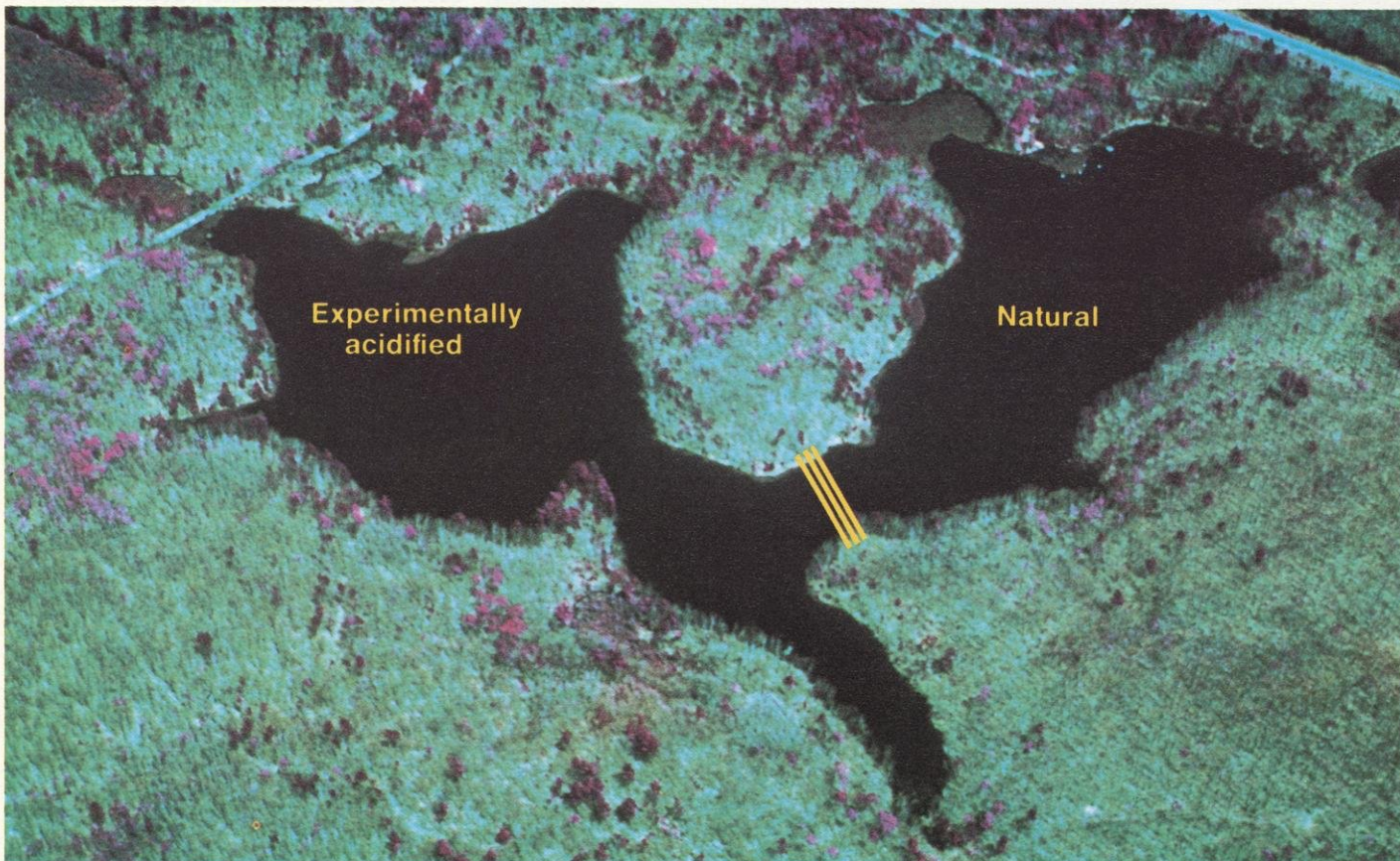


It is known that tip burn on pine is caused by ozone. When combined with other gases, plus acid rain contaminants, total forest damage could be significant. In Canada, acid rain may be responsible for a massive dieoff of maple trees. Wisconsin plans to investigate the possibility of similar damage here. DNR photo

Percentage of Trees with Tip Burn
in Eastern Wisconsin



Little Rock Lake in Vilas County.

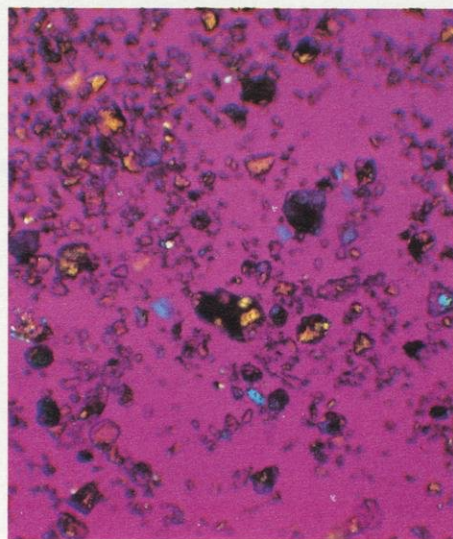


Acidified to pH 5.5 in May of 1985, the lake has already become more transparent, suggesting a change in phytoplankton (microscopic plant life). Much less acid than anticipated was required to lower the pH and the lake reacted sooner than expected. Heavy growth of lime-colored algae occurred. DNR photo

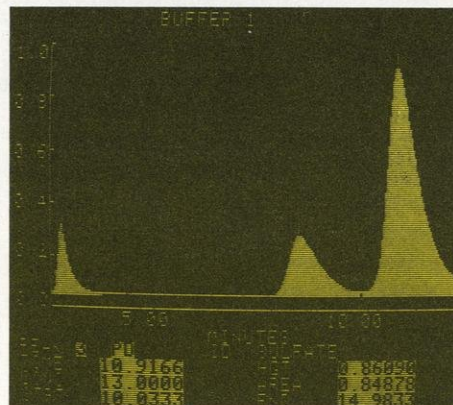


After acidification of Little Rock Lake, lime-colored algae quickly covered the barrier and parts of the bottom. Photo by Mark Johnson

