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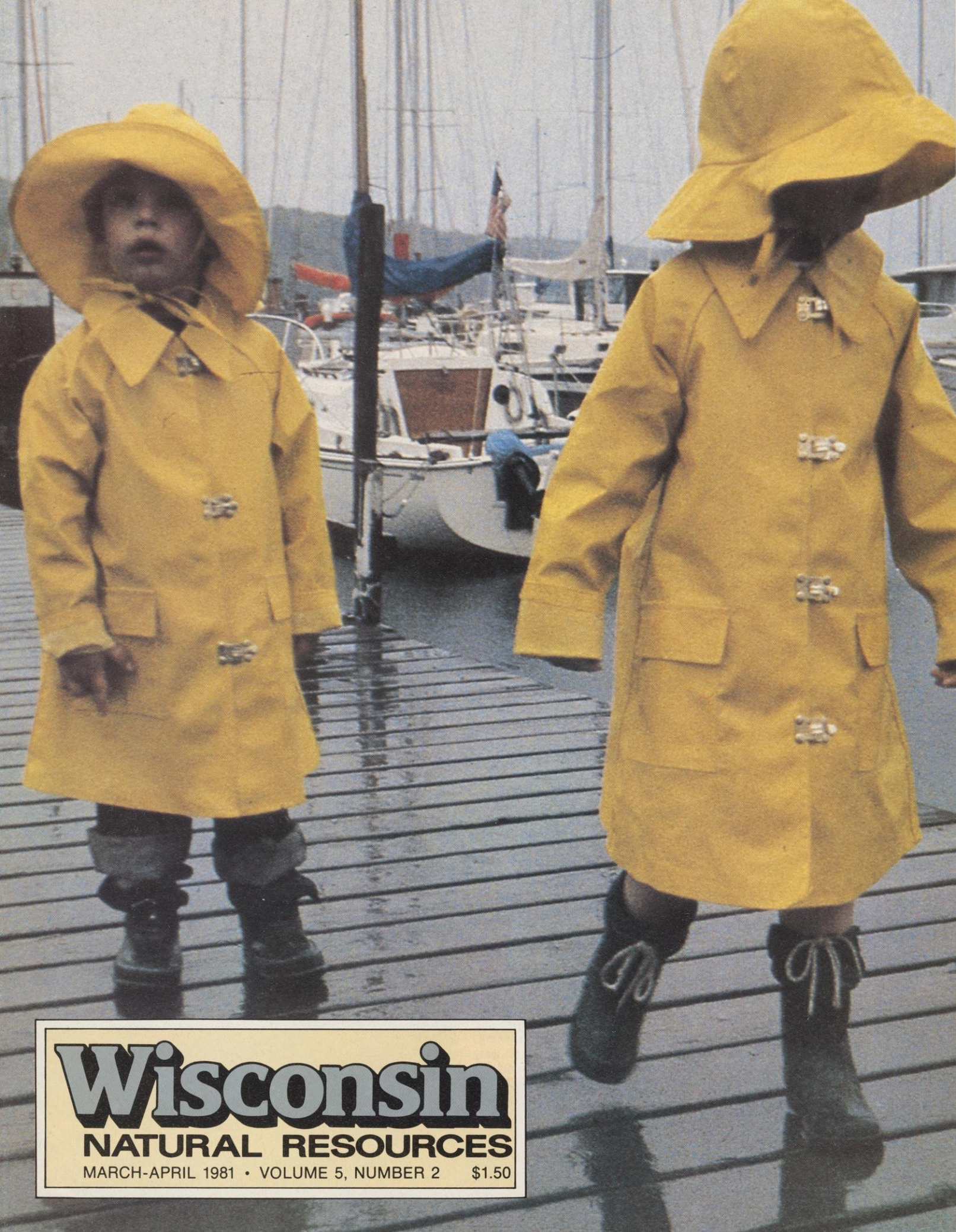

Wisconsin NATURAL RESOURCES

MARCH-APRIL 1981 • VOLUME 5, NUMBER 2 $1.50

The impatient skunk cabbage

GEORGE J. KNUDSON, Chief Naturalist, DNR

Soaking wet swamps and soggy, spring-fed seepages on wooded creek and river floodplains are where you will find Wisconsin's earliest blooming wildflower, the unique skunk cabbage. Here, sometimes as early as mid-February, you may see the purplish-mottled, sharp-pointed hoods (called spathes) of skunk cabbages actually penetrating the still frozen soil. They do this by rapid oxidation of starches stored in their thick underground stems. The fast-growing hoods release enough heat over a period of a few weeks for them to melt their way into spring.

In March, a single, rounded, many-flowered spadix will be seen resting cozily inside each partially-opened, protective hood. (See inset drawing) Here, honeybees get their first pollen! At this time, green, tightly-rolled, pointed leaves, that at first look like green cigars, begin to unfurl; they will be dinner plate size by June. These succulent leaves, when crushed smell like the "perfume" of a skunk. Proof? Pinch off a piece of leaf and smell it!

After the giant leaves die in fall you can spot the plant's leathery-skinned, tennis ball-sized fruits, closely pressed to the ground. Mice chew into the fruits and eat the spongy tissues inside. This exposes the hard, bean-size, mottled seeds that may then be eaten by ruffed grouse.

Common, but only locally abundant in the southern half of Wisconsin, they are rare farther north. A botanist, Marion Shull, called the skunk cabbage "a Methuselah of the plant world"! Reason? The individual skunk cabbage plants we see today may be older than our oldest oaks, perhaps some even pre-dating Columbus' arrival! Filling and draining of wetlands has snuffed out the lives of large numbers of these centennarians.

Photo by Ruth L. Hine ▶

Illustrations by George Knudson

Contents

Wisconsin Natural Resources
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Front cover:
Old Salts at Bayfield. Recreational sailing for all ages is big business in the Apostle Islands waters of Lake Superior. Managers worry that it's too popular. For more see the special supplement, *A Plug for the Great Lakes Basin Commission* at page 16. National Park Service Photo

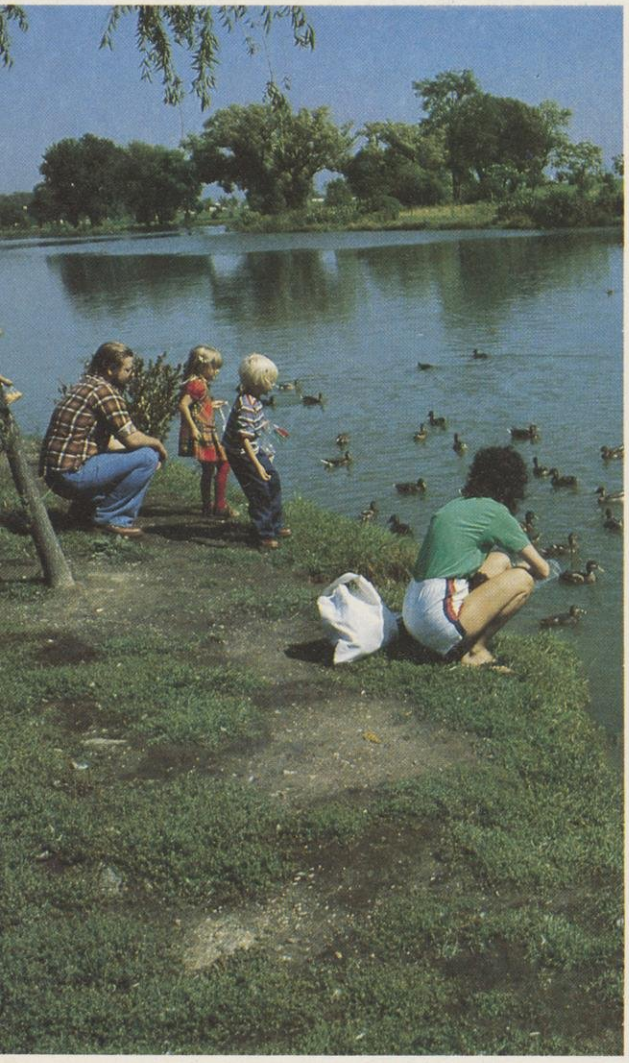
Back cover:
Ready for work at Superior harbor. Many tugboats are named after states. For more on Great Lakes ports see the supplement at page 16.
Painting by Artist Art Bloomquist, Route 2, Washburn, WI 54891

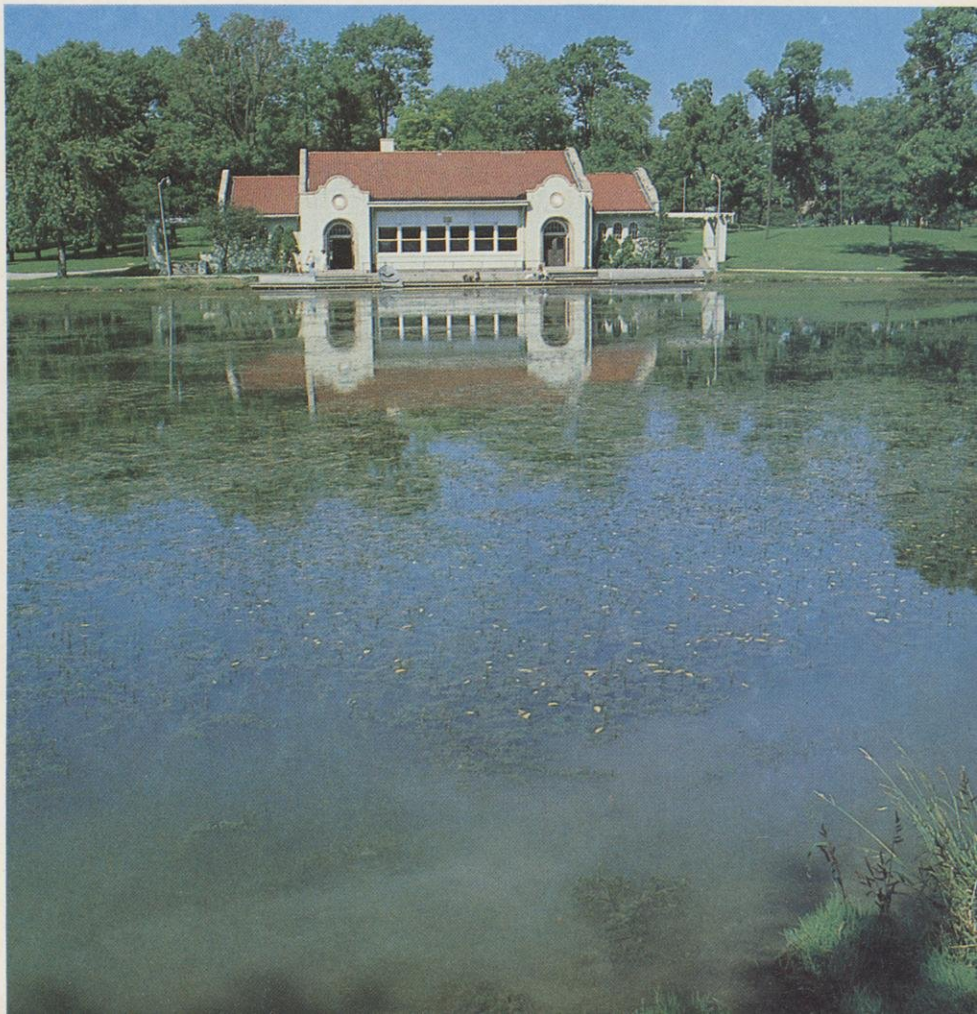
A small dam across one of the tributaries to Scout Lake retards the stream long enough to measure its flow. Made from two bags of concrete, the dam will be removed after testing is completed.

"Looking at Milwaukee's park lagoons, I remember 20 years ago they were bad, like cesspools. It's been frustrating not being able to do anything about it. We've tried the (clean-up) methods that we know of, but we lack the expertise. The lagoons need an in-depth evaluation. I would hope that successful management techniques will result from a study of them."

Irving F. Heipel,
Landscape Architect,
Milwaukee County Park Comm.

Milwaukee lagoons make waves





Bottom left: People feed ducks . . . Ducks encourage algae growth . . . Algae clouds the lagoon—but also inhibits weeds.

Bottom right: Like most urban lagoons, Kosciuszko Park's rapidly turns green and weedy in early summer unless treated with chemical herbicides.

Photos by Neal O'Reilly

ROBERT J. EINWECK, Milwaukee, Inland Lake Renewal Studies

Around the turn of the century, local governments and private philanthropists established city parks to provide islands of calm and beauty as a refuge from urban clamor. But years of neglect and abuse have transformed the lagoons in most city parks from placid, productive, self-sustaining environments into an ailing if not endangered, species. Most city ponds have become soiled, weedy and sometimes not very pleasant to look at or smell.

Milwaukee has 36 of these aquatic remnants surrounded by sprawling city. Intended to provide relief from urban stress, they themselves have in turn become heavily stressed. Inner city residents who seek escape from crowded sidewalks, exhaust fumes, and closed-in space flock to these quiet waters to toss breadcrusts to half-tame mallards, to watch hopeful children fishing, or to rent a rowboat and set a course for that remote island in the center of the pond. To urbanites, these ponds are substitute north-country lakes—a place to find momentary self-renewal.

Surrounded by a world of asphalt, cement and cream city brick, the Milwaukee park lagoons have absorbed the runoff of their urban environment. Streets in nearby neighborhoods are often clogged with traffic and sometimes littered. There are many unseen toxic substances—like lead from car exhaust. When it rains, these wastes are indiscriminately carried down storm sewers and end up in the lagoons.

Other less toxic but equally serious substances wind up there too. City dwellers hunger for tall trees and lush green grass. To get them, pounds of fertilizer are spread on private lawns and lawns in parks too. The nutrients grow healthy lawns. But they wash into the ponds and have the opposite effect there.

Many of the ponds are shallow and light reaches all the way to the bottom. Many are stagnant. Excess nutrients can't flush through. The result: rampant plant and algae growth that make the ponds nearly as green as the lawns around them.

Compounding the problem, carp often dominate the fish population. Carp are bottom feeders and constantly stir up sediments. They muddy the lagoon and make survival difficult for panfish like bluegills that require cleaner water. Sometimes a child will catch the goldfish a neighborhood kid dropped in the year before, its size now increased fivefold.

In one lagoon, the park's swimming pool discharges heavily chlorinated water directly into the pond, virtually sterilizing it. There, plants and algae are no problem, but the lack of them is. Chlorine short-circuits the food chain and leaves the pond amazingly clear, clean . . . . and lifeless.

Large bodies of water are usually capable of cleaning themselves if the pollutant burden is not too great. In metropolitan areas, though, open land has given way to buildings and pavement. Development has reduced the natural landscape to a few small remnants. Thus, city lakes are left with almost no natural filter systems, and nowhere is this more true than in Milwaukee County, where 20% of the state's population lives and works.

In an effort to save energy and offer more recreation opportunities close to home, the federal government would like to revitalize urban lakes throughout the country. Recently, the US Environmental Protection Agency (EPA) offered a grant of up to $100,000 for one pilot lake cleanup study in each of ten regions throughout the country. Wisconsin proposed three candidates for the program—Lake Nagawicka in Waukesha County, the Yahara River chain of lakes in Madison, and a collection of seven urban lakes in the Milwaukee County Parks System. In each case, the state feels there can be dramatic improvements in water quality.

