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Madison, Wisconsin: Wisconsin Department of Natural Resources, August 1989

SPECIAL SECTION: Groundwater: Protecting Wisconsin's buried treasure

WISCONSIN NATURAL RESOURCES

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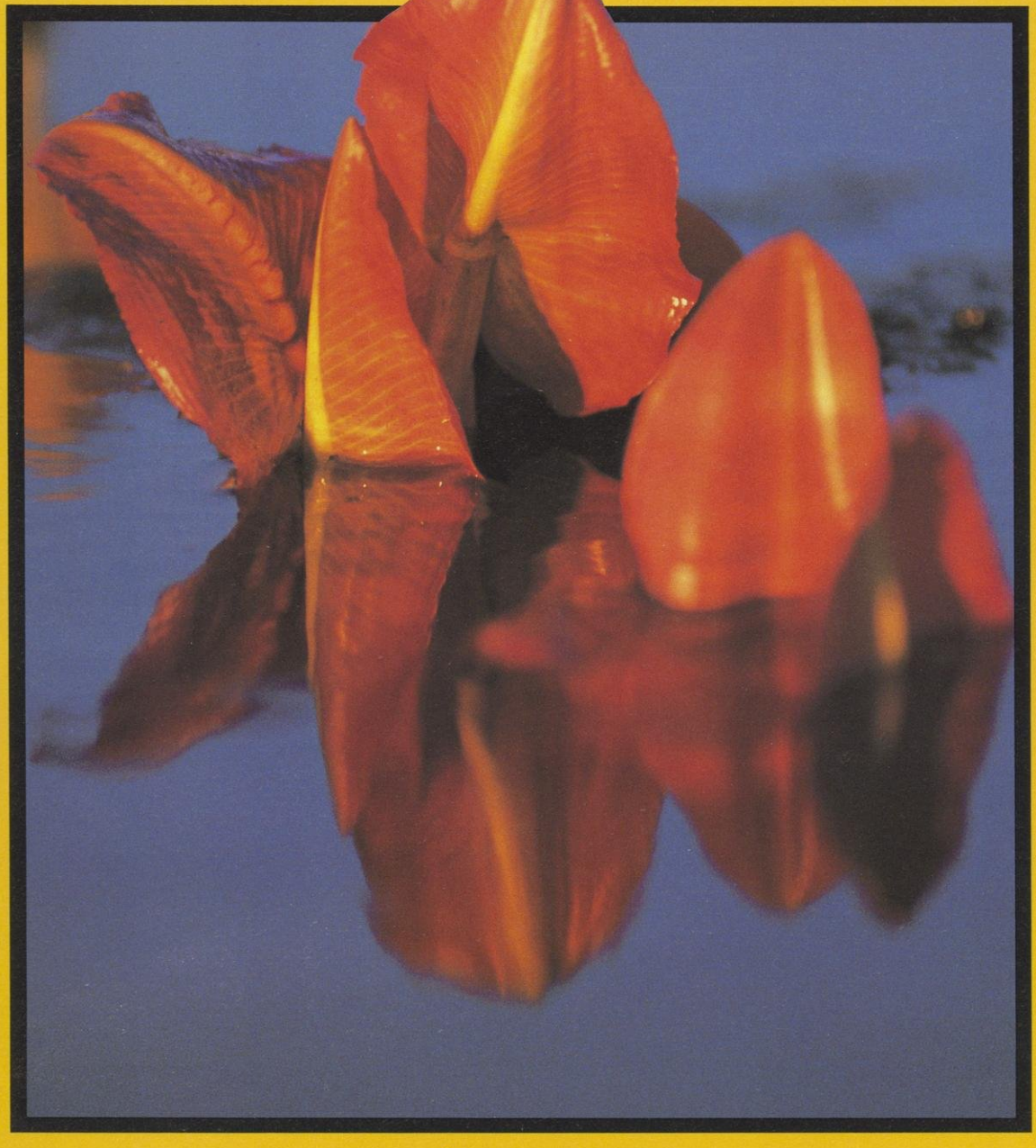

'Shroomin

The joys of family camping

Roadside revival

A "hawk" that hovers

Editor's note: A letter from an observant reader from Oxford prompted reader, photographer and biology teacher Don Blegen to fill us in about hummingbird moths and sphinx moths.

I remember a recent letter to Readers Write in which an Oxford reader described an insect which acted like a hummingbird but was clearly not a bird. I believe he is describing either a sphinx moth or a hummingbird moth, both members of a large group also called hawk moths. Both insects feed on flower nectar and are often mistaken for hummingbirds because they indeed have the same hovering, helicopter-like flight; make the same "humming" sound because their wings beat at better than 60 strokes per second; have the same general body shape as the

continued on page 34

Sphinx moth *(family Sphingidae)* hovers near phlox. When at rest, this moth assumes a sphinx-like pose raising its front sections and drawing back its head. DON BLEGEN

WISCONSIN NATURAL RESOURCES

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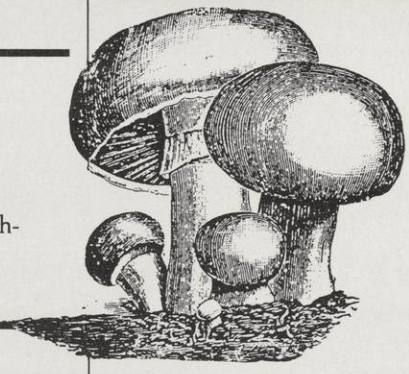
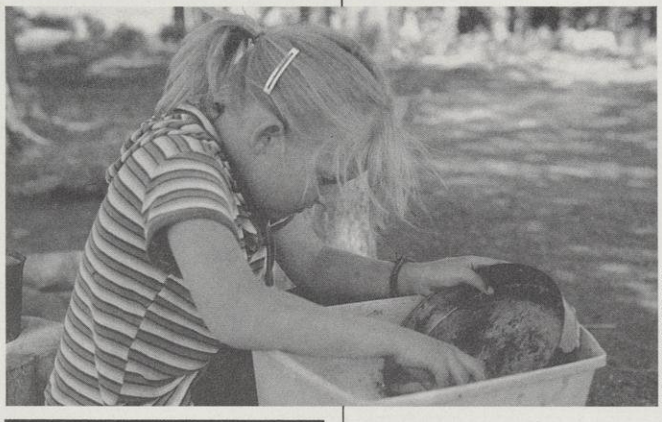
JIM KAZMIERCZAK

DEER TICK NEXT TO DIME

ARVID WIDVEY





CARI TAYLOR-CARLSON

FRONT COVER:
Lily pads emerge and unfurl in the Mink River Estuary, northeastern Door County.
© RICHARD HAMILTON SMITH

BACK COVER:
Tread lightly on the sands of Toft Point. Another special shore described in our p. 28 story. © RICHARD HAMILTON SMITH

© RICHARD HAMILTON SMITH

FEATURES

A little care and time spares Lyme

Stay wary but not worried about Lyme disease.

Jeff Welsch

Lyme disease continues to attract more and more attention. Television reports and newsmagazine articles chronicle the spread of this tick-borne infection, while health agencies and the Department of Natural Resources advise people of simple steps to take to keep the unwanted ticks off their back.

For Greg Delwiche, this heightened awareness and media attention came a couple years too late.

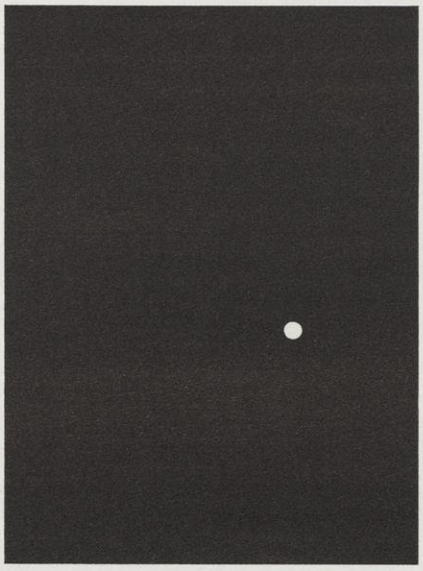
Today Delwiche works as a real estate specialist in the DNR's downtown Madison headquarters, where the only ticks on the premises are secured in covered glass jars. But he remembers back to June 1985, when his now four-year-long struggle with Lyme disease began.

Working then as a land agent in the Dodgeville area, he routinely trekked through underbrush and grassy fields — prime tick habitat — while inspecting properties.

"My wife and I remember it as the summer I slept through," recalled Delwiche. "It started with a three-week bout with a cold and flu. I was tested for mononucleosis because the cold and tiredness lasted so long. Blood tests showed I had an infection, so I was treated briefly with an antibiotic [not one to specifically combat Lyme disease].

"It took a good eight weeks to get over the tired feeling. I hadn't even heard of Lyme disease at the time." And unknown to him, he still harbored the disease.

Lyme disease is a bacterial infection transferred to people and animals by the bite of the deer tick, *Ixodes dammini*. (The deer tick is also sometimes called a bear tick.) The infection is caused by a spirochete bacterium, *Borrelia burgdorferi*, which is carried by some — but not all — deer ticks.



The diminutive deer tick is the size of the white dot above. Carefully search for these ticks at noon and at night. Removing ticks promptly and properly prevents Lyme disease.

The disease was officially recognized in the United States in Lyme, Connecticut in 1975. However the first Wisconsin case that health officials would now diagnose as Lyme disease inflicted a Taylor County grouse hunter in 1968. It took another 11 years before additional cases were reported in the state.

Lyme disease can progress through three stages but every victim does not exhibit every symptom nor do stages necessarily follow the same sequence. In the first stage, usually occurring within the first few weeks after the initial tick bite, you may feel — as Delwiche did — like you've got the flu. Symptoms may include headache, chills, nausea, fever, aching joints and fatigue. About 70 percent of infected people develop a bull's-eye-shaped circular red rash around the bite site that can be up to 20 inches in diameter.

Delwiche didn't develop the rash. For him, stage one of the disease came in the form of a prolonged flu and extreme fatigue.

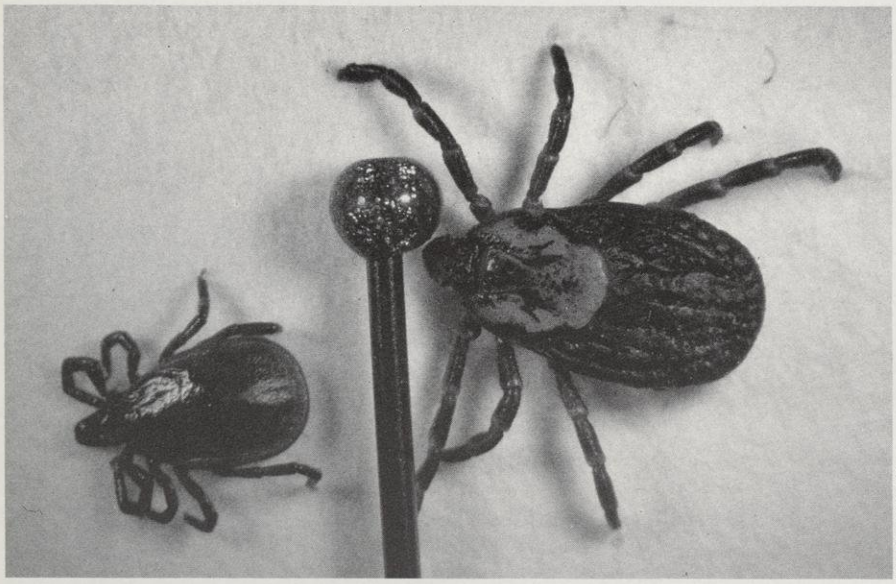
"I could barely get through the work day," he said. "If I knew then what I know now, given my 'typical' symptoms I would have suspected Lyme right away."

At stage one, the disease can be effectively treated with oral antibiotics. If untreated, the initial symptoms usually disappear and the infection quietly progresses to stage two, which may surface weeks or months after that first bite.

During the second stage, the infection may affect the heart or nervous system. Varying degrees of heart block can cause heart arrhythmias, or meningitis, encephalitis or a partial facial paralysis called Bell's palsy. Other symptoms include pain in joints, tendons or muscles.

The third stage of Lyme disease, which can come several months after the initial infection, is typically characterized by arthritis. A much smaller percentage of people may experience central nervous system problems — weak and aching arms and legs — and fatigue.

Antibiotic treatment during the second and third stages is effective but response is much slower than with earlier treatment. As the infection progresses, patients may require



JIM KAZMIERCZAK

The deer tick (left) is just a little bigger than a pinhead but much smaller than the wood tick (right).

intravenous or repeated antibiotic treatment to bring relief.

Diagnosis can be difficult. The variety of Lyme disease symptoms are often mistaken for something else.

Delwiche first read about Lyme disease in 1986, and he was feeling fine then. That summer his sister, who lived in Eau Claire, complained of joint pain and fatigue; she could barely climb steps. Her doctor diagnosed the problem as rheumatoid arthritis.

Ironically, it was Delwiche who suggested that his sister get tested for Lyme disease. Her blood test was negative, but she was treated with antibiotics and her condition subsequently improved.

For Delwiche, it was chest pain — not the more typical heart block — that had his physician suspecting anything but Lyme disease.

"I started having chest pains in 1986, but they were minor and easy to deal with," he noted. "Then early in the summer of 1987 the chest pains came back and they were too severe to ignore. My doctor did some tests, thought it was something musculoskeletal, and prescribed an anti-inflammatory drug that seemed to help."

But in 1988, after several months without problems, the chest pains were back and worse than ever.

More testing. A visit to a cardiologist. Delwiche and his wife discussed the possibilities of Lyme disease, but figured it couldn't be — he knew about the symptoms, and none matched.

This spring, the chest pains came back again. Fed up with it all, Delwiche asked his physician to test him for Lyme disease.

"My doctor said he didn't see how the chest pain could be related to Lyme's," Delwiche recalled. "I accepted his rationale, but then asked him about something I thought was unrelated to Lyme disease: my weak, tingling arms.

"That problem, he told me right away, *was* a symptom of Lyme disease. Finally, I learned what they meant by 'central nervous system problems.' "

According to Jim Kazmierczak, epidemiologist with Wisconsin's State Division of Health, increasing awareness of Lyme disease among state residents is having a positive effect in the fight against this growing problem.

"The number of reported, confirmed cases of Lyme disease in Wisconsin has grown steadily since 1979," said Kazmierczak. "I don't know if the number of cases will plateau, but I'm sure that improved awareness and preventive measures

Be smart in the outdoors

Take precautions:

- Wear light-colored clothing to make it easier to see the small ticks.
- Tuck your pants into your socks. Wear a long-sleeved shirt and tuck it in too. Ticks look for exposed skin to attach to.
- Walk down the middle of trails. Avoid brushing against vegetation as much as possible.
- Use a tick repellant or insecticide. Products that contain 30 percent DEET are effective in keeping ticks off and are approved for application on skin. A product called permethrin will actually kill any ticks that come in contact with it. Permethrin is NOT approved for applying to skin. Use it on clothing and shoes only.
- Check yourself, family members and pets for ticks. Make tick checks a part of your bedtime routine. If you're outdoors all day, do a tick check mid-day and then again before bed.

If you find a tick imbedded on you:

- Remove it using a tweezers. Grasp the tick close to the skin and pull it straight out, being careful not jerk or twist the tick. Don't squeeze the tick's body — squeezing will make it act like a syringe, injecting you with whatever it has in its stomach. Don't use oil, alcohol or a match to remove it.
- Watch the bite site. Contact a physician if you become sick or if a red rash develops. Just because you've been bitten doesn't mean that you'll get Lyme disease — not all deer ticks carry the disease. Research shows that a tick must be imbedded in the skin and feed for 12-24 hours before it can transmit the infection.

are making a dent."

