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WELCOME WOODPECKER

Enjoy the visit when a red-bellied comes knocking.

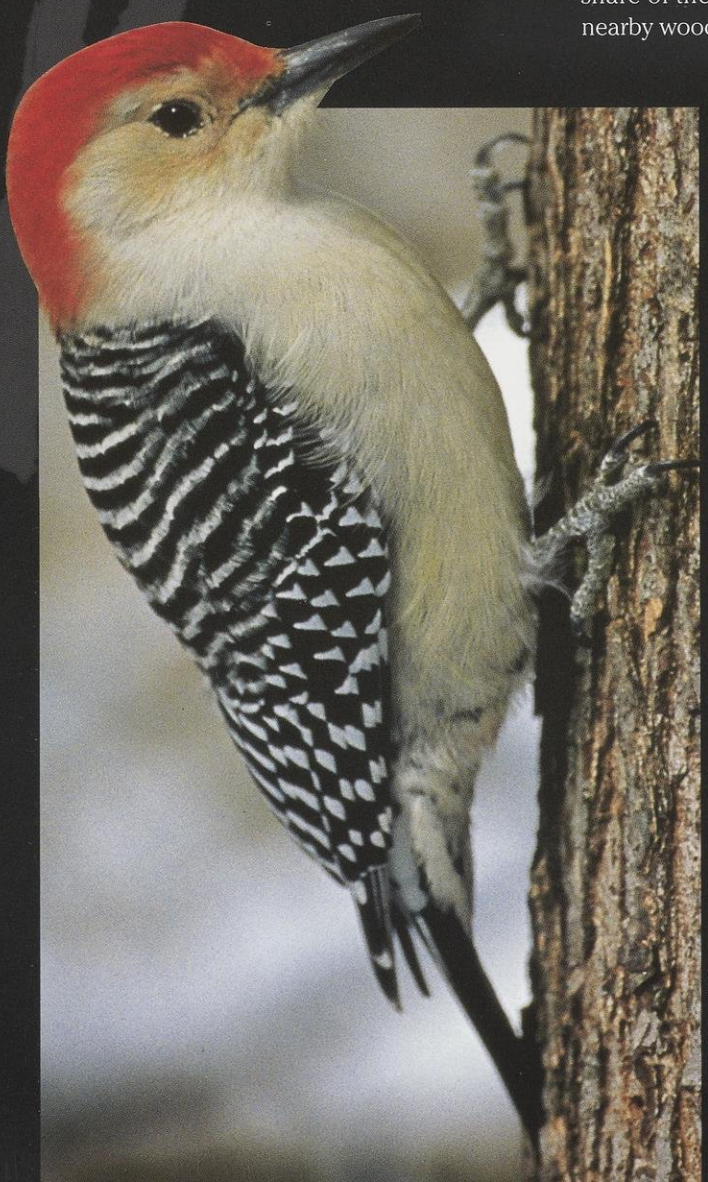
Anita Carpenter

A robust, nine-inch woodpecker swoops onto a platform feeder. Its unannounced arrival scatters juncos, goldfinches and birdseed in all directions. Though it's not overly aggressive, the hungry red-bellied woodpecker dominates the feeding station by its size alone. It swallows a share of the sunflower seeds before disappearing into a nearby wood. The smaller birds return.

Always welcome as a backyard visitor, the red-bellied woodpecker, *Melanerpes carolinus*, is easy to identify. Its large size, and distinct back and wings, striped like a zebra with horizontal black and white stripes, are unmistakable. The barred back contrasts with a light gray to tan breast and belly. A brilliant red like "glowing sunset" marks the back of the nape over the crown to the base of the heavy black beak in males, but only appears on the back of the neck or nape in females. Both sexes peer from black beady eyes on gray cheeks. Both have white rumps and stiff black tails highlighted with barred central feathers.

During the nesting season, red-bellied woodpeckers display a reddish wash on their bellies that is not easy to see. I often wondered why the bird was named for this less-than-prominent feature until I made a March visit to Key Largo, Florida. Here I observed red-bellieds with the brightest reddish-pink breasts and bellies imaginable.

continued on page 28



STEPHEN J. LANG

The male red-bellied woodpecker is noted for its sunset red crown and its black-and-white barred back that earned it the nickname "zebraback." Wisconsin is at the northern end of its range.

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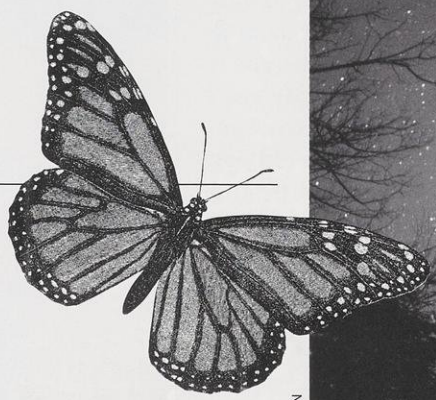
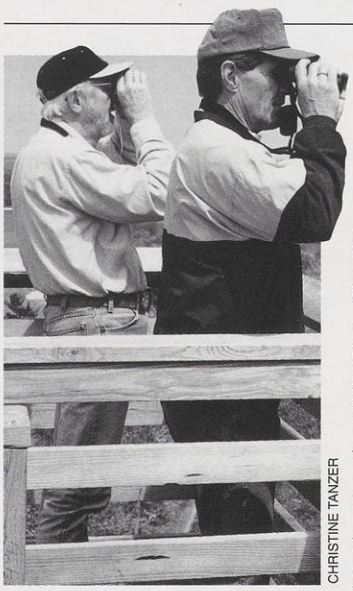
WISCONSIN NATURAL RESOURCES

April 2000 Volume 24, Number 2

JACK HALBREHDER

SCOTT NIELSEN





CHRISTINE TANZER

FRONT COVER: Bullfrog *(Rana catesbeiana).*
DONNA KRISCHAN, Big Bend, Wis.

BACK COVER: Tellock's Hill Woods State Natural Area, Waupaca County. For a map or more information, contact the State Natural Areas Program, DNR, Box 7921, Madison, WI 53707.
THOMAS A. MEYER, Mount Horeb, Wis.

Katherine Esposito

BRINGING IN

YOU KNOW ALL ABOUT HUNTERS IN WISCONSIN. NOW MEET T

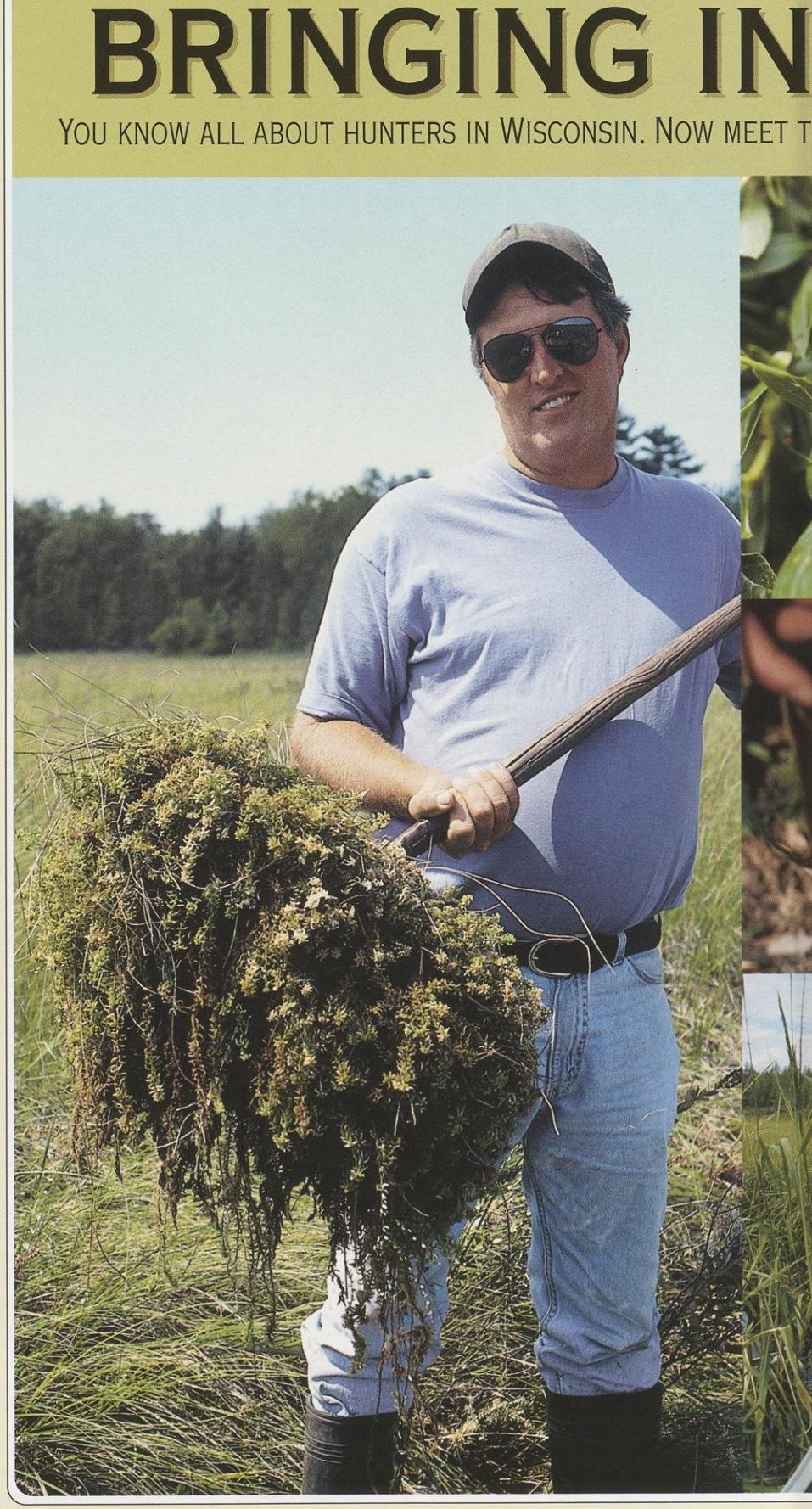
In Wisconsin, some people make money off the land without ever owning an acre or weeding a furrow. They are *gatherers*, who burrow deep within state forests and public lands to cut or collect, and then sell, what's already grown: moss, branches, berries, rice, seeds and nuts.