Right, top: Smoke stack particulates caught by an air filter as seen through a microscope. Sulfates and nitrates are transparent and do not show up. They must be analyzed by ion chromatography. Photo by Gary Amburn



Right, bottom: Chromatograph of acid rain. The peak on the right shows a sulfate concentration of 13 milligrams per liter. The other peaks are chloride and nitrate. Photo courtesy of the State Laboratory of Hygiene



consin could improve things. Estimates say that cutting back on the state's sulfur dioxide emissions by 50% would reduce sulfate loadings in northeastern Wisconsin by approximately 15% to 25%. Conditions in Michigan and Minnesota would also be helped because Wisconsin sends significant amounts of SO₂ to those states.

Other important research provides evidence that 2% to 3% of the lakes in north central and northeastern Wisconsin are acidic due to acid rain. A much larger number, 20% to 30% are extremely sensitive and have very little buffering capacity to protect against future damage. The research also shows that acid rain causes loss of species diversity in lakes, may increase the level of mercury in fish and may harm eagles, ospreys, loons and other species that feed on fish. Human health, forests, buildings, sculpture and visibility are also adversely affected.

To deal with the increasing threat, the Wisconsin Natural Resources Board last August directed DNR to push for legislation that would reduce SO₂ emissions in the state by 50%. The Governor's Acid Deposition Review Committee studied the board's action then, acting unanimously, also asked the legislature to enact strong controls. Serving on the Review Committee were Department of Natural Resources Secretary C.D. "Buzz" Besadny, Wisconsin Power and Light Company Executive Vice-President William Keepers, and Public Service Commissioner Mary Lou Munts.

The Legislature, in turn, carefully weighed the costs: controls versus potential acid rain damage to Wisconsin resources such as lakes, streams, forests, man-made materials, human health, and visibility. After lengthy debate and numerous attempts to weaken it, Senate Bill 546 finally passed and Governor Earl signed it into law on April 22, 1986. Leading legislative advocates for strong controls included Senator Joseph Strohl and Representatives Jeannette Bell and Jim Holperin.

Net effect of the new legislation will be to cut Wisconsin sulfur dioxide emissions in half by the year 1993. This will be accomplished at only nominal cost to Wisconsin taxpayers because the reduction will be achieved primarily through switching to low sulfur fuel rather than through construction of scrubbers on smokestacks.

Specifically, the law requires the state's five major electric utilities to reduce emissions of sulfur dioxide from the present 470,000 tons per year to 250,000 tons by 1993. Utilities affected are the Wisconsin Electric Power Company, Wisconsin Power and Light, Wisconsin Public Service Corporation, Madison Gas and Electric and the Dairyland Power Cooperative. In addition, large industrial and municipal sources will have to shave about 35,000 tons

from their emissions by 1993, bringing them down to 75,000 tons annually.

For nitrogen oxide, the target date is 1991 by which date the major utilities must be emitting no more than 135,000 tons per year.

Extra costs to the utility rate payer for these controls are estimated to be on the order of 3 1/2 to 5% by the year 1993—an average residential increase of \$1 to \$4 per month.

Many features of the new law respond to utility and industry concerns: variances are allowed for unforeseen or emergency circumstances; compliance time can be extended for technologically innovative projects designed to reduce emissions; emission trading is allowed among the various utilities; annual emission targets are calcu-



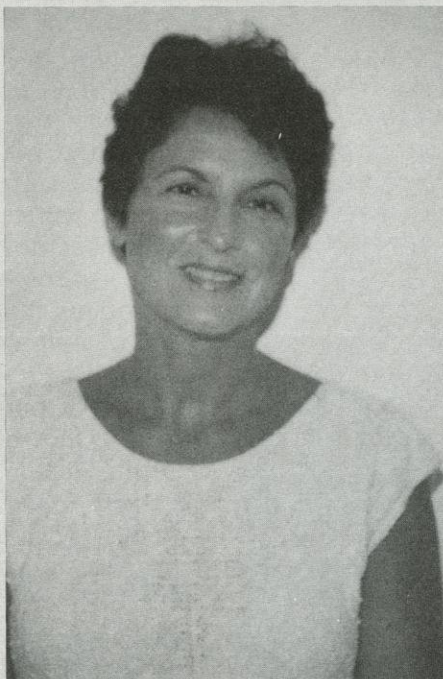
Most of the reduction in sulfur dioxide will be achieved through burning low-sulfur coal. Photo courtesy of Wisconsin Power and Light Company

lated statewide so that the totals for industry, utilities and municipalities can offset each other; and the sulfur dioxide target applies only to existing industrial and municipal sources so that there is no impact on new industrial growth.

The new acid rain law also calls for increased monitoring of lakes and streams to document any beneficial effects of emission reductions. It creates an interdisciplinary council to oversee critical research projects and sets up a special study to find cost-effective ways of reducing nitrogen oxide emissions.

Another important feature of the Wisconsin law is that it incorporates sulfur dioxide emission limits similar to proposed legislation pending before the House of Representatives in Washington. Wisconsin now has "its own house in order" and can argue more persuasively for other states and the federal government to follow suit. So far, only about a half-dozen states have done so. Among them, Wisconsin's acid rain control law is distinguished by the fact that it is one of the toughest for the least cost because of the strategy of switching to low sulfur coal rather than requiring costly scrubbers. If enough states join in the effort to reduce acid rain, it's hoped the federal government will finally get the message and promulgate its own controls, which is the ultimate and long overdue solution.