The first cases in Wisconsin occurred in the northwest part of the state. Now with each year, the deer tick is working its way southeast, hitching rides on white-tailed deer to expand its territory.

"Most cases of Lyme disease still originate north and west of the Wisconsin River," Kazmierczak said. "But the tick has crossed the Wisconsin River. We're seeing cases originating in the Marinette area, and in Dane County, we know the tick over the past couple of years has moved from Arena east to Cross Plains."

The greatest concentration of Lyme disease cases in Wisconsin originate from "hot spots" near La Crosse, Spooner and Fort McCoy where the percentage of infected ticks is increasing. However, cases have originated in 55 of Wisconsin's 72 counties.

To date, more than 1,300 confirmed cases have been reported in Wisconsin. Last year there were at least 258 confirmed cases of Lyme disease. That figure, says Kazmierczak, is undoubtedly low — he suspects many cases went unreported. And the outlook for this year isn't promising.

"Last year's drought slowed the tick activity — they need a humid environment to live in. Ticks will probably be out in abundance this year, maybe more than last year," said Kazmierczak. "With the combination of better weather conditions for ticks and increased awareness among people, we could see a record number of cases this year."

The deer tick's life cycle may take two to three years to progress from egg to larva to nymph to adult. According to Sarah Hurley, DNR wildlife health specialist, ticks can easily survive more than a year without taking a blood meal or finding a host.

"Ticks need that blood meal to grow from stage to stage or to lay eggs, though," said Hurley.

Adult deer ticks begin looking for an over-winter host — a large mammal to carry them through the winter — in late September. Their quest continues until the ground is snow covered. The ticks' preferred habitat is grassy, shrubby edges of wooded areas. However, they're also found in open grassy areas and deep in forests.

"Ticks don't jump or fly onto you. They become attached to your clothing after you brush up against grass or a bush where it's clinging," added Hurley.

The adults will climb as high as three feet on vegetation, looking for a deer or raccoon — or maybe a dog, cow, horse or human — to attach to. Young ticks climb up about six inches on grass or low shrubs, looking to attach to a small mammal, usually a mouse. Tick nymphs are usually out looking for a host between May and August.

"Mice are the key element in maintaining Lyme disease," said Hurley. "Larva and nymphs are usually on mice. Deer are important in extending the range."

Thus, it's not surprising that the Division of Health records the highest percentage of Lyme disease cases from May through July, with a smaller peak of cases in September and October.

Delwiche remembers spending time out in the fields and forests of Sauk and Richland counties during the spring of 1985. In addition to mammals, researchers have found that game and migratory birds also carry the Lyme disease antibodies. While this offers proof that mammals and birds become exposed, researchers don't know if all the species actually become diseased.

Dairy cattle and dogs do show some symptoms and respond to antibiotic treatment.

"There's no evidence that any of these animals, including game birds, can transmit the disease directly to humans," said Hurley. "And with the exception of white-footed mice, there's no evidence that animals can pass it on to ticks that feed on them"

For deer hunters, it may be possible but not likely to get infected while handling blood and tissue from an infected deer.

"It's not a common way of getting infected, but it is possible," said Hurley. "The bacteria could enter through a mucous membrane or broken skin. There's no documented cases of this happening out in the field, but it reportedly happened in a lab."

If a deer hunter gets Lyme disease, Hurley says it's more likely to have come from a tick bite than from dressing and butchering a deer. She suggests wearing latex or rubber gloves as a precaution for those hunters who are concerned about handling deer.

There's no risk from getting infected by eating the meat of a game bird or deer carrying the disease. The bacteria is very heat sensitive — any meat that's cooked or smoked will kill this bacteria.

Hurley and Kazmierczak both agree that it's safe to go outdoors in Wisconsin. Hurley compares it to other infectious diseases, like catching the flu at work: "When you know you risk infection, you take precautions."

Kazmierczak noted that in the Eau Claire area, some families have made tick checks a part of their bedtime routine, like brushing their teeth. "If you take precautions and are aware of the symptoms, you don't have to worry about Lyme disease," he added.

Finally, after four years of "wondering when this is going to get better," Delwiche received antibiotic treatment for Lyme disease.

"When I started treatment I felt lousy," he recalled. "The symptoms seemed to worsen for a while, especially the fatigue and joint pain.

"Now that general sickness feeling is gone. My arms still feel sore some times and there's some chest pain."

Still, life is getting better for him.

"Before I was diagnosed, when the severe chest pains hit I feared 'this was it.' Now that I know it's Lyme disease, I can deal with it."

Jeff Welsch is a DNR public information officer stationed in Madison.

WISCONSIN TRAVELER

AUGUST 1989

INSIDE

VOLUME 1 NO. 3

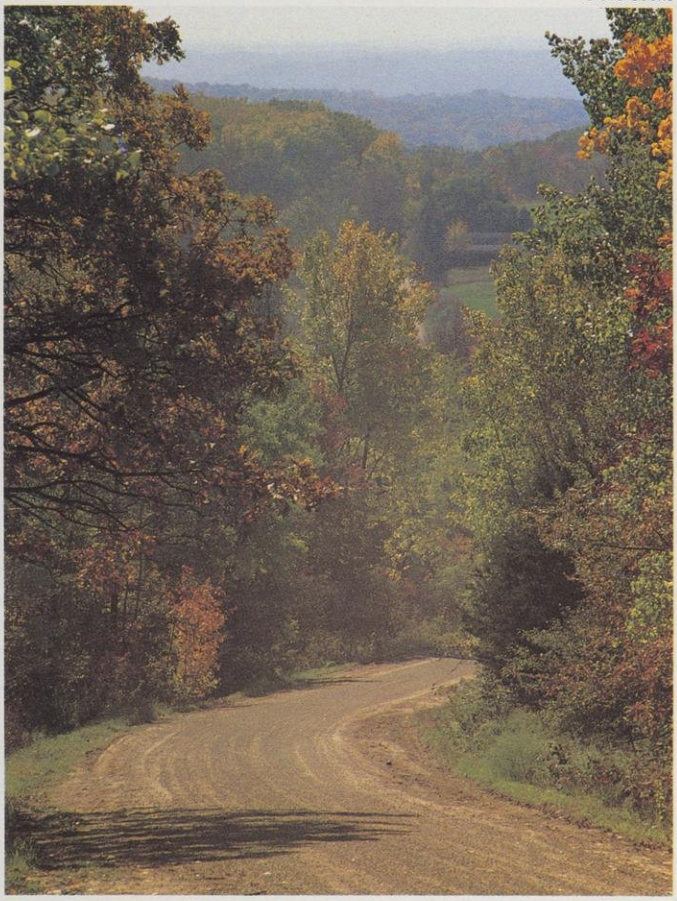
RUSTIC ROADS

The road not taken

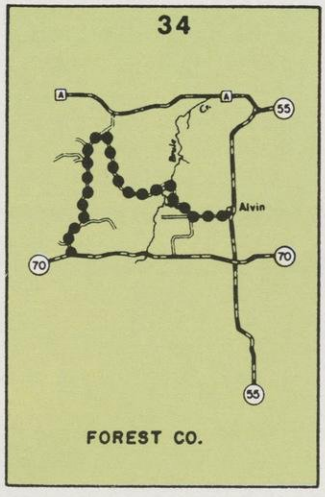
In 1973, Wisconsin took a "positive step backward" to save the panorama of rural life by establishing the Rustic Roads program. Fifty-three scenic back roads now bear distinctive brown-and-yellow signs alerting travelers to the rugged terrain, native vegetation and wildlife, agricultural vistas or other outstanding natural features along their borders.

Beauty and a splash of adventure await cyclists, hikers and motorists who follow Rustic Roads. Lightly traveled, from two to 26 miles in length, the dirt, gravel or paved rustic byways are the best way to see Wisconsin — especially northeastern Wisconsin — up close.

When wanderlust strikes, it's time to set out for one of Wisconsin's Rustic Roads. Steve Coons



To escape the steamy dog days of summer, head for the cool forests of Forest County. Rustic Road 34 (R-34) near Alvin winds through the towering timber of the Nicolet National Forest, crossing Brule Creek. Along the way, you may see loggers and foresters at work amid the trees. When you reach the creek, pull over. Take a deep



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Fore-ward!

Atop Wisconsin's state capitol building there stands a golden statue of a woman, a glittering symbol of the state motto, "Forward." Her arm is extended toward the future as if to grasp tomorrow.

That's what you're supposed to think. Actually, our golden girl reaches eternally for a 9-iron she tossed into the heavens after shanking her last drive into the rough. "Fore ... ward!" forever frozen on her lips, she challenges golfers near and far to play a round on Wisconsin's outstanding links.

Wisconsin is fast becoming one of the nation's top golf touring destinations. With 122 18-hole and 107 nine-hole courses open to the public, golfers can get their fill of rounds and still

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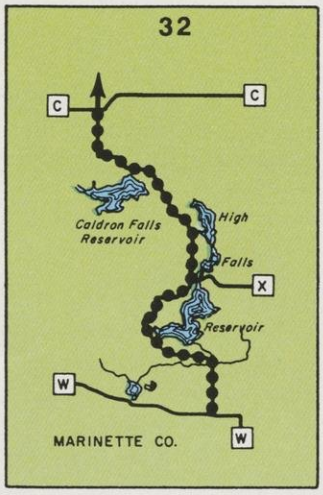
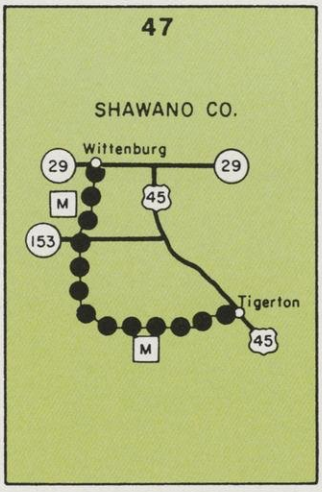
breath of the bracing, pine-scented air. Walk down to the banks and dangle your toes in the cold, clear water. If it happens that your waders and fly rod are in the trunk, you're in luck: The brook trout of Brule Creek are always game for a lively round of hide-and-seek.



On to R-32 in western Marinette County, a 26-mile drive skirting the Peshtigo River. Stunning vistas of Wilson Rapids, the Thunder River, High Falls Reservoir and Caldron Falls Flowage are yours from this scenic byway. Pack a picnic lunch; there are three county parks on the route where you can stop to munch.

Right-of-Way Road in eastern Marinette County is better known by another name: R-44, a lovely route passing through the Lake Noquebay Wildlife Area. Take your time on this one! (The maximum speed limit on Rustic Roads ranges from 35 to 45 mph; you're welcome to drive slower, of course.) White-tailed deer, ducks, geese, cranes, hawks and herons are the main attractions on this road. After your ride on R-44, it's a short hop to the scenic harbor in Marinette, or to historic Peshtigo, where visitors can learn about the nation's most destructive forest fire at the Peshtigo Fire Museum.

Complete your rustic northeastern rendezvous with a ride down R-47, linking the towns of Tigerton and Wittenberg in Shawano County. Here, the expanse of sandy central Wisconsin farmland gradually gives way to forest.

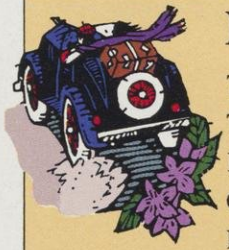


Notice the number of hardwoods. Just north of Wittenberg you'll find Aniwa, home of Reynold's Sugarbush, the world's largest single stand of maple trees used as a source for maple sugar and syrup.

In a couple of weeks, the maples of northeastern Wisconsin will be turning from a cool green to fiery hues of red, yellow and orange ... and you'll have another reason to take to the Rustic Road(s).

For a Rustic Roads brochure with maps, write the Wisconsin Department of Transportation, P.O. Box 7913, Madison, WI 53707 or call (608) 266-3661. Other information: Nicolet National Forest, (715) 362-3415; Marinette Chamber of Commerce, (715) 735-6681; Peshtigo Chamber of Commerce, (715) 582-9230; Reynold's Sugarbush, (715) 449-2057. Call 1-800-432-TRIP for a free Wisconsin vacation planning kit.

Need more information?

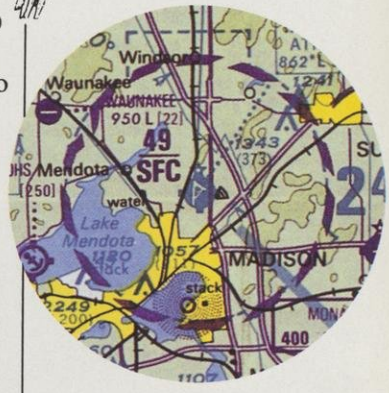


Travel questions: 1-800-372-2737
Travel publications: 1-800-432-TRIP
Road conditions: 1-800-ROADWIS
Outdoor recreation: (608) 266-2277
Historical Society sites: (608) 262-9606

Dairy airborne?

First, reinforce the balsawood struts of your 1909 biplane with duct tape. Then, consult the 1989 aero chart prepared by the Department of Transportation's Bureau of Aeronautics. The free chart shows the location of all public, military and most private airports in the state, and lists light activation codes, radio frequencies, flight plan sequences and other important information for pilots.

You'll find the locations and computer phone numbers for Wisconsin's WeatherMation units on the aero chart, too. Aviators and anyone with access to a computer can use this free, 24-hour satellite-fed service to get instantaneous detailed weather maps and forecasts. For a copy of the aero chart, call (608) 266-3351 or write DOT Bureau of Aeronautics, Box 7914, Madison, WI 53707.



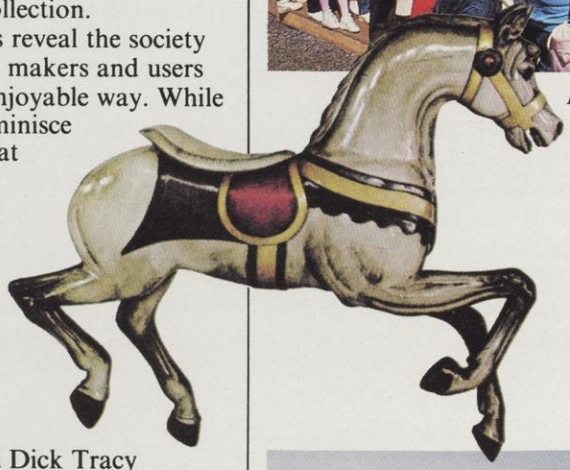
Toys on track

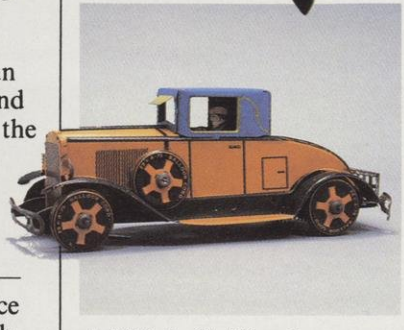
Artrain, the nation's only traveling museum on a train, will roll into five Wisconsin communities with freight guaranteed to make you feel like a kid again.

Inside Artrain's three gallery cars, you'll find teddy bears, tiddlywinks and even an Etch-A-Sketch in "Treasures of Childhood: 150 years of American Toys," a free exhibit featuring over 300 of the finest pieces from the Lawrence Scripps Wilkinson Toy Collection.