From the view of most forest managers, gathering is a harmless and sometimes helpful public service that brings some extra money into state coffers. But certain regulations and restrictions, including where and how much can be taken, do apply.

As a personal pocket-liner, this kind of harvesting can provide the lion's share of an income or just a little holiday money. Those with ambition can bring in some serious cash — about $400 a ton — by picking balsam boughs from state forests, such as the Brule River and the Northern Highland-American Legion, and selling them to wreath makers. Collecting tree seeds is another labor-intensive way to earn money outdoors; the DNR buys baskets of walnuts, bur oak and red oak acorns, shagbark hickory nuts, and other tree seeds each fall from state residents. The highest price: $70 a bushel for sugar maple seeds. In west central Wisconsin, sphagnum moss harvesting has furnished jobs for people for three and four generations.

Whatever the incentive, gathering natural products is a tiring enterprise, mostly pursued by rural residents in need of funds to supplement seasonal jobs. "People are kind of 'hardscrabble' up here," said Sue Brisk, a DNR forester based in Trout Lake. "A lot of locals don't have a year-round income, so they look around for little ways to make money."

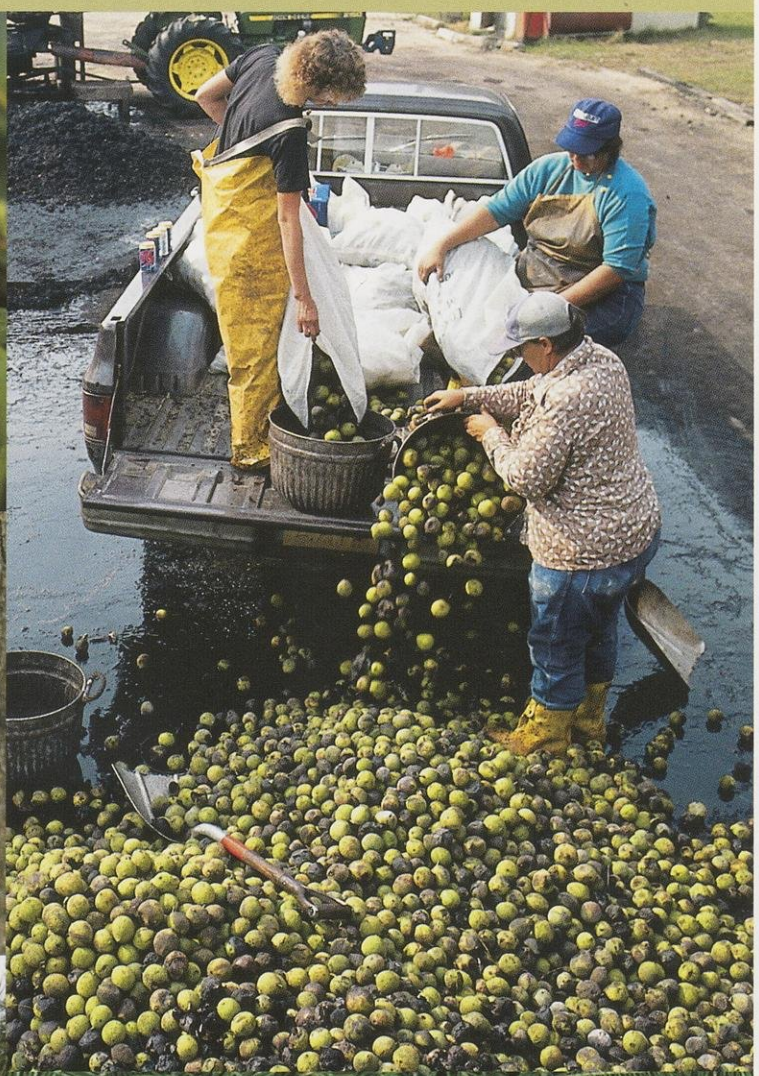
Some people gather to meet a specific need, such as heating a home. In the Brule forest region last year, 15 people paid $5 each for the right to gather up to 10 cords of firewood. The romance of

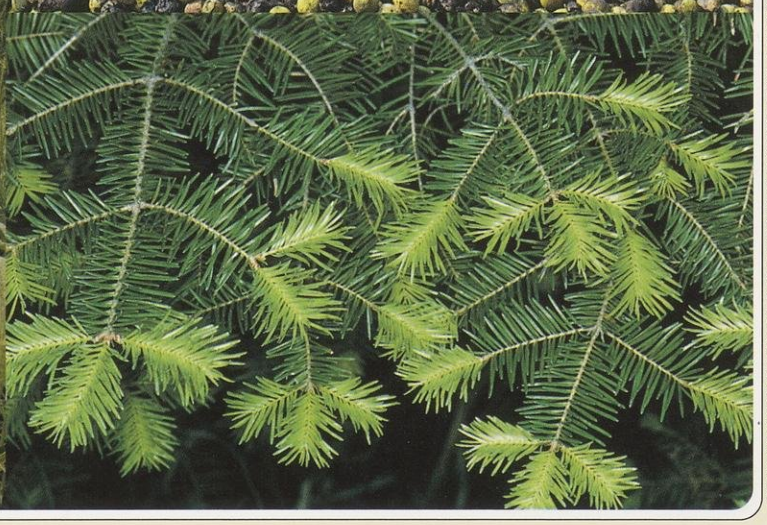


(clockwise from left) Plants, fruits, nuts and seeds are all fair game for gathering; some collecting requires a license or permit. Sphagnum moss, blueberries, walnuts, balsam boughs and Christmas trees, wild rice and morel mushrooms are all harvested in season in Wisconsin.

NATURE'S BOUNTY

ATHERERS, WHO HARVEST MOSS, CUT BOUGHS AND COLLECT SEEDS FROM STATE PROPERTIES.





CLOCKWISE FROM BLUEBERRIES ROBERT QUEEN. ROBERT QUEEN, DON BLEGEN, DAVID L. SPERLING, KATHERINE ESPOSITO *(CENTER)* ROBERT QUEEN

an old-fashioned, fresh-cut Christmas tree was even more popular, with one hundred $5 permits issued in 1998 from the same state forest. Some people coordinate tree cutting with deer hunting — at least they know they won't come back empty-handed.

When it comes to the state's profit margin from gathering enterprises, the concept of "public service" is a good one to keep in mind. Consider this: Income from timber sales in state forests runs about $2.2 million a year. In 1996, three contracts to harvest sphagnum moss on a total of 25 acres of bog were awarded for a price of $442 — about $17.68 an acre, according to Jack Halbrehder, a DNR forester in the 67,000-acre Black River State Forest.