The EPA went through an elimination process that included Wisconsin's proposals and others submitted by several surrounding states, and chose Milwaukee's lagoons as the Midwest's pilot project. The Milwaukee County Park Commission and DNR will provide about $20,000 each in cash and

The small lily pond at Humboldt park is still fed by drainage from the lagoon.

Photos courtesy of the Milwaukee County Historical Society

services in addition to the EPA grant.

Basically, the one-year study, to continue through October 1981, will produce a detailed picture of the lagoons and the urban watersheds that surround them. DNR water quality specialists will monitor the ponds frequently, analyzing them for dissolved nutrients, suspended particles like silt, and amounts of life-sustaining dissolved oxygen. They'll check the bottom sediments for deposited nutrients, heavy metals, and toxics like arsenic. They'll keep an eye on plants, algae and plankton (microscopic plants and animals). They'll measure and record both surface runoff and water entering the lagoons from storm sewers, and identify the substances being washed in. The program aims to investigate every single aspect which may affect the water quality in the ponds. Eventually, the intensive survey will pinpoint any and all sources of pollution.

When all information is in, the arduous task of evaluating each site will begin. Program coordinators Jeff Bode and Neal O'Reilly will ponder the data on each lagoon and try to determine a plan of action.

And all that is only the bare beginnings. Bode and O'Reilly's plans will still need additional funding to carry them out. As a pilot project, Milwaukee's lagoons stand a good chance of being first in line for federal cost-sharing funds because improvements there will benefit so many inner-city people. One potential grant from the EPA would split the cost of the renewal project with the Milwaukee County Park Commission and others. The actual restoration will require a lot of hard work and cooperative effort by federal, state and local governments, regional planning agencies, and Milwaukee area communities.

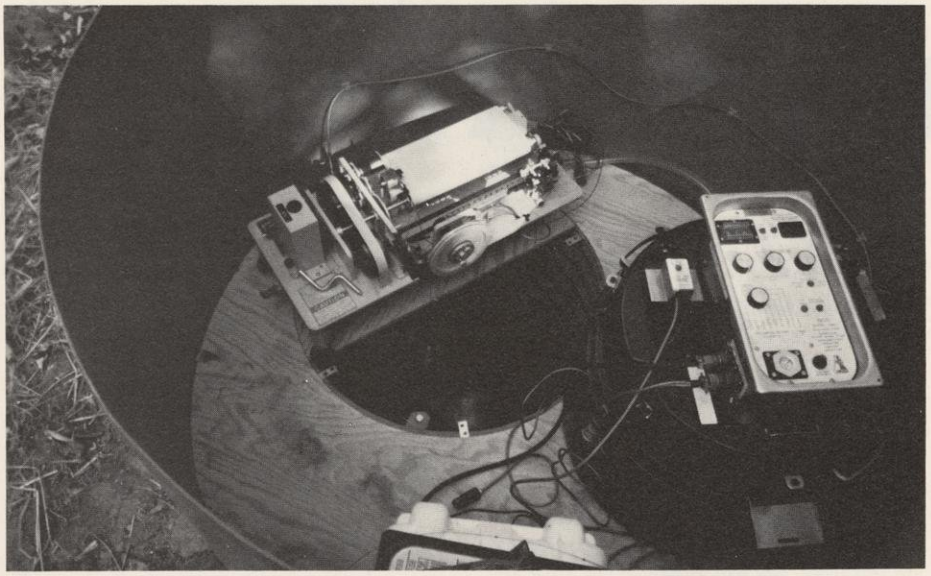
The ponds are able to provide that inexplicable state of being that people need once in awhile: the opportunity to lie back and do nothing except think calm thoughts. Inner city residents who need a peaceful green transfusion often can't afford to travel a couple hundred miles to get it. So they make do—hop a city bus, head for the nearest park, and rent a paddleboat for the afternoon.

Ultimately, the Milwaukee lagoons project may show that urban lakes have the potential to fulfill many more recreational and aesthetic needs of city dwellers than they now do. The restoration techniques developed in Wisconsin can be applied around the country on other urban lakes, but coming up with those techniques will take time. Many urban residents and community leaders don't want to wait. They want something done immediately to eliminate problems that have been years in the making. They feel intensive study is unnecessary.

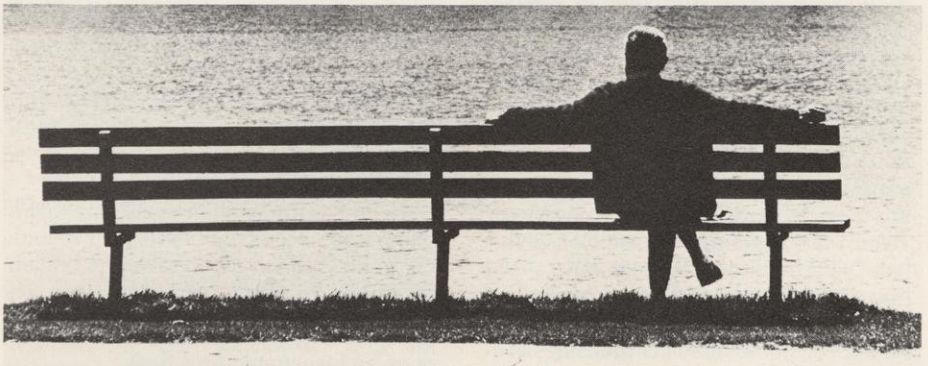
Humboldt park was created in 1889 and Milwaukeans have been using its five acre man-made lagoon ever since.

When Mitchell park opened in 1890 its 3½ acre pond featured an island which has since been removed.

But nothing happens overnight. The goal for Milwaukee's lagoons is to eliminate noxious weeds and algae, and reestablish a healthy environment for fish. That goal is optimistic but, with time and study, it's also realistic. The city's urban ponds are a valuable asset to the parks and the neighborhoods that surround them; diagnosing their ills is the first step. Next comes the medicine and it will probably be costly.



Monitoring equipment helps diagnose the ailing lagoons' ills. One machine measures water height and velocity, the other automatically takes water samples.



People have been relaxing near Jackson Park's five acre lagoon ever since 1900.

The Milwaukee lagoon study

BROWN DEER PARK: Lagoon receives drainage from six storm sewers and a golf course. It supports a large duck population and is generally very turbid. Aquatic weeds and algae are a nuisance.

HUMBOLDT PARK: Severe shoreline erosion in the lagoon. Its fish typically suffer winterkill under the ice. Water is usually turbid, and heavy plant growth must be chemically controlled.

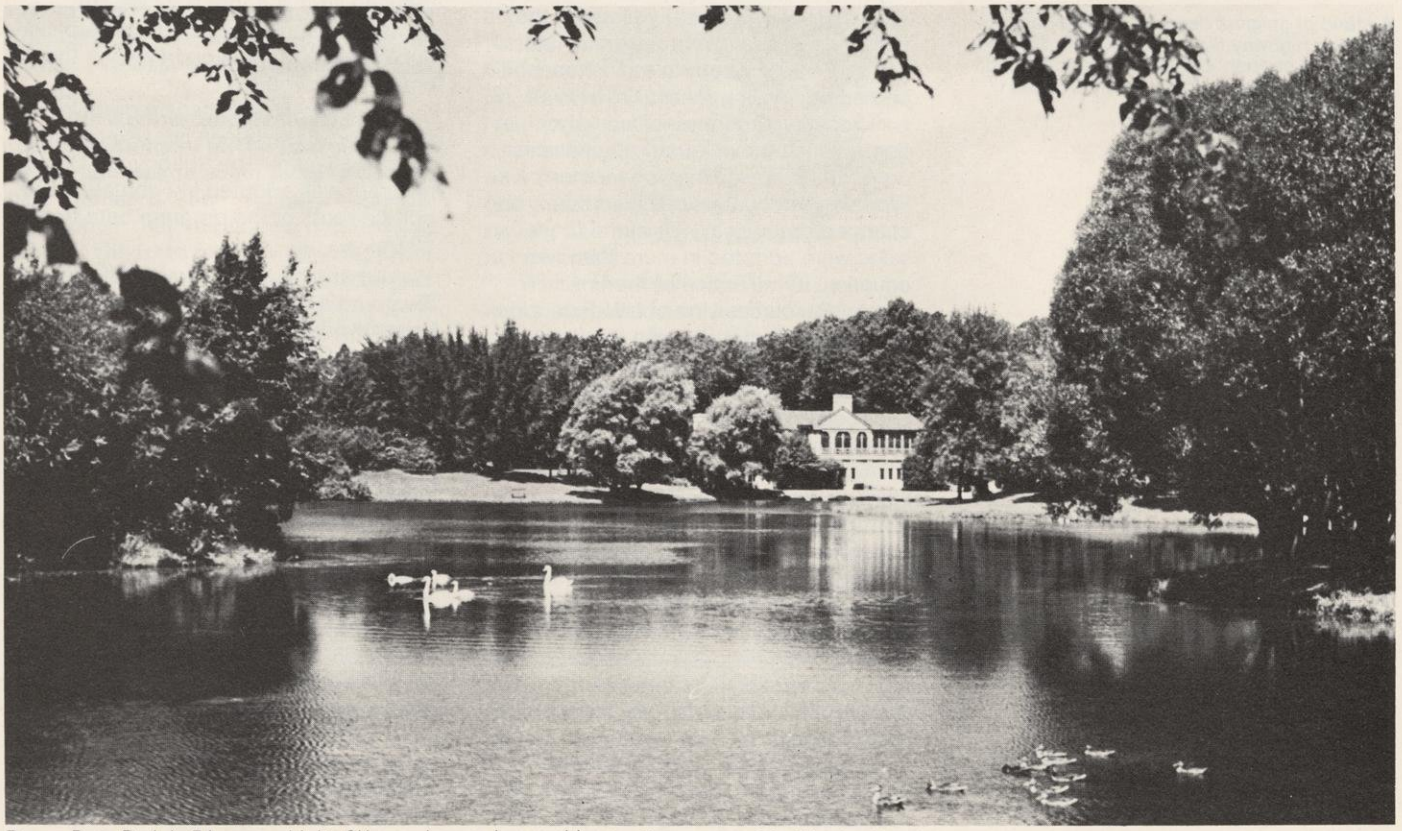
JACKSON PARK: The most recently constructed lagoon in the study (1939), has extremely clear water and no aquatic plants. The suspected cause is discharge from the park's swimming pool. Winterkill is a problem, too.

JUNEAU PARK: The lagoon's extensive western shoreline is poorly protected from erosion. Usually very turbid, it receives drainage from storm sewers and has a huge duck population.

MITCHELL PARK: Turbid and has serious shoreline erosion. Winterkill of fish is a major problem.

SCOUT LAKE PARK: The only naturally occurring lake in the study and subject to the effects of recent, intense development. It receives storm sewer discharge from nearby subdivisions and has an algae and aquatic weed problem.

WASHINGTON PARK: Winterkill and turbidity problems. Requires chemical control for aquatic plants.



Brown Deer Park is 54 years old. Its 3½ acre lagoon has problems. Photo courtesy of the Milwaukee Journal

Stop the brush-off

Natural roadsides save energy and add beauty to any drive through the Wisconsin countryside, but so far only two counties have seen the light.

before:

after:

A stand of junipers decorate a once barren curve on highway 60. It took 19 years for the change to happen. Control was practiced to maintain visibility and the nearby wooded area furnished wildlife lanes.

DIANNE MOLVIG, Environmental Resources Unit, UW-Extension

Yellow coneflower, Indian grass, elderberry, prairie smoke, sumac, brown-eyed susan. Visions come to mind of rich colors, textures, shapes, and forms. Scenes from a time long past? Or found today only in a few out-of-the way niches? Not necessarily. There are people in Wisconsin who are working to bring native plants back to places that many of us overlook and pass by much of the time: our roadsides.

There are nearly a half-million acres of roadside land in Wisconsin. Roadsides where native plants have been preserved or restored are thriving and beautiful in spring, summer and fall. They can turn a routine driving experience into a nature experience.

The idea of restoring or maintaining native shrubs and vegetation along Wisconsin's roadsides is not a new one. Twenty-five years ago the old Conservation Department and the Natural Resources Council of State Agencies developed a program with this in mind. As a result some beautiful roadsides in Columbia County were preserved. DNR has continued to keep track of those study sites. In a report just issued, the whole idea of keeping roadsides natural is again extolled both for environmental and energy-saving reasons.

Today two counties—Dane and Sheboygan—have a natural roadsides program. Certainly the appearance of Wisconsin's countryside could be changed dramatically if natural roadsides were adopted in more than two counties. Lynn Entine of the Environmental Resources Unit of UW-Extension emphasizes that if the idea is to spread it will take lots of citizen energy. "These programs can only be successful if they are spearheaded by citizens living in the area."

According to Entine, one reason the idea probably isn't catching on faster is that the energy of environmentally concerned citizens often goes elsewhere, to issues that seem more crucial. "But," Entine says, "it's too bad natural roadsides don't get more attention from these groups. Natural roadsides can be a winnable battle and a means of building the environmentally aware constituency."

In a time of worsening fossil fuel shortages and rising costs, the natural roadsides idea is getting more attention. Local governments are realizing that money can be saved if less mowing and spraying is done.

But savings in energy and maintenance costs are only two of the several advantages cited by natural roadsides enthusiasts. They also point out that natural roadsides are more visually interesting. Roadsides managed in the old way, they say, are monotonous, lacking in color and diversity of plant life, and conducive to highway hypnosis.

Tall, dense vegetation along roadsides acts as a noise buffer, filters out air pollutants, and helps control soil erosion. There may be wild food sources for people to enjoy. Wildlife and insect habitat is also increased. One group very concerned about the habitat issue is the Wisconsin Honey Producers Association. When asked about the natural roadsides program, Paula Jorgenson of Medina responds that members of her group are "all for it!" She says that the roadside habitat for bees is especially important today because other habitat is being eliminated. For instance, many farmers are eliminating fence rows in their fields, once an ideal habitat for bees. Jorgenson says, "We also support reduced spraying, because we are concerned about the effects of herbicide and pesticide sprays on bees and the honey they produce."

The natural roadsides program in Dane County has been in existence for about five years. The Sheboygan County program was adopted in February 1980; but the roots of the program date from 1975.

At that time Janet Graf of Black River and a number of other area people began working for a natural roadsides program. Graf explains, "We felt it was important to make people in our county more aware of our roadsides and more involved in preserving the natural beauty that is there." One step taken to heighten people's awareness was to bring in a slide show on natural roadsides to show to church groups and various other community organizations.

One of their first activities was the restoration of Dooly Road, a township road near Lyndon. This was a pilot project to demonstrate to people the possibilities for natural roadsides. The local 4-H club was recruited for assistance. "We had people from 8 to 80 helping out with the planting," Graf remembers.

"After Dooly Road we asked the county board to designate part of County Trunk S for preservation. But we realized that a countywide program was needed. Otherwise natural roadsides would be just a spotty thing. We began to concentrate our efforts on the county board." For some time their proposal was bounced around from one county board committee to another, but Graf and friends persisted. "The county board finally realized that we meant business."