Toys reveal the society of their makers and users in an enjoyable way. While you reminisce over that once-coveted Dick Tracy squad car or vintage Barbie, your children can play with toys, games and mechanical banks from the 19th century in the "hands- on" displays. Several displays compare ancient, antique and modern toys — you'll find that dolls, dice and tops from the fourth century A.D. are remarkably similar to toys made as recently as 1982. On Artrain, you'll see how the venerable, beloved teddy bear was "invented" and learn about the history of board games.

Five brightly painted train cars house the mobile museum exhibit.
The Livingston County Press

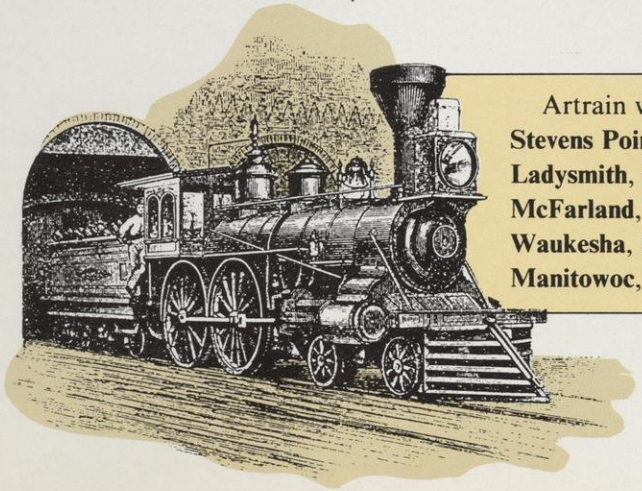




A 1931 tin Cadillac Coupe.
John Donabedian & David Gage

Toymakers, artists and volunteers from each community craft toys in Artrain's studio demonstration car and are happy to answer your questions. Take time to browse in the Museum Shop for gifts.

Board Artrain in Wisconsin and be sure to bring your children. When they see you smiling at all those toys, they'll finally believe you were a kid once, too.



Artrain will be on track in:
Stevens Point, Sept. 6-10 • (715) 344-2556
Ladysmith, Sept. 14-18 • (715) 532-7170
McFarland, Sept. 22-26 • (608) 838-3152
Waukesha, Sept. 29-Oct. 3 • (414) 549-8160
Manitowoc, Oct. 7-11 • 1-800-922-6278

Class act

Add a little class to your next Wisconsin adventure. How? By making room in your itinerary for a day of environmental education.

Learn the call of the timber wolf. Make a pair of snowshoes. Discover wild plants you can eat. Bone up on birds, bats and bugs. Perfect your fly-casting technique. A dash of new knowledge about the land you're traversing and its inhabitants doubles the pleasure of travel — and a class is a great way to meet people who share your interests.

"Environment '89," a catalog compiled by the UW-Extension Environmental Resources Center, lists adult education workshops and classes offered each month around the state by the Department of Natural Resources, nature centers, schools and environmental groups. The courses are grouped by month and by region; it's easy to plan in advance with registration information right at your fingertips. Sign up! It's a classy way to get acquainted with Wisconsin.

Spy on nature in an outdoor classroom. *Jean B. Meyer*

Environmental Resources Center, UW-Extension, 1450 Linden Dr., Madison, WI 53706.

Get hitched

Park your horseless carriage and join the devotees of true horsepower on Sept. 9-10 at Villa Louis in Prairie du Chien for the 9th Annual Carriage Classic, one of the nation's largest and most stylish horse-drawn carriage and sport-driving shows.

Hitched singly, in pairs or as a four-in-hand (four horses, one driver) the sleek, powerful steeds will pull carefully restored carriages around the grounds of the 1870s cream-brick mansion built by Hercules Dousman, a wealthy fur merchant. Drivers holding the reins demonstrate their skill in handling the lively hitches while you sip tea or dine on the Villa lawn. If you're not content to watch, take a carriage ride!

Carriage Classic sport-driving events begin at noon and dinner is served at 6 p.m. on Saturday, Sept. 9; the parade class is held at noon on Sunday, Sept. 10. The lavish, authentically furnished mansion will be open for tours during the weekend. Entrance fees for the carriage show are included with admission to Villa Louis: $4 for adults, $1 for children ages 5-17, under 5, free. The carriage show alone: $1. Villa Louis, (608) 326-2721.

State Historical Society

Wisconsin Traveler is produced by Wisconsin Natural Resources magazine in cooperation with Wisconsin's Division of Tourism Development, Department of Transportation, and State Historical Society.

Chip near the cannas on the 16th hole at SentryWorld.

Wisconsin Division of Tourism Development

Continued from page 1

have time for fishing, sailing, auto-touring, bicycling, antiquing, dining and more ... golf.

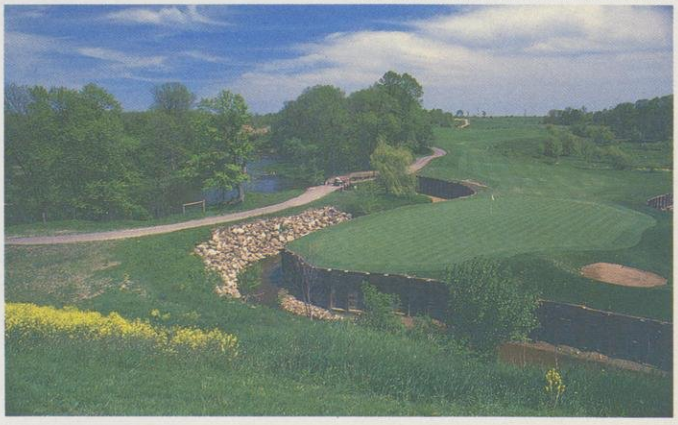
Nature is a part of every foursome on Wisconsin courses. Consider **Blackwolf Run** in Kohler, a stunning new course built into the glacial landscape of the Kettle Moraine with elevated greens and the Sheboygan River as a natural hazard. Or **Madeline Island**, in La Pointe on the Lake Superior island of the same name. (Take the 15-minute ferry from Bayfield to get there.) Designed by Robert Trent Jones, Sr., the course features nine double greens played from different fairways set amid thick pine forests and dense underbrush. Let the deer play through, please.

The 16th hole on Stevens Point's **SentryWorld** has delighted (and tormented) golfers the world over — it's surrounded by thousands of blooming flowers that form a dazzling, heady hazard. **The Springs** in Spring Green adjoins American Players Theater; hook a shot and you might have to ask Hamlet for a gimmie. From **The National** in Mishicot to **The Little River Course** in Marinette, golf enthusiasts will find Wisconsin a "foreward" state.

For a free *Wisconsin Golf Directory*, write the Division of Tourism Development, P.O. Box 7606, Madison, WI 53707 or call 1-800-372-2737. For a free Wisconsin vacation planning kit, call 1-800-432-TRIP.

Blackwolf Run's elevated greens raise golf to new heights.

Wisconsin Division of Tourism Development



'Shroomin

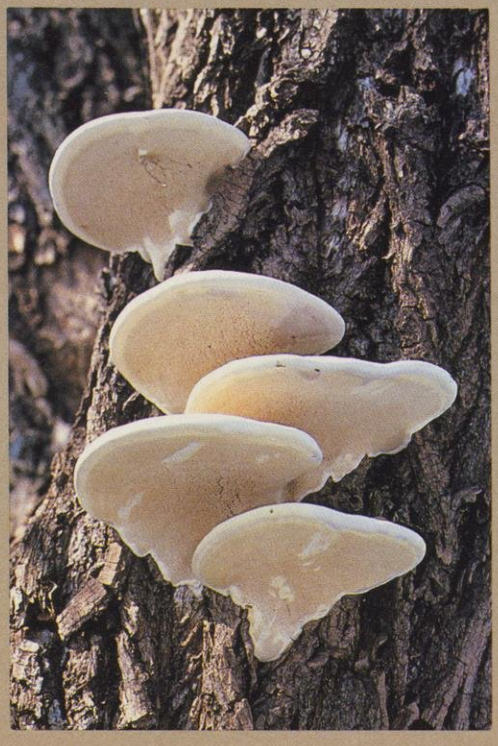
Fresh mushrooms are ripe for fall picking.

Charles Fonaas

It's surprising how many people still believe that toads can cause warts, that most snakes inflict deadly bites and that all wild mushrooms are poisonous. In spite of environmental awareness in society, many would still stomp a garter snake and are afraid to look at a toadstool the wrong way. These people are missing out on some of nature's finest creations.

Mycology (the study of mushrooms and fungi) is fascinating for professional and amateur alike. Practically no equipment is needed and in many cases interesting, edible varieties can be found close to home, even in your own backyard.

Before we get started on our mushroom hunt, let's briefly discuss what mushrooms are and what they do. A mushroom is actually the fruiting body of a much larger organism that we don't see. This fungal colony is made up of tiny strands called hyphae. The mass of thread-like hyphae form the mycelium. This mycelium lives under ground, on dead wood or on trees, feeding on organic matter rather than on nutrients absorbed from the soil.



Since mycelium spread slowly, when it's time for the organism to reproduce it develops a mushroom as a speedier route for spreading spores. Mushrooms usually, but not always, form in fall following a rain so the windborne spores can settle into moist soil and spread the mycelium

(top) Shaggy mane, *Coprinus comatus.* A delicious, edible mushroom when picked young.
(bottom) Artist's conk, *Ganoderma applanatum.* Pictures can be etched into it's creamy white underside.

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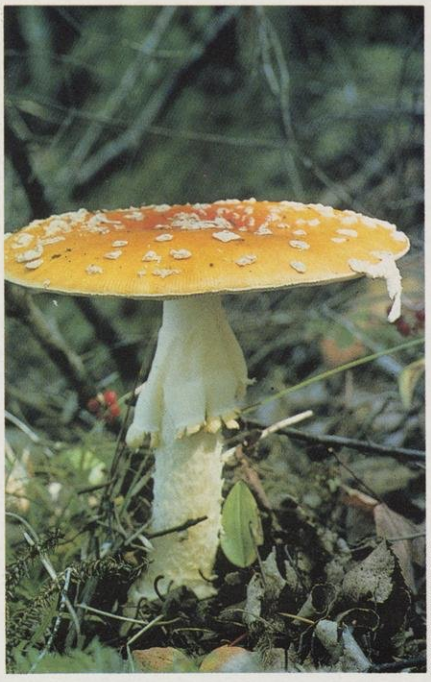
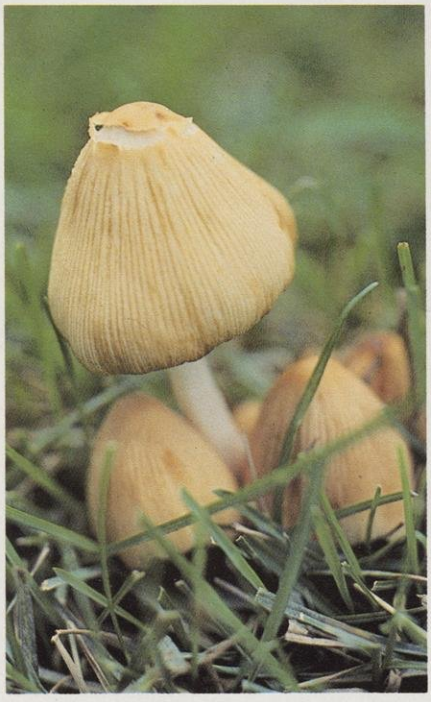


ROBERT A. HILLESTAD



Fly agaric or fly amanita, *Amanita muscaria*. should not be eaten. Its toxins produce deep sleep, vomiting, hallucinations or reportedly death.

Mica caps, *Coprinus micaceus*, are delicious if cooked shortly after picking.

Sulfur shelf, *Laetiporus sulphureus*. Only its tender outer edges are considered good eating.

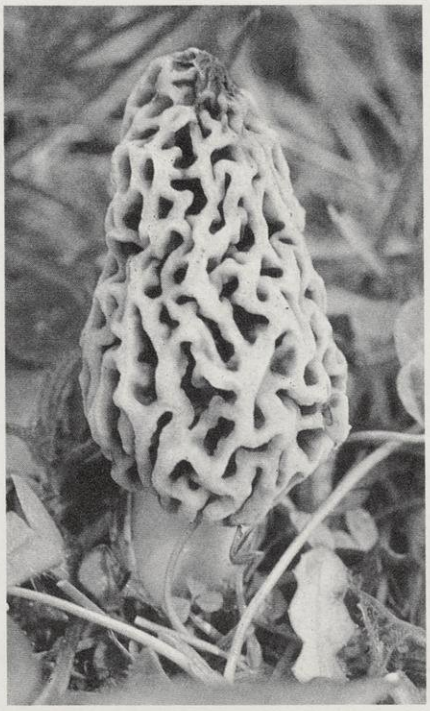
over a wider area. This little bit of science will help prepare us for our mushroom hunt.

Let's get started. You'll find most of the supplies you'll need at home.

First, get a sack to carry them. A shopping bag with handles will do nicely. We'll also need some plastic containers (old margarine containers are fine) to carry the more fragile types and some waxed paper to wrap the larger finds. A jackknife can be very useful for cutting mushrooms from wood. Also take a good field guide. Unless you are an expert or can bring along someone who is, this is your best source of information. Try borrowing a few guidebooks from the public library or a friend until you find one you are comfortable using in the field. The field guide is probably the only thing you'll have to buy.

Before you go hunting, here are a few things you should know.

- When collecting mushrooms, make sure you keep different species apart. Always wrap them separately to avoid mixing potentially poisonous ones with edible ones. The risk of accidentally picking and eating poisonous mushrooms will be minimized if you consult your guide whenever you are in doubt.
- When you first start picking mushrooms, stick to the species that are easy to identify.
- Never put your mushrooms in the sun as they rapidly spoil. When you reach home, refrigerate them or put them in a cool place.
- Cut specimens down the middle to check for insect larvae that may have laid claim to your mushroom before you found it.
- Always keep one sample of each mushroom refrigerated. In case you have an allergic reaction, you'll want to show the doctor what you ate.
- Only eat a small amount of a new mushroom at first. Don't let this advice scare you. We are all subject to allergic reaction to certain foods, especially ones we have never tried before. The mushrooms we're going to be looking for are some of the easiest to identify and are nearly unmistakable. Learn to identify the more common varieties before foraging for the lesser known varieties.



Common morel, *Morchella esculenta*, is considered Wisconsin's gourmet wild mushroom.