Sphagnum moss grows naturally from seedlike spores with no assistance from anyone, but it takes a full seven years before a marsh is mature enough to cut again. If a mossing firm had to own all the land needed to turn a profit — well, there wouldn't be any profit.

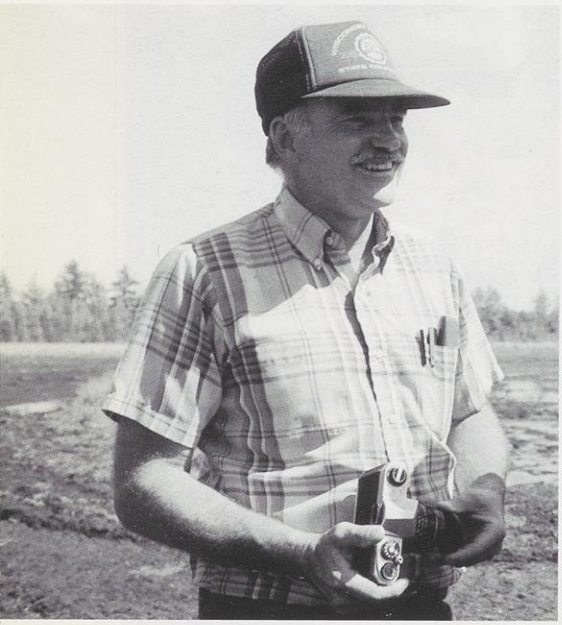
"If you owned that much land, the taxes would be staggering," said Richard Hancock of Hancock Brothers, a family-run mossing business in northern Monroe County. "We're talking thousands and thousands of acres of land." The family owns no marshes, but leases some and also mosses at times in the nearby Jackson County Forest.

Of course, there's another reason why state lands are heavily used by gatherers, according to Jim Rau, Brule property manager: "The majority of boughs picked come from public land because the majority of land up here *is* public land."

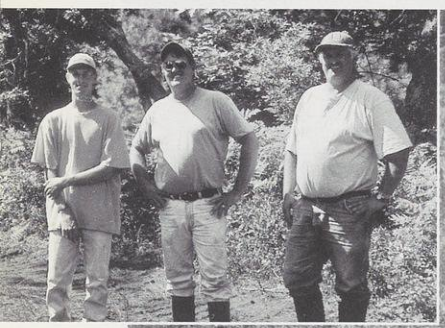
Raking in a livelihood

On a balmy day last August, the Hancock brothers and Jack Halbrehder took visitors out to the Hancock's mossing site at Circle Hill Marsh, deep inside the woods. Killdeer called, and the air carried a hot, earthy fragrance of decaying plants. Surprisingly, biting bugs were few. "A lot of people think flies will almost carry you off, but that's only on bad days," said Richard, in a laconic drawl.

Instead, a mosser's major concern is hot sun, a sore back, and an occasional mired tractor. Pulling sturdy rakes with long, curved tines, the smart mossers are in the bogs before dawn and out by noon before it really heats up.



(PHOTOS THIS PAGE) KATHERINE ESPOSITO



(left) Jack Halbrehder oversees moss gathering on Black River State Forest bogs. Parcels can only be harvested once in seven years.
(below) Wisconsin moss is prized by florists. It cushions and moisturizes flowers in transit.
(inset, left to right) Randy Hancock, his father Richard and Uncle Dave are part of a family business that has leased mossing rights on public lands for four generations.

Dried moss can hold up to twenty times its weight in water — a fact recognized by early Native Americans, who used moss for baby diapers, and by World War I medics, who found the plant's absorbency useful for surgical dressings. Today moss is packed around the roots of trees and shrubs for shipping, for hanging baskets, mulch, and for decorative topiary. It's a mainstay of the international floral trade to keep flowers and greenery moist in transit.

Four generations of Hancocks — starting with Richard's great-grandfather Frank Hancock in the early 1900s, followed by grandfather Francis, then to father Richard L., his sons Richard T. and David, and now Richard T's 17-year-old son Randy — have ventured into the Black River State Forest to pull out moss and an ample livelihood.

Finding buyers has never been a problem: the Hancocks (and every other mosser) sell every bale they package, up to 35,000 3½-cubic foot bales a year. The Hancock's retail clients include the Earl May Seed and Nursery Garden Centers, based in Shenandoah, Iowa, and Jung Seeds, of Randolph, Wis. in addition to wholesale distributors who then ship moss to other nurseries. Their ledgers remain private, however; it's a very competitive business, Hancock said. The business can gross $370,000–$400,000 a year.

Richard, 45, attended welding school as a younger man and once tried his hand as a car painter at American Motors in Kenosha. "I didn't work there too long," he said. The shop was too confining, he said, so he picked up a moss hook and returned to the forest.

In 1977, he bought out his dad and established Hancock Brothers Associates with David. Wives, daughters and sons are involved, as well as six to seven seasonal employees. But his family may be one of the last in mossing, Hancock said. "The family thing is getting harder," he said. "It seems like you have to be a pretty good-sized business if you want to make a living."

For one of the Hancock's seasonal workers, the pay can be as high as $64 daily for forking mounds of moss onto a "boat" or toboggan, pulled by a vintage Oliver tractor that's fitted with wooden slats on the tracks. The slats function much like snowshoes, spreading out the weight and keeping the heavy machine from sinking in the soft muck. Even so, machines still can get stuck, Hancock said.

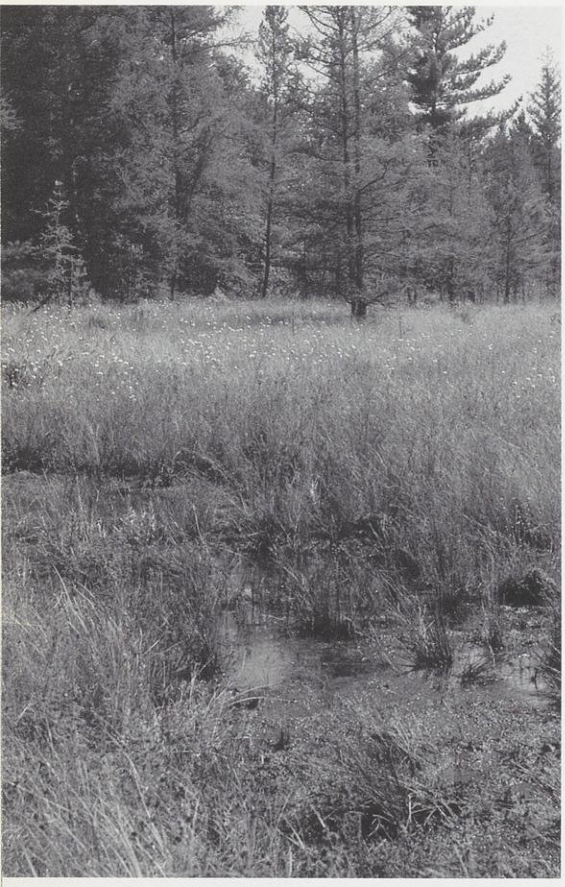
JACK HALBREHDER

KATHERINE ESPOSITO

Mossers like E. Bartos equip older, lighter tractors with wooden slats like a tank track to spread out the machine's weight on boggy soils. Harvested moss is spread out, dried and baled for shipping to garden centers, seed companies and international clients.

The moss raked from Wisconsin bogs — green, dripping dreadlocks with pitcher plants and wild cranberries occasionally attached — is not the same as sphagnum peat moss, which is the dead and decomposing sphagnum steadily accumulating underneath the live moss. A meadow of cut sphagnum moss reestablishes as a luxurious carpet within a few years, and can be harvested again in seven years. Peat moss, on the other hand, takes years to form as decaying wetland plants settle, compress and carbonize to form the dense earthy brown product that is sold at garden centers. Once peat is cut, mined and removed, the area does not recover by forming new peat. It is, nevertheless, a valuable product in its own right, used as fuel and a soil loosener. Peat moss is not harvested in Wisconsin.

Over 500 acres of sphagnum bogs are available for mossing in the Black River State Forest, but only about 70 acres are mossed in a given year, with the smallest bog, a tiny three acres — much too small for large companies to bother with. The sphagnum is concentrated in that forest and in nearby places, including the Jackson County Forest, the Meadow Valley Wildlife Area, the Necedah National Wildlife



KATHERINE ESPOSITO

Moss from Horseshoe Marsh was harvested three years ago. Though it takes time to recover, harvesting is one means to suppress weedy and woody growth that can fill in the marshy soils.