The seven year effort to evaluate the threat of acid rain in Wisconsin and then take steps to reduce it, represents a very long and difficult journey. But all those involved in the process—researchers, regulators, environmentalists, utility representatives, industrialists, lawmakers, and the public can be proud of the accomplishment. The new law reflects the progressive attitude of the people of Wisconsin. Using foresight and working together, they have taken action to prevent damage to precious resources before it occurs, rather than reacting after the fact. This should be the wave of the future in all environmental protection. It will save dollars and it makes good sense.



Richelle Lisse

Environmentalist, Wisconsin's Environmental Decade:

"Although we fought for tougher legislation, environmentalists supported the acid rain bill, knowing that the State's excessive sulfur dioxide emissions would be significantly reduced."

Chris Ballantyne

Sierra Club:

"The adoption of this legislation places Wisconsin in a very favorable position to comply with any federal control program. At the same time, this legislation provides the Congress with added incentive to act on this pressing issue."

Mary Lou Munts

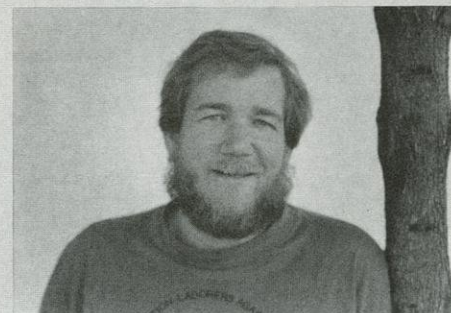
Chairperson, Public Service Commission:

"In spite of some disagreement on the science, agreement was reached on a course of action designed to bring about substantial emissions reductions at a modest cost to the consumer. At the same time, affected industry gained an important plus—certainty—which is highly desirable for effective planning and overall efficiency. It was a decision entailing increased costs that were wisely judged in the political arena to be worthwhile in terms of environmental benefit."

Thomas H. Schmidt

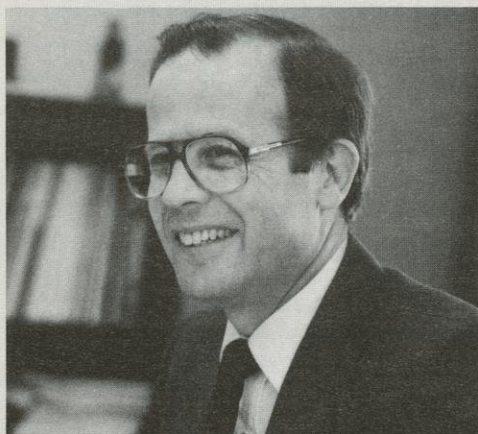
Executive Director, Wisconsin Paper Council

The paper industry, despite some scientific reservations, believes the Wisconsin law is a reasonable approach. We supported the bill while recognizing that acid rain is a national issue requiring a national solution, because it reduces SO₂ emissions in a flexible, cost effective manner that enables us to continue to compete in a highly competitive market place. Alternative approaches such as mandating the installation of scrubbers would have had a horrible economic impact.





Wisconsin's acid rain control law cleared the Legislature in March and Governor Anthony Earl signed it into law on April 22, 1986. Standing next to the Governor is Assemblywoman Jeanette Bell of West Allis, a leading legislative proponent of the bill. Photo courtesy of the Green Bay Press Gazette

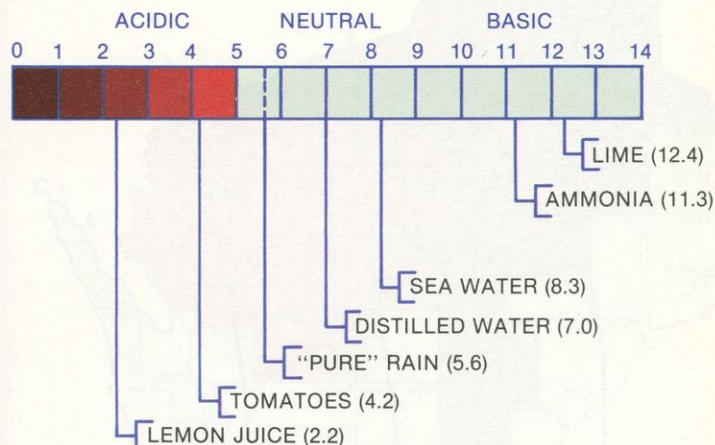


William Keepers

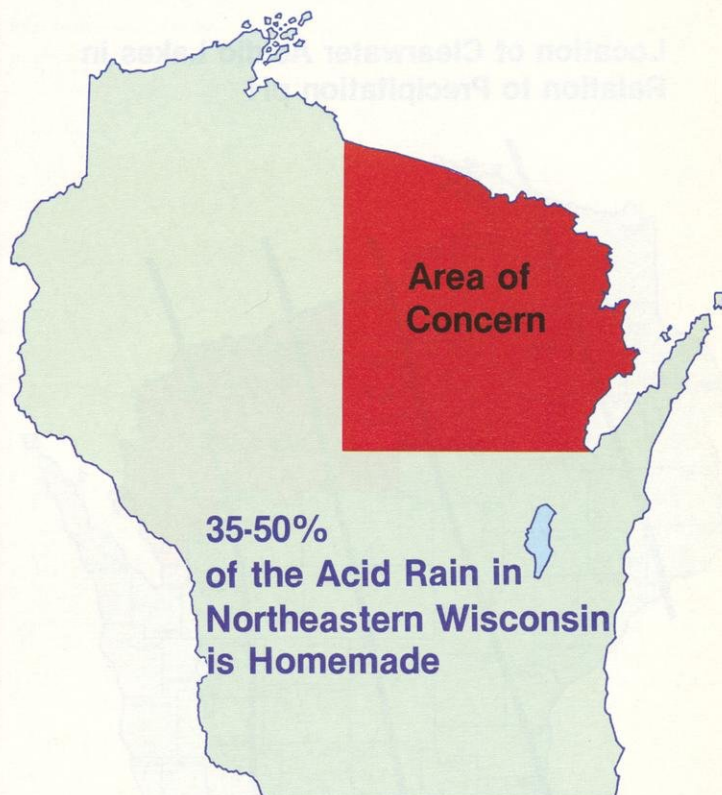
Executive Vice President, Wisconsin Power & Light Company:

"The Wisconsin law (Act 296), the result of government-private sector process, attempts to resolve the wide range of uncertainties surrounding the acid rain issue in favor of the environment, while providing mechanisms to minimize anticipated economic impacts. It is obvious that the acid rain issue will have to be addressed on the national level and the new law recognizes this eventuality by requiring Wisconsin to coordinate its law with federal legislation in order to achieve environmental benefits at an equitable and reasonable cost."