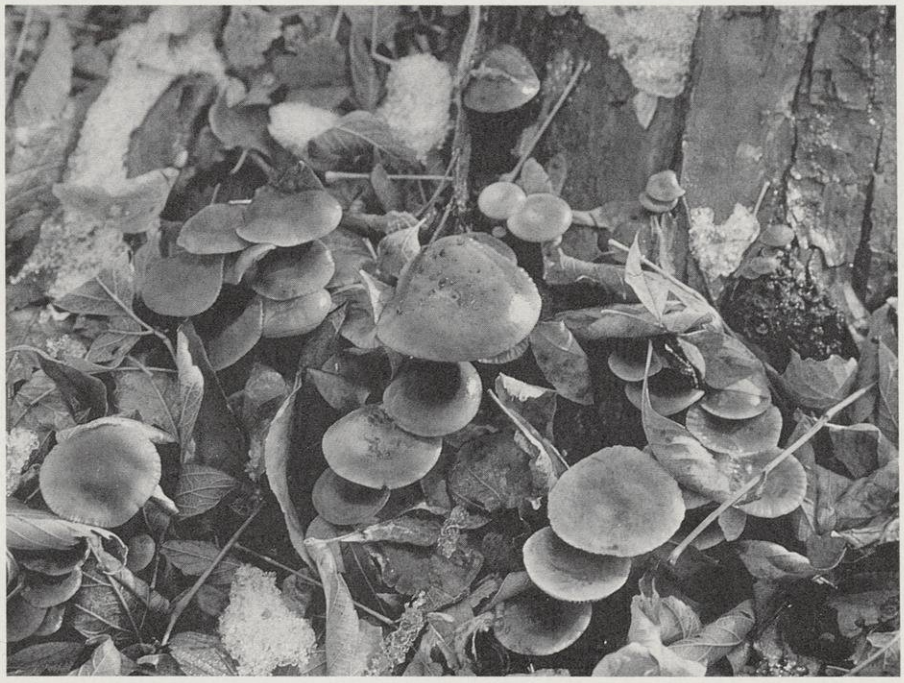
In May, we hunted for the common morel (*Morchella esculenta*) on the ground among hardwoods or in grassy areas that have recently been burned. Morels are considered by many to be the finest of all edibles whether sauteed, stuffed, broiled or frozen for later use. All *Morchella* are edible and easy to identify. *Esculenta* is two to five inches tall and one to two inches in diameter. It has an enlarged white base and a pitted cap that varies in color from white to gray to tan. The distinct cap that reminds me of a peach pit is attached directly to the stalk.

The false morels, though occasionally eaten, are not recommended. These mushrooms are reputedly poisonous unless specially prepared. Their caps are unattached, wrinkled and brain-like rather than pitted.

Unlike the morels, most mushrooms are found in late summer and early fall. The best time to hunt them is in that humid, muddy time shortly after a rain. If you've got some old clothes, wear them!

Another popular and unmistakable edible is the sulphur shelf (*Laetiporus sulphureus*). It is a member of the polypore group and it's not a true mushroom because it does not have a central stalk, it has pores on the underside rather than gills, and it is roughly shelf-shaped rather than the usual umbrella shape of most mushrooms. The polypores are a pretty

Winter mushrooms, *Flammulina velutipes*, start life as a white button mushroom in November and December. Full-grown Flammulina, called velvet stems are shown on page 17.



safe choice for eating since the entire genus has no poisonous species. Sulphur shelf is found mostly in late summer and early fall although it can also be found in spring. It grows on dead and decaying wood in overlapping shelves in shades of yellow and orange. When preparing sulphur shelf eat only the tender outer margin as the inner growth is rather tough. Some say it tastes like chicken and is very good when sauteed in butter.

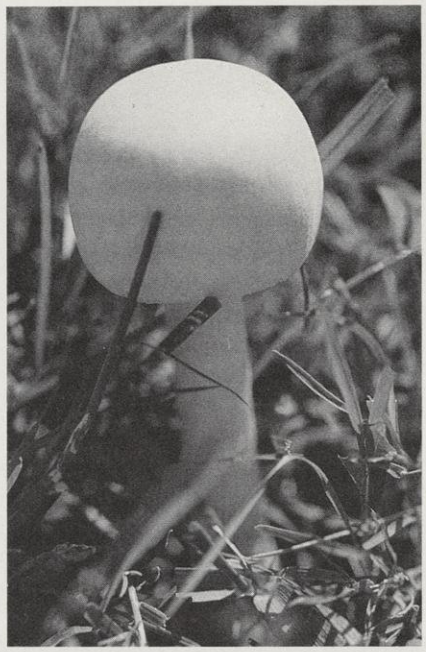
Now, let's discuss some of the gilled mushrooms, or agarics. We'll start off with two from the genus *Coprinus*. The shaggy mane (*Coprinus comatus*) is a common mushroom in our state. However, finding specimens in edible condition isn't easy. Good ones look something like a closed parasol. They are moist, ivory in color and stand about five inches tall. As the name implies, the cap is shaggy with pieces of the cap peeling away. Shaggy manes can be found in grassy areas and under hardwoods, usually in September.

Shaggy manes should no longer be used once the cap starts to turn dark nor should they be eaten in combination with alcoholic beverages. Soon after turning dark, the cap turns into a black goo as it disintegrates. This process, known as auto-digestion, is caused by an enzyme and has earned them their common name, the inky caps.

The mica cap (*Coprinus micaceus*) is another common edible. It's usually found in greater quantity than shaggy mane but is considerably smaller at 2½ inches. We can find mica caps just about anytime except winter. They usually grow in clusters on dead wood, stumps and grasses. Their simple, attractive striate caps of orange-tan have tiny gold flecks, hence their name.

Both shaggy mane and mica caps are considered good eating. They should be prepared as soon as possible. Cooking will stop the auto-digestion process while simple refrigeration tends to speed it up.

The honey mushroom (*Armillaria mellea*) is found in many parts of the world, but the many variants of this



Meadow mushroom, *Agaricus campestris*.

species are more difficult to distinguish. However, even beginning mushroomers can easily identify the most common form. Usually, it can be identified by its hairlike fibers on the honey-colored cap. The mushrooms stand three to five inches tall on a white to tan colored stalk which is sometimes enlarged at the base. *Mellea* also possess a veil: a protective tissue that covers the mushroom while in the button (young) stage. As the mushroom cap breaks through the veil some of it sticks to the cap, the part that connects the outer rim of the cap to the stalk. When the cap opens, the veil pulls back around the stalk leaving a sort of filamentous collar. This is another identifying mark that we should watch for while hunting. Honey mushrooms grow in late September in clusters on or near dead wood.

Nearly everyone has seen is the meadow mushroom (*Agaricus campestris*) at one time or another. *Campestris* looks very much like the common store-bought mushrooms. It grows in lawns and parks on cool days in spring and fall. It usually stands about four inches tall with a cap three to four inches in diameter. It has a partial veil and pink gills. To avoid confusing this with other possibly poisonous species, always remember that this mushroom grows in grassy areas. If you see a mushroom that looks like *campestris* growing in a wooded area or other habitat, it is not *campestris*. Consult your field guide.

Spore prints

Photos are valuable for identifying mushrooms, but there are other ways to record your finds and single out difficult species. Microscopic spore in-

Honey mushrooms, *Armillaria mellea*, are a choice find in fall.

spection is a bit beyond most of us, but you may want to try making a spore print. Cut the mushroom stalk off just beneath the cap and then place it gill side down on a piece of white paper. Cover the mushroom with a bowl and leave it for several hours. The spores will drop onto the paper forming a distinctive pattern. Most field guides will describe the characteristics of each species' spore print. For instance, the meadow mushroom has a medium brown spore print while the honey mushroom has a white spore print.

Although the majority of mushrooms are nonpoisonous, they are not all pleasant to eat. Many are indigestible, tough or just plain taste bad. A smaller number of species truly are poisonous or deadly.

The fly agaric (*Amanita muscaria*) is a large, beautiful mushroom with a yellow-orange cap covered with white flecks. The white flecks are actually the remnants of the veil which stuck to the cap as it grew. The mushroom attains a diameter of seven inches, equal to its height. Though very attractive, it is not edible. It contains several toxins that can cause hallucinations, deep sleep, vomiting and, reportedly, death. It is found only in wooded areas and is unmistakable in appearance.

Another attractive but inedible species is the jack-o-lantern (*Omphalotus illudens*). It is a beautiful yellow-orange and grows in clusters near the ground on dead stumps in late summer and early fall. If eaten, jack-o-lantern causes extreme nausea and vomiting. Recovery takes a day or so.

The two best known villains of the poisonous mushroom world are the destroying angel (*Amanita virosa*) and the death cap (*Amanita phalloides*). Both are deadly and both are found in Wisconsin.

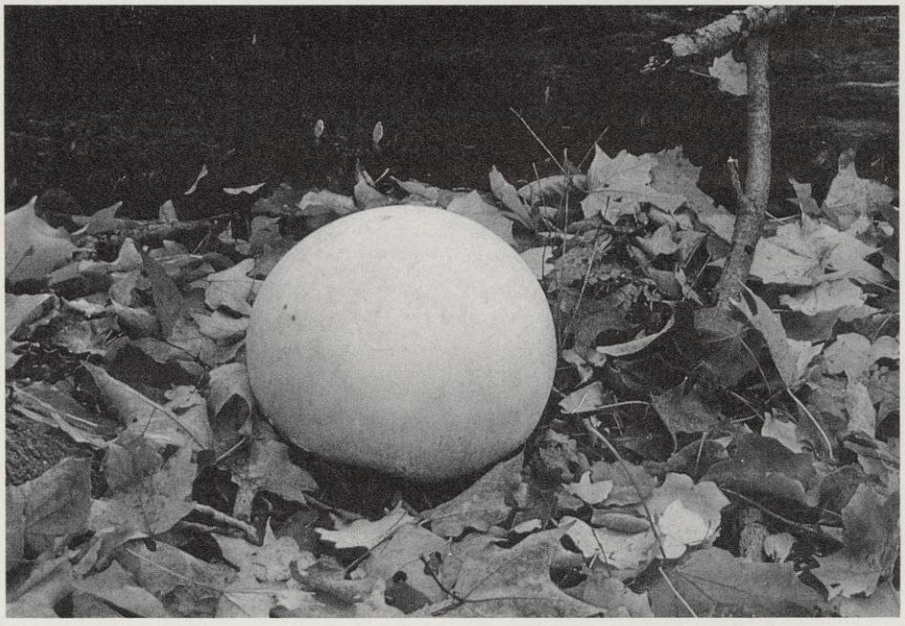
Fortunately *A. phalloides* is rare. Its three- to six-inch green cap and stalk of similar length has a partial veil, similar to the honey mushroom. It also has a volva, a cup-like growth around the base. This volva is a remnant of the total veil that covered the death cap in the button stage. The green cap and the volva are the two most important identifying marks. Death caps grow in wooded areas and forests in late summer and fall.

The *Mycena* family produce delicate, lacy mushrooms.

The destroying angel, unfortunately, is quite common. It's a beautiful white mushroom standing six to eight inches tall with a cap up to five inches in diameter. Like the death cap, it too has a volva and partial veil and is quite deadly. The destroying angel is found in similar habitats to the death cap.

Many more mushrooms, poisonous and edible, are worth studying and this growing hobby is spawning lots of helpful guides. Every time I look closely, another good book about mushrooms appears. I particularly recommend *Mushrooms in Color* by Orson K. Miller and Hope H. Miller, E.P. Dutton Publishing. It's a mushroom primer rather than an actual a field guide. It describes inedible and edible mushrooms as well as hints for finding them.

The Milwaukee Public Museum brings together midwestern mushroom enthusiasts during its mushroom fair each fall. This year it's Sunday, Sept. 24. It's a good time to



(top) King boletus, *Boletus edulis.*
(bottom) Giant puffball, *Calvetia gigantea,* can feed a crowd.

share mushroom-hunting techniques, attend lectures, see a large variety of mushrooms and collect information. Call (414) 278-2702 for details.

You don't have to hunt or eat mushrooms to enjoy their many beautiful and bizarre species.

One of the most fascinating species is the bird's nest fungus (*Cyathus striatus*), found in late summer and early fall growing on dead wood and bark. It takes a keen eye to find it. In side view, it forms a tiny cornucopia; from above, it looks like a miniature bird's nest, complete with eggs. Inside the brownish cup are several grey to black "eggs." These eggs are actually spore sacks attached to the nest by a minute thread. When it rains, the eggs splash free of the nest, trailing the thread behind. With luck, the thread catches on a leaf or twig and the spores are carried away by the wind.

The most beautiful mushroom to me is the orange mycena (*Mycena leaiana*). It grows on dead wood in spring and fall. Its of questionable edibility, so seek it simply as an outstanding beauty. It grows in clusters of three- to four-inch tall mushrooms with shiny caps and stems colored a gorgeous goldish-orange. To me, they look as though they are glowing from within.

Artist's conk (*Ganoderma applanatum*), a polypore like the sulphur shelf, is a large, white shelf-like fungus you've seen growing on both live and dead trees. In live trees, it's a pest that causes heartrot. The fungus has a wood-like texture and its underside is creamy white — a sturdy enough slate for artists to etch pictures.

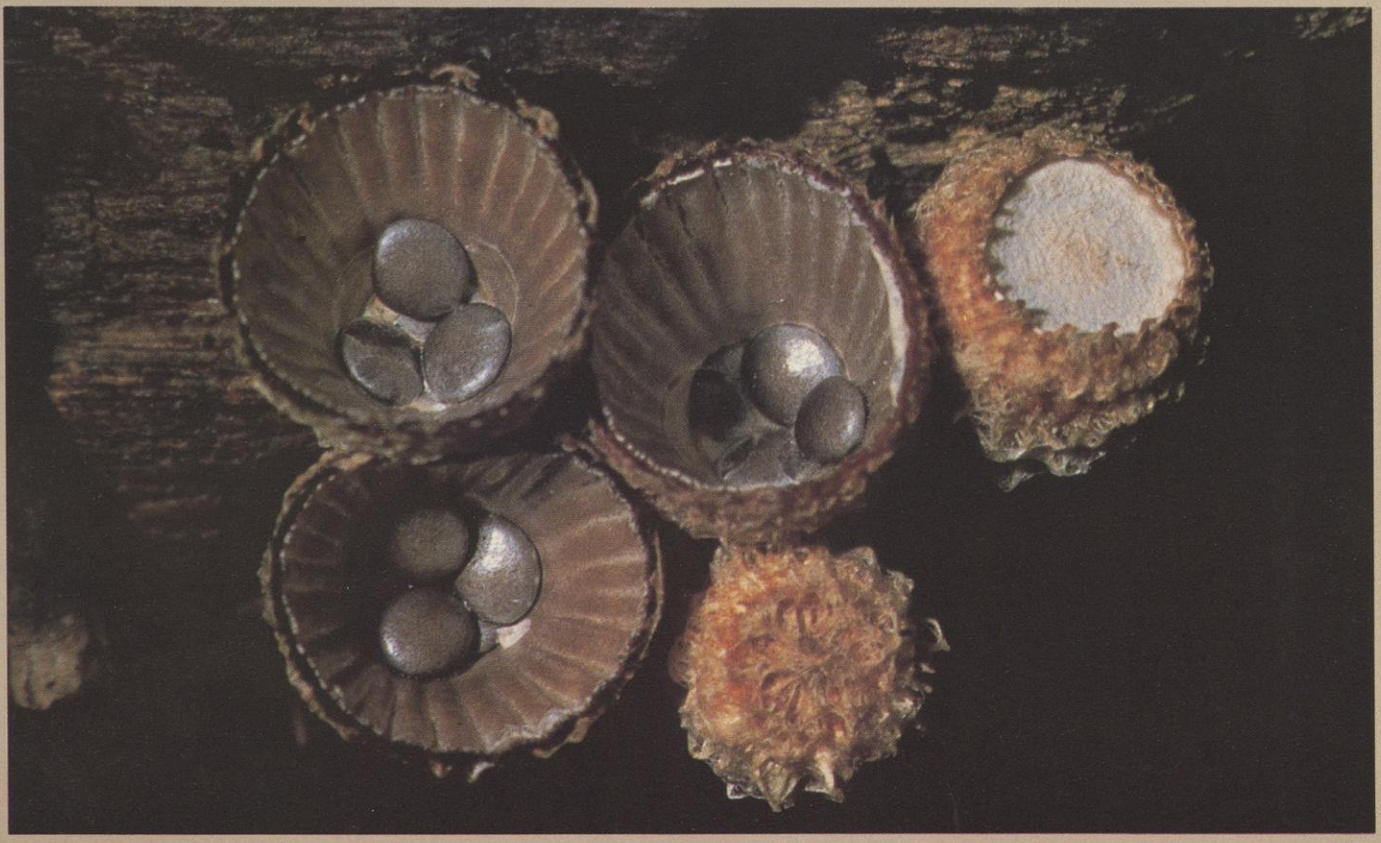
Other interesting mushrooms include the puffballs, (giant puffball, *Calvatia gigantea* is good eating and is very easy to identify); assorted *Mycena* that are delicate beauties though generally too small to eat; king bolete (*Boletus edulis*) a fine edible found on the ground in open woods in late summer and early fall; the velvet stems (*Flammulina velutipes*), also called winter mushrooms, are a good find in late November and early December. They have orange-brown caps and grow in clusters of dead wood. If you are debating whether to eat some velvet stems, make a spore print first since a deadly species (*Galerina autumnalis*) looks a lot like it. *Autumnalis* makes a rust-colored print while *velutipes* gives a white print.