Refuge and some private lands, because of the behavior of glaciers thousands of years ago. When the last of them receded, Glacial Lake Wisconsin took so long to drain that it stimulated the growth of wetland bog plants like moss, pitcher plants and tamarack.

Before the Hancocks began last year's harvest at Circle Hill, acres of light green moss had carpeted the meadow, a 50-acre expanse fringed in the distance with tamaracks, birch and jack pine. By August, large sections were naked and mud-brown, stripped of their new growth, which lay drying in rows of miniature haystacks.

It was a clear-cut, and it wasn't a pretty sight. But the bogs recovered. Horseshoe Marsh, in the same forest, had been mossed three years earlier. By comparison to Circle Hill, it was fresh; an undulating sea of green, with the only scar a short, narrow road left by small tractors.

Those involved think there are benefits to the practice. "I've been here all my life, and when I come back, the marshes are exact duplicates of the ones left," Richard said. "It keeps it like a prairie. My father used to say that if we didn't harvest, it would be like a forest."

Without natural fires to suppress weedy growth, that may be true, said Jack Halbrehder. "If you let it go long enough, it would be a complete tamarack stand," he said.

In some places, such as the 60,000-acre Meadow Valley Wildlife Area in northern Juneau County, a federally owned, state-managed property, the trees may eventually win. Moss harvesting took place there for half a century before the DNR outlawed it 10 years ago, over concerns that ecological damage might be occurring. There's no proof of that, but scientists have found rare dragonflies and birds in sphagnum bogs, and there's a sense that a wait-and-see approach might be best. The decision displeases some mossers, like John La Course of Mosser Lee in Millston, who misses the fine moss once available from that area's bogs.

"There wasn't a lot of concern in the past about what the impact could be," said Bill Smith, a DNR zoologist working on the Natural Heritage Inventory. Mark Chryst, a DNR forester out of Babcock, echoes Smith. "There's never been a study that would really prove there aren't detrimental effects to the moss," he said. "But until we have proof, we just don't want to get back into the mossing business."

Edible fruits, nuts, mushrooms and asparagus can be gathered from state parks and forests without permit, but not from state natural areas.

ROBERT QUEEN

Know the rules before you pick, prune, harvest or gather

Any kind of gathering from public lands requires permission, or, at a minimum, an appreciation of the rules. To harvest moss, individuals or firms such as the Hancocks compete with a few others by submitting bids on the few tracts available each year.

Trees are more abundant than moss marshes, so no bidding is needed to get a bough-picking permit. A permit to sell boughs commercially costs $35 for the first ton, and $10 thereafter — though not everyone reports their totals, according to both the DNR and Steve Perry, whose family has been in the bough business for 35 years. Bough picking also has its rules, such as the ones prohibiting pruning trees near roadways, limiting cutting at the bottom of the tree and prohibiting all-terrain vehicles from leaving logging roads to get closer to cut boughs.

If your goal is to eat what you pick, such as berries, nuts, mushrooms, and wild asparagus harvests, no permit is needed, though picking from state natural areas is forbidden. If you like rocks, a permit is necessary, and there's a limit: five pounds a day, for personal and educational uses only. But taking ginseng from state lands is absolutely *verboten* (and there are strict rules governing ginseng harvests on *private* lands).

Of course, these are today's regulations. New master plans for state properties sometimes contain new rules, but the aim is to protect the land rather than deny access, said Eric Epstein, DNR ecologist. In that light, closing Meadow Valley to mossing made some sense.

"There may be a move toward not accommodating every possible use on every acre," he said. In some scenic places and recreational areas, gathering memories of relaxing days outdoors is enough. □

Katherine Esposito writes for Wisconsin Natural Resources *magazine from Madison.*

Outstanding days afield

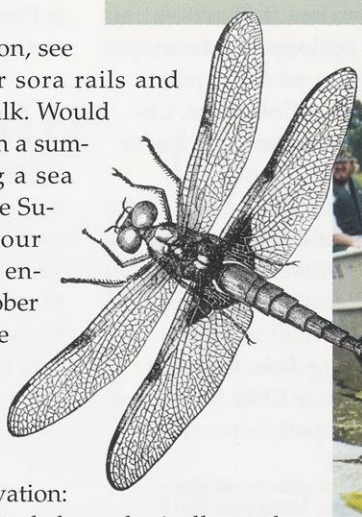
Fifty-six field trips to explore the Wisconsin outdoors at its peak.

Christine Tanzer

From atop a Door County lighthouse to the depths of the Parfrey's Glen 100-foot gorge, great vistas and beautiful places across Wisconsin await you.

Each year the Natural Resources Foundation of Wisconsin sets up field tours to get you into the out-of-doors, to discuss issues that interest you, and to *show* you the creatures most people just talk about. Experienced DNR scientists and researchers cordially guide your adventures as natural events peak between April and October each year.

If spring is your favorite season, see emerging mayapples, and hear sora rails and spring peepers on an evening walk. Would you like a little more adventure on a summer day? How about paddling a sea kayak through an estuary of Lake Superior? Is hands-on learning your style? You could help count the endangered dune thistle under October skies at Whitefish Dunes State Park. Come hike, watch wildlife, take a boat ride, howl for wolves or just enjoy a little nature guided by an enthusiastic ecologist.



It's simple to make a trip reservation:

1. Review the numbered trips listed chronologically on the next few pages.
2. Fill out the reservation card attached above. Indicate the trip number and the number of people in your party for each trip. If a cost is listed with the trip description, assume that is a per-person fee.
3. Add a registration fee from the table on this page.
4. Total your costs. Please consider a membership in the Foundation, and mail your registration card with a check payable to the Natural Resources Foundation of Wisconsin. Trip fees and registration fees are nonrefundable. However, if your trip is overbooked, parties that cannot be accommodated will receive refund checks in July or October.
5. Send registration cards and checks to: NRF Field Trips, P.O. Box 2317, Madison, WI 53701.

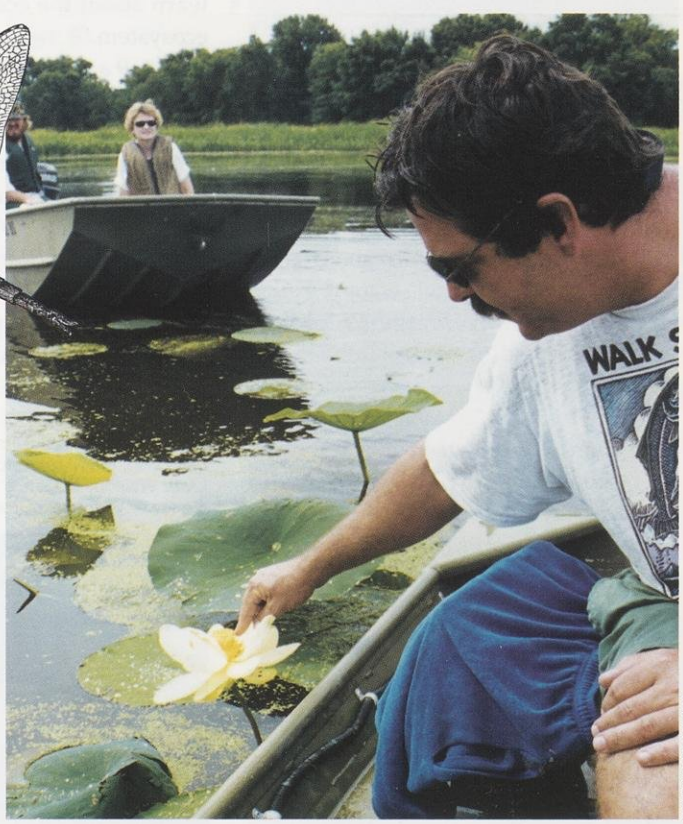
Sign up soon. Field trips fill up fast and reservations are accepted on a first-come, first-served basis. You will receive a mailed confirmation. Two weeks before the trip date, you will receive details and directions to the meeting location and rendezvous time.

Questions about trips or reservations? Wondering if a field trip is too strenuous for children or adults with physical limitations? Call me at (608) 264-8548.