Graf says that working on a natural roadsides program in Sheboygan County was a community effort. The core support group of about 15 individuals represented a cross-section of local people. Over a five-year period they attended countless county board and committee meetings. Four-H youth helped out by canvassing with petitions. A local artist designed a logo. People made signs, using this logo, indicating to highway crews not to mow. Homeowners posted these signs along their property. A letter-writing campaign was organized for citizens to contact county board members. Local newspapers provided coverage of the issue.

Today the program is official. Time will tell how successful it will be. To help get the roadside effort rolling, Mark Randall of the Department of Natural Resources office in Plymouth is serving as advisor to the county highway department. He and Gene Hoye, county extension agent, are working together to train the highway crew.

The Dane County natural roadsides program has been around long enough to gauge its successes and shortcomings. There are beautiful stretches of roadside in the county that are standing proof of at least some success for the program. One of the shortcomings seen by Wayne Pauly, naturalist for the Dane County Highway Department, is that only 500 of the 3,000 miles of roadside in Dane County are along county roads. About 2,000 miles lie along township roads, and how they are managed is entirely a township decision. According to Pauly, "County and state roads are often not ideal candidates for natural roadsides, as they have been regraded and significantly changed so that little of the native vegetation remains. Township roads offer better possibilities for preserving or restoring native plants. The townships need the stimulation or a pat on the back to encourage natural roadside development." Pauly mentions that some townships, such as Dunn and Verona, have been doing a good job along this line.

Although natural roadsides have drawn support from many people, others have objections. Some people equate natural roadsides with unmanaged, rampant weeds that spread into crop fields. Natural roadside supporters explain that this is a misunderstanding about native plants and how they grow. Darrel Morrison, native plant specialist at UW-Madison, says, "Native plants are not opportunist plants, like noxious weeds. Native plants would have a difficult time competing and surviving in crop fields. Also, noxious weeds, unlike native plants, are actually encouraged to grow by practices such as mowing. In fact they need this kind of disruption to survive."

Another doubt that sometimes is expressed is that natural roadsides may cause snow to accumulate on roads, creating a safety hazard.

In response to this, Graf says, "Natural roadsides are not an all-or-nothing radical program. In problem areas where cutting is needed, it can be done. The key is to cut selectively, rather than the extreme of cutting everything."

Another question raised is whether more animals will be killed on roads due to the increased animal habitat in roadsides. Graf claims, "There have been studies that show that animals go on the road to search for food. If food sources and travel corridors are provided in roadsides, animals will have less reason to go on the road."

Others are concerned about natural roadsides costs. The cost of these programs depends on the type of management practice used. If management includes reducing mowing and

Natural roadside beauty enhances outdoor recreation experiences.

Top: Mowing and spraying make barren roadsides ... But we can manage them to look like this.
Photos by Kim Nuzzo

spraying and selective brushing, there are few costs. If labor-intensive practices are used—such as planting native grass or flower seeds—the costs are higher. Natural roadsides advocates admit that costs are more in the first few years. But once the native plant community is thriving, little maintenance is needed. Thus, in the long term, money will be saved.

Perhaps the major objection regarding natural roadsides is that of appearance. People have become accustomed over the years to the clipped, manicured, straight and even look of the mowed roadside. Many people are reluctant to see this changed. This concern cannot be answered simply, as individual differences in taste and values are involved.

Steve Hemshrot, University Extension Resource Agent for Waupaca County, feels that changing attitudes about natural roadsides is an educational process. Hemshrot has been setting the groundwork for a natural roadsides program in his county during the last three years. He talks to community groups and generally tries to get out the word that natural roadsides are a desirable alternative. He says, "It's important to get public consensus behind the idea of preserving natural beauty in roadside areas, so that people will say to those managing their roadsides, 'Hey, we want that left the way it is.'"

Wayne Pauly also feels that people's interest in native plants can be awakened—or reawakened. He has familiarized himself with folklore about native plants. Sharing stories, he feels, is an effective way to stimulate people to think about native plants differently than they did before. For instance, he shows people the "magic" of dogwood leaves. He gently pulls a leaf apart at the veins and amazes people by holding up the separated leaf and showing how the two sections hang together. Actually they are strung together by fine, silky threads of resin that the leaf has in its veins. But from a distance the spectator can't see these threads, and the separated leaf sections seem to hang together by magic. He also relates the story about the viburnum berry and cedar waxwings. In the winter the birds won't eat these berries. But in the spring when the berries ferment, the cedar waxwings love them. The birds get downright tipsy by indulging themselves.

If you would like to do something to help spread the natural roadside word in Wisconsin, contact the Environmental Resources Unit for assistance:

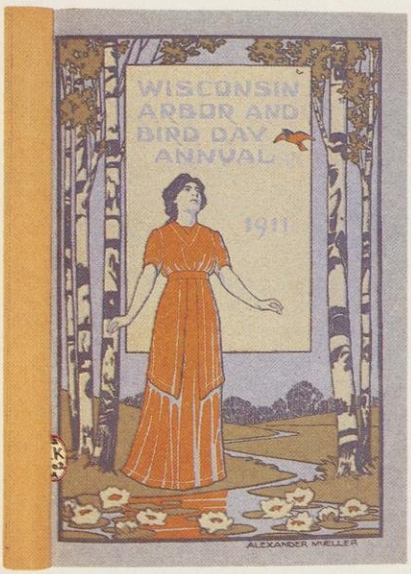
Environmental Resources Unit
UW-Extension
1815 University Avenue
Madison, WI 53706
(608) 262-6310

SHEBOYGAN COUNTY NATURAL ROADSIDES

Arbor and bird day

"Other holidays repose upon the past . . . Arbor Day proposes for the future."

— J. Sterling Morton



ANN NELSON, UW-Extension Editor

Friday, April 24, 1981 is Arbor and Bird Day in Wisconsin.

Communities and schools throughout the state will celebrate this century-old rite of spring by planting trees and commemorating the return of birds.

The first Arbor Day was observed in Nebraska in 1872. Legend has it that J. Sterling Morton, a young Nebraska pioneer, was troubled by the amount of topsoil that blew away as he plowed his fields. Years later, when Morton was Secretary of the Nebraska Territory, he proposed an annual tree planting day as a way to shelter homes and fields from the intense sun and strong winds of the Great Plains.

Nebraskans planted over one million trees on that April day in 1872. Morton's idea soon caught on throughout the United States. Twenty-four states, including Wisconsin, now observe Arbor Day on the last Friday in April. Other states celebrate Arbor Day in almost any month of the dormant season (September through May), when planting is recommended.

Wisconsin observed the first Arbor and Bird Day in 1889. Logging flourished in northern Wisconsin at that time, but the logging boom was short-lived and left thousands of barren acres.

Arbor Day tree plantings by school children of the early 1900s played an important role in the reforestation of Wisconsin's valuable timber land.

Wisconsin natives who were school children before the Great Depression will recall the "Arbor and Bird Day" annuals published by the State Department of Public Instruction from the early 1900s until financial hard times of the 1930s ended their production. The annuals contained tips for planting trees and shrubs, poetry, songs, stories on trees and birds and games to celebrate the day. The Wisconsin Historical Society has a collection of the annuals.

To help stimulate young people's interest in Arbor Days of the 1980s, DNR has asked for a new law. If passed, the department would give each Wisconsin 4th grader a free tree every year. It could be planted wherever the youngster wanted to put it. Wisconsin has about 68,000 4th graders. The proposal will be up for consideration in the current session of the Legislature.

A major objective of communities this Arbor and Bird Day will be to replace their lost elm trees. People who first planted the graceful American elm did not realize that a single species could fall prey to a single disease and be wiped out. Dutch elm disease has taught a lesson and henceforth a large variety of tree species will be planted to lessen the chance of such attacks. Many communities, with the help of city foresters, arborists, landscape architects or other professionals, have developed master tree plans to ensure diversity.

In addition, a cooperative DNR-US Forest Service demonstration program on how to save remaining elms is underway in 19 Wisconsin communities. Federal funding this year is in jeopardy, but to date, systemic treatment and removal of infected trees appears to have slowed losses.

Trees for Arbor and Bird Day should be selected for their ability to resist disease, insects and the stresses of the urban environment, such as road salt and disturbed soil sites. Also important are the eventual size of the tree in relation to the available space, suitability of the soil and environment to needs of the tree species, compliance with local ordinances or street tree plans and care after planting that includes regular watering, fertilizing and pruning.

For more information, contact your county Extension office and ask for publication A2865, "A Guide to Selecting Landscape Plants for Wisconsin."

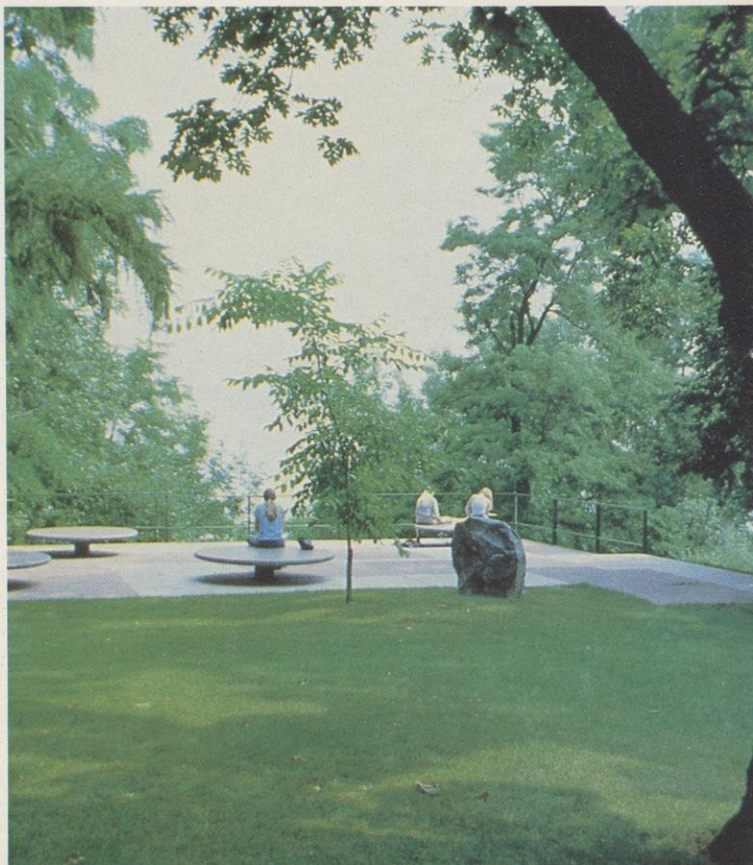
THE ROBIN

I see you, little robin,
I hear your "tweet-tweet-tweet,"
I love to watch you hopping
On your little yellow feet.
Your eyes are bright and saucy,
Your song is full of cheer,
I'm sure you came to tell me
That the flowers will soon be here.

From the 1911 Wisconsin Arbor and Bird Day Annual

Annual covers courtesy of the State Historical Society of Wisconsin

Top left:
Trees are natural air conditioners, especially on the south side of a house.
Top right:
Without pruning, watering and fertilizing, an urban tree has only a 50-50 chance of surviving five years.
Bottom left:
The end of a green cathedral ceiling. Dutch elm disease taught a hard lesson about single species planting.
Bottom right:
Trees and serenity go together. People need both. UW-Extension photos



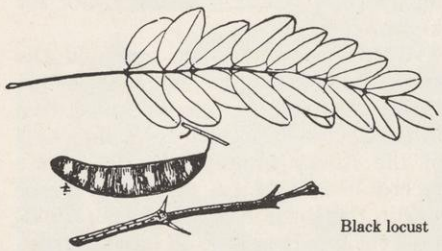
Swell buds

JERRY MOSSER—Natural Science Editor, UW-Extension

How do trees know winter has passed and it is safe to let buds swell and tender new growth stir?

Temperature and day length are the signals says Theodore Kozlowski, tree physiologist at UW-Madison.

Some species require both and in the proper sequence. For example, black locust and sycamore maple have to experience the cold of winter before they'll break dormancy in response to increasing day length. Afterwards though, long days cause faster "bud break" than short ones.

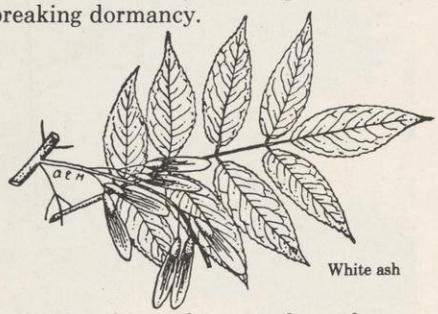


Black locust

For other species one signal may be more important than the other. European white birch break dormancy after being chilled, even though days are still short. On the other hand, beech start growing when days become long enough, whether they've been chilled or not.

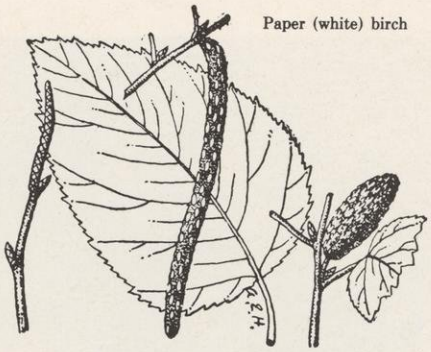
How do trees respond to changing temperatures and light? Kozlowski says the two factors affect hormone levels. The hormones serve as an internal chemical communication system and help cell growth.

In some trees, growth-promoting hormones called "gibberellins" are produced in dormant buds in response to chilling. Just how cold triggers formation of gibberellins isn't known. We do know they are important in breaking dormancy.



White ash

Kozlowski and co-workers have measured another growth-stimulating hormone—a "cytokinin"—in balsam poplar and American white birch buds. Levels of this hormone gradually



Paper (white) birch

increase until shortly before buds open, then begin to decrease.

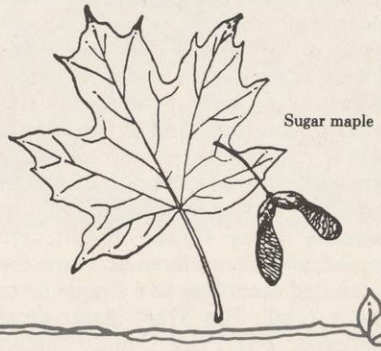
There are also growth-preventive hormones, called into action by shortening days and dropping temperatures. These help bring on dormancy in fall. In spring, growth-promoters increase to levels that counteract the inhibitors. In some trees, inhibitors decrease as promoters increase.

The small amount of light that penetrates the outer cover of dormant winter buds is somehow transformed into a chemical growth-control message. Chemical communications are not precisely the same in all trees. Different species seem to use slightly different chemical versions of some of the hormones. Moreover, the same hormones, or balance of hormones, may evoke different responses in different species. All trees use the same chemical language but have their own dialects caused by genetic variation.

Genetic differences also show up in the ways trees respond to environmental stimuli. Canadian sugar maple requires more chilling to break bud dormancy than sugar maple whose ancestors lived in the warmer U S. There are also wide differences among species in the springtime temperatures that must be reached before growth begins.

Occasionally, nature makes an unexpected move and sends a freeze after trees have begun to leaf out.

Kozlowski says trees are prepared for such hazards. Not all buds put forth shoots during the flush of spring growth. Those that don't, serve as backups. Growth-preventing hormones probably keep the backup buds dormant. When the growing tissue is damaged and can no longer produce the hormones, the backups are released from their chemical bondage.