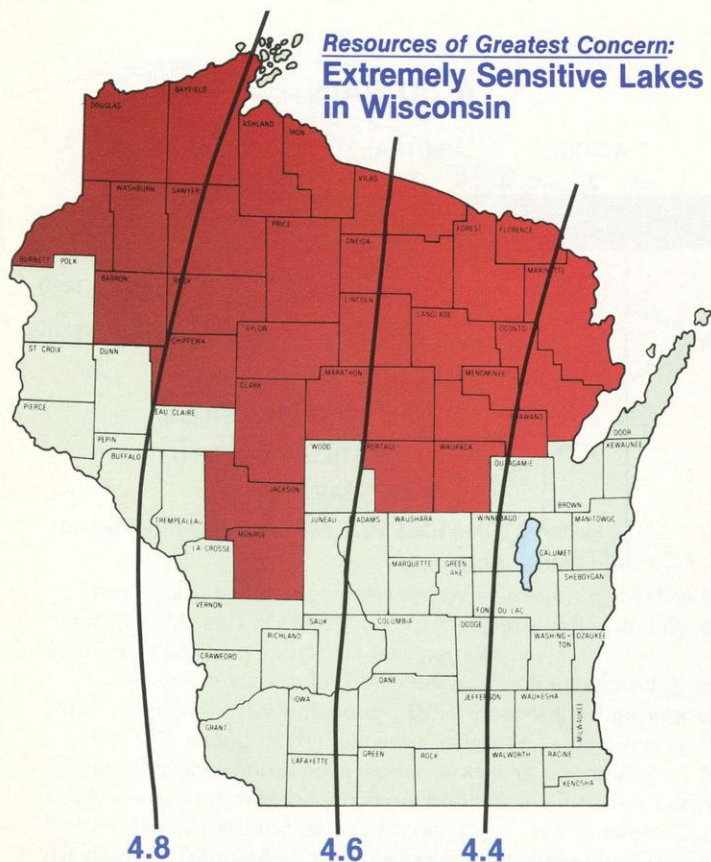
ACID RAIN



Wisconsin's Contribution to the Acidity of its Rainfall

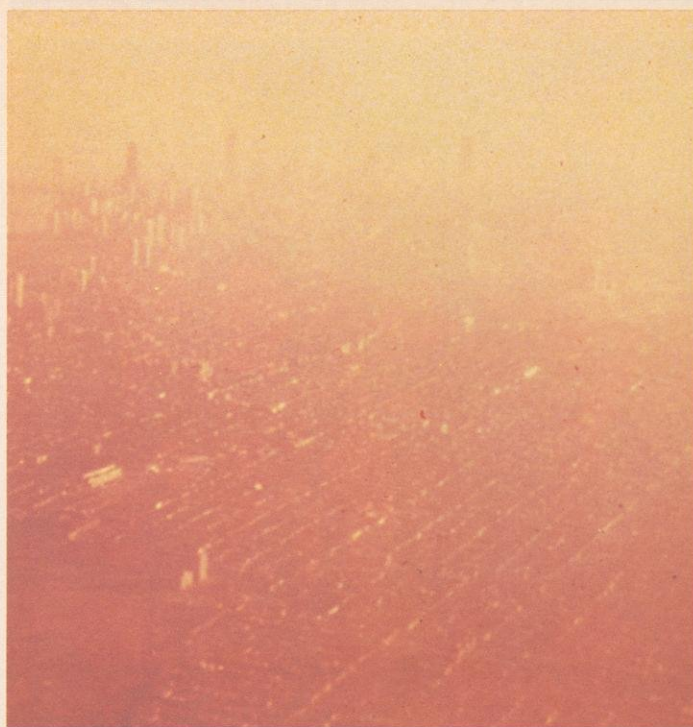
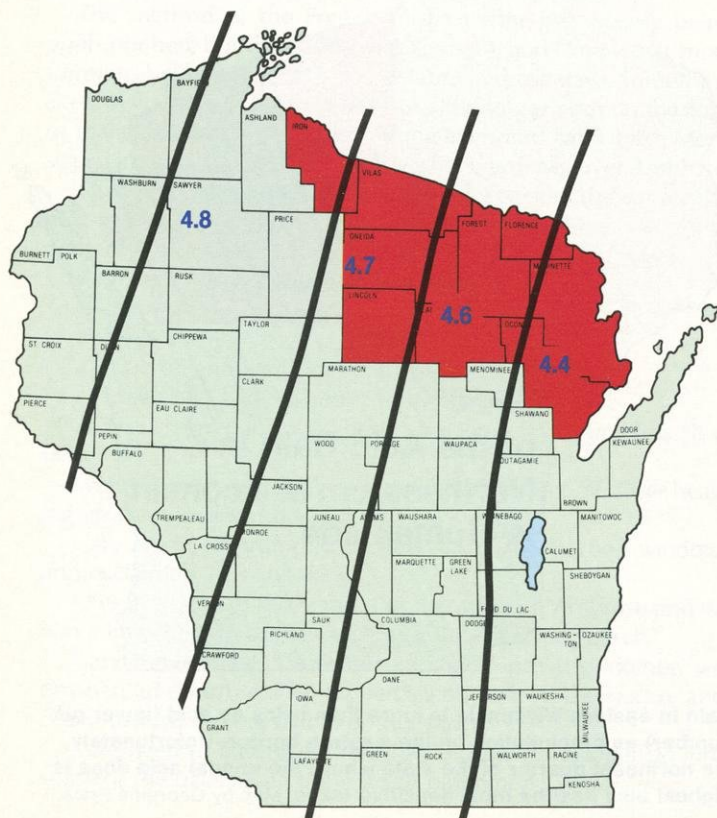