Computing your trip registration fee

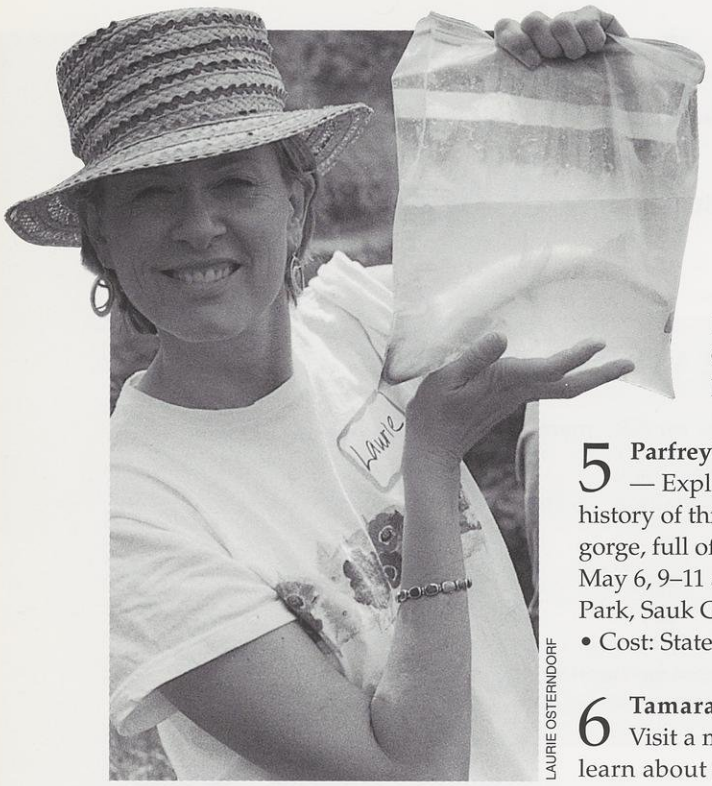
number of trips	fees for NRF members*		fees for nonmembers	
	one-person reservation	two or more	one-person reservation	two or more
one trip	$3	$5	$5	$10
two trips	$6	$10	$10	$20
three trips	$9	$15	$15	$30

*Annual membership is provided for a tax-deductible contribution of $15 or more to the Natural Resources Foundation. Membership is not included in hunting licenses.



CHRISTINE TANZER

Mississippi River trips offer long vistas and a close look at animals and plants. This year explore the spring flowers on the bluffs (**trip #10**) or paddle the channels and backwaters (**trips #35 & 48**).



LAURIE OSTERNDORF

Trip #21 A close look at the plants, insects and fish species in trout streams is in the bag.

1 A Closer Look at Sandhill Cranes — Hike out to see the stunning sight of a thousand sandhill cranes roosting for the night. Learn about sandhill crane and waterfowl ecology.
April 8, 5–9 p.m. • Navarino Wildlife Area, Shawano Co. • James Robaidek, leader

2 Dam Renovation at Raccoon Creek — Many places removed old dams, here they renovated! Tour the historic Beckman Mill, dam and mill pond. See a "first of its kind" fish ladder, an electro-fishing demo, and restored wetlands and prairies.
April 29, 1–5 p.m. • Beloit, Rock Co. • Diane Munroe & Bob Hansis, leaders • Cost: $2 per person

3 A Spring Evening Wetland Walk — Enjoy the sights and sounds of Pheasant Branch marsh at sunset. Watch for cranes, waterfowl, songbirds, frogs and wildflowers. Also learn about oak savanna restoration.
Wednesday, May 3, 6:30 p.m.–sunset • Middleton, Dane Co. • Tom Bernthal & Pat Trochlell, leaders

4 Lichen Ecology Exploration — Often overlooked, lichens are a wonderfully diverse "flora" on a miniature scale. Wisconsin harbors over 700 species. Learn their ecology and identification.
May 5, 1–4 p.m. • Otter Creek, Sauk Co. • Martha Makholm, leader

5 Parfrey's Glen State Natural Area — Explore the natural and human history of this spectacular 100-foot deep gorge, full of delightful surprises.
May 6, 9–11 a.m. • Devil's Lake State Park, Sauk Co. • David Bouche, leader • Cost: State park admission

6 Tamarack Marsh Restoration — Visit a mature tamarack marsh and learn about the ecology of this unique ecosystem.
May 6, 9 a.m.–noon • Columbus, Columbia Co. • Allen Ramminger, leader

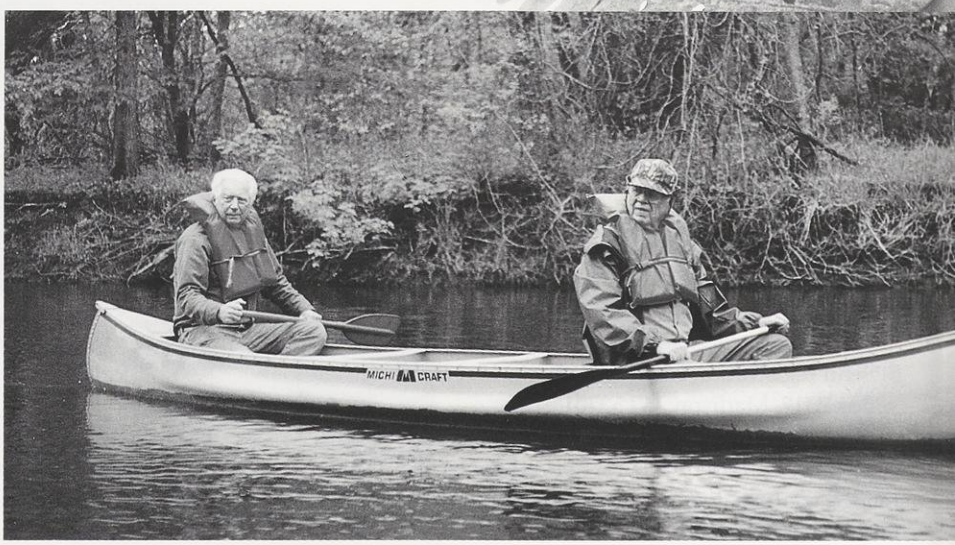
7 Invasive Plants — Hike Lake Kegonsa State Park and learn to identify, locate, prevent and contain some of the worst weeds of southern Wisconsin.
May 6, 9 a.m.–noon • Lake Kegonsa State Park, Dane Co. • Kelly Kearns, leader • Cost: State park admission

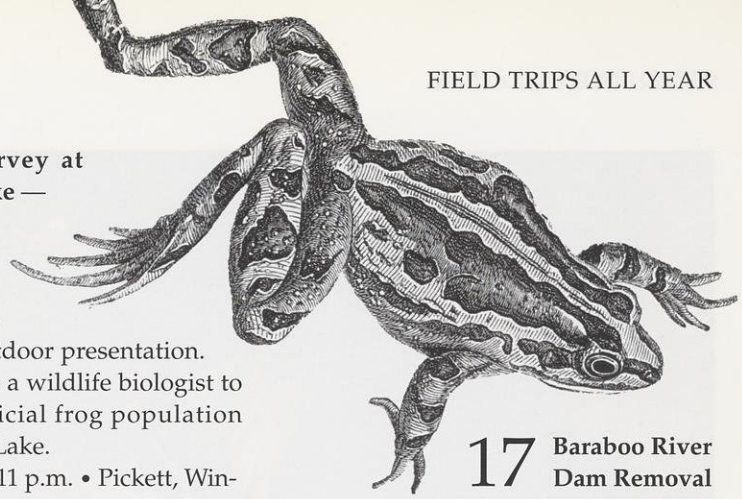
8 Door County Warbler Watch & Moonlight Bay — See the annual spring migration of warblers at Peninsula State Park. Spend the afternoon at Moonlight Bay Bedrock Beach State Natural Area learning about the natural history, plants, and management of this rich and rare ecosystem.
Friday, May 12, 7 a.m.–3:30 p.m. • Peninsula State Park, Door Co. • Kathleen Regnier & Mark Martin, leaders • Cost: State park admission

9 Effigy Mounds Explored — Learn about the extensive Native American occupations at Governor Nelson State Park from a naturalist and a representative of the Ho-Chunk Nation. See one of the longest panther effigies, and several conical mounds.
May 13, 10–11 a.m. • Governor Nelson State Park, Dane Co. • Donna Schmitz & Penni Klein, leaders • Cost: $2 and state park admission

10 Spring Flora of Mississippi Prairie Bluffs — See spectacular views of the Mississippi River valley while learning about restoration and identification of native spring flora.
May 20, 9:30 a.m.–1 p.m. • Ferryville, Crawford Co. • Ron Lichtie & Armund Bartz, leaders

Canoe trips this year offer glide-bys of Hook Lake Bog, the Mississippi, Mirror Lake and the lower Wisconsin. Here's last year's paddle on the lower Wisconsin River.