Sugar maple

STATE TREE

In 1893 teachers were requested to secure a special preliminary study of our common trees and to have a vote taken to decide which of them should be "the state tree of Wisconsin." This opportunity seemed to enlist the interest of nearly all the children and secured an unwonted study of the characteristics of common trees. Reports showed that 3,917 schools had cast 123,683 votes upon the question proposed, and that the maple had received 53,211, the oak 34,669, the pine 13,590, the elm 16,028, with the remainder scattering.

—O.E. Wells in the Biennial School Report of 1894.

From the 1908 Wisconsin Arbor and Bird Day Annual

Forests which are so used that they cannot renew themselves will soon vanish, and with them their benefits.

A true forest is not merely a storehouse full of wood, but, as it were, a factory of wood, and at the same time a reservoir of water.

When you help to preserve our forests or to plant new ones you are acting the part of good citizens.

—Theodore Roosevelt

From the 1911 Wisconsin Arbor and Bird Day Annual

Stalking big trees

CHAD MC GRATH, Marshfield

It was a gray Sunday afternoon in Price County. A blue Volkswagon Rabbit sped toward home. Suddenly the wheels locked, tires screeched. The Rabbit halted. Abruptly, it picked up speed again, in reverse. Then tires screeched once more and all was still.

The driver had not seen a deer, nor a fire, nor someone in distress. He'd seen a tree. A special tree. What at first registered as a white pine proved to be an Eastern larch or tamarack (Larix laricina). The driver knew he had spotted an unusually large specimen. He left his car, negotiated the roadside ditch and small marsh beyond and was excited when his eight foot tape measure failed to go all the way around the tree. After wrestling with the behemoth for a few minutes, trying to make an accurate measurement, he returned to his car; wet, scratched, bruised and happy. He had just found what might be a national record tamarack.

As it turned out, the tree was the third largest in the nation and the largest in the state. It measured 10 feet around, 71 feet tall and 36 feet in spread. It is the largest in circumference of any tamarack in the country but in considering the total size of a tree one must measure three things, height, crown spread, and circumference. These are all combined according to a simple formula and a total "Big Tree" point score is rendered. The Price County tamarack suffers from a long-dead leader which has halted its upward growth. However, a new leader has formed from a side branch and there is hope that someday Wisconsin can claim the national record.

People often express surprise that there is a list of big trees and greater surprise that enthusiasts really search for champions. Actually there are several lists. The American Forestry Association's "Register of Big Trees" is the oldest and largest in scope. Started in 1940 as the "Social Register of Big Trees," the list includes records of 661 species throughout the United States.

Several states, including Wisconsin, also have lists. Established in 1941 by the old Conservation Department, Wisconsin's list is officially kept jointly by the Department of Natural Resources and the UW Department of Horticulture. For the tree hunter or other interested reader, the book, *Wisconsin's Champion Trees,* by R. Bruce Allison and B. Wolfgang Hoffmann, is a concise and handy guide.

The Wisconsin record tamarack, third largest in the nation. A long-dead treetop "leader" has halted its' upward growth.

When Wisconsin's list is compared with the National Register only one national champion shows up. Our neighbor, Michigan, however, has 82. This surprising difference arises largely because Michigan has had a very active program, coordinated by their Botanical Society. Authorities feel that with the same effort, Wisconsin too could be the home of several national champions. Indeed, in 1956 we had seven.

That men and women record the measurements of stately trees speaks not to our propensity for numbers, but to the awe inspired by great trees. Writing 125 years ago, Wisconsin's first scientist, Increase Lapham, put it this way, "Desolate indeed would be our dwellings were their environs entirely treeless. They are associated with our early recollections, and become in a great degree companions of our lives; and we unconsciously form strong attachments for such as grow near our homes—thus increasing our love of home and improving our hearts."

Lapham knew Wisconsin's magnificent white pine woods. Historians credit those woods with building the Midwest. Early Chicago and Milwaukee were constructed from Wisconsin pine boards. The white pine (Pinus strobus) was Aldo Leopold's favorite.

One need only walk through a grove to understand why. Perhaps the most magnificent in Wisconsin today can be found on the Menominee reservation. Located in what's called the School Pines Section, hundreds of virgin trees still grow there undisturbed as they have for hundreds of years. Upon first seeing these cathedral pines, a recent observer wrote, "The mist and rain erode their detail, enhancing their grandness and height. Like benevolent monarchs they stand softly against the grayness. From their crowns, drops plummet 70 to 80 feet from the nearest branch and strike my face. Their bark is thick with ridges bigger than saplings, fitting armor for kings."

The School Pines do not hold the state record white pine, but it is possible that in this stand grows the tallest tree in the Midwest, or even the tallest east of the Rocky Mountains. The state's record is located on private property within the Brule River State Forest. In 1962 the tree measured 17 feet 11 inches in circumference, 151 feet tall and had a crown spread of 49 feet for a big tree point total of 378. The largest white pine in the nation lives in the Porcupine Mountains of the Upper Peninsula of Michigan and scores 387 big tree points.

The largest ginkgo in the state grows at Covenant Harbor Camp near Lake Geneva.

The Wisconsin tree is only nine points shy of the national record. Indeed, the Wisconsin tree used to be the national champion, and perhaps still could be with an up-to-date measurement.

Wisconsin's one national record tree is not too far from the School Pines. Just south of Keshena, within 20 feet of highway 55, stands a huge Northern pin oak (Quercus ellipsoidalis). Its girth is listed as 11 feet 10 inches (1972 measurement) but upon measuring for this story, it registered 12 feet 6 inches. Such a growth rate indicates a vigorous and healthy old champion. Joe Waukechon has lived next to the giant oak for 30 years. He watches it grow and tells of the time many years ago when someone attached a sign to it proclaiming "National Champion." All that is left of the sign today is a rusted metal strip and expanding spring coil. Joe says he's been meaning to take it off

Continued next page...

More than 26 feet around, Wisconsin's largest cottonwood dwarfs J.P. Crombie, rural Columbus, and his son.

Walter E. Scott

No story about Wisconsin's Big Trees would be complete without mention of Walter E. Scott who helped establish the state's list. In 1940 the American Forestry Association began a contest of national scope intent on locating the largest tree of each species. The Wisconsin Conservation Department was involved and Scott, an employee, coordinated measurements and established a central file on Wisconsin trees.

Yet this man is not only a record keeper. He is a record maker. By his own admission, one of the first trees he measured was a box elder (*Acer neundo*) located in his own Madison backyard. The tree held the state record for some years. Walter Scott's backyard is full of other prizes. Actually, it is an arboretum, an inspiring place to lovers of trees. Four current state record trees live there among the 100 or so species, many planted by this extraordinary man. (Fraser Fir, Corneliacherry Dogwood, Water Locust, Contorted Hanko Willow) Other title contenders undoubtedly lurk amidst the canopy, ready to assume the title should lightning or other misfortune befall the current champion.

Walter Scott inaugurated Wisconsin's record tree program and kept the books for more than thirty years. His land hosts several exotic record-breakers.

Walter Scott worked for the old Conservation Department and DNR for 40 years, until 1974. He was Assistant to the Secretary for 25 years.

During his career, his proclivity for trees has occasionally caused him some problems. Like the night many years ago when returning home to Madison he spied a large box elder in the dark. Although it was midnight he stopped his car and inspected the tree. The occupants of the nearby house most likely wouldn't have understood. He relates that even his wife, Trudi, thought he was "going pretty far." Many times in his excitement about a particular tree, he would measure first and worry about people later. As he says now, "People would open their door and yell and scream at me." But through it all there were, "Interesting people and interesting days."

Walter makes it a practice to give away American chestnuts to help bring this blighted species back. They are taken from trees he planted himself. Among his champion, near champion and simple trees is an American Spindle Tree (Waboo). It's a root relative of the state record that stands next to Aldo Leopold's shack where it branches to the sun, fortunate indeed to have had two such admirers.

for some time because the bark is starting to grow around the steel. The oak is located on Joe's lot, on his neighbor's lot and also seems to be in the road right-of-way. It likely owes its life to this triangle of ownership and to the Menominees, who have always disdained needless cutting of wide, clear strips along their roads.

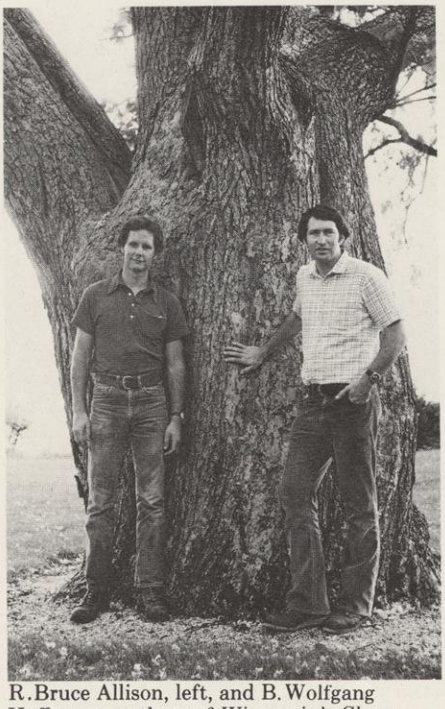
Yet another tree of record proportion grows on Menominee land. The state record butternut (Juglans cinerea) is 100 feet tall and nine feet six inches in circumference. It was found in 1978 by Sanford Fowler. Fowler spent 47 years cruising the Menominee forest marking trees to be cut by the tribe's loggers. He had marked this great butternut. Ken Sloan and Tom Albrecht, DNR foresters routinely evaluating the

Continued after supplement . . . page 18

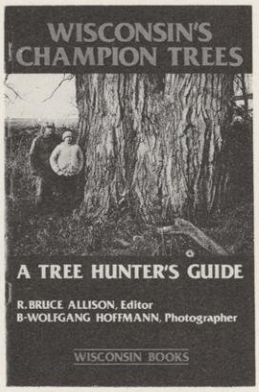
This champion white oak is located in the town of Fitchburg in Dane county. Measured by Walter Scott in 1979, it is 16 feet in circumference and has a spread of 64 feet. The national champion in Maryland measures nearly 30 feet around and has a spread of 158 feet.

I am an arborist

I make my living climbing and doctoring trees. Sometimes small trees like apples or birch, but usually big trees—mature oaks, maples, hickories and elms that can stretch 70 feet tall and reach 80 feet across. On occasion I will be asked to climb a giant tree, a white pine, perhaps, that spires upward over one hundred feet. Before I climb one like that, I'll think a bit, stand on the ground and look up. My eyes will follow the trunk past branches and forks, twigs and needles, planning my ascent to the crown while letting the long stranded manila climbing rope run through my fingers once more, feeling for nicks or the rough touch that foretells a break. I've already climbed one thousand trees too many to let fear hold me back, but I do hesitate sometimes out of a sense of awe at the size of a tree like this. It wasn't enough that nature produced an exquisite machine that can pump water and rocks from the earth, grab air and sunlight from the sky and in a splash of green build a living monument, but she did it with such grace,



R. Bruce Allison, left, and B. Wolfgang Hoffmann, authors of *Wisconsin's Champion Trees,* with the state record catalpa.



Wisconsin's Champion Trees by R. Bruce Allison and B. Wolfgang Hoffmann, $6.95, published by Wisconsin Books, 2025 Dunn Place, Madison, WI 53713.

magnitude and longevity. My six foot, 170 pound frame is lost beside the white pine's majestic 100 feet and 20,000 lbs. Whereas my body will hopefully get me to four score and five, this pine is already 200 years old and it's still under warranty. I stand in awe and in respect.

Catch-all

Superfund $ for Wisconsin?

Larry Sperling, Public Information, Madison

Madison—Conflicts between federal and state law may prevent so-called "Superfund" money from being spent in Wisconsin to solve hazardous waste problems. Revisions are being worked on at both levels which will allow Wisconsin to qualify.

Superfund is a $1.6-billion trust, established by Congress last December to clean up dangerous, abandoned and orphaned waste sites. It also provides money for emergencies at currently operating sites and sets up a new Toxic Substances Research Group in the US Public Health Service.

The conflict with Wisconsin involves taxation. The federal law will collect $1.38-billion from hazardous waste generators to finance the cleanup and get another $220-million from general taxes. **But states like Wisconsin, which have their own tax to finance hazardous waste management, may not be able to share in Superfund. Both federal and state lawmakers, plus DNR will make recommendations for change which should allow Wisconsin to qualify.**

In general, the new federal law provides for immediate cleanup in places that need it most—old disposal sites that threaten human health—places where toxicants are seeping toward water supplies—or potentially explosive storage dumps. Sites that are solely eyesores will not be funded immediately. Nationwide, about 25 to 30 will be cleaned up this year and about 100 in 1982.

Fortunately, Wisconsin has been out of the mainstream of chemical manufacture and transportation and therefore the state's hazardous waste problems are small by comparison with those of the industrial East Coast.

Improvements in the Superfund are sure to follow in the next Congressional session.

Tax checkoff for wildlife

Madison—More than 77% of the 9,600 persons who responded to last May's DNR magazine survey on fish and wildlife favor contributing to the state's Endangered and Nongame Species Program. Of these, 64% expressed a preference for donating through an income tax checkoff or direct gift.

To date, six states have established income tax checkoff programs to help endangered and nongame species. They are Minnesota, Colorado, Kansas, Kentucky, Oregon and Utah.

Backers point out that the checkoff provides an easy vehicle for the non-hunter or angler to contribute to wildlife programs. They also emphasize that it's purely voluntary.

The idea was introduced late in the last session of the Wisconsin legislature and passed the Joint Finance Committee. There was no further action. Estimated amount that would go to help endangered and nongame species in Wisconsin under the checkoff is about $500,000 per year. The proposal will be introduced again this year.

$180,000 for water planning

Madison—The US Water Resources Council recently awarded DNR a $180,000 grant for water-related planning in 1981. The figure is 2½ times greater than any previous annual appropriation for Wisconsin.

The additional funds will allow DNR to bring more expertise to bear on planning for the future of Wisconsin lakes, streams, marshes and groundwater according to Rahim Oghalai, DNR water resources planner. The money will be spent for planning programs in water quality, water conservation, wetlands protection and related issues as part of an overall state water resources plan.

Ice Age Center opens

Dundee—The Ice Age Interpretive Center in the Northern Unit of the Kettle Moraine State Forest is now open. **This is the first major development in the National Ice Age Scientific Reserve to be completed.**

The Reserve is composed of nine separate areas in Wisconsin and is part of the National Park System, but operated by the Wisconsin DNR under a unique cooperative management and cost sharing agreement. The new Ice Age Center is the focal point for Ice Age interpretation at Kettle Moraine. Located high on a moraine with a scenic overlook of the countryside, it provides visitors with a place from which to view the glacier-made landscape and a place to learn about the Ice Age story. A large exhibit room, viewing deck, auditorium programs, guided walks and auto tours help orient visitors to the area. **The Center is located one-half mile south of the village of Dundee (40 miles north of Milwaukee) on State Highway 67. The Wisconsin State Parks Vehicle Sticker, Golden Eagle Passport, or Golden Age Passport will admit visitors to the Center.**

Martens stocked

Inga Brynildson,
Communications,
Endangered & Nongame Species

Rhinelander—Pine martens are being restocked in northern Wisconsin this winter through a joint project by the Department of Natural Resources and the US Forest Service.

According to Arlyn Loomans, DNR North Central District wildlife specialist, twelve of the endangered, weasel-like mammals were released in the Nicolet National Forest in December.