Rain in eastern Wisconsin is more than twice as acid (lower pH number) as precipitation on the western border. Unfortunately, the northeast quarter of the state where the annual acid dose is highest also has the most sensitive lakes. Map by Georgine Price



The pH of Wisconsin precipitation ranges from above 4.8 in the western part of the state to below 4.4 in eastern areas along Lake Michigan.

Location of Clearwater Acidic Lakes in Relation to Precipitation pH



Sulfate particles make up a significant portion of fine particulate air pollutants which play a role in decreasing visibility. DNR photo

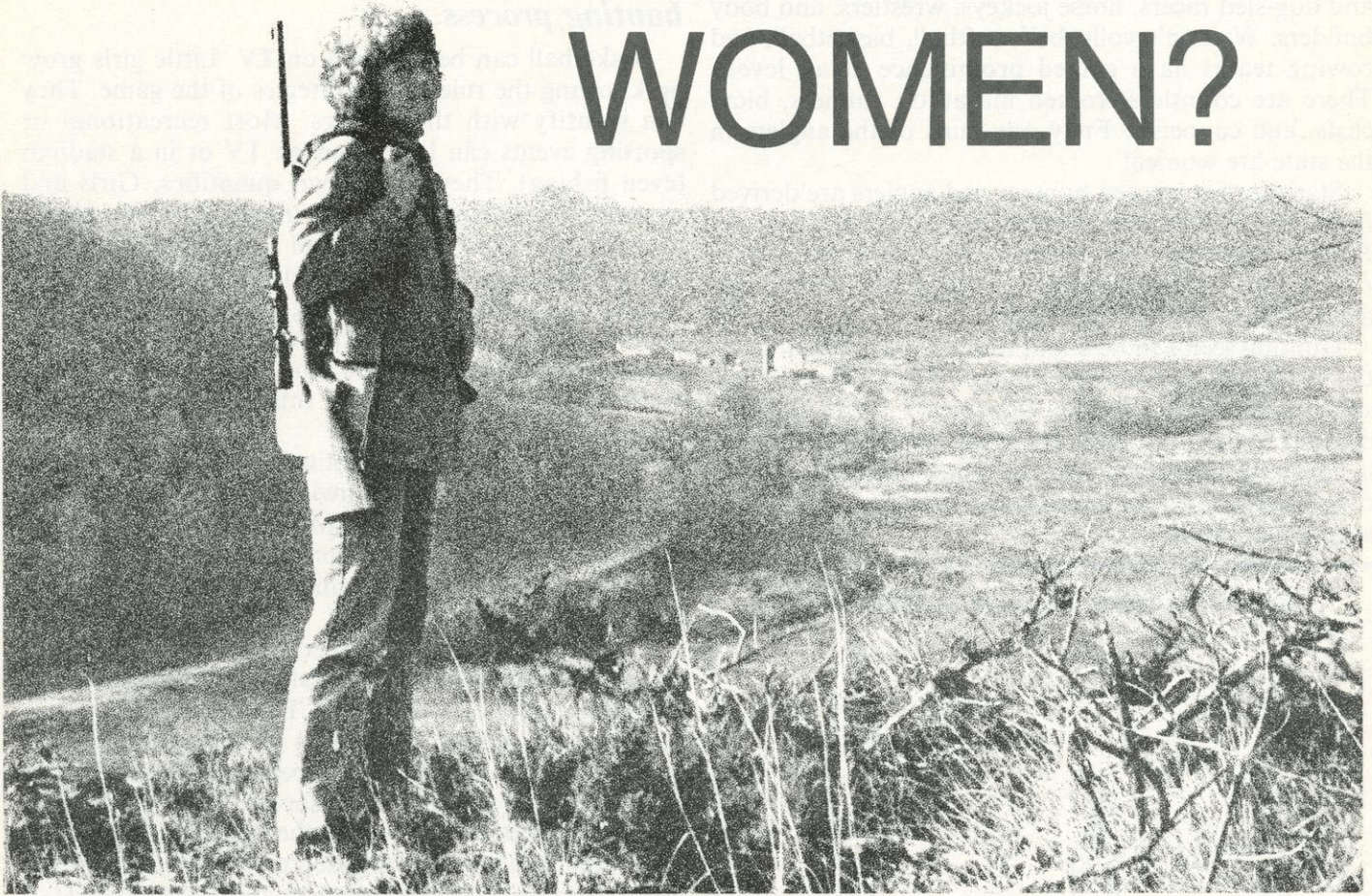
Health and Visibility

Human health and visibility can also be adversely impacted by fine sulfate and nitrate particles in the air. These sulfates and nitrates are minute particles that bypass the natural defense mechanisms in the nose or mouth, and penetrate deeply into the lungs, where they can damage sensitive tissues. These acid materials are a special problem for people with respiratory and other types of lung disease. Limited monitoring efforts have shown that sulfate particles make up a significant portion of the fine particulate air pollutants found in Wisconsin. Sampling occurred on 20 days, at sites in Milwaukee, Suring, Green Bay, Trout Lake and Superior. Sulfate particulates accounted for an average of 10% of the fine particulates (the range was 2.5% to 26.3%). Nitrate particulates were found to be less important, accounting for an average of less than 1% of the fine particulates.