11 Tour Poynette Game Farm & MacKenzie Environmental Center — Learn the history of the game farm. See pheasant hatchery and rearing pens, the Wisconsin wildlife exhibit, buffalo, and restored prairies.
May 20, 9 a.m.–noon • Poynette, Columbia Co. • Derek Duane, leader

12 Dells of the Wisconsin River — Hike the Dells of the Wisconsin River State Natural Area and discover mossy glens, rock formations and natural wonders of the "real" dells. The terrain on this off-trail hike is rugged and not appropriate for small children.
Monday, May 22, 9 a.m.–12:30 p.m. • Wisconsin Dells, Columbia Co. • Thomas Meyer, leader

13 Frog Survey at Rush Lake — Learn to identify frogs by their chirps, gulps, and songs at a pre-dusk outdoor presentation. Then accompany a wildlife biologist to conduct an "official frog population survey" at Rush Lake.
Friday, June 2, 8–11 p.m. • Pickett, Winnebago Co. • Timothy Lizotte, leader

14 Dells of the Wisconsin River Spring Hike — See the "real" dells, towering hemlocks and mossy glens. Have lunch atop the bluffs on this 3.5 mile hike through the Dells of the Wisconsin River State Natural Area. The terrain on this off-trail hike is rugged and not appropriate for small children.
Friday, June 2, 9 a.m.–3 p.m. • Wisconsin Dells, Columbia Co. • Thomas Meyer, leader • Cost: $3

15 Tour of Chiwaukee Prairie State Natural Area — See the richest prairie in Wisconsin, with over 400 species identified. Shooting stars should be at their peak. Learn about prairie ecology and management techniques used on-site.
June 3, 9:30 a.m.–1 p.m. • Kenosha, Kenosha Co. • Mark Roycraft, leader

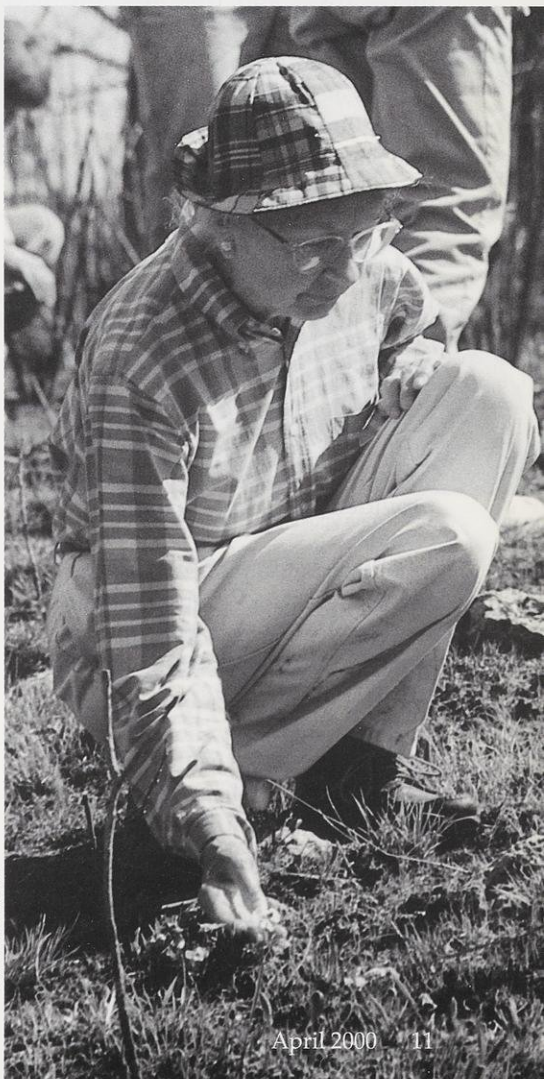
16 Canoe Hook Lake Bog — Paddle this diverse state natural area and explore wetland types, including a sphagnum bog mat. (You must supply your own canoe or kayak.)
June 3, 9 a.m.–1:30 p.m. • Oregon, Dane Co. • Kelly Kearns, leader • Limit: 10 canoes

17 Baraboo River Dam Removal & Environmental Remediation — Explore the history of dams on the Baraboo River and how their removal could restore the free-flowing river. Visit the restored site of the former Waterworks Dam and learn about environmental remediation projects on the river.
June 3, 9 a.m.–noon • Baraboo, Sauk Co. • Rich Vogt & Ron Grassoff, leaders

CHRISTINE TANZER

CHRISTINE TANZER

Chiwaukee Prairie will be flush with flowers for **trip #15**. Come visit with us when June is busting out all over.



CHRISTINE TANZER

CHRISTINE TANZER

Several trips bring you close to wildlife. Last year, we looked at these turkey vultures. This year, trips visit cranes, look at dragonflies, band ospreys, watch trumpeter swans, float with migrating monarchs and take you howling for wolves.

21 Trout Stream Assessment — Visit a trout stream and use sampling gear to assess water quality, habitat, aquatic insect and fish populations. Learn how watershed land use affects stream health.
June 10, 9 a.m.–4 p.m. • Cross Plains, Dane Co. • Mike Miller, leader

22 Tour Griffith State Nursery — Tour over 60 acres of conifer and hardwood nurseries and learn about reforestation, propagation techniques, history and role of the state nursery program. See over 20 species of native trees and shrubs.
June 10, 10–11:30 a.m. • Wisconsin Rapids, Wood Co. • Jim Storandt, leader

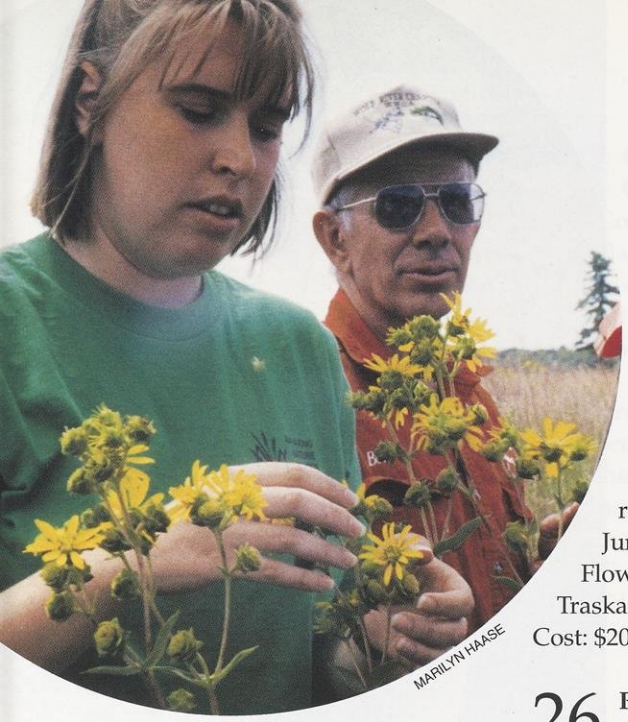
18 Bike Door County in Spring — Enjoy a naturalist-led peddle in Peninsula State Park. Discover park history, flower and tree identification along the way, and tour Eagle Bluff Lighthouse. Terrain is easy to moderate and on-site bike rental is available.
Friday, June 9, 10 a.m.–2 p.m. • Peninsula State Park, Door Co. • Kathleen Regnier, leader • Cost: $3 per person

19 Sea Kayak Tour of the Upper St. Louis River Estuary of Lake Superior — Explore the St. Louis River Streambank Protection Area, on a six-mile paddle. Steep wooded shores, unique wetlands, and meandering tributary bays await in this remote wilderness area. Sea kayaks and instruction provided by outfitter (beginners welcome).
June 10, 9 a.m.–4 p.m. • Duluth-Superior, Douglas Co. • Frank Koshere, leader • Cost: $50 per person kayak rental, or $20 per person with own kayak and gear

20 Dragonfly Ecology & Identification — Learn about dragonfly ecology and life history, then go afield to capture and identify various dragonfly species.
June 10, 1:30 a.m.–4:30 p.m. • Brule River State Forest, Douglas Co. • Bob DuBois, leader • Cost: $6 per person

Hands-on river trips look at the plants that provide food, shelter and beauty as well as a chance to see fish, wildlife and scenery.