Now that you know a little more about mushrooms, take a closer look for them on the edges of lawns, dirt paths or wooded trails. Whether you enjoy collecting, photographing or just viewing them, take the time to appreciate these fascinating fungi that flourish on nature's floor. ■

Charles Fonaas explores the natural world from Milwaukee.

(top right) Velvet stems, *Flammulina velutipes,* grow long and leggy.

(bottom right) Bird's nest fungus, *Cyanthus striatus,* mimics a nest full of tiny eggs. The tiny "egg" spore sacs are tethered by fine strands to the "nest." These strands billow out on a breeze to spread the spores over a wider area. This fungus is not considered edible.



ROBERT QUEEN

Raspberry season

Alice Gillmore Lyons

My late husband, John, and I enjoyed picking wild raspberries and sharing them with family and friends. It was a way of giving something of ourselves, but it was the promise of singing birds or the sparkle of dew on a spider's web that brought us back to the patch again and again. The greatest reward was the solitude, the lack of interruption, and the feeling of being in a separate world. When we got back with people, we felt more free and real.

We didn't mind the discomfort of bugs, heat, humidity, and scratches since the rewards were so great. I dressed for protection, not appearance: clothing covered as much bare skin as possible, a plastic milk jug with the top cut off hung from my belt by its handle so my hands were free for picking.

John had a sixth sense when it came to locating berries. When driving along, he might stop on the roadside. "There will be good berries over there by those big rocks," he would say. Or, "They logged that piece off two or three years ago. There should be good picking there by now."

We walked down a logging road in the hot sun. From a high dead stump of a tree, a kingbird scolded us. "Dzee, dzee," he called louder and in more angry tones.

"He means business," John said. "He wants us away from here. I remember when I was a boy and one pecked me on the top of my head. That hurt!"

"Are we far enough away," I worried.

"We'll keep our distance. Kingbirds chase off crows and hawks much larger than they are. They could take after us."

We walked on, and all we got was a scolding. We came to piles of logs and stumps, and raspberry canes grew around and over them.

Once I climbed onto the logs and struggled through the dense tangle of canes toward some extra large berries. As I reached for a cane dripping with scarlet jewels, I dropped straight down between the logs, jolted a bit, but not hurt. Looking up to see how to get out, I saw a mass of red jewels above. The best berries grow hidden under the leaves. I stayed in my cool prison for some time filling my berry jug.

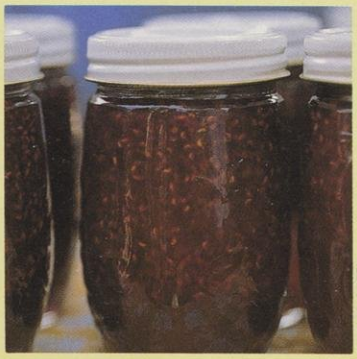
The solitude gave me time to wonder why thistles, wild buckwheat, nettles and raspberries are so compatible. There are hundreds of bright red berries from which to choose, but the choicest ones are always the hardest to reach, or they are among thistles and nettles that sting. The wild buckwheat binds the canes together and has a small green seed that drops into our pails.

Big juicy berries are on the driest, most leafless canes. The lush new growth will produce berries next year, but now produce nothing for my pail. Raspberries take a year for growing, then a year producing.

We never met a bear in a berry patch, but several times we heard crashing and heavy footsteps. A few steps in that direction showed us flattened canes where a bear had sat as he pulled all canes he could reach to himself so he could gobble up the berries.

Raspberry season comes and goes, but the canned and frozen fruit and the raspberry jelly and jam continues to feed us long after the picking is done. One blessing continues even longer, and that is a lovely memory of warmth, song and silence.

Alice Gillmore Lyons writes from Phillips, WI.



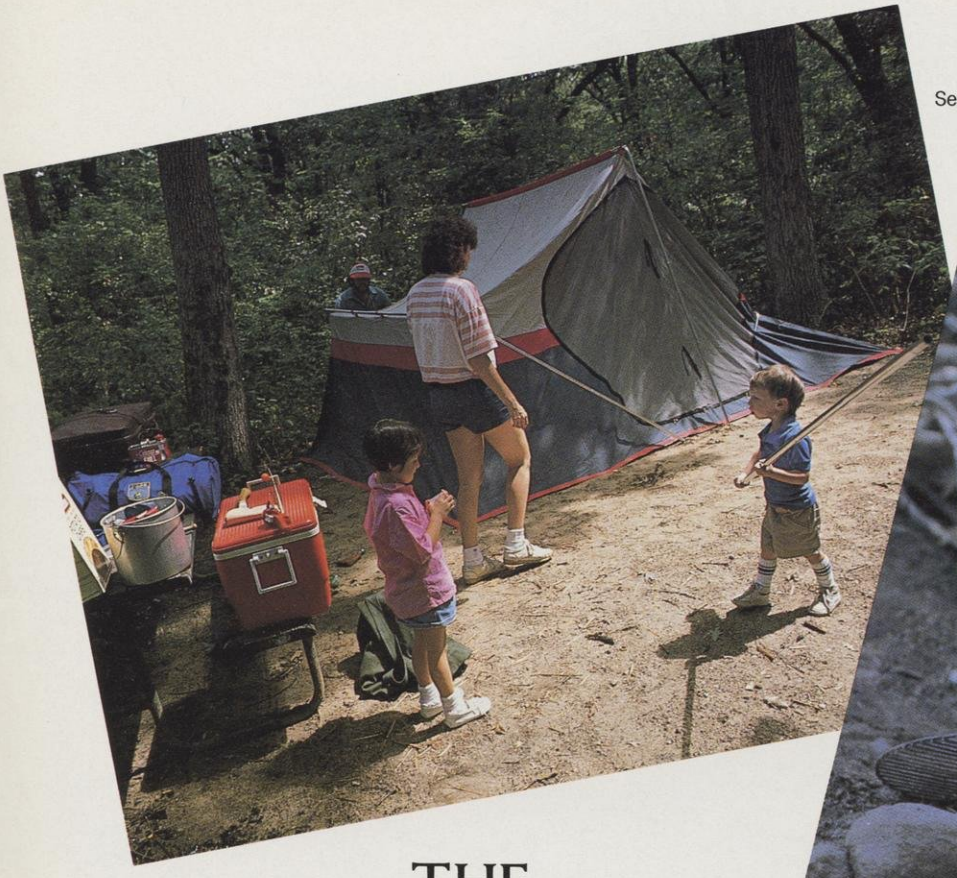
ROBERT QUEEN

Canned raspberries

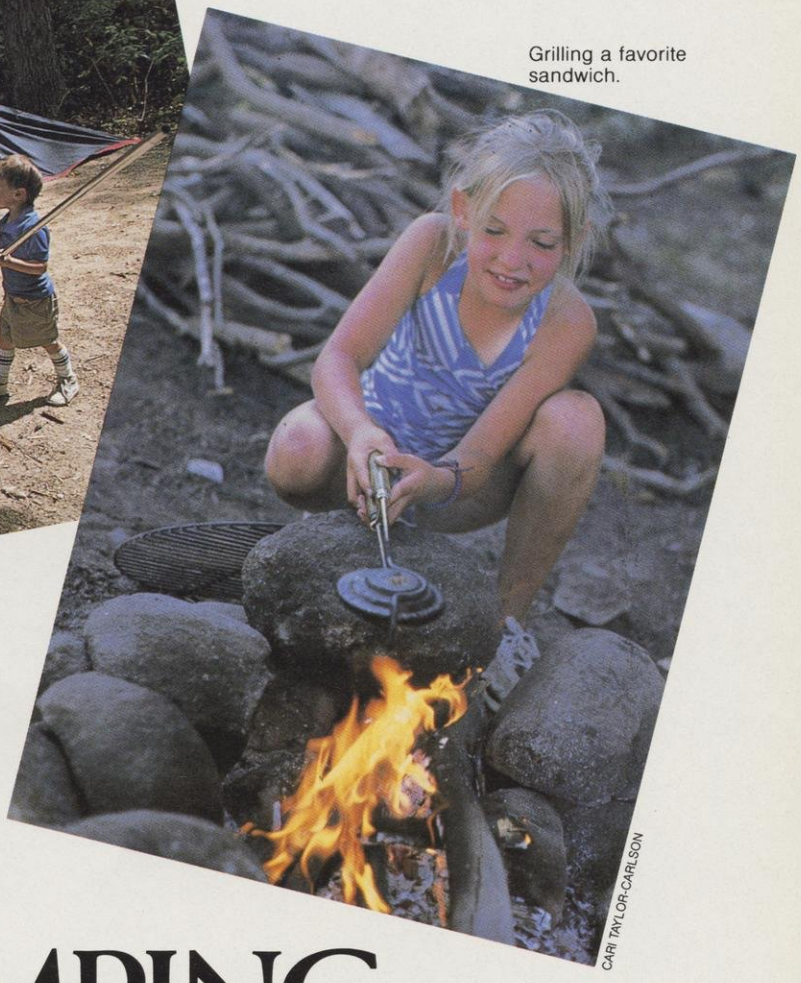
This recipe came from "Prize Recipes," a booklet I picked up at the 1928 Wisconsin State Fair where I used to give 4-H demonstrations. I can testify that it works for the hundreds of pints of berries of all kinds that I've canned.

Make a syrup of one part sugar to three parts water. Boil and cool.

Pack berries loosely in the jars. Cover berries with cooled syrup to within one inch of the top. Seal jars. Place jars in a hot water bath. Fill canner with water to at least an inch above the lids of the jars. Bring water to a full rolling boil and remove from heat. Cover the kettle and let it sit 24 hours before removing the jars. The berries will float to the top, but that doesn't affect their taste.



Setting up camp.



Grilling a favorite sandwich.

CARI TAYLOR-CARLSON

THE JOYS OF FAMILY CAMPING

"If a child is to keep alive his inborn sense of wonder, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in."

—Rachel Carson, *The Sense of Wonder*

Cari Taylor-Carlson

As we grow, each of us who cares about nature builds a sense of reverence, caring and wholeness about earth, air, water, plants and animals. If you take the time to analyze where the basis for that sense comes from I'd guess that 99 of 100 people would recall a very special adult companion from their childhood. Someone who shared experiences, love of nature and provided a foundation for a child's respect for the earth. Camping trips can set the stage for nurturing nature and giving children experiences to recall 40 years from now. The joy and wonder of camping experiences can remain fresh long after the camping gear has been packed away.

Camping with children is at best, fantastic; at worst, better than not camping with them at all. They'll remember the storms, wet clothes and biting bugs, but they'll also remember sunrises, sunsets and the time spent together. It's a chance for adults to guide their children to become stewards of the land. And if it's true that kids form a sense of values by the time they're five, then parents need to begin when the children are very young.

An environmental ethic starts with setting good examples when handling camping basics, and that takes planning. Leaving a campsite as free

Judgement and experience will tell you when the kids are old enough to explore on their own.

Each child is unique and will be attracted to different aspects of outdoor experiences.

Picking wild foods like blueberries can spark an interest in botany and ecosystems.

ALL ARTICLE PHOTOS BY ROBERT QUEEN EXCEPT WHERE INDICATED.

as possible from human imprint takes work. For instance, animals can dig up garbage people bury at a campsite and leave the mess for the next camper. Our family keeps a heavy-duty garbage bag nearby and collects *everything* that might have been be overlooked. From tiny wire ties on plastic baggies to orange peels that decompose oh so slowly, everything must be removed from the campsite. That includes the little stuff many campers toss into the fire ring — Band-Aid wrappers, pieces of foil, paper scraps, tea bags, tissues, bottle tops.

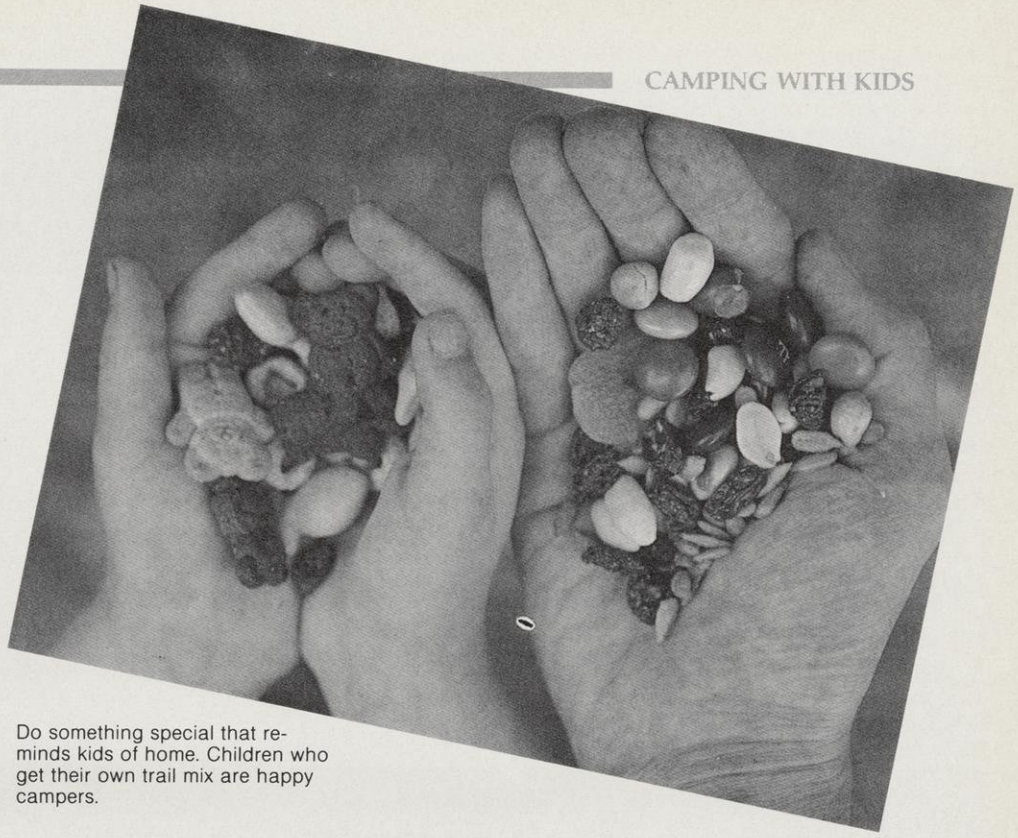
Camping gives you a chance to show your children other lessons that can carry over when you return to life in the city. Living simply, for instance. The Quakers follow this saying: "Use it up, wear it out, make do or do without." Put six people in a car with camping paraphernalia for two weeks and you learn to "make do or do without."