Potential health problems appear to be more significant in urban areas such as Green Bay and Milwaukee, than at the more remote locations such as Trout Lake and Suring. On 10 of 20 days sampled in Milwaukee, the level of fine particulates was above the health standard currently in place in California (50 micrograms per cubic meter of air on a 24-hour basis). For the rural sites, only one day's sample was above the California standard. To illustrate the importance of the sulfate, the May 11 measurements in both Green Bay and Milwaukee show levels greater than 60 $\mu\text{g}/\text{m}^3$ — well above the California standards. Of the total fine particulates measured at each location, 25% were sulfate.

These fine sulfate particulates also play a role in decreasing visibility in Wisconsin. The levels of sulfate measured in Wisconsin are similar to levels which have been shown to significantly affect and restrict visibility in New England. It seems safe to assume that similar impacts on visibility can occur here in Wisconsin. Again, we need to do more work on this issue in Wisconsin.

WHERE ARE THE WOMEN?



The author on a fall hunt in the driftless area. Photo by Steve Rusch.

The new freedom seems to have hit everything but hunting. Women afield right alongside the men would benefit everybody. Here are the reasons.

Each year, half a million tan-clad figures ply the fields, fencerows, woodlands, forests and wetlands of Wisconsin in pursuit of upland game. But . . . are any of them women? A close inspection of these similarly clad figures reveals they are overwhelmingly male. Only 14,000 are women. Where are the other 1.8-million women of Wisconsin?

Each year, almost 90,000 camouflaged figures experience the magic of dawn on the marsh while anticipating the first duck flight of the morning. But women? Less than 5,000 of Wisconsin's waterfowl hunters are women.

And each November, two-thirds of a million blaze-orange hunters renew a communion with Mother Earth as old as humankind. Stalking the whitetail is, for many, an experience unsurpassed by any other in Wisconsin. But again . . . where are the women? Although

more women hunt deer than small game or waterfowl, less than 7% of Wisconsin deerhunters are female.

Perhaps these percentages are not remarkable in view of the traditional roles of male and female. At least, the learned scholars of anthropology have always portrayed the male as the hunter and the female as the berrygatherer. There must be some empirical evidence for this role distinction in prehistoric times (other than mere speculation based on biological differences in the sexes) since the hypothesis is widely accepted. Being the chief child-rearers and protectors in a hostile environment doubtlessly handicapped mothers when it came to chasing after big game.

Even so, the past is past and the present is here-and-now. Women's roles and women's perceptions of their roles are changing. The evolution in women's lifestyles from the Victorian Era to the present has been dramatic and swift in the context of geologic time.

Today, women enjoy most of the recreational pursuits and sports traditionally practiced by males. Women's athletics have gained nearly the status of men's. Names like Chris Evert Lloyd, Mary Decker and Beth Heiden are probably as familiar to Wisconsinites as Sidney Moncreif, Lynn Dickey, or Eric Heiden. Up

Doris A. Rusch, DNR Wildlife Specialist

to 50% of professional and amateur tennis players, golfers, and skiers are women. Women are sportscar and dog-sled racers, horse jockeys, wrestlers, and body builders. Women's volleyball, softball, basketball, and rowing teams have gained prominence at all levels. There are countless women marathon runners, bicyclists, and canoeists. Fully one-third of the anglers in the state are women!

Statistics for women hunters and anglers are derived from the US Fish and Wildlife Service's 1980 *Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Wisconsin)*. Total numbers of Wisconsin hunters are derived from actual license sales.

Hunting seems to be about the last recreational frontier to be fully explored by women. Why? Are there reasons other than the old "hunter vs berry picker" dogma? I think so. I think there are two main deterrents to the entry of women into the hunting sports: 1) Lack of information about hunting and 2) promotion of it as a male-only sport.

Lack of information: the hows, the ways, the satisfactions and rewards of the hunting process.

Basketball can be watched on TV. Little girls grow up knowing the rules and strategies of the game. They can identify with the players. Most recreational or sporting events can be viewed on TV or in a stadium (even fishing). They are known quantities. Girls and women have all kinds of opportunities to become familiar with what these events are all about. This is not the case with hunting. The skills involved in pursuing game, the unwritten rules of competing with nature, the satisfactions of the hunt are unknown quantities. They cannot be well portrayed on the tube and few attempts are made to do so. Hunting must be experienced personally.

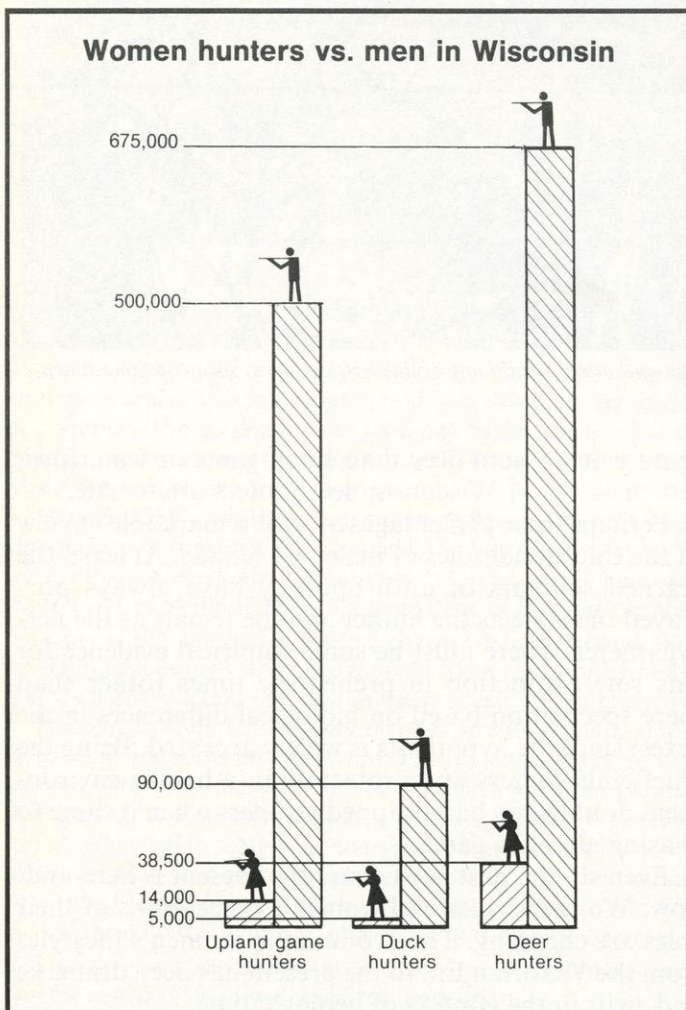
While a knowledge of hunting must come from personal experience, that knowledge can be enhanced greatly by the right mentor. Most males learn to hunt from their father or peers. Women need the same assistance to make their early hunting attempts a positive experience.