Under a cooperative agreement with Colorado, DNR traded live-trapped, Wisconsin otters for pine martens. Ten to twelve martens are expected from Colorado yet this winter.

"So far we've released ten female martens and two males," says Loomans. "We ran into bad luck in the mid-'70's when we received 97 male martens and only 27 females.

"In wildlife populations, it's often the number of females of a species that limits growth potential of a population," explains Loomans. "But," he adds, "When you're relying on capturing wild animal stock, sometimes you've got to take what you can get."

Loomans estimates it will take a minimum of fifty females to reestablish a viable population in the state. "We're checking out a few other sources in the US and Canada to try to fill our goal this year," he said.

Martens disappeared from Wisconsin in 1925 following disturbance by radical logging of northern forests and by decades of unregulated trapping for the marten's valuable fur, known as "American sable." Martens inhabit coniferous forests and are Wisconsin's native predator of red squirrels, an animal which is now considered a pest by many northern property owners.

Pine Marten illustration by Erica Otten, naturalist, Trees for Tomorrow Environmental Center, Eagle River, WI 54521.

Acid rain etches autos: owners may sue

Albany, NY—Midwest utilities and industry may be hauled into court by New York car owners who have learned that acid rain can ruin paint finishes.

Robert Flacke, New York Environmental Conservation Commissioner, called the damage "significant" and asked for a state investigation. **Flacke said he hopes car owners will sue Midwestern utilities and industries that use fuel with high sulfur content.**

"They're the ones spewing it out, and they ought to pay for it," Flacke said.

Sulfur dioxide, found in smoke from burning coal and oil, is carried aloft by winds and mixes with oxygen to form acid precipitation. In Wisconsin, investigations are underway to determine its effect on northern lakes.

Acid rain is said to work slowly on auto finishes with discoloration appearing at first and then "water spots that won't come out." Reportedly, eastern car dealers have been issued instructions by manufacturers on how to deal with consumer complaints on the issue.

Utilities finance acid rain research

Wendy Weisensel,
Public Information,
Air Mgmt.

Madison—Eight Wisconsin utilities have pooled a total of $500,000 to conduct a two-year acid rain research project scheduled to begin this spring. DNR is coordinating and participating in the study, along with the state Public Service Commission. **Researchers plan to expand the state's precipitation monitoring network, observe acid rain's effects on forests and soils, sample lakes and trace the destination of pollutants emitted from various coal-fired power plants around the state.**

The decision to conduct the study was due in large part to findings documented by DNR and the US Environmental Protection Agency. The agencies tested water in hundreds of northern lakes over several seasons, and analyzed the chemistry of precipitation samples. **They found that not only were many of Wisconsin's northern lakes among the most susceptible in the world to acid rain, but that rain and snow, 10 times more acid than normal, were already falling in the area.**

Such a combination has destroyed fish in New York mountain lakes and in Scandinavia, and threatens aquatic life in Canada. It's expected that the new utility study will determine whether similar damage has occurred in Wisconsin and set the stage for finding ways to prevent it.

Missile site to nature center

Milwaukee—Where missiles bristled, prairie plants and other natural things will thrive according to plans for the 237-acre Havenwoods Forest Preserve and Nature Center on the north side here. **Formerly a US Army missile base, Havenwoods will soon become a large nature study area.**

The area has a checkered history. Home to a county house of corrections early in the century, it became an Army missile site and disciplinary barracks during WW II. Citizen groups have been pushing for a natural area on the site for at least 10 years. Old landfills, building foundations and missile launching pads still dot the property, but it also contains areas of maple-beech forest, marshland, "old field" succession and natural prairie remnants. Eventually it will have a 108-acre planted prairie.

The master plan also calls for a nature study center with library and auditorium, hiker's paths, rest areas, and a small playground.

A citizen's advisory group met last month to fine-tune the Havenwoods master plan and a public hearing will be held sometime in late March. Plans are on file at local libraries or at DNR's Office of Park Planning for a citizen review.

Wisconsin Fund: $74-Million for sewage plants

Diane Brinson,
Public Information-Madison

Madison—To date, more than $74-million have been committed to building municipal sewage treatment plants under the two-year-old Wisconsin Fund. The money is earmarked for 55 communities. **As of January 23rd, 10 communities had actually let bids and will be receiving cash payment after bids are awarded, following review by DNR. Total payment to the 10 will amount to $6,499,285.** Communities and projects are as follows:

Beaver Dam	930,428
Cross Plains	349,696
Cuba City	710,467
Durand	1,224,508
Edgerton	1,820,160
Footville	224,779
Forestville	435,135
Hustler	141,576
Kingston	435,113
Wisconsin Rapids	227,432

Catchall continued after supplement...

Catch-all

Continued

Easy winter = big '81 deer hunt

Jim Bishop,
Public Information,
Spooner

Spooner—Wisconsin deer hunters who bagged nearly 160,000 animals with gun and bow in 1980 can look forward to another banner year in 1981. That prediction was made recently by DNR wildlife researchers and managers based on a very low "winter severity index" so far in 1980-81. **Barring a weather catastrophe, the index indicates the herd will be in excellent condition this spring with yearling and fawn survival expected to be at maximum.**

Bob Dreis, wildlife staff specialist here, says the index north of highway 64 ranges from 19 to 32. The index is calculated by adding the number of days below zero to the number in which snow depth is 18 inches or more. Dreis thinks an index of at least 50 is necessary for any stress at all to show up. It would take over 100 for losses to occur from starvation.

Even a spate of bad weather now won't do too much harm.

"The deer have a good reserve of body fat and a quantity of highly nutritious food in the form of acorns available to them," says Dreis.

This year's low severity index of 19 to 32 compares to 117 for the spring of 1979, the highest on record and a year in which significant losses occurred. Even in 1979, however, harvest exceeded 100,000.

At Rhinelander, Deer Researcher Bill Creed points out there is no yarding this winter and deer are getting all they want to eat. Based on the mild weather, he predicts "another season of the same magnitude in 1981."

"There is no reason to expect a downturn," says Creed.

Last season gun hunters took 139,037 deer, which makes 1980 the seventh year in a row with a harvest over 100,000. It was the second best ever, right after 1978 when 150,845 were registered.

Archers, however, did set a new record in 1980. They bagged 20,954 deer. Previous bowhunting high was 18,113 in 1978.

Last season's excellent harvest is attributed to the better than anticipated herd recovery from the severe winter of 1978-79. This didn't happen statewide, however. **Harvest was down significantly last season in north central Wisconsin and parts of the northwest. It's anticipated that the mild conditions this winter will help recovery in these locations.**

1980 deer harvest by county

	Gun	Bow		Gun	Bow		Gun	Bow
1. Adams	3439	610	26. Iron	415	57	51. Price	2345	172
2. Ashland	1029	83	27. Jackson	7834	1112	52. Racine	53	11
3. Barron	1513	123	28. Jefferson	477	47	53. Richland	2645	157
4. Bayfield	2576	243	29. Juneau	2982	476	54. Rock	299	46
5. Brown	378	149	30. Kenosha	73	3	55. Rusk	2125	76
6. Buffalo	3775	157	31. Kewaunee	650	112	56. St. Croix	541	69
7. Burnett	2962	529	32. La Crosse	1398	135	57. Sauk	4792	410
8. Calumet	306	90	33. Lafayette	548	82	58. Sawyer	2358	162
9. Chippewa	1149	86	34. Langlade	1847	120	59. Shawano	3821	711
10. Clark	3710	624	35. Lincoln	2436	212	60. Sheboygan	614	197
11. Columbia	3396	907	36. Manitowoc	785	210	61. Taylor	1799	95
12. Crawford	1497	22	37. Marathon	3962	823	62. Trempealeau	2610	257
13. Dane	1407	239	38. Marinette	4257	586	63. Vernon	2331	97
14. Dodge	693	144	39. Marquette	4031	912	64. Vilas	1242	410
15. Door	611	78	40. Menominee	10	1	65. Walworth	241	37
16. Douglas	3349	296	41. Milwaukee		1	66. Washburn	2539	135
17. Dunn	1254	133	42. Monroe	3234	347	67. Washington	346	46
18. Eau Claire	1854	352	43. Oconto	2739	400	68. Waukesha	326	51
19. Florence	606	67	44. Oneida	2619	379	69. Waupaca	4887	1513
20. Fond du Lac	845	232	45. Outagamie	1862	497	70. Waushara	3906	1001
21. Forest	1176	74	46. Ozaukee	164	31	71. Winnebago	674	255
22. Grant	1549	78	47. Pepin	700	44	72. Wood	2820	1087
23. Green	403	54	48. Pierce	812	38	Miscellaneous	193	44
24. Green Lake	2228	456	49. Polk	2731	309	Total	139037	20954
25. Iowa	4189	423	50. Portage	3070	732	Total Gun & Bow	159,991	

Trout aquamat

Greg Matthews,
Public Information -
Madison

Madison—Whenever a yearling brown or rainbow trout at the Nevin State Fish Hatchery here feels a hunger pang, it just swims over to a rod, gives it a bump, and presto, there's food in the water. Aquatic self-service!

This unique feeding technique was adapted from similar commercial methods by Henry Horstmann, assistant hatchery foreman.

Demand feeders are commonplace at commercial trout and catfish farms. Yet, their use is rare at state hatcheries, especially the 'homemade' variety.

The self-feeders have a rod running from a five-gallon container's bottom to several inches below the water surface. When fish bump this rod, several food pellets fall from the pail into the water. About 250,000 yearling fish in outside raceways are fed this way.

"In the past," says Warwick, "One man had to feed the fish three times a day, taking about a half-hour to 45 minutes for each feeding. Now we simply put one day's supply in the feeders and we're finished.

Another offshoot of demand feeders is that the Nevin fish may posses more 'wild' characteristics than usual.

"They don't associate humans with food anymore. Now they scatter when people approach. Before we used demand feeders, the fish would come to you," says Horstmann.

Firewood; free no more

Madison—Starting next fall, cutting firewood at most DNR properties will no longer be a freebie. Details of the change, brought on by heavy competition for the available supply, are still being worked out, according to Chief Forester Milton Reinke.

Currently, property managers issue free permits on a first come first served basis, except where demand has already exhausted supply. This has occurred on the Southern Unit of the Kettle Moraine State Forest and in some other localities.

Reinke says the present system is haphazard and unfair to the huge number of people who want to cut their own wood, especially in the southern half of the state. He also points out that state law prohibits giving the wood away, if it has value.

Tentative plans for next fall anticipate that property managers will sell firewood by public auction. Reinke thinks prices will be nominal. He says a similar program in New England brings about $10 per standard cord and that most of the cutting is recreational.

It's expected that free permits will continue to be given for remote northern properties.

Public reports hazardous sites

Dave Crehore, Public Information, Green Bay

Green Bay—Anonymous tips and complaints from citizens concerned about possible hazardous waste problems have led to three important investigations here.

In each case, the complaint was valid, and will lead to solution of a present or potential problem. One case involved a former hazardous waste disposal site in Manitowoc County near Whitelaw that could have been polluting groundwater. Turned out that it wasn't, but steps will be taken to monitor the site and reduce chances of future pollution from it.

Another complaint concerned some barrels of waste stored on a farm in Outagamie County near Black Creek. Some of the material was hazardous, some wasn't. As a result the place has been cleaned up and the waste — some 30 barrels full — will be recycled or properly disposed of, as appropriate.

The third case involved waste that had been dumped in an old clay pit in the city of Manitowoc. Thanks to the tip, this site is now posted and will be cleaned up.

Publicity on these incidents pays off in another way — it stimulates additional complaints. Right after the clay pits incident showed in the press, another caller revealed additional details. Now DNR knows that even more potentially hazardous waste may have been dumped in the same place.

Old deposits come to light now because nationwide attention has alerted the public to possible dangers.

Also important is the fact that new Wisconsin Solid Waste Laws make it possible for DNR to take action. Twenty or thirty years ago hazardous waste regulations were sketchy and public concern about future hazards was nil. These old dumps are "surfacing" now, as people remember, and worry.

DNR welcomes all complaints and tips, will check them out, and if valid, get them cleaned up. If you know of a hazard, call one of the following numbers and ask for the hazardous waste specialist:

Madison — (608)266-3599
Eau Claire — (715)836-2026
Spooner — (715)635-2101
Rhinelander— (715)362-1616
Green Bay — (414)497-4054
Milwaukee — (414)257-4408
For emergencies call: (608)266-3232

PCBs removed

Fountain City—Some 350 cubic yards of soil, contaminated by polychlorinated biphenyls, (PCBs) have been removed from the U.S. Army Corps of Engineers boatyard here. The PCB contamination was discovered after an investigation initiated by DNR Warden James Everson. The removed soil, which contained more than 40 parts per million of PCBs, was trucked to an approved landfill near Cincinnati, Ohio, at a cost exceeding $100,000. The Corps plans further work to properly dispose of remaining soil that has less than 40 parts per million. The PCB contamination occurred when oil containing the chemical was used as a spray to control dust.

3-million pounds of carp

Madison—Unofficial figures show almost 3-million pounds of rough fish were removed from southern Wisconsin inland waters during 1980, according to unofficial figures released by the DNR's Southern District.

Contract crews took 2,999,657 pounds from nine lakes and eight rivers in DNR's 14 county Southern District, according to District Operations Chief Gordie Priegel.

About 97 percent were carp with the remainder buffalo fish, sheepshead, suckers and others.

Lake Koshkonong in Jefferson, Rock and Dane Counties yielded 1,795,854 pounds followed by the Bark River in Jefferson County with 397,996 pounds, Lake Puckaway with 243,750 pounds, the Rock River in Dodge and Rock Counties with 227,523 pounds, and Lake Kegonsa in Dane County with 103,775 pounds.

Notably, Lake Koshkonong's substantial catch included a single haul that netted one million pounds nabbed during one netting alone, points out Priegel.

Rough fish were also removed from Lakes Monona, Waubesa and Wisconsin, Lee Lake, Redstone Lake and Big Green Lake, along with Crawfish, Pecatonica, Sugar, Wisconsin, Yahara and Wisconsin Rivers.

Catches are made with seines or entanglement nets, with crews working from September to May to avoid conflicts with the summer fishing season, says Priegel. DNR received $4,673 from the contractors, but Priegel says this represents a savings of $150,000, had DNR been forced to do the job itself.

Ancient and awe-inspiring, the state champion Norway spruce in Richland County has outlasted generations of Eagle Township residents. The tree shades Basswood Cemetery on County Trunk E.

correctness of the marking operation, happened to notice the large tree and after first mistaking it for a red oak quickly unmarked the tree.

Not all champions are so fortunate. Wisconsin records list the location of the largest state yellow birch (Betula alleghaniensis) as "between Butternut and White Deer Lakes on property of White Deer Girl Scout Camp, ¼ mile from the main gate." The following is excerpted from the diary of a 1980 big tree hunter who sought this record tree, "I find myself striding down the trail leading back from the camp entrance. My eagerness causes me to break into short bursts of running. Around me is a pole maple woods, not where one expects to find champion trees. There's something else wrong too. I've seen several now and it's about time to admit it. Large stumps! I'd better measure one. Eleven feet in circumference at 2 feet off the ground. Not too decomposed but difficult to determine species. Very likely a yellow birch. This could have been the champion. After looking for 45 minutes I have found only one large yellow birch still standing. It is six feet four inches in circumference and bears an old lightning scar that made it unattractive to loggers. The champion is gone."