A fancy wardrobe in the woods looks pretty silly and we do all our cooking in two pots and a fry pan we bought 25 years ago in San Francisco with S&H Green Stamps.

The thrice-daily run to the local grocery store just isn't possible in the woods, so you learn to plan more carefully, and if it's not with you, make do. Some of our most creative meals were born of necessity.

Along with economizing on possessions, camping can teach children increased respect for the comforts of civilization. Turn on the tap at home and you can expect an instant gush of hot water. Carry two gallons of water in a backpack six miles from a stream, heat it over a camp stove to purify it and its value increases.

Camping, especially wilderness camping, builds an awareness of our need for clean water and our ability to foul it. State park campgrounds generally provide running water and showers, but wilderness campers usually set up base camp near a reliable water supply. Most families end up camping on a beach, next to a bustling stream or alongside a serene lake.



Do something special that reminds kids of home. Children who get their own trail mix are happy campers.

Here's a chance to teach the children about people and water. Explain why latrines can't be too close to the water's edge, why we shouldn't move rocks that stabilize the shore, why we don't lather our bodies with suds, rinse in the lake and clean our dishes directly in the water. Besides, the kids love hearing that there's a good reason to wash up in water without soap!

Scrub and rinse pots far away from the lake, and bag the food residues. Show the kids how you can wash dishes in an area where the soap filters through the soil before returning to the water table or surface water. At more primitive state forest campsites, you are expected to do your washing near the water pump well away from lakes and rivers. Leaving the lake or stream just the way you found it sometimes requires extra effort, but it's worth it.

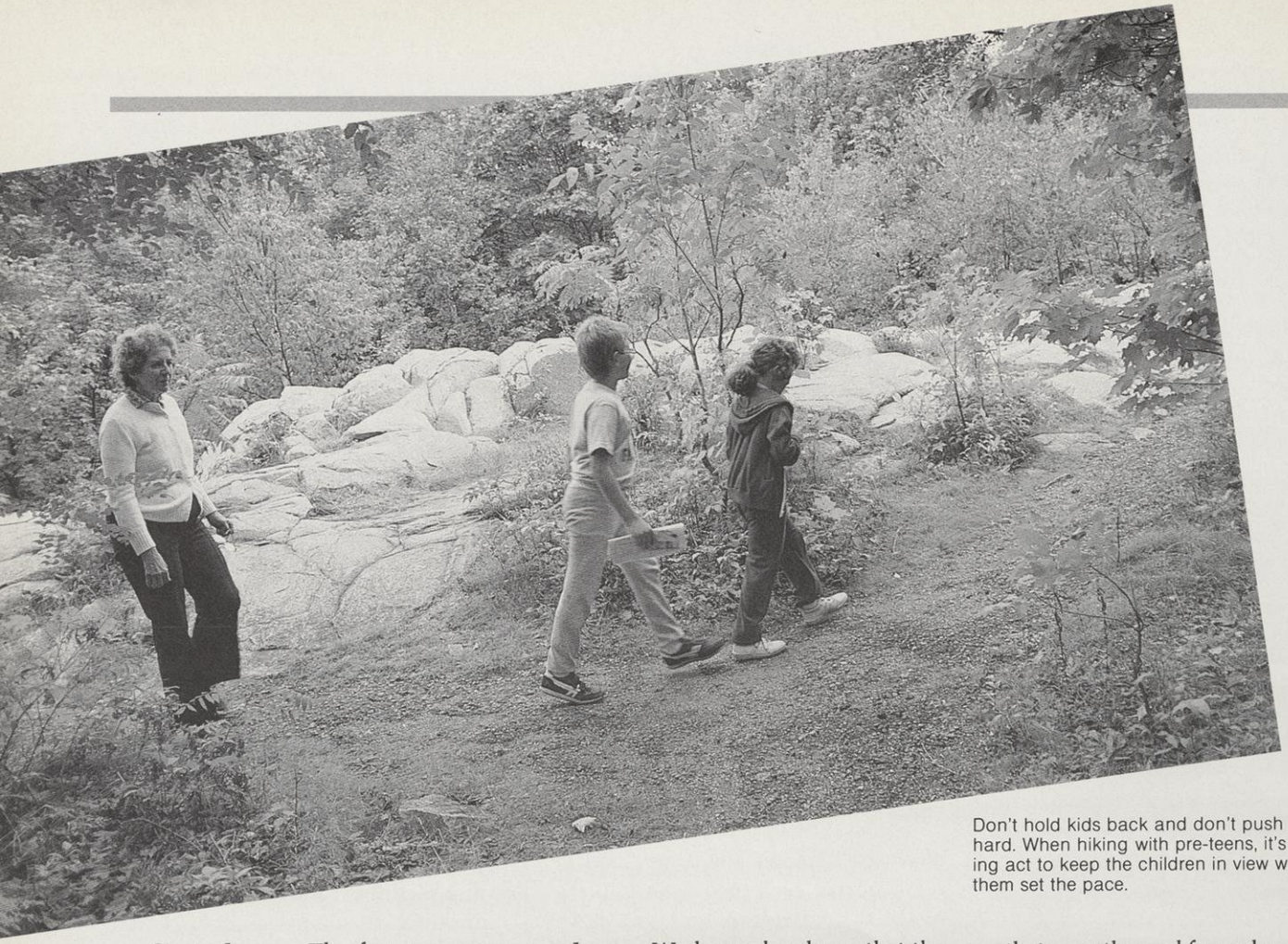
Camping literature these days dubs this common sense approach "minimum impact" camping. Your public librarian can help you find a variety of books on the subject that provide a wealth of practical advice to guide your family's behavior on wilderness trips. *The National Outdoor Leadership School's Wilderness Guide* sums it up this way, "Minimum impact camping when it really works, is an instinct.... At first it seems like a set of rules, but the rules are just there to sensitize us to look closely at our surroundings. Once we develop confidence in our back country living techniques, once we cut through our preconceptions, we begin to see much more of the subtle beauty of nature. Then we desire to blend in with it and protect it."

Beyond sharing values, family times spent around a small campfire are special times. The silliness and camaraderie is hard to find at home where busy schedules, television, and the telephone intrude. Instead, there's time to watch the moon rise, or to lay on your back in a field and marvel at an August meteor shower. Taking time to cook a leisurely breakfast becomes ritual while you plan the day.

Getting a head start with tots

Years ago, families waited until their little ones had outgrown diapers and all the rest of the baby paraphernalia before they headed for the wilderness. Now young families camp with infants and toddlers and they're having a wonderful time.

We learned a few tricks camping with our kids over the years, and I'm happy to share them.



Don't hold kids back and don't push them too hard. When hiking with pre-teens, it's a balancing act to keep the children in view while letting them set the pace.

Start slow — The first time you camp with the children, don't start out on a week-long trek into the mountains, no matter how experienced a hiker you were before having a family. The woods are a different world for little people and their levels of hardiness vary dramatically as do adult levels of endurance. Hike around the neighborhood, hike to the drugstore, or hike on paths at a local nature center. This will help you gauge how the kids will travel, how far and what pace they move along. When the children still weigh less than 25 pounds, bring along a backpack so you can easily carry them when they poop out.

Adjust your pace to your children's pace — Allowing for individual differences is critical for children. It's important to find the time to prepare for later successful experiences. Small children don't understand "hurry up." It's unreasonable to expect them to pick up the pace on a trail if they are moving slowly. Kids have tiny strides; they hike slow as a slug because a mile and a half per hour is a good pace for a child.

Understand what excites children — We learned early on that the children don't get quite as excited about grand vistas as grown-ups. Kids need to be encouraged to enjoy the process of getting somewhere more than the reward. While the view from the top keeps mom and dad hiking upwards, children prefer to stop when they find a place to play, especially if it's wet. Moreover, you must supervise children more closely at pinnacles, cliffs and edges.

Expect the unexpected — Children, the wilderness and the weather are unpredictable. Bring rain gear for everyone, two pairs of camp shoes, plenty of extra socks, long underwear for cool nights, sweaters and a jacket to layer when the weather changes suddenly, a hooded sweatshirt for sleeping and plenty of beach towels. Expect to leave something behind! That's when it helps to be resourceful.

The "great outdoors" isn't kid-proof — Some parents envision a campsite as the perfect place for their child to wander acre upon acre without the hazards of home. In fact, plan on keeping a closer watch on young children. Remember, their instincts tell them to put every new item into their mouths, and from slugs to plants and rocks, campsites are filled with new experiences for kids. Until children gain a good sense of balance, the uneven ground can be dangerous. Sharp rocks, ravines and steep paths designed for adults pose special hazards for children. Furthermore, doctors and hospitals are usually farther away when you camp. The art in introducing children to camping is to remain watchful without scaring your child or dissuading their natural curiosity about nature.

Start at more developed sites — Although your goal may be wilderness camping with the kids, state parks, county parks and private campgrounds provide amenities that will make your early outings more enjoyable — showers, running water, established fire rings, and bathrooms. Supervised swimming areas, playgrounds, nature trails and interpretive programs give you plenty of activities to take part in while still enjoying the camping experience.

The state parks and recreation program has also developed programs you can do with your children while camping. The Junior Ranger and Ex-

plorer programs are sets of self-directed nature study guides that kids complete with parental help. The kids earn certificates and arm patches when they complete activities. It's a good way to channel their natural curiosity about nature into simple ecological lessons.

Keep meals simple and familiar — Camping presents enough challenges aside from tricky food preparation. The campsite is not the place to try out your latest recipe for squash and lima bean stew. Just because your kids are a captive audience doesn't give you the right to surprise them. Serve familiar foods to give small children a sense of safety in strange surroundings.

Maintain continuity — Anything that keeps the atmosphere homelike will make the campout endearing. A favorite story, a lantern in a roomy tent and a beloved stuffed animal will ease the fears little ones have of new and different places.

Understand that camping can be fearful for children — Prepare for the likelihood that young children on camping trips will face unfamiliar things that may scare them. Bugs, lightening, darkness, thunder, heavy rains and animal sounds can be especially scary when children only have thin tent to protect them. Be extra understanding. Recognize their fears and be extra comforting. Don't discount their fears and anxieties and don't force the children to resolve their fears quickly, otherwise they may soon associate the whole idea of camping with tremendous anxiety.

Think of your whole group when selecting campsites and locations — Findings places to visit where everyone will have a good time will help kids look forward to camping. We always looked for campgrounds that were reasonably close to home. We tried to avoid buggy sites and boomboxes. We always looked for water where we could play and for areas that were interesting for potential rainy day activities. Bring along hand lens, journals, books, games, cards, frisbees and anything else to fill the time when "being there" isn't enough for the children.

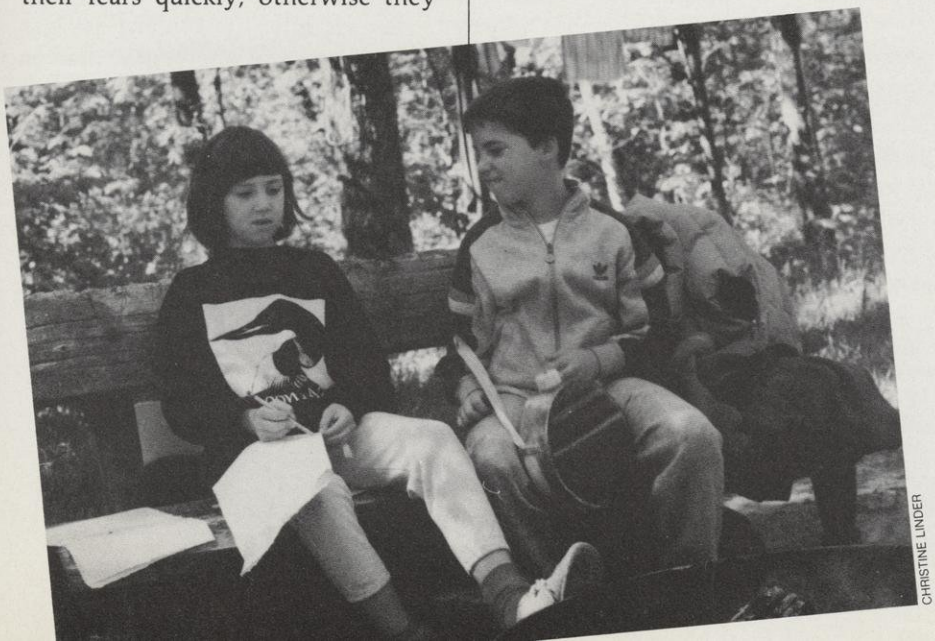
Take the children when they're small — Before you turn around, the child who wore the same outfit for a week and drew pictures with a stick in the mud all day has grown up and turned into a teen-ager. Their busy schedules, jobs, friends, parties and schoolwork keep family camping from getting too high on the "to do" list. And camping with teen-agers presents a new set of challenges if hair needs to be washed, conditioned, blown dry and curled every day and the closest plug-in is ten miles away. But take them camping anyhow because the years fly by much too quickly and they're gone.

Your kids will remember that you gave them times to see the world, fresh with dewdrops at dawn. They learned to be patient, self-reliant, resourceful, and creative. They learned to respect the land. They'll remember the camping skills and someday these young adults will camp with their own children. When our teens camp with their friends, they carry the lessons they learned as children. They're proud of their skills, as they teach others to pitch a tent, build a fire, and assemble a decent camp meal. They know the good places to share with their peers.

When the kids are a little older, try camping with friends — Camping with other families and friends turns family trips into special outings. It's easy to make the best of a rainy day when there are 10 children instead of the familiar four. A group card game of "Oh Hell" played out under a rainfly becomes an evening to remember when you're together for a three-day weekend and it rains the whole time. Soggy chocolate chip cookies, pancake-flat peanut butter and jelly sandwiches shared with friends won't be soon forgotten. The worst of times will ring with laughter.

Perhaps that's what camping with our children is all about. It's sharing the things we love and the activities we love with the people we love. It's learning new outdoor skills and teaching our children the skills we already know. It's taking time to ponder the exquisite patterns on the wing of a butterfly. It's making the best of uncomfortable circumstances when the weather turns rotten and learning to be inventive and stoic. It's having a good time together while not doing much of anything. It's demonstrating love and respect for each other and for the wilderness and hoping these values will be absorbed by the children. And best of all, with a family, it's fun.

Cari Taylor-Carlson is an avid, experienced family camper. Her Milwaukee business, Tripping Lightly, arranges guided travel adventures for hikers, bikers, walkers and canoeists.



CHRISTINE LINDER

State parks offer Junior Ranger and Explorer workbooks that parents can use to introduce children to environmental themes. These campers are working on Junior Ranger projects.

Roadside revival

Prairie plantings of native grasses and wildflowers are saving soil while creating a blooming roadside attraction.

Department of Transportation Office of Public Affairs

A century and a half ago, the deep-rooted tallgrass prairies stretched from Saskatchewan to Nebraska to Indiana and south to Texas, carpeting more than 221,000 square miles including huge expanses of southern and western Wisconsin.

Famed for dense, tall grasses and deep roots, the midwestern prairies created rich soils and plant cover tough enough to resist driving winds, scorching heat, droughts, winter, and frequent wildfires. Not tough enough, however, to outlast the settlers' plows that turned the black, organic soils into some of the world's most productive croplands. In 1830, six percent of Wisconsin was covered with true grass prairie and another 20 percent was covered with openings of prairie grasses, wildflowers and scattered oaks. Now, tiny remnants — less than 2,000 of an original two million acres — of these once horizon-spanning waves of green survive on the fringes of cemeteries, shorelines, and rights-of-way.