The right mentor is concerned about the apprentice's satisfaction with the hunt. First, the beginner should feel some degree of competence. The mentor ensures basic skills are learned and passes on arts and skills acquired from his or her own experience. Second, there should be some expectation of success. The mentor suggests strategies that increase the chances of success. Third, there should be some degree of comfort with the mentor recommending equipment and apparel suited to the particular hunting experience.

Most importantly, the mentor is responsible for teaching unwritten rules of sporting ethics, an appreciation for any species of game bagged and an awareness and sensitivity toward natural surroundings and all living things.

My big question to hunters is this: how many of you have played hunting mentor to a girl or woman? Have you provided your daughters with the same opportunities, the same level of familiarity with hunting as you have your sons? Have you shared the satisfactions, the enjoyment, the challenges and rewards of the hunt with your spouse? Does your wife have a true concept of what hunting is all about?

I think we hunters can do better. And it is to our advantage as well as that of women. Hunting is coming under more and more frequent attack from anti-hunting groups. Such groups claim "nonhunters" as their allies. But I think we can give "nonhunters" an alternative that supports us. Since almost half the able males in Wisconsin between the ages of 16 and 60 hunt, have hunted, or intend to hunt, women constitute the great majority of the "nonhunter" segment. They represent an opportunity for hunters to garner support for the tradition of hunting in Wisconsin and at the same time provide new recreational opportunities for women.





Men's outdoor garments seldom fit women. Just try slogging through a wetland in hipboots several sizes too large and coatsleeves two inches below your fingertips. Cartoon by Jeanne Gomoll

Some magazine ads and stories admit women to the fraternity.



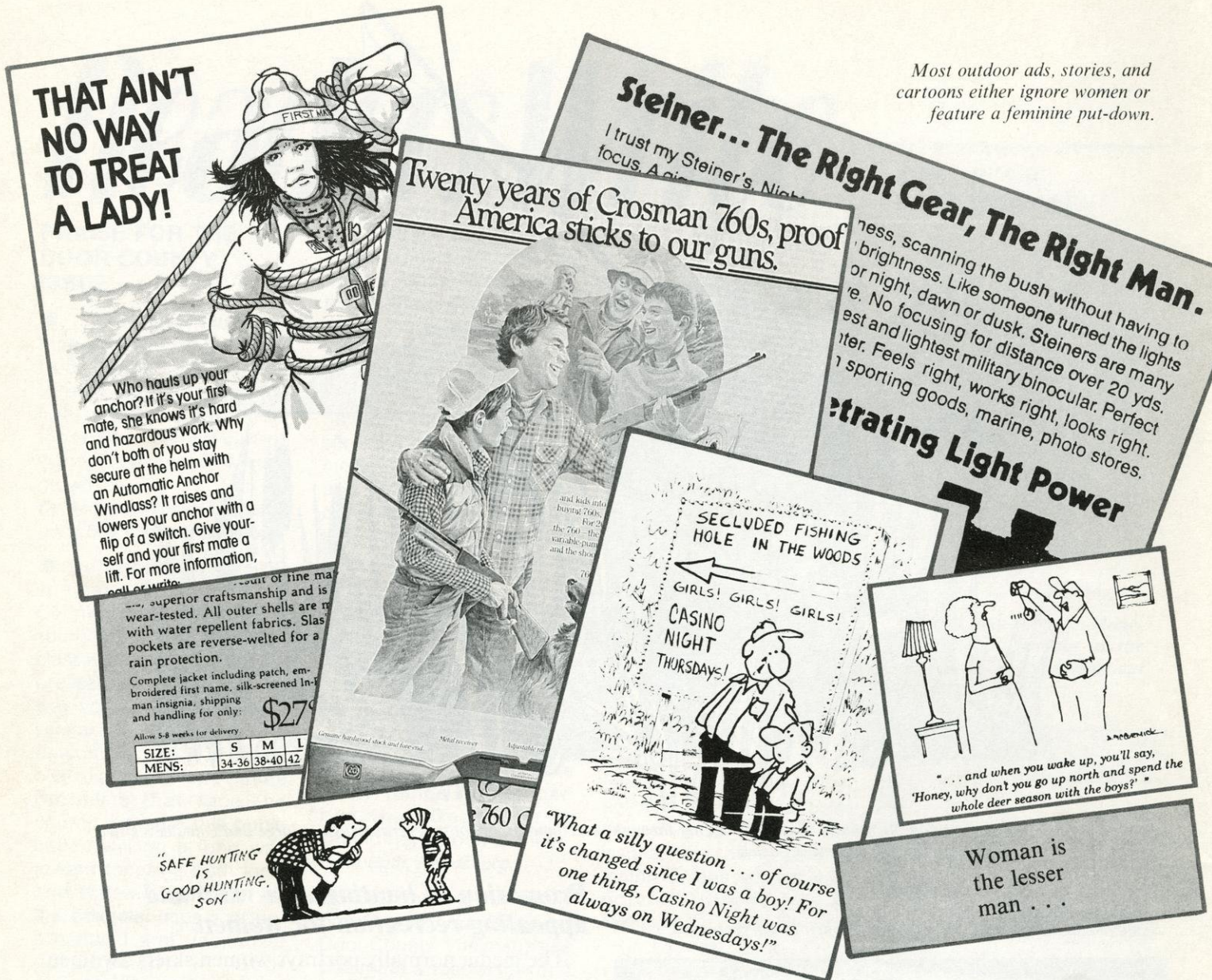
Promotion of hunting as a valid and appealing recreation for women.