The biggest tree in the state? Dodge County boasts an Eastern (cottonwood) poplar (Populus deltoides) near Columbus which scores 438 big tree points. It is larger in crown spread (101 feet) than in height (99 feet) and its trunk is 26 feet 2 inches around.

Biggest tree in the nation? The "General Sherman" Sequoia (Sequoiadendron giganteum) is an incredible 83 feet 2 inches in circumference, and 275 feet tall. Although smaller in circumference (52 feet, five inches) a California redwood (Sequoia sempervirens) is the nation's tallest tree at 362 feet.

With such an abundance of prey, it's a wonder more people aren't big tree hunters. It's a sport for all seasons, none of them closed. No special equipment is needed. An ordinary tape measure will do. No licenses or fees and no crowd! City dwellers need not travel far.

The outdoor exercise is at your own pace. There is search, excitement and anticipation. And finally, a record find brings satisfaction that lasts—at least until someone discovers a bigger tree.

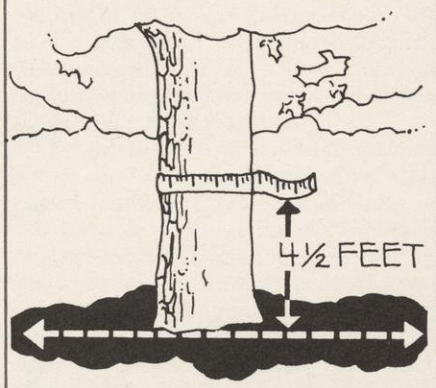
Photos by B. Wolfgang Hoffmann

WISCONSIN'S 15 LARGEST TREES*

	County	Diameter
Eastern Poplar	Dodge	26′2″
White Willow	Walworth	22′4″
Elm	Winnebago	21′3″
Silver Maple	Jefferson	21′
Brittle Willow	Waukesha	19′6″
Basswood	Dane	19′
Hackberry	Dane	18′11′
Black Willow	Dane	18′6″
Niobe Weeping Willow	Waukesha	18′4″
White Poplar	Fond du Lac	18′
White Pine	Douglas	17′11″
Northern Catalpa	Walworth	17′10″
Red Oak	Richland	16′6″
White Oak	Dane	16′
Green Ash	Rock	16′

*From *Wisconsin's Champion Trees* by R. Bruce Allison, and B. Wolfgang Hoffmann

HOW TO MEASURE A CHAMPION



Circumference should be measured at 4½ feet off the ground. If it is not possible to measure at this height, then do so at the narrowest point below 4½ feet.

Height is more tricky. Many instruments are used for height measurement and all rely on some basic geometric principles. They are also all fairly expensive. The best thing to do is estimate the height and then enlist the aid of a forester or surveyor to measure exactly if the tree is a contender. To estimate height, cut a stick or pole to the length of 10 or 20 feet and then put this against the trunk of the tree you are measuring. This will give you an accurate reference for estimation.

Spread is measured by marking a point on the ground at the perimeter of the tree's branches and then finding a similar point directly opposite on the other side of the trunk. The distance between these points is measured. Another measurement should be taken at a perpendicular to the first and those two averaged.

If your tree is a winner, report the measurements, exact species, exact location, name and address of owner, name and address of nominator/finder and the date of your measurements. Send these to: For native trees—Guy Rodgers, DNR, P.O. Box 7921, Madison, WI 53701. For non-native (exotic) trees: Professor Edward R. Hasselkus, Department of Horticulture, University of Wisconsin-Madison, 1575 Linden Drive, Madison, WI 53706. Updated measurements on existing records are also accepted.

The great Peshtigo fire

From Harper's Weekly, November 25, 1871

Wood engraving of Father Peter Pernin, about 1874. Courtesy State Historical Society of Wisconsin

REVEREND PETER PERNIN

It is well known in Wisconsin, but not elsewhere, that the Great Peshtigo Fire happened on the same day as the Great Chicago fire, October 8, 1871. In Chicago, the property loss was $200-million and the center of the city was wiped out. At Peshtigo, more than 700 lives were lost in a fire storm of the kind started by Allied bombers in World War II. But here it occurred naturally. Ironically, Wisconsin citizens had mobilized to send aid to Chicago, unaware because of slow communications, of the tragedy at Peshtigo.

Still not well known in Wisconsin is the eyewitness account by a Canadian Catholic Priest, Father Peter Pernin who served parishes in Peshtigo and Marinette. Both churches were destroyed and he published the story of the fire in Montreal in 1874 to help raise money to rebuild.

The Wisconsin State Historical Society reprinted Reverend Pernin's account in 1971 on the 100th anniversary of the catastrophe as part of its Wisconsin Stories series. These excerpts were taken from the Historical Society booklet.*

**Wisconsin Stories: The Great Peshtigo Fire by Reverend Peter Pernin, $1.25. The State Historical Society of Wisconsin, 816 State St., Madison, WI 53706.*

Sunday, the 24th of September, was an exciting, I might say a fearful time, in Peshtigo. For several days the fires had been raging in the timber all around—north, south, east, and west. Saturday flames burned through to the river a little above the town; and on Saturday night, much danger was apprehended from the sparks and cinders that blew across the river, into the upper part of the town, near the factory. A force was stationed along the river, and although fire caught in the sawdust and dry slabs it was promptly extinguished. It was a grand sight, the fire that night. It burned to the tops of the tallest trees, enveloped them in a mantle of flames, or, winding itself about them like a huge serpent, crept to their summits, out upon the branches, and wound its huge folds about them. Hissing and glaring it lapped out its myriad fiery tongues while its fierce breath swept off the green leaves and roared through the forest like a tempest. Ever and anon some tall old pine, whose huge trunk had become a

Bird's-eye view of Peshtigo as it appeared in 1871 shortly before its destruction. Courtesy State Historical Society of Wisconsin

column of fire, fell with a thundering crash, filling the air with an ascending cloud of sparks and cinders, whilst above this sheet of flames a dense black cloud of resinous smoke, in its strong contrast to the light beneath, seemed to threaten death and destruction to all below.

Thousands of birds, driven from their roosts, flew about as if uncertain which way to go, and made the night still more hideous by their startled cries. Frequently they would fly hither and thither, calling loudly for their mates, then, hovering for a moment in the air, suddenly dart downward and disappear in the fiery furnace beneath. Thus the night wore away while all earnestly hoped, and many hearts fervently prayed, for rain.

Sunday morning the fires had died down, so that we began to hope the danger was over. About eleven o'clock, while the different congregations were assembled in their respective churches, the steam whistle of the factory blew a wild blast of alarm. In a moment the temples were emptied of their worshippers, the latter rushing wildly out to see what had happened. Fire had caught in the sawdust near the factory again, but before we reached the spot it was extinguished. The wind had suddenly risen and was blowing a gale from the northwest. The fires in the timber were burning more fiercely than ever, and were approaching the river directly opposite the factory. The air was literally filled with the burning coals and cinders, which fell, setting fire all around, and the utmost diligence was necessary to prevent these flames from spreading. The engine was brought out, and hundreds of pails from the factory were manned; in short, everything that was possible was done to prevent the fire from entering the town.

But now a new danger arose. The fires to the west of the town were approaching rapidly, and it seemed that nothing short of a miracle could save it from utter destruction. A cloud of hot, blinding smoke blew in our faces and made it extremely difficult to see or do anything; still prompt and energetic means were taken to check the approaching flames.

The company's teams were set to carrying water, and the whole force of over three hundred of the laborers in the factory and mills were on the ground, besides other citizens. Goods were packed up, and moved from buildings supposed to be in immediate danger. Indeed a general conflagration seemed inevitable. I have seen fires sweep over the prairies with the speed of a locomotive, and the prairie fire is grand and terrific; but beside a timber fire it sinks into insignificance. In proportion as the timber is denser, heavier, and loftier than the prairie grass, the timber fire is intenser, hotter, grander, than the prairie fire. The fire on the prairie before a high wind will rush on and lap up the light dead grass, and it is gone in a breath. In the timber it may move almost as rapidly, but the fire does not go out with the advance waves which sweep over the tops of the trees and catch the light limbs and foliage. Nor is there the same chance to resist the approach of fire in the forests. It is as though you attempted to resist the approach of an avalanche of fire hurled against you. With the going down of the sun the wind abated and with it the fire. Timber was felled and water thrown over it; buildings were covered with wet blankets and all under the scorching heat and in blinding suffocating smoke that was enough to strangle one, and thus passed the night of Sunday.

Monday, the wind veered to the south, and cleared away the smoke. Strange to say not a building was burned—the town was saved. Monday the factory was closed to give the men rest, and today, September 27, all is quiet and going on as usual.

What did these repeated alarms filling the minds of the people with anxiety during the three or four weeks preceding the great calamity seem to indicate? . . . .

God willed that I should be at the post of danger. The steamboat which I had expected to bear me from Peshtigo, on the seventh of October, had of course

obeyed the elements which prevented her landing, but God is the master of these elements and Him they obey. Thus I found myself at Peshtigo Sunday evening, October 8, where, according to all previous calculations, projects, and arrangements, I should not have been.

The afternoon passed in complete inactivity. I remained still a prey to the indefinable apprehensions of impending calamity already alluded to, apprehensions contradicted by reason which assured me there was no more cause for present fear than there had been eight or fifteen days before—indeed less, on account of the precautions taken and the numerous sentinels watching over the public safety. These two opposite sentiments, one of which persistently asserted itself despite every effort to shake it off, whilst the other, inspired by reason was powerless to reassure me, plunged my faculties into a species of mental torpor. . . . .

On looking towards the west, whence the wind had persistently blown for hours past, I perceived above the dense cloud of smoke overhanging the earth, a vivid red reflection of immense extent, and then suddenly struck on my ear, strangely audible in the preternatural silence reigning around, a distant roaring, yet muffled sound, announcing that the elements were in commotion somewhere. I rapidly resolved to return home and prepare without further hesitation, for whatever events were impending. . . . .

The atmosphere was heavy and oppressive, strangely affecting the strength and rendering respiration painful and laborious. The only consideration that could have induced me to keep on working when I found it almost impossible to move my limbs, was the fear, growing more strongly each moment into a certainty, that some great catastrophe was approaching. The crimson reflection in the western portion of the sky was rapidly increasing in size and in intensity; then between each stroke of my pickax I heard plainly, in the midst of the unnatural calm and silence reigning around, the strange and terrible noise already described, the muttered thunder of which became more distinct as it drew each moment nearer. This sound resembled the confused noise of a number of cars and locomotives approaching a railroad station, or the rumbling of thunder, with the difference that it never ceased, but deepened in intensity each moment more and more. The spectacle of this menacing crimson in the sky, the sound of this strange and unknown voice of nature constantly augmenting in terrible majesty, seemed to endow me with supernatural strength. . . . .

I vainly called my dog who, disobeying the summons, concealed himself under my bed, only to meet death there later. Then I hastened out to open the gate so as to bring forth my wagon. Barely had I laid hand on it, when the wind heretofore violent rose suddenly to a hurricane, and quick as lightning opened the way for my egress from the yard by sweeping planks, gate, and fencing away into space. "The road is open," I thought, "we have only to start."

I had delayed my departure too long. It would be impossible to describe the trouble I had to keep my feet, to breathe, to retain hold of the buggy which the wind strove to tear from my grasp, or to keep the tabernacle in its place. To reach the river, even unencumbered by any charge, was more than many succeeded in doing; several failed, perishing in the attempt. How I arrived

Continued next page...

at it is even to this day a mystery to myself.

The air was no longer fit to breathe, full as it was of sand, dust, ashes, cinders, sparks, smoke, and fire. It was almost impossible to keep one's eyes unclosed, to distinguish the road, or to recognize people, though the way was crowded with pedestrians, as well as vehicles crossing and crashing against each other in the general flight. Some were hastening towards the river, others from it, whilst all were struggling alike in the grasp of the hurricane. A thousand discordant deafening noises rose on the air together. The neighing of horses, falling of chimneys, crashing of uprooted trees, roaring and whistling of the wind, crackling of fire as it ran with lightning-like rapidity from house to house—all sounds were there save that of the human voice. People seemed stricken dumb by terror. They jostled each other without exchanging look, word, or counsel. The silence of the tomb reigned among the living; nature alone lifted up its voice and spoke. . . . .

Farther on, I was again thrown down over some motionless object lying on the earth; it proved to be a woman and a little girl, both dead. I raised a head that fell back heavily as lead. With a long breath I rose to my feet, but only to be hurled down again. Farther on I met my horse whom I had set free in the street. Whether he recognized me—whether he was in that spot by chance, I cannot say, but whilst struggling anew to my feet, I felt his head leaning on my shoulder. He was trembling in every limb. I called him by name and motioned him to follow me, but he did not move. He was found partly consumed by fire in the same place . . . .

It was about ten o'clock when we entered into the river . . . .

Once in water up to our necks, I thought we would, at least be safe from fire, but it was not so; the flames darted over the river as they did over land, the air was full of them, or rather the air itself was on fire. Our heads were in continual danger. It was only by throwing water constantly over them and our faces, and beating the river with our hands that we kept the flames at bay. Clothing and quilts had been thrown into the river, to save them, doubtless, and they were floating all around. I caught at some that came within reach and covered with them the heads of the persons who were leaning against or clinging to me. These wraps dried quickly in the furnace-like heat and caught fire whenever we ceased sprinkling them. The terrible whirlwind that had burst over us at the moment I was leaving home had, with its continually revolving circle of opposing winds, cleared the atmosphere. The river was as bright, brighter than by day, and the spectacle presented by these heads rising above the level of the water, some covered, some uncovered, the countless hands employed in beating the waves, was singular and painful in the extreme. So free was I from the fear and anxiety that might naturally have been expected to reign in my mind at such a moment, that I actually perceived the ludicrous side of the scene at times and smiled within myself at it. When turning my gaze from the river I chanced to look either to the right or left, before me or upwards, I saw nothing but flames; houses, trees, and the air itself were on fire. Above my head, as far as the eye could reach into space, alas! too brilliantly lighted, I saw nothing but immense volumes of flames covering the firmament, rolling one over the other with stormy violence as we see masses of clouds driven wildly hither and thither by the fierce power of the tempest. . . . .

Not far from me a woman was supporting herself in the water by means of a log. After a time a cow swam past. There were more than a dozen of these animals in the river, impelled thither by instinct, and they succeeded in saving their lives. The first mentioned one overturned in its passage the log to which the woman was clinging and she disappeared into the water. I thought her lost; but soon saw her emerge from it holding on with one hand to the horns of the cow, and throwing water on her head with the other. How long she remained in this critical position I know not, but I was told later that the animal had swum to shore, bearing her human burden safely with her; and what threatened to bring destruction to the woman had proved the means of her salvation. . . . .

Finally day dawned on a scene with whose horror and ruin none were as yet fully acquainted. I received a friendly summons to proceed to another spot where the greater number of those who had escaped were assembled, but the inflammation of my eyes had rapidly augmented, and I was now perfectly blind. Someone led me, however, to the place of refuge. It was a little valley near the river's edge, completely sheltered by sand hills, and proved to be the very place where I had intended taking refuge the evening previous, though prevented reaching it by the violence of the hurricane. Some had succeeded in attaining it, and had suffered comparatively far less than we had done. The tempest of fire had passed, as it were, above this spot, leaving untouched the shrubs and plants growing within it. . . . .