CHRISTINE TANZER


MARILYN HAASE

23 Oak Savanna & Prairie Restoration at Southern Kettle Moraine — Learn the how's and why's of restoration and enjoy the spring beauty along the Ice Age Trail including a bluff prairie.
June 17, 9 a.m.–noon • Southern Kettle Moraine, Waukesha Co. • Mark Verhagen, leader

24 Ferns of Mt. Pisgah State Natural Area — Hike the cliffs of the Kickapoo River. Explore and identify ferns in Wildcat Mountain State Park and Mt. Pisgah, a unique hemlock and hardwood forest.
June 17, 9 a.m.–noon • Wildcat Mountain State Park, Vernon Co. • Tim Kessenich, leader • Cost: State park admission


CHRISTINE TANZER

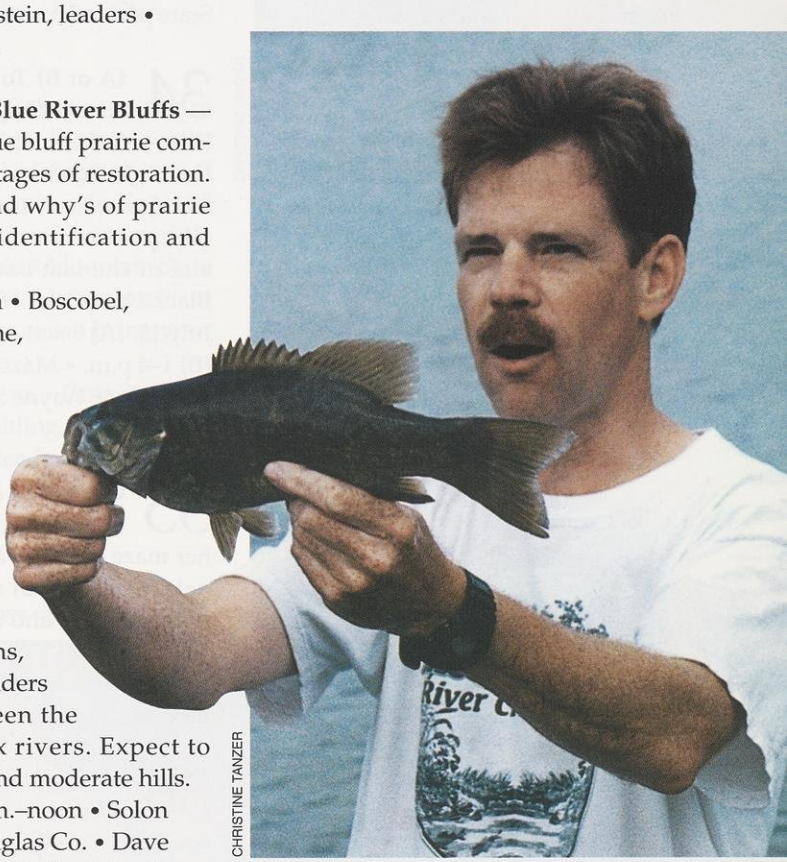
25 Eagles & Ospreys of the Willow Flowage — Explore the vast wonders of the Willow Flowage, view nesting ospreys and meet an eagle up close. Cruise the 6,400-acre flowage by luxury boat and hike through part of the 16,000 acres to behold waterfalls and forests. This trip is a fund-raiser for raptor monitoring.
June 17, 10 a.m.–4 p.m. • Willow Flowage, Oneida Co. • Kermit Traska & Ron Eckstein, leaders • Cost: $20 per person

26 Prairies of Blue River Bluffs — Visit a unique bluff prairie community in various stages of restoration. Learn the how's and why's of prairie restoration, plant identification and management.
June 24, 9 a.m.–noon • Boscobel, Grant Co. • Matt Zine, leader

27 Hike the Oldest Trail in the State — View scenic vistas while hiking a trail that was used for centuries by Native Americans, explorers and fur traders as a portage between the Brule and St. Croix rivers. Expect to hike rough terrain and moderate hills.
June 24, 9 a.m.–noon • Solon Springs, Douglas Co. • Dave Schulz & Chuck Zosel, leaders

28 Trout Management and Stream Shocking Demo — See the electro-shocking truth of just how many trout there are in Wisconsin's coulee region. Spring-fed streams comprise only 1 millionth of 1 percent of all the freshwater on earth, and the La Crosse area contains a large number of them.
June 24, 10 a.m.–noon • Coon Valley, Vernon Co • Dave Vetrano, leader

29 Sea Kayak the St. Louis & Pokegama Bay Wetlands — Paddle diverse wetland communities of aquatic plants in a tributary bay of the St. Louis River/Superior Bay estuary complex. See a variety of wetland wildlife and a stand of wild rice. Sea kayaks and instruction provided by outfitter (beginners welcome).
July 1, 9 a.m.–4 p.m. • Duluth-Superior, Douglas Co. • Frank Koshere, leader • Cost: $50 per person kayak rental, or $20 per person with own kayak and gear


CHRISTINE TANZER

(above left) Get close to prairie ecology and restoration.
(above) Share a good word with a battling bass.

30 Osprey Banding on the Turtle Flambeau Flowage — Visit osprey nests and help band osprey nestlings. Watch wildlife on a scenic boat ride and learn the history and future of this majestic flowage. This trip is a fund-raiser for the eagle and osprey monitoring program. Space is limited.
July 8, 8:30 a.m.–4 p.m. • Mercer Ranger Station, Iron Co. • Bruce Bacon & Roger Jasinski, leaders • Cost: $50 per person (includes lunch)

31 Wolf Howl — Learn all about wolf biology and forest ecology during a drive and hike trip through wolf range. Conduct an evening wolf howl survey.
July 8, 3 p.m.–midnight • Park Falls, Price Co. • Adrian Wydeven, leader

32 Using Beetles to Control Purple Loosestrife — Discover how beetles are helping in the battle to eradicate the choking spread of purple loosestrife in our waterways. Visit several sites where beetles have been released.
July 8, 10 a.m.–3 p.m. • Barron, Barron Co. • David Blumer, leader

Field trips often mix history, culture and resources. Last year we kayaked historic sections of the Milwaukee River.

CHRISTINE TANZER

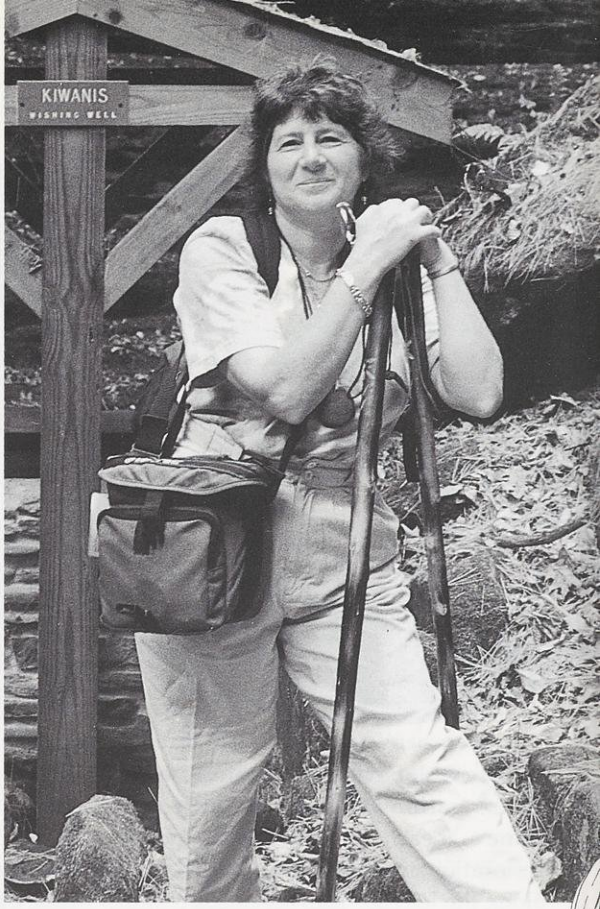
33 Ancient Peoples of Whitefish Dunes — Discover the human occupation of Whitefish Dunes and learn hands-on how to recreate tools, buildings and other items used hundreds of years ago. Walk the dunes in search of natural history while exploring the past.
July 15, 9 a.m.–2 p.m. • Whitefish Dunes State Park, Door Co. • Carolyn Rock & Mike Madden, leaders • Cost: State park admission

34 (A or B) Tour of Wisconsin Heights Battle Site — Take a walking tour through this historic battle site. See oak savanna restoration, pre-historic mounds and site of the last battle of the Black Hawk War of 1832.
July 15, (A) 9 a.m. – noon or (B) 1–4 p.m. • Mazomanie, Dane Co. • Wayne Schutte, leader

35 Canoe the Mississippi — Paddle the mighty Mississip' and her maze of backwaters and river channels. Learn about river wildlife, river management, and aquatic ecosystems.
Friday, July 21, 9:30 a.m.–3 p.m. • Trempealeau, Trempealeau Co. • Gretchen Benjamin, leader

36 Aeronautics — A View From Above — See aircraft and equipment used for animal and forestry surveys, telemetry of wolf movements, fire detection and suppression, aerial photography and more.
July 22, 9 a.m.–noon • Four Lakes Aviation, Madison • Greg Stacey, leader

37 Tallgrass Prairie Restoration at Goose Pond — Visit this 140-acre prairie restoration site at the peak of summer bloom! Learn to identify prairie plants.
July 29, 9:30 a.m.–noon • Arlington, Columbia Co. • Mark & Sue Martin, leaders



ANNIE SALMONA

Pick your pleasure. Guided nature hikes can take you to gorges, beaches, bluffs or lakesides.