The media normally portrays women skiers, women tennis-players, women runners and women athletes in general as adept, capable, and competent. The pages of teen's and women's magazines even glamorize many recreational pursuits. At the very least, sports and recreation are portrayed as healthful and stimulating for women, leading to body fitness and youthful appearance. But this image is not true for hunting. In fact, it's usually just the opposite—either negative images of the woman hunter or no images at all.

Our own best-loved hunting magazines are oftentimes offenders. A browse through two *Field & Stream* magazines, randomly selected from a stack confirmed the worst. There were a total of six images of women, five advertisements, and one a small cartoon. Three of the ads were for cigarettes and only portrayed the glamour of smoking. No women were shown in hunting situations or even using the hunting paraphernalia in what were obviously set-up photos. There were a number of pictures of youths, illustrating the virtues of sharing hunting experiences with youngsters. But the youths were all boys.

I thumbed the *Wisconsin Sportsman* and *The American Shotgunner*. Findings were the same. Where are the images promoting hunting for women?

Most outdoor ads, stories, and cartoons either ignore women or feature a feminine put-down.



The narrative content is no different. In Dan Sisson's feature, *Grandpa and the Kid*, the kid is a boy every single month. All the stories about "taking a kid hunting" use kids with boy's names and faces. Moms are usually depicted as squeamish and fastidious. They don't like slimy things or bugs or even a little healthy mud. In fact, moms often border on "anti." They are reluctantly tolerant of this hunting and fishing foolishness because, well . . . "boys must be boys."

Interestingly, the fishing content of some sports magazines does no better in portraying women, even though 33% of anglers are women. Of the plethora of photos and illustrations in the spring issues of *Field & Stream*, there was not one woman angler, even in advertisements.

Kudos for the *Great Lakes Fisherman*, though! Between November, 1985 and July, 1986, the *Great Lakes Fisherman* averaged five images of women anglers per issue. Although this compares with upwards of 50 images of male anglers per issue, the capabilities of women were well portrayed. And to the credit of the editors, a woman angler graces the cover of the July issue.

Publications issued by some public agencies can be guilty of biased content, even though these agencies espouse a policy of equal opportunity. University researchers examined promotional material produced by the National Recreation and Parks Association. The analysis revealed that 82% of the "key figures" in images were males. Of the 18% which showed females, an amazing 71% portrayed women as inept or otherwise handicapped in some way. The remainder were primarily in the category labelled "selling with sex".

In enlisting women into the hunting ranks, or even as supporters of hunting as a valid recreational pursuit, are hunters their own worst enemies? Perhaps there is deliberate attempt to keep hunting a male-only club. But, I doubt it. In some circles women are now being accepted into The Ruffed Grouse Society and Ducks Unlimited as welcome additions. Some youth organizations, such as Ducks Unlimited's Green Wings, are attempting to entice young girls as well as young boys into outdoor programs. Most of the male hunters I know would be tickled pink at their wife's, daughter's, mother's, or niece's first rabbit, squirrel, pheasant, grouse, or deer.



The right mentor is important to make sure a girl learns the basic skills and unwritten rules of hunting ethics. Photo courtesy National Shooting Sports Foundation

A third deterrent to women hunters is the difficulty of finding suitable outdoor clothing and equipment sized for comfortable fit. While this is not so significant as the first two factors for a woman's entry into hunting, it tends to act as a negative reinforcement. Finding women's sizes in hipboots, waders, pacs, quality field boots of all kinds, good brush pants, field coats, or coveralls is akin to locating the proverbial left-handed monkey wrench. Men's outdoor garments seldom fit women to allow maximum ease and comfort. Just try slogging through a wetland for several hours in hipboots several sizes too large, and coatsleeves two inches below your fingertips! While it heightens the challenge, it decreases alertness to the hunt because attention must continually be diverted to pulling a boot out of the muck or pushing up sleeves.

Most hunters pay careful attention to selecting suitable, rugged, and comfortable outdoor attire. Women might also be expected to be somewhat particular about their garb. Even on the back forty, proper attire may enhance a feeling of wellbeing and confidence.

Manufacturers seem slow to realize the potential market for women's hunting apparel. It is, of course, a

case of "which comes first, the chicken or the egg?" Are sporting goods manufacturers waiting for a very large market before responding to it? Perhaps they should help develop the market by promoting hunting by women (and women's hunting apparel). Many businesses are quick to see a potential market and seize the opportunity to promote and exploit it. Sporting goods companies have either failed to recognize a potential market, or have recognized, but disregarded it.

The current state of affairs in the arms and ammo business should incite action to look for new markets. These businesses shouldn't lay down their arms and die. They should pick up their arms and begin to promote hunting for that great untapped segment of the population . . . women.

We all have a challenge . . . hunters, the media, the market . . . to bring the pleasures, joys, and rewards of the hunting experience to the "other half." If we can open the door, many women will pass through. Many other women will recognize and support the open door and the value of hunting as a legitimate recreation for both sons and daughters. It's up to us. Are we up to the challenge?



Doris Rusch flies a juvenile redbill hawk.
See *Where are the Women?*, page 35.