Paintings by Artist Mel Kishner, 7300 N. Artesiano Rd., Tuscon, AZ 85704, courtesy of the State Historical Society of Wisconsin.

It is a painful thing to have to speak of scenes which we feel convinced no pen could fully describe nor words do justice to. It was on the eleventh of October, Wednesday afternoon, that I revisited for the first time the site of what had once been the town of Peshtigo. Of the houses, trees, fences that I had looked on three days ago nothing whatever remained, save a few blackened posts still standing, as if to attest the impetuous fury of the fiery element that had thus destroyed all before it. Wherever the foot chanced to fall it rested on ashes. The iron tracks of the railroad had been twisted and curved into all sorts of shapes, whilst the wood which had supported them no longer existed. The trunks of mighty trees had been reduced to mere cinders, the blackened hearts alone remaining. All around these trunks, I perceived a number of holes running downwards deep in the earth. They were the sockets where the roots had lately been. I plunged my cane into one of them, thinking what must the violence of that fire have been, which ravaged not only the surface of the earth, but penetrated so deeply into its bosom. Then I turned my wondering gaze in the direction where the town had lately stood, but nothing remained to point out its site except the boilers of the two locomotives, the iron of the wagon wheels, and the brick and stonework of the factory. All the rest was a desert, the desolation of which was sufficient to draw tears from the eyes of the spectator—a desert recalling a field of battle after a sanguinary conflict. Charred carcasses of horses, cows, oxen, and other animals lay scattered here and there. The bodies of the human victims—men, women, and children—had been already collected and decently interred—their number being easily ascertained by counting the rows of freshly-made graves. . . . .

In the midst of the universal consternation pervading all minds, a man was found degraded enough to insult not only the general sorrow and mourning but also death itself. Enslaved by the wretched vice of avarice, he had just been taken in the act of despoiling the bodies of the dead of whatever objects the fire had spared. A jury was formed, his punishment put to the vote, and he was unanimously condemned to be hanged on the spot. But where was a rope to be found? The fire had spared nothing. Somebody proposed substituting for the former an iron chain which had been employed for drawing logs, and one was accordingly brought and placed around the criminal's neck. Execution was difficult under the circumstances; and whilst the preparations dragged slowly on, the miserable man loudly implored mercy. The pity inspired by the mournful surroundings softened at length the hearts of the judges, and, after having made him crave pardon on his knees for the sacrilegious thefts of which he had been guilty, they allowed him to go free. It may have been that they merely intended frightening him. . . . .

I must beg my readers to return with me for a little while to the banks of Peshtigo River—but not to linger there long. Before removing the tabernacle I was busily occupied three days and two nights, now in seeking for the dead, then in taking up from the water various objects which I had thrown by armfuls, at the moment of leaving my house, into the wagon and which had been overturned with it into the river. The most precious of all these was the chalice,

which I was fortunate enough to find, together with the paten. My search was greatly facilitated by the opening of the dam and letting out of the waters which were here fifteen or twenty feet in depth. This step was necessary for the finding of the corpses of those persons who, either seized by cramps, or drawn in by the current, had been drowned during the night of the hurricane. . . . .

Whole forests of huge maples, deeply and strongly rooted in the soil, were torn up, twisted and broken, as if they had been willow wands. A tree standing upright here or there was an exception to an almost general rule. There lay those children of the forest, heaped up one over the other in all imaginable positions, their branches reduced to cinders, and their trunks calcined and blackened. Many asseverated that they had seen large wooden houses torn from their foundations and caught up like straws by two opposing currents of air which raised them till they came in contact with the stream of fire. They then burst into flames, and, exposed thus to the fury of two fierce elements, wind and fire, were torn to pieces and reduced to ashes almost simultaneously.

Still, the swiftness with which this hurricane, seemingly composed of wind and fire together, advanced, was in no degree proportioned to its terrible force. By computing the length of time that elapsed between the rising of the tempest in the southwest, and its subsiding in the northeast, it will be easily seen that the rate of motion did not exceed two leagues an hour. The hurricane moved in a circle, advancing slowly, as if to give time to prepare for its coming.

Many circumstances tended to prove that the intensity of the heat produced by the fire was in some places extreme, nay unheard of. I have already mentioned that the flames pursued the roots of the trees into the very depths of the earth, consuming them to the last inch. I plunged my cane down into these cavities, and convinced myself that nothing had stayed the course of combustion save the utter want of anything to feed on. Hogsheads of nails were found entirely melted though lying outside the direct path of the flames. Immense numbers of fish of all sizes died, and the morning after the storm the river was covered with them. It would be impossible to decide what was the cause of their death. It may have been owing to the intensity of the heat, the want of air necessary to respiration—the air being violently sucked in by the current tending upwards to that fierce focus of flame—or they may have been killed by some poisonous gas.

It is more than probable that for a moment the air was impregnated with an inflammable gas most destructive to human life. I have already mentioned the tiny globules of fire flying about my house at the moment I quitted it. Whilst on my way to the river, I met now and then gusts of an air utterly unfit for respiration, and was obliged on these occasions to throw myself on the ground to regain my breath, unless already prostrated involuntarily by the violence of the wind. Whilst standing in the river I had noticed, as I have already related, on casting my eye upwards, a sea of flame, as it were, the immense waves of which were in a state of violent commotion, rolling tumultuously one over the other, and all at a prodigious height in the sky, and, consequently, far from any combustible material. How can this phenomenon be explained without admitting the supposition that immense quantities of gas were accumulated in the air?

Strange to say there were many corpses found, bearing about them no traces of scars or burns, and yet in the pockets of their habiliments, equally uninjured, watches, cents, and other articles in metal were discovered completely melted. How was it also that many escaped with their lives here and there on the cleared land as well as in the woods? The problem is a difficult one to solve. The tempest did not rage in all parts with equal fury, but escape from its power was a mere affair of chance. None could boast of having displayed more presence of mind than others. Generally speaking, those who happened to be in low lying lands, especially close to excavations or even freshly ploughed earth with which they could cover themselves, as the Indians do, succeeded in saving their lives. Most frequently the torrent of fire passed at a certain height from the earth, touching only the most elevated portions. Thus no one could meet it standing erect without paying the penalty of almost instantaneous death.

When the hurricane burst upon us, many, surprised and terrified, ran out to see what was the matter. A number of these persons assert that they then witnessed a phenomenon which may be classed with the marvelous. They saw a large black object, resembling a balloon, which object revolved in the air with great rapidity, advancing above the summits of the trees towards a house which it seemed to single out for destruction. Barely had it touched the latter when the balloon burst with a loud report, like that of a bombshell, and, at the same moment, rivulets of fire streamed out in all directions. With the rapidity of thought, the house thus chosen was enveloped in flames within and without, so that the persons inside had no time for escape. . . . .

EPILOGUE

News of the disaster did not immediately reach the outside world. Isaac Stephenson, the Marinette lumber baron, on learning of Peshtigo's fate, had an emissary sent to Green Bay—the nearest place where the telegraph lines had not been burned out—to transmit a message to Governor Lucius Fairchild. The message did not reach Madison until the morning of the 10th. Fairchild and all state officials were in Chicago, whence they had gone with carloads of supplies to aid the stricken city. A capitol clerk took the telegram to Mrs. Fairchild, who immediately swung into action. For a day this remarkable woman, then less than twenty-four, was to all intents and purposes the governor of Wisconsin. As her daughter, Mrs. Mary Fairchild Morris, recalled in a letter to Joseph Schafer in May, 1927, her mother commandeered a boxcar loaded with supplies destined for Chicago, ordered railroad officials to give it priority over all other traffic, and then discovering that the car contained food and clothing but no defenses against the October cold, rallied Madison women to supply blankets to stuff into the already loaded car. After the car was dispatched, Mrs. Fairchild issued a public appeal for contributions of money, clothing, bedding, and supplies, with the result that a second boxcar left Madison that night. . . . .

The readers write

I read with a sad heart your article on endangered species. Being an ardent bird watcher and nature lover, I was truly alarmed at the large number of endangered plants, animals and birds. The article suggested letting shrubs, brush and trees grow along fences—a favorite nesting place for many small birds and animals alike—and I heartily agree. Why in the name of heaven do they continue to condone bulldozed ditches along county and township roads?

I realize in some areas this is done specifically for snow removal and, therefore, justified. However, road crews don't temper this regulation with common sense; many areas could be left "as is" without hindering snow removal. I speak only with experience from my township, but it seems if it's happening here, other county and township road crews are doing likewise.

As I write this letter, a bulldozer is busily digging up shrubs and small trees not 50 yards from my window. I love hiking along roads and woods in our area, and I took your article to heart, paying particular attention to the number of nests in shrubs and trees. Just yesterday I noticed a half dozen nests in four bushes that have just been bulldozed into oblivion.

That's only a small example. Last summer our township crews bulldozed while the electric company sprayed, God-only-knows what kind of poison gets into those ditches. Double destruction! All this, according to our town board, with DNR approval.

I've lived in this township all my life and I remember, as a young girl, trees arching over and brush daring to encroach right to the edge of our beautiful rural roads. We had just as much snow then, but there was no need to devastate every last tree in sight. As a matter of fact, trees growing along roadsides created a natural barrier that kept snow from drifting across the road. Nature's snow fence.

So please, please tell me why in recent years it's becoming necessary to clear everything within 20 feet on either side of the road? Also, what is the point of spraying? If trees endanger the power lines, trim them, or if absolutely necessary cut the worst offenders down.

Not only is it a dreadful eyesore to see all those brown wilted leaves, but more importantly, what of the poisonous spray itself? How deadly is that to wildlife, and to the watershed into which these toxins seep?

Can nothing be done to prevent this random destruction? Is there anything I can do beyond writing to you and to our local and state governments?

RUTH K. NELSON, River Falls

Your town board is wrong. DNR agrees with you, has long advocated intelligent roadside brush management and even pioneered the techniques. A story on page 8 in this issue (Stop the brushoff) will give you some hints on what to do. In general, the town board decides about brush on town roads, the county and state decide on theirs. Keep after them! Concerned citizens like you can change things.

I was amazed and astonished by Mr. Nelson Everson's letter on the costs of licenses. Coming from a state (Iowa) where the hunting and fishing quality has deteriorated in recent years, I feel the people of Wisconsin are blessed with unmatched opportunities at little cost.

For less than $50.00 you can hunt and fish every legal game in the state. Mr. Everson is correct in saying that everyone should bear the cost of conservation, but I believe hunters and fishermen should be willing to pay four or five times what they pay now for these opportunities. With increasing threats of pollution and urban pressure on wildlife I think most hunters and fishermen will regret not spending more time and money protecting what we have.

JAMES ULRING, Madison

The last time I was able to go deer hunting was three years ago. I got an old friend to take me up to my old stamping ground at Tipler . . . a certain spot on a logging trail . . . so I could just sit on a stump and listen to the chickadees. That's the next thing to heaven to me. I didn't want to shoot a deer, just see one. I'm 79 now and can't hunt anymore, but I still wish I could sit at my spot during the season. Then, at least I would see a deer. I enjoy the magazine.

RAY POFAHL, Kenosha

I have just finished reading the article "Miracle at Cherub Lodge" which appeared in November-December. Although I read it when it was first published in the FLORENCE MINING NEWS, I want you to know that I enjoyed reading it a second time.

EDWARD W. MOUW, Rhinelander

Just a note to let you know that I won't be renewing my subscription. I feel $6.97 for a year's subscription is way too much for a magazine of this type. I could go to the library for the type of articles your magazine tries to sell to the public. It's nothing at all like the old Conservation Bulletin and you guys have the courage to sell this one.

The type of magazine you guys need to produce is one that relates the DNR to the public not one about snails, snakes and butterflies. We, the public, want to hear what's going on with the DNR. Tell us about things we need to know, such as: new hunting and fishing regulations; information on how last year's hunting and fishing seasons went; how to work together for better hunter/landowner relations; present and future clean air and water projects; forestry ideas. Give the public a better idea of how your department functions.

As you can see there are hundreds of better things I, as the public, want to read about to get a better understanding of your ideas. I believe if things like this were better explained there wouldn't be as many bad feelings every time someone mentions DNR. All I'm asking is a little better understanding of how the DNR works—not how a butterfly mates. As it stands now, the current magazine is a waste of time and money.

MICHAEL D. WINKEL, Auburndale

I must compliment you on *Wisconsin Natural Resources,* which I have recommended for reading to all our members.

Thank you for publishing this fine magazine, and furnishing us with so many hours of informative and interesting reading.

MRS. JOHN K. RAUP, Natural Resources Chairman
Wisconsin Garden Club Federation

I'm a busy business man and only subscribe to two magazines. *Wisconsin Natural Resources* is one of them. I congratulate you on putting together an interesting and informative magazine. The pictures and illustrations are excellent. Keep up the good work. Your magazine is a tribute to our fine state.

ROGER PITTMAN, Rothschild

The November-December issue is very interesting and contains so many attractive pictures. Particularly, the deer art by Mrs. Deanne Wilde is beautiful.

BARBARA LUEDTKE, Milwaukee

Went to the town hall to vote and at first couldn't figure out why my arrival created such a stir. The gist of it was: "Mrs. Hamerstrom—you have that wonderful story (from the book Strictly for the Chickens) in my favorite magazine!"

Those neat cartoons are just nifty.

FRANCES HAMERSTROM, Plainfield

I read with interest Cornelia Burr's article "Lesser Fringed Gentians" in your September-October issue. My students and I studied the vascular flora of the Snake Creek Corridor in Green Lake County this past year. We discovered a "pocket" with hundreds of fringed gentians in a sedge meadow, similar to the Waubesa Wetlands' pocket Ms. Burr described in her story.

Ms. Burr reports that fringed gentians are not listed as a threatened or endangered species in Wisconsin. According to Robert Read in the 1976 DNR Technical Bulletin *Endangered and Threatened Vascular Plants in Wisconsin, Gentianopsis procera* is indeed a threatened species and protected under Wisconsin's Endangered Species Program.

TOM EDDY, Science Instructor,
Green Lake Public Schools

Plants were not covered under the original Endangered Species Act of 1976 so listings in the 1976 technical bulletin were only advisory. Some material in that bulletin was based on an old law, now repealed, that protected many non-endangered plants. In 1978 the Endangered Species Act was expanded to include plants. Under it, DNR researches species to determine their status. The law also provides for a public hearing on each plant to gather comment on whether it belongs on the list. As a result of the first hearing, 33 were established as endangered and 23 as threatened. The fringed gentian was not included because, while not plentiful, it is in no danger.

Your endangered species poster was very good and we will save it for reference. But, I think there's an omission in the key on the back. Item 31, Northern Ribbon snake is not shown. Could item 20 actually be the ribbon snake? And what is the name of the orchid shown under the snake.

HENRY C. BAUKIE, Peoria, Illinois

You're right. But 20 isn't the ribbon snake. That's in the tree below the Canada lynx. Item 20 is a glass lizard, and the orchid beneath it is the threatened White Lady's slipper, Cypripedium candidum. Thanks for the good catch. You're the only one who wrote.