38 Prairie Ecology at Navarino Wildlife Area — Take a 10-mile wagon ride into Navarino's prairie communities to learn about prairie ecology and identify native plants. Pass through wetlands and forests along the way.
Aug. 5, 10 a.m.–2 p.m. • Navarino Wildlife Area, Shawano Co. • Kay Brockman-Mederas, leader

39 Tour of Muir Park and Observatory Hill State Natural Areas — Hike two of John Muir's boyhood haunts. Begin at Muir Park and hike the lake to see wetland, prairie and savanna communities. Then it's off to Observatory Hill to have lunch atop a cedar glade with a spectacular view.
Aug. 12, 9:30 a.m.–1 p.m. • Montello, Marquette Co. • Mark Martin, leader

40 Wisconsin Glacial Habitat Restoration Area Project — Learn about native prairie and wetland restoration efforts on private and public land in the Glacial Habitat Restoration Area.
Aug. 12, 9:30 a.m.–3:30 p.m. • Horicon, Dodge Co. • Eric Lobner, leader

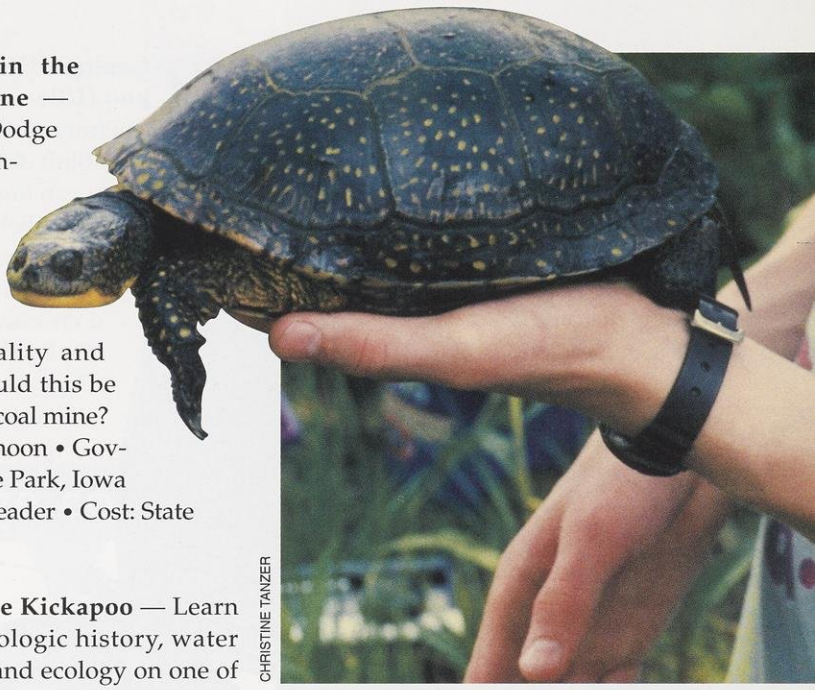
41 Sea Kayak the St. Louis Wetlands & Pokegama Bay — Get a close-up view of diverse wetland communities of aquatic plants in a bay of the St. Louis River/Superior Bay estuary complex. See a variety of wetland wildlife and a stand of wild rice. Sea kayaks and instruction provided by outfitter (beginners welcome).
Aug. 19, 9 a.m.–4 p.m. • Duluth-Superior, Douglas Co. • Frank Koshere, leader • Cost: $50 per person kayak rental, or $20 per person with own kayak and gear

42 Canoe Gorges and Wild Rice of Mirror Lake — Paddle back in time, through sandstone narrows, wild rice beds, and a calm open lake. Enjoy the sunset from the lake or ridgetop.
Sunday, Aug. 20, 4–7 p.m. • Mirror Lake State Park, Sauk Co. • Mark Hays, leader • Cost: State park admission, $10 per person canoe rental, if needed.

43 Footprints of the Glaciers – For Kids! — The glaciers have returned to Mauthe Lake! Discover how glaciers created kames, eskers, and more through hands-on activities at the beach. Then take a bus ride to visit these real-life features located throughout the Northern Kettle Moraine. (Minimum age of 8)
Aug. 26, 9 a.m.–noon • Mauthe Lake Recreation Area, Fond du Lac Co. • Jackie Scharfenberg, leader • Cost: $5 per person

44 Canary in the Coal Mine — Hike Governor Dodge State Park searching for signs of air pollution injury to native plants. Learn the correlation between air quality and plant health. Could this be the canary in the coal mine?
Aug. 26, 10 a.m.–noon • Governor Dodge State Park, Iowa Co. • Ed Jepsen, leader • Cost: State park admission

45 Canoe the Kickapoo — Learn about geologic history, water quality and wetland ecology on one of Wisconsin's most scenic, winding and beloved rivers. Enjoy a 5-hour paddle from Ontario to Wildcat Mountain State Park. (8 canoes available; indicate on registration form if you can bring your own.)
Friday, Sept. 8, 1–7 p.m. • Ontario, Vernon Co. • Hank Kuehling, Barb Schieffer, & Dave Siebert, leaders



CHRISTINE TANZER

You never know when a field trip will bring you eye to eye with rare species like a Blanding's turtle…

46 Spread Eagle Barrens State Natural Area — Visit the largest barrens in northeast Wisconsin to learn about bracken grassland geology, ecology, management, and restoration.
Sept. 9, 9 a.m.–1 p.m. • Florence, Florence Co. • Stu Boren, leader

…or just slow you down for a closer look at aquatic insects and crustaceans.

LAURIE OSTERNDORF

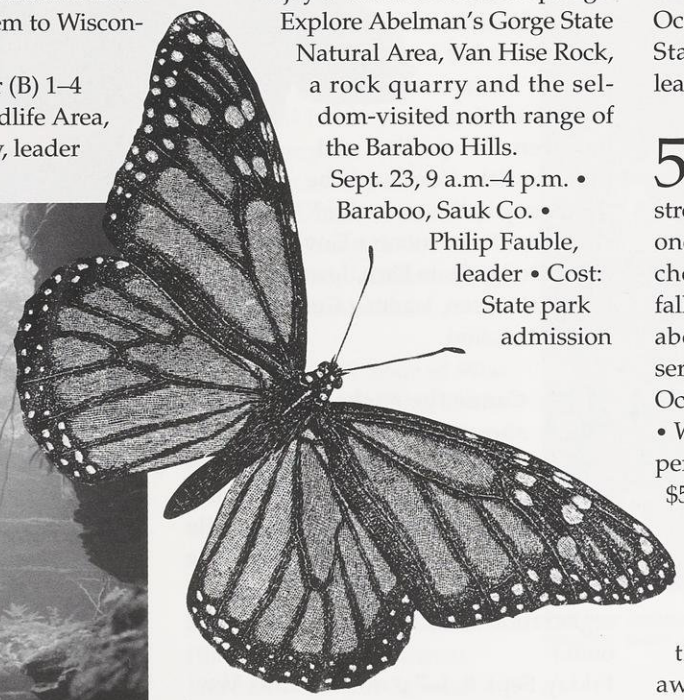
47 (A or B) Trumpeter Swans — Learn about the ecology of North America's largest waterfowl species, the trumpeter swan. View these magnificent birds in the wild and learn about efforts to restore them to Wisconsin.
Sept. 9, (A