On rights of way, the Wisconsin Department of Transportation aims to show that prairie plantings are the right way to go. One year into a three-year experiment, prairie plantings are taking root.

"In the prairie days, tall grasses with efficient root systems anchored the topsoil firmly and erosion as we know it simply didn't exist," noted Transportation Secretary Ronald R. Fiedler.

"When we replaced the native plants with bluegrass and crops, we began experiencing serious erosion," he added.

That's only part of the impetus behind a state program to reestablish prairies on state roadsides.

"When the settlers finally wrested the complicated prairie root systems from their fields, they pulled out the bolts and rivets that held this land together," said Ted Stephenson, state maintenance engineer for DOT's Division of Highways and Transportation Services.

Soils that had been impervious to harsh climate were subject to wind and water erosion, and topsoil that had built up over centuries disappeared at disturbing rates, Stephenson said.

As rural landscapes were tamed, road and highway development followed the trail of growing communities. "In the early days, roadside maintenance consisted of planting bluegrass and mowing it from fence post to fence post," Stephenson continued. "Roadside beautification, if any, was restricted to a few petunia beds planted between the triangles where roads intersected."

Now, prairie flowers will be busting out all over at transportation projects throughout the state.

Surprisingly, the original catalyst that spurred a second look at prairies was the high-tech demands of maintaining the Interstate road system.

"It was prohibitively expensive to maintain the crew-cut look on the wide rights of way," Stephenson said. Clipped bluegrass provided a park-like scene when accompanied by a few artfully landscaped trees, but the grass mixtures were not native to Wisconsin, didn't provide even cov-

(top right) Prairie clover, a summer roadside favorite.

(bottom right) Interstate 43 near the Manitowoc River Bridge in Manitowoc is awash with goldenrod in late August.

PAUL WERTH

erage and required more care than native plants.

One of the first test areas for prairie plantings is the 1,300 acres of state roadsides flanking Highway 51 for 42 miles between Portage and Wausau.

"We planted the first seeds in late 1988 and some people are disappointed that they haven't seen lots of blooms this spring and summer," Stephenson said, "but people shouldn't expect too much at first."

Prairies seeded in early summer spend months developing an extensive root system, often penetrating the soil deeper than six feet down to provide moisture during hot, dry summer days. "These plantings will look like raw weed patches until the prairie matures," Stephenson continued. "People who are used to seeing the manicured golf course look probably won't care much for the prairie, but this approach has many benefits. These plantings will nurture a complete community of plants and wildlife, providing a year-round source of food, nesting habitat and cover for small animals and birds."

JOHN HARRINGTON

Prairie roadsides should also provide three seasons of colorama for travelers. At first, a few splotches of color, then over the years, sparkling, drifting banks of yellow, white, violet and pink will dot the roadside from May through October. The pale lavender pasque flowers of April give way to the brilliant yellow puccoon and lavender lupines in June. Throughout the summer orange

JOHN HARRINGTON

Travelers will have a chance to see waving stands of grasses like prairie smoke. Tall prairie plants provide shelter and nesting cover for wildlife.

Michigan lilies, purple blazing star, magenta prairie clover, black-eyed susans, prairie dock and deep blue gentians slowly appear in fall. More than 25 species of prairie grasses from needlegrass to big bluestem will carpet the ground with rolling waves of greens, purples, whites, reds and tans.

"Moreover, as the prairie matures the roots will trap runoff and become impervious to erosion, which has plagued our sand country midlands since the prairies were burned and plowed under in the last century," Stephenson added.

"We will also experiment with several varieties of low-growing, salt-resistant grasses near the highway driving lanes. These will not only reduce maintenance costs, but will provide a buffer zone to discourage wildlife from straying too close to the road," he noted.

In conjunction with the prairie revival, DOT chief Fiedler took steps in June to limit highway roadside mowing to the right of way immediately adjacent to traffic lanes.

"Our policy change is directly motivated by growing concerns about the environment and loss of native plant and animal species," Fiedler said. Many native species are losing nesting grounds due to new farming methods that eliminated grassy fencerows, and chemical fertilizers that reduced the need to rotate crops and occasionally leave fields fallow.

"DNR staff told us that animals complete their summer hatches by late summer and we can permit mowing in August to control brush and woody plant growth within the traffic safety zone without disturbing nesting animals," Fiedler explained. "Furthermore, native prairie grasses are slow to mature and earlier mowing reduced their vigor and prevented the spread of roots and seeds."

The no-mow policy will encourage natural regeneration of native plants along the 150,000 acres adjoining the state trunk highway system.

That's a fact, not a theory. Stephenson noted that DOT can document more than 20 locations along state highways where prairie plants and native flowers are reclaiming the landscape as herbicide use and mowing are curtailed.

Prairie restoration isn't cheap. The three-year project along Highway 51 will cost more than $500,000 or about $15,000 per mile, including the cost of 12,000 trees and shrubs and six tons of seeds. Prairie seeding costs approximately $1,100 per acre compared to $325 per acre with the standard bluegrass seeds planted adjoining most roads. There are savings once the plants are growing.

"Over the next 30 years, we expect maintenance costs will be nearly non-existent on these stretches except for annual or biannual mowing," Stephenson predicted.

Costs will drop considerably as the state promotes the new Prairie Seed Farm, a Wisconsin Natural Resources Foundation program to guide prison inmates in raising prairie plant stocks in controlled nursery beds to provide seed for public restoration projects.

DOT is also experimenting with seeding methods — drilling in seeds, no-till planting and hydroplanting by broadcasting a water/seed slurry.

Patience is the key. "For two or three years the planting sites will look like they're overrun with weeds," Stephenson noted. These weeds are stabilizing the surface as the prairie planting take root. By the third year of the project, we should see grasses and flowers bursting forth in a variety of colors, forms and textures. And won't that be a pretty sight along the roadside," he grinned. ■

STEVE SHOBER

The blues, lavenders and pinks of wild lupine and phlox are more than just a pretty site along Interstates 90/94 in Juneau County. Deep-rooted prairie plants hold soil, absorb runoff and retard flood waters.

Viewing prairie plantings

Department of Transportation prairie plantings:

Rest Area #81 on Highway 51 in Marquette County
Rest Area #31 on Interstate 90 in La Crosse County
Highway 157 interchange with Interstate 90 in La Crosse County
Endeavor exit from Highway 51 one mile north to County D
Hale Interchange, East End on I-894 in Milwaukee County
South Beltline wetlands and prairie plantings on Highway 12 in Dane County
County Zoo Interchange of I-94 and I-894 in Milwaukee County
Highway 51 in Marquette and Waushara counties
Highway 29 in Brown County
Highway 42 in Door County
Highway 50 in Kenosha County
Highway 33 in Sauk County
Highway 21 in Waushara County
Dunn County Rest Areas #61 & 62 on I-94
Highway 35 & I-94 Interchange in St. Croix County
Rest Areas #63& 64 on Highway 41 in Dodge County
Highway 11 and I-90 Interchange in Rock County
Highway 12 Rest Area in Walworth County

Prairie plantings in conjunction with Operation Wildflower, a cooperative program of state highway officials and local garden clubs:

Highway 41 west of Menasha at the County PP interchange in Winnebago County (help from the Fox River Valley District, Wisconsin Federation of Garden Clubs)
Highway 41 and 141 at the Suamico County B Interchange (help from the Suamico Bicentennial Group)
Highway 43 at the County V Interchange in Sheboygan County (help from the Sheboygan District, Wisconsin Federation of Garden Clubs)
Hale Interchange of I-894 in Milwaukee County (help from the Milwaukee District, Wisconsin Federation of Garden Clubs)
Swan Boulevard 0.1 miles north of Highway 45 and Watertown Plank Road (help from the Milwaukee District Garden Clubs, Inc.)
Highway 12 one mile east of I-90 near Yahara Hills Golf Course


Special places,
special shores
Tread lightly on sensitive coastlines.

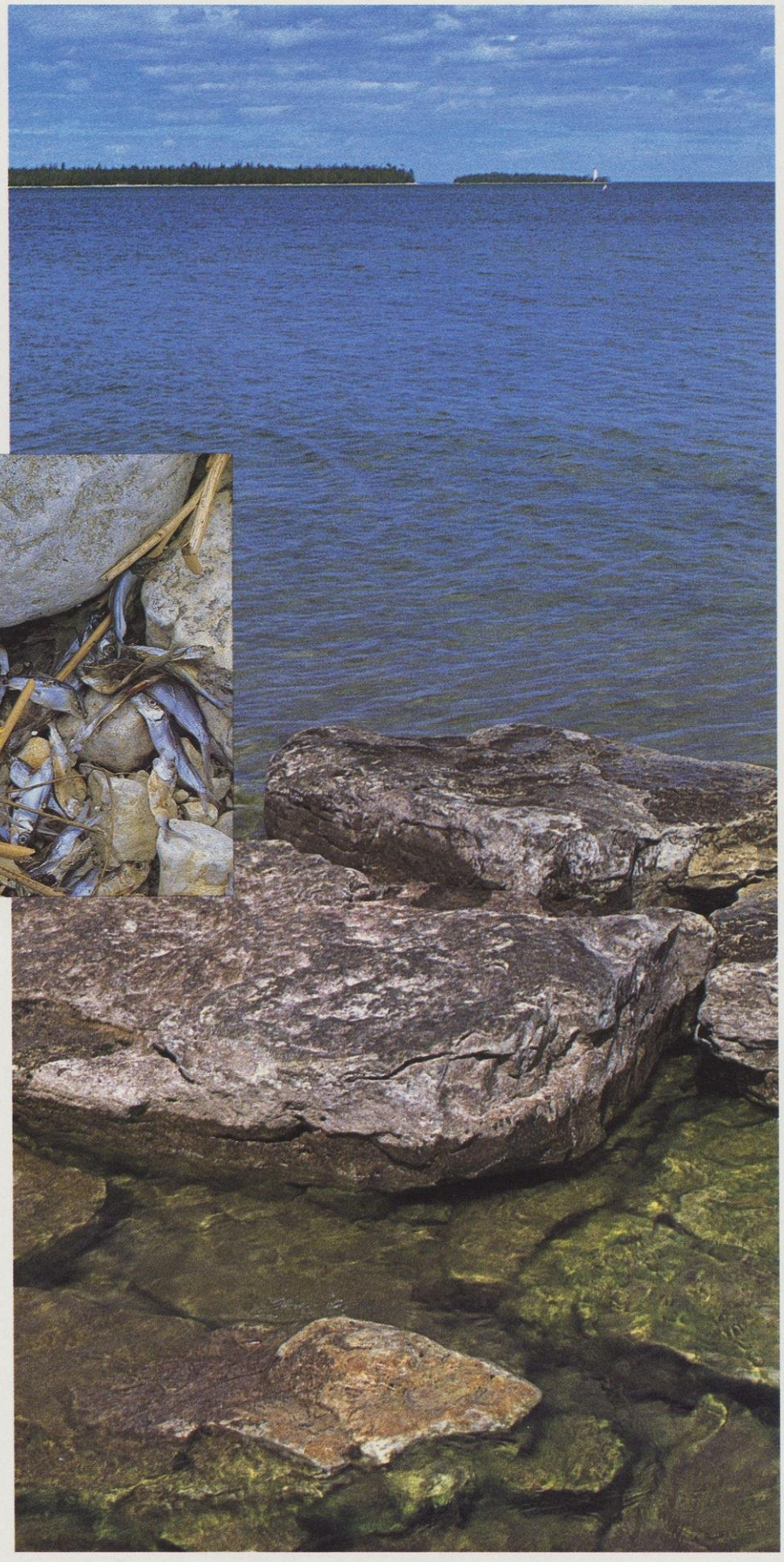
David L. Sperling and Karen Crossley

Summer is a sweet stage — for baseball on warm breezy evenings, for the smoky fragrance of cookouts, for throaty soft music, for the sweet taste of fresh corn and the spicy flavors of sun-ripened tomatoes.

As Wisconsin winters test our tenacity and sharp spirit, so summers should celebrate our softer qualities and our rounded edges. That means at least one barefooted stroll on a sandy beach late in the afternoon, right on the edge where soft waves swirl warm waters between our toes and take the sting out of sands that baked in the sun all day. Or a slow walk among rounded rocks that show the wear of wave and wind. Quiet time. Solitude. So quiet that you listen to yourself as much as the waves, the water, the air. So quiet you can hear each beach grass sweeping on a dune. Quiet enough to hear a beetle slowly excavating a hole under driftwood. Quiet enough so your eyes and ears are riveted to every bird, every animal that moves within earshot or line of sight.

When that mood hits, we seek some special shorelines; special places where the handiwork of nature far outbalances the crude "improvements" of people. Places that we hold in trust but don't really use.

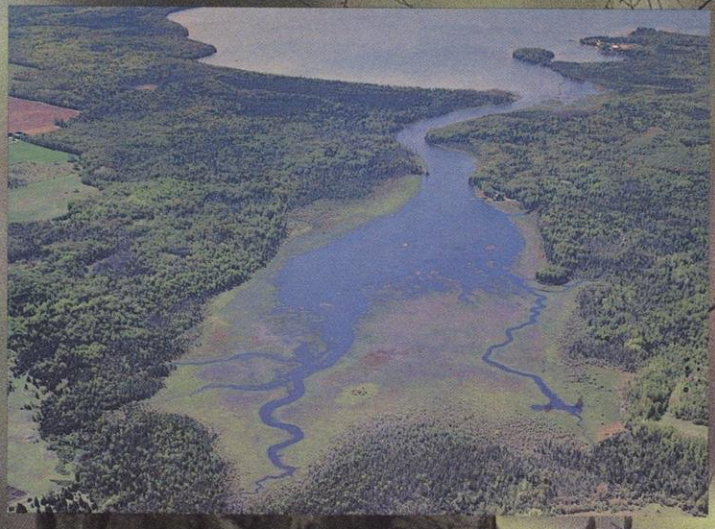
Dried smelt and the weather-worn shore at Toft Point.