I completely enjoyed the informative article, "The quietest symphony," by Larry Sperling in the September-October issue of *Wisconsin Natural Resources.* Please identify the rice beater pictured on page four. It seems to me I know her from some place but cannot remember her name.

BETTIE BEHLING, Milwaukee

Sally Kovacek, a school teacher from Mequon, is the wild ricer who appeared in that photograph (courtesy of Hawkhill Associates, Madison.)

When fishing with two or more people in a boat, is it permissible to put all the fish in one ice box? This is being done on Lake Michigan charter boats but how about inland waters?

ERV KASPRZAK, Milwaukee

Yes, it's legal on inland waters too.

We enjoy *Wisconsin Natural Resources.* Do you publish a subject index?

SUSAN J. HLINAK, Librarian
Port Edwards Public Schools

We are currently working on one for our first four volumes. Look for an announcement in an upcoming issue.

Readers are invited to express opinions on published articles. Letters will be edited for clarity and conciseness and published at the discretion of the magazine. Please include name and address. Excerpts may be used in some instances. Letters to "The readers write" should be addressed to Wisconsin Natural Resources magazine, Box 7921, Madison, Wisconsin 53707.

The bigness of the wolf

A day spent following their tracks brings a new understanding. Wolves need to be forever wild, never tame.

INGA BRYNILDSON, Communications Coordinator, Office of Endangered and Nongame Species

It had been a bleak winter for wolf tracking and this day seemed equally uncooperative. The snow was dry, crusted and resisted imprinting. It was wax-eating snow that made skiing difficult.

Scott Thiel, my tracking partner from Stevens Point, and I tried to read the winter history of the old forest road. We figured it had been crudely plowed in November after the first heavy snows. But it was March, and the road had drifted over, taking in the blow of the surrounding coniferous forests.

Treaded snowmobile tracks lined either side of the mounded road. I learned that the difference between the trail of a snowmobile and a skier is geometric. Flexible snowmobile runners can stay level and absorb variations in a drift, while a skier must remain perpendicular to the downward pull of gravity or lose ground in short order. But then, you can't hurry too much when you're keeping watch for wolf sign.

It was my first time tracking wolves so I ran through a list of identifying field marks that I recite during my standard lecture on Wisconsin endangered species: narrow chest; long legs; broad muzzle; wide nose pad; small ears in proportion to a coyote's; carries tail straight out or up, a coyote will carry it downward; yellow-green eyes like a coyote, but not brown like a dog's; weight 50-100 pounds, coyotes rarely reach 50 pounds; and most important, a 4- to-5-inch track.

I had never before been in country I knew actively supported wolves—not unusual for a Wisconsinite. Only since January, 1979 did aerial photographs verify the presence of wolves in the state. Car-kills in Douglas and Lincoln counties later that year provided physical proof. But according to tracks recorded by Scott's brother, Dick Thiel of Tomah, northwest Wisconsin has had wolves since 1975—probably immigrants from Minnesota. Since then, Dick has been organizing wolf-tracking weekends in an attempt to learn the animals' range and numbers.

The state's native population of eastern timber or gray wolves disappeared about 1960. A Wisconsin bounty, finally lifted in 1957, helped eradicate wolves but the radical habitat destruction during the greedy timber harvest in early 1900 was the main cause. To early settlers, civilization meant clearing the land of so much stumps, rubble and wolves.

As I skied on, the sun became hot and the icy snow glistened like a bunch of bright-eyed fourth-graders to whom I had recently lectured. Sitting there in their color-bold, modular school in suburban southern Wisconsin, those nine-year-olds looked like a promise for the future. When I was nine the phrase "endangered species" hadn't even come on the scene. Surely these kids would mark a new era in resource understanding.

As I recall, I started the presentation with a slide of good old *Canis lupus,* and asked, "What do you think of when you hear the word 'wolf'?" Five hands went up. "Scary," said one girl, with especially large eyes. "Mean, vicious critter," added a boy. Two boys agreed, " (The wolf) eats livestock and should be killed." The only objective statement in the bunch was from a girl, "It's in the dog family."

I skied by what from the corner of my eye looked like a canid track. I curled my fist and placed it inside the imprint. The track circled half-an-inch round about my hand. "Scott," I yelled. "Is this one?" My heart leaped. Scott skied up and using the curvature of a transparent compass measured the 4-toed track. "Four by five inches." It was an adult wolf print. I felt not a little pleased at finding the first track of the day. Scott estimated the track at three days old. "Oh, had I only been here three days before," I thought.

Illustration courtesy U.S. Fish and Wildlife Service Endangered Species Technical Bulletin

Taking a broader look around, we could see how two wolves had walked several miles along the forest road. I skied alongside the sets of prints. The pair hadn't left a straight line, but like a skier was concerned with the flatness of the course—sometimes in the middle, sometimes on what in summer would be the shoulder.

Scott found a circular yellow spot on the snow. "A squat. Must've been a female or a submissive male," he said. Had there been blood in the urine we would have known it was a female in heat. Further down the road similar sign in a less concentric pattern indicated the second wolf was male.

As I glided onward I envisioned the pair walking, searching for food. Suddenly their trail dashed off into a drift alongside the road. A large cavity in the snow surrounded by a collage of snowshoe hare and wolf tracks marked a skirmish. The absence of hair and blood led me to believe the snowshoe had escaped. It struck me that the survival creed of a predator must be "try and try again."

Some people dislike wolves because of their predatory nature. This seems to be an absurd hypocrisy since, obviously, we are predators ourselves. An ad in a Minnesota cross-country ski magazine read, "See Lobo the Killer Wolf; killed about 1,000 deer . . . . it took hundreds of men 12 years to trap him."

Anti-predator sentiments often embellish the truth. Based on current

Illustration by Richard Timm, courtesy Nature House, Inc., Griggsville, Ill. 62340

research, if a wolf ate nothing but deer, it would kill one about every 16 days. According to Bill Meier, Department of Natural Resources wildlife manager at Merrill, at this rate Wiconsin's estimated wolves would take 150 deer during a 120-day winter. Wisconsin's annual deer harvest is more than 100,000. The combined illegal kill and crippling loss may be 30,000. Considering these statistics, the wolf is no threat to Wisconsin's deer.

On the other hand, northern Minnesota has a wolf population of 1,200 to 1,500. A small deer herd and several documented livestock kills there have contributed to strong anti-predator or anti-wolf concerns. The current U.S. Fish and Wildlife Service (FWS) policy is to selectively remove individual problem animals. The Minnesota DNR proposed a regulated wolf harvest in part of the wolf's range to reduce potential encounters between wolves and people or property. But because the eastern gray wolf is a federally threatened species in Minnesota and endangered elsewhere, the proposal must receive the FWS stamp of approval.

The high-tempered controversy is a favorite topic of Minnesota newspapers, radio and TV, which regularly find their way into northwestern Wisconsin. Some residents there suggest this contributes to local anti-wolf sentiment. The fact that five Wisconsin wolves were shot in the last couple years supports the idea that not every Wisconsinite is ready to welcome the wolf back.

Last fall Researcher Richard Ames Hook completed a study in Michigan that assessed the public attitude toward wolves. Michigan hunters as a group contradicted Hook's original hypothesis. They proved to be more pro-predator than the general public while trappers had about the same attitude as the public.

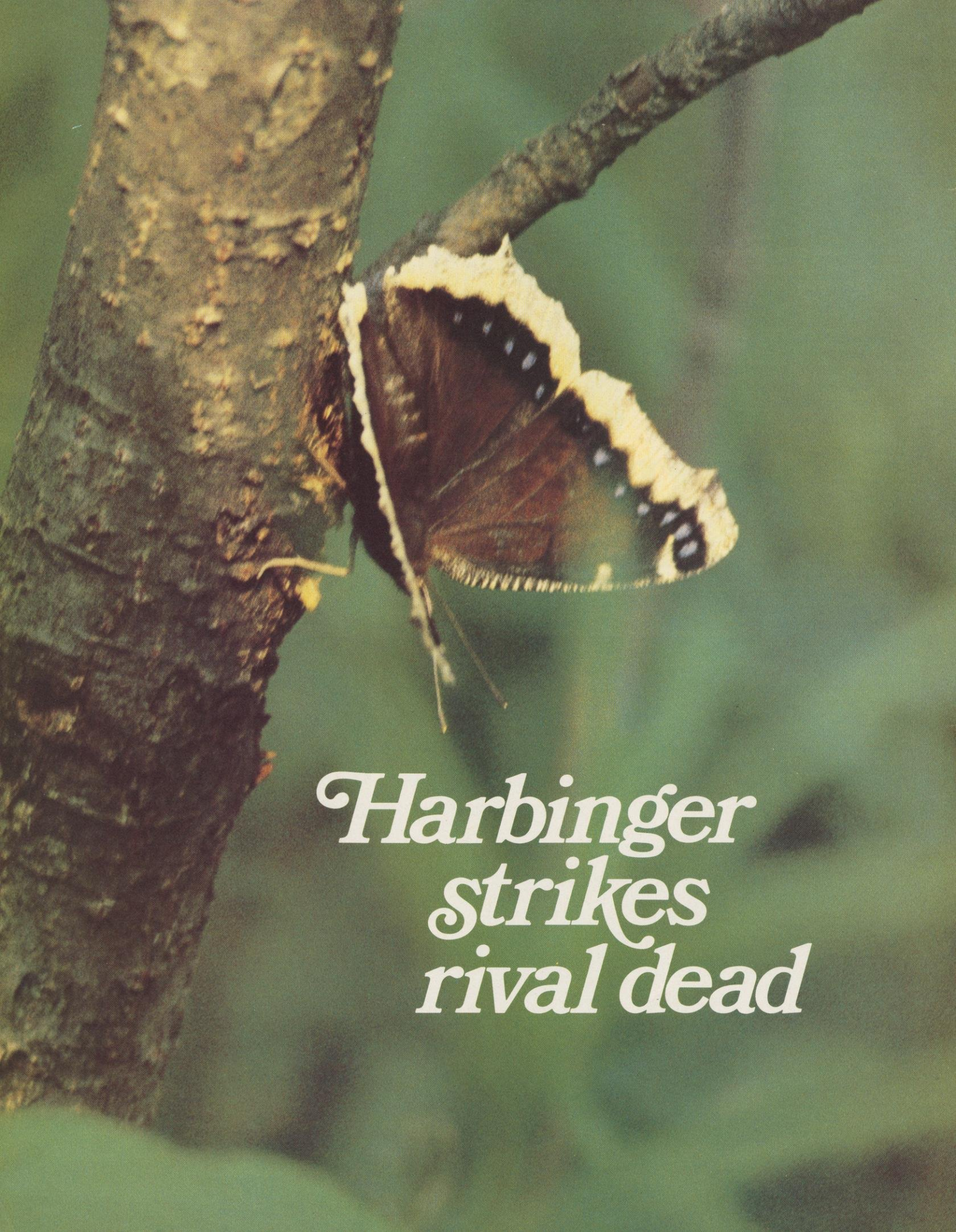
However, it should be noted that though few, the anti-wolf hunters and trappers pose the greatest direct threat to re-establishing a population. They are more likely to encounter wolves in the wild while in possession of a weapon. For this reason Wisconsin's DNR wildlife managers have joined the Lincoln County Sportsmen's Club in helping hunters distinguish a coyote from a wolf, and encouraging them to view the wolf as a unique inhabitant of the wild, not a competitor.

A family group. US Park Service photo.

Back on the wolf trail, the sun told me it was past mid-day. Conditions had slowed us and I knew our comrades at the end of the 11-mile trek would soon wonder if we were lost. I came to a point where the wolf tracks turned into the woods and out of my vision. I was glad those wolves didn't answer to human command or receive meals from human hands. I was glad for the forest around me that was made of the stuff that wolves need to live wild.

The experience strengthened my opposition to keeping pure-bred wolves as pets. While some people believe a wolf in the classroom is a sure-fire educational tool, I question its long-term good. A wolf on a leash sitting in the fourth grade is a dog in wolf's clothing. While it certainly excites kids to pet a "wolf," I truly wonder if it encourages the attitude toward wild things that we would like to instill as a life-long commitment. To me, survival of the wolf as a species requires more than maintaining individuals in zoos or backyard breeding programs. It also requires maintaining the genetic wildness which helped the animal fight its evolutionary battles. Indeed, this wildness is as inherently a part of the wolf as a 4-inch track.

At the trail's end I leaned on my bamboo poles and was reminded of a favorite line from Robert Service's poem, *The Call of the Wild,* " (Have you) grown bigger in the bigness of the whole?" That day I had.



Harbinger strikes rival dead

LE ROY J. LINTEREUR, Area Wildlife Manager, Marinette

The setting in this early spring woods was a blend of trees, the first show of green, and water. A bright sun glistened on trees, the fresh green mosses and sedges, and reflected in pools of water, a remnant of the late departed snow. There was a silence that shouted—something must come of all this, and indeed, it did.

A song sparrow mounted to the tip of a dogwood and began pouring out its heart to the new season. At that precise instant a mourning cloak butterfly fluttered into the scene. Song sparrow music, a lilting butterfly and the bright sun—who wouldn't appreciate a diorama such as this? Well, the song sparrow for one. There was a momentary silence, as in one short, certain flight it struck the butterfly with its bill, and by the time the stricken creature had spiraled to the ground in a little shower of wings and dust, was back on the perch, singing once more. I am broadminded enough to assume that a song sparrow's reaction to certain situations will be not quite human. But after all, a fine spring day is just that and it didn't seem proper that one symbol of the season should destroy another.

Mourning cloaks are fairly large butterflys sporting purple-brown wings edged with yellow. Butterflies are generally regarded as warm weather insects, but the mourning cloak is one that is immune to chill and is one of the first creatures to be on the move when winter fades, often when snow is still on the ground. Most insects and lower animals generally duck the issue "how shall we spend the winter" by just chucking the whole business and dying. But the mourning cloak beats the game by crawling under some protection—a chip of bark, or pile of leaves will do—to await the day when it will join the ranks of the living once more.

There is this to say for early spring—life is at its lowest denominator; the types of animals and plants are limited. There is nowhere the confusion and riot of form and color that marks the latter part of the season. A large dark colored butterfly seen at this time of year will certainly be a mourning cloak. The name refers to the creature's dark colors. The English call it Camberwell Beauty—certainly a more pleasant name.

Why this butterfly should brave the vagaries of our late winter and early spring is a mystery. It is a northern species and ranges right up to the Arctic Circle. Perhaps this was one of the creatures that followed north right on the heels of the glacier as it disappeared. Certainly, if it lives in the Arctic now, it must have inhabited our area when this was a country of muskeg and cascading streams from the departing glacier. For whatever reason, mourning cloaks don't mind snow and I have seen them along the bay sitting next to a mound of ice.

The luckless mourning cloak I saw really hadn't done badly. In a world where the lives of lower animals and not a fewer higher ones are measured in weeks and months, if not days, he had lived from one calendar year and into another. He had made it through autumn and winter and into the early days of spring. His only mistake was to irritate a song sparrow, and I believe everyone is entitled to at least one.

Top: Song sparrow. Photo by Stephen J. Lang, Wisconsin Society for Ornithology.
Bottom: Mourning cloak larva. Photo by J. Baker

Mourning cloak butterfly Photo by Mark Evans

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