On Washington Island

COURTESY OF THE NATURE CONSERVANCY

© PHOTOS BY RICHARD HAMILTON SMITH

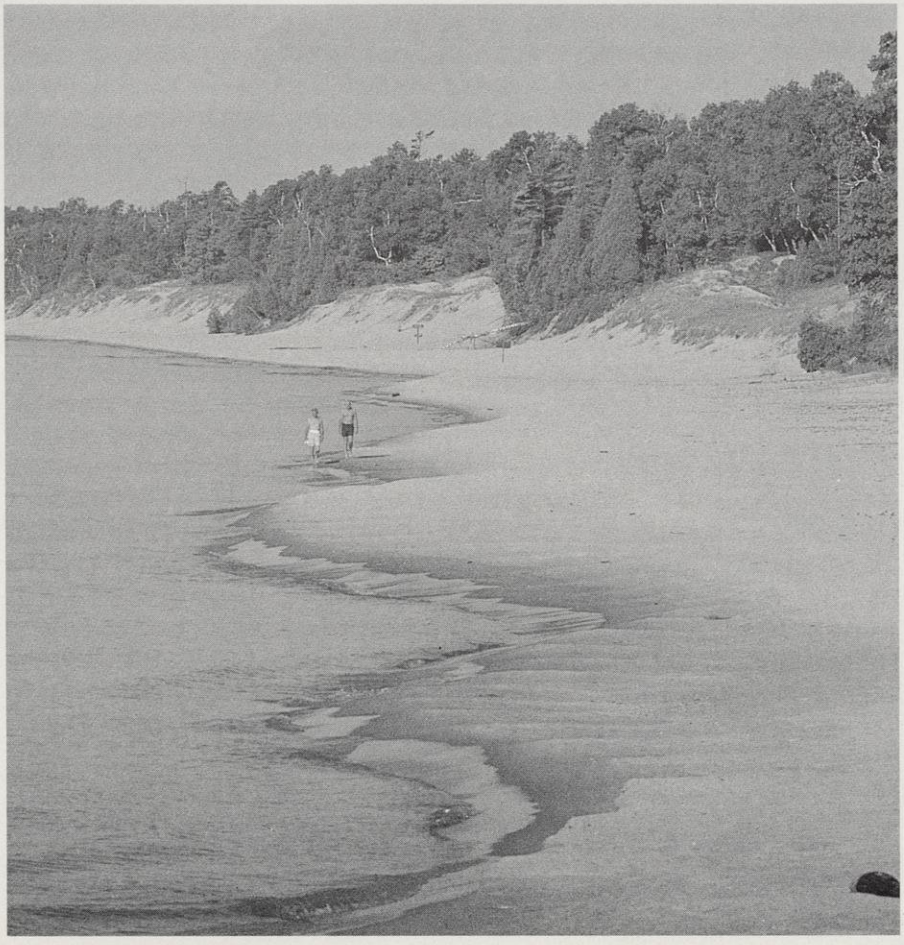


I asked friends at The Nature Conservancy to share the locations of some unique coastal parcels in Wisconsin, shorelands where a few at a time could walk, canoe, search the shores and soak in the lazy summer rhythms.

Do you know much about the Conservancy? Since 1960 the Wisconsin Chapter has protected more than 24,000 acres of prairie, wetland and forest communities that are considered fragile remnants of our natural heritage — places that harbor endangered plants, places that are still home to plants and animals that thrived here before your ancestors learned Wisconsin was a great place to live. The Conservancy works with the Department of Natural Resources, the state university system, museums, corporations with a conscience and individual conservationists to protect the living diversity of natural life in Wisconsin. By identifying unique communities, protecting those parcels, finding stewards to maintain these areas and raising funds to buy fragile lands that could just as easily get gobbled up by developers, The Nature Conservancy helps protect the natural heritage we are at risk of losing. The Wisconsin Chapter is striving to protect another 30,000 acres by the end of the century.

I asked them to recommend locations of coastal holdings they manage or have turned over to other agencies that are open to careful public use. Beauty is a fragile and fatal gift, and I ask you to honor the Conservancy's wishes by visiting these properties solely for quiet hiking, birding, nature study and photography — no picnics, no restrooms, no machinery, no trail food, no trash. By the way, maps and descriptions of other properties managed by The Nature Conservancy that can be visited are described in The Places We Save. Order

COURTESY OF THE NATURE CONSERVANCY



Jackson Harbor from the ridges, Washington Island.

Whitefish Dunes in eastern Door County.

A young balsam supplants an old balsam stump along the Mink River Estuary trail.

(inset) Mink River Estuary looking east into Rowley's Bay.

PHOTOS BY JAMES MEEKER

The meandering Kakagon Sloughs lead to Chequamegon Point and Long Island *(inset)*. The huge sloughs are home to a wealth of wetland plants and animals. Long Island's shores are best explored just south of the lighthouse near the midpoint of the island.

forms are available from the Wisconsin Chapter Office, 1045 E. Dayton St., Room 209, Madison, WI 53703 or by calling (608) 251-8140.

Surprisingly, four of the five properties discussed here are tucked away in the fringes of one of Wisconsin's great vacationlands, Door County. The last parcel adjoins the National Lakeshore in Lake Superior, and it's far less accessible than the other properties.

A recent gift to the Conservancy has expanded *Whitefish Dunes State Park,* which hugs the Lake Michigan shore in the Town of Sevastapol on Door County's eastern shore. Four hiking trails in the park wind through a total of 11.8 miles of sands, grasses, shrubs and forest canopy. Park trails cross "Old Baldy" a 93-foot high dune with a commanding view of the coastline.

Near the eastern coastline of the park, the Conservancy received a long, narrow strip of 80 acres which acts as a buffer zone between the fragile dune area and the denser forestlands. Cattails, willow, dogwood, firs and cedars stabilize the sandy soil on this ancient sand bar. The Department of Natural Resources offers guided nature hikes through the state park on Wednesdays, Fridays, Saturdays and Sundays throughout the summer. Bring your camera. The special vistas and moods you capture just might win the annual park photo contest.

Take County T branching east off of Highway 57 at Valmy, then follow Clark Lake Road into the park.

Toft Point is a verdant spit of forest and wetland that juts into the Lake Michigan coast just beyond the Ridges Sanctuary in Bailey's Harbor.

It is a home for the ancient ones — towering white pines, red pines, hemlock, black and white spruce have eked out an evergreen existence for more than 260 years. Thin acid soils overlaying fractured limestone rocks are carpeted with tiny wildflowers, northern orchids and thimbleberry. In lowland boggy areas, the twisted, fragrant white cedars keep company with sweet gale, winterberry and bot-

tle gentian. The rugged coastal shore is speckled with buffaloberry, calamint, grasses-of-parnassus and thousands of fringed gentians.

Waterfowl and northern songbirds migrate through these 633 wooded, wet acres. Nuthatches and winter wrens join a host of warblers — black-throated green, parula and Nashville.

The point's sandy but craggy shores are equally as beautiful as the woods and marshlands.

The point is managed as a scientific area by UW-Green Bay. Take Highway 57 north of Bailey's Harbor just past the County EE and F intersection. Take a right on Harbor Drive then turn east on Ridges Drive. About 2.5 miles down Ridges Drive, take the first dirt road to the left. (It's opposite a concrete drainage ditch.) Follow the dirt road to the first gate and park. The Toft Point property extends eastward to Mud Bay at the Lake Michigan shore.

The *Mink River Estuary* is a rich mix of marsh, wet meadows and springs that saturate the forest floor as its spring-fed headwaters meander into Lake Michigan at Rowley's Bay near the northeastern tip of Door County, just west of Newport State Park. Its 802 acres and wet shores are most easily explored by boat and canoe. Near the shore, you can paddle by white cedar groves, wild rice beds, willows, dogwood and alder. Sedges, reeds, bulrushes and water lilies are abundant in the wet meadows. The threatened dune thistle and dwarf lake iris thrive here.

These waters are favorites for Wisconsin birders who come spring and fall as more than 200 bird species migrate through the area. Many ducks, blue herons, black terns, night herons, bitterns, marsh hawks and loons nest here. In late summer into fall, double-breasted cormorants and red-breasted mergansers congregate here.

Year-round wetland wildlife include beaver, porcupine, muskrat, racoon, deer, snakes and frogs.

Boaters and canoeists can put in at the boat launch at the Wagon Trail Campground. Hikers should follow Highway 42 north from Ellison Bay towards Gills Rock. Just before 42 bends north towards Gills Rock, take a right on Newport Drive. About a mile down the road where Newport Road bends to the left, you'll find a small parking area, sign and trail leading through the Conservancy-managed land to the Mink River.

At the northeastern corner of Washington Island, County W sweeps into Jackson Harbor. Nestled in this sheltered harbor, you'll find a commanding view of Rock Island and the tiny 82-acre *Jackson Harbor Ridges.* Twenty seven acres of the

Swamp sparrow sings out from its Mink River cattail perch.

natural sanctuary have been ever so carefully marked by the Washington Island Natural Area Board for nature study, photography and exploration. The trail passes through beach, dune, ridge, swale and forest lands. The cool, moist micro-climate of the cove harbors northern Wisconsin plant communities unique to this part of the state such as the dwarf lake iris and arctic primrose. Careful exploring in the beach area should also reveal the shrubby St. John's wort, sand coreopsis, northern comandra and prairie sandreed.

Follow County W to its northeastern most stretch, turn north, and less than a quarter mile up the road, turn right towards the harbor. Take the only fork to the right about two tenths of a mile down the road and park near the end of this road. There's also boat access to the property from the Gibson tract of Jackson Harbor.

Like a cowlick on Ashland County's north coast, *Chequamegon Point* and *Long Island* hook out from the shore into Lake Superior. This thread-like sliver of sand bars and wetlands is a well-traveled way station for migrating shorebirds each fall. Here, piping plover, bald eagle and osprey thrive, lake sturgeon spawn. This lonely, sandy point connects to the massive Kakogen Sloughs, as rich a mix of wetlands plants and animals as graces the Lake Superior coastline. The sloughs are revered grounds on the Bad River Indian Reservation. Its waters are managed to encourage fish, wildlife, wild rice cultivation and to preserve the band's natural heritage.

Portions of Chequamegon Point are managed by the National Park Service (Apostle Islands National Lakeshore); other sections are privately owned and should only be visited with permission. The heart of the publicly-managed land centers around the lighthouse near the middle of Long Island. Feel free to explore the stretch south of the lighthouse for a quarter mile and the washed out beaches further west on the shore. If you'd like to camp on the island, you'll need a permit from the Apostle Islands National Lakeshore office in Bayfield (715) 779-3397. The Kakagon sloughs are largely owned by the Bad River Band. All visits should be arranged through the tribal office, (715) 682-2767. Wild rice grows in abundance in the sloughs and visits to these rice beds during the growing period (late June through September) may be discouraged. ■

David L. Sperling edits Wisconsin Natural Resources *magazine. Karen Crossley is Director of Development and Communications for The Nature Conservancy — Wisconsin Chapter.*

Readers Write

BRAVO FOR SPECIAL SECTIONS

I found your special section "The Cleanup Game" most informative and well written in language that all groups can understand. I hope the publication is available in schools throughout Wisconsin as young and old must work together to improve and protect our waters, air and vegetation.

Protecting our environment should be given top priority at both the national and state levels. Cleaning up past contamination sins and preventing it in the future are steps in the right direction.

Mary A. Steggeman
Brown Deer, Wis.

As an avid reader and occasional contributor to Wisconsin Natural Resources magazine, I read your sections "The Cleanup Game" and "A Matter of Chance, A Matter of Choice" with great interest. Both were well written and informative.

As an environmental consultant, the summary list of environmental risk and agency contacts is very useful for our staff who have department-specific inquiries. Your accurate and timely dissemination of information is appreciated.

James F. Drought
Waukesha, Wis.

POLLUTION AND FISHING

The nice folks who are jumping up and down trying to save walleyes from Ojibway spearfishers should confront the real culprits of environmental degradation: ourselves and the society we have spawned.

The real threats to fishes and land are acid rain, PCBs, pesticides, mercury, etc. That DNR and the Division of Health find it necessary to publish health advisories for people who eat sports fish is a sad commentary and a telling statement regarding our "progress" in the fight against pollution. This is the enemy. This is what we have to overcome, and soon.

Kurt Sroka
Star Prairie, Wis.

BIRD STORIES

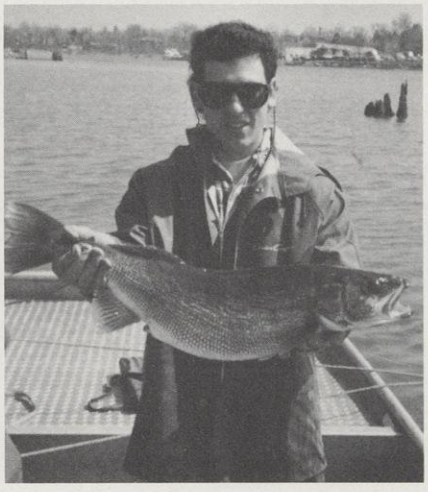
I enjoyed the upbeat articles in your June issue. Early in spring, the orioles peer in and even tap my windows to remind me to put out sugar water feeders. I get orioles, hummingbirds and red-bellied woodpeckers at an old feeder I fashioned from a chicken waterer topped with a Ball jar. Goldfinches, seeing the activity, try the feeders once in a while but leave in disgust.

Alice Pemble
River Falls, Wis.

NO FISH TALE

Readers, take a gander at this 31¼ inch, 16 pound walleye netted and released by DNR fisheries management staff who were surveying the Fox River just below the DePere Dam in late April.

Seasonal worker Scott Szymanski holds this behemoth biologists estimate is 10-11 years old. If it lives another summer, it could exceed the state record 18-pound walleye caught on High Lake in Vilas County back in 1933.



DNR fisheries management

continued from page 2

DON BLEGEN

Sphinx moth chrysalis

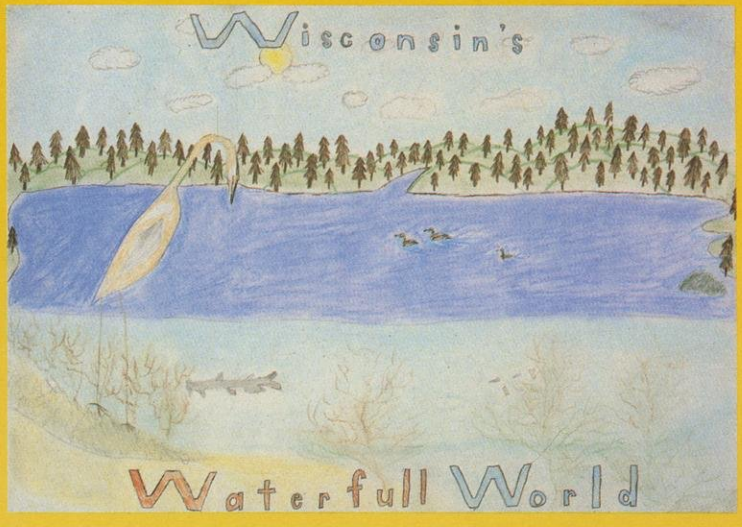
famous birds; and frequent the same summer flowers loaded with nectar.

Look closely. These are insects, not birds. These moths have a long, flexible sucking tube for a mouth, not a pointed beak, but it serves the same purpose: to extend deep into the heart of flowers to reach nectar. When not in use, the proboscis coils tightly under the head like a watch spring.

If you can sneak up close to them, you'll quickly see that the moths have too many legs to be hummers.

The hawk moths range over the entire state and almost any flower garden with a good supply of nectar flowers (see our last issue) can attract them in the late afternoon and dusk during late summer and fall.

Readers who enjoy "Watchable Wildlife" should take a close look for signs of these colorful fall fliers. Their larvae are called hornworms. You may recognize them as the long two- to three-inch green worms with a projection on their "tail." They love to hang around garden crops like tomatoes late in the summer. The mature caterpillar burrows into loose soil and forms a case-like cocoon or chrysalis. (This one was dug up by Maynard, my brother's basset hound.) Notice that this sphinx moth's casing has a separate "handle" protecting its long, slender proboscis. Several weeks later, unless unearthed by a gardener or basset, the insect emerges as a moth, hovers up to a flower and begins feeding on nectar.



WATERFULL WORLD

These spirited drawings capture children's enthusiasm and appreciation for Wisconsin's "waterfull" world. The annual natural resources poster competition drew entries from more than 1,000 students. This year's winners are:
(top) Dean Brandt, Third Grade, Forrest Street Elementary School, Black River Falls
(bottom left) Kris Schumacher, Fourth Grade, Richmond School, Sussex
(bottom right) Jesse Koch, Fifth Grade, Farmington Elementary School, Kewaskum

The poster contest is jointly sponsored by the Department of Natural Resources, Wisconsin State Fair Park and Klements Sausage Co. who collectively applaud all contestants for showing their interest in natural resources.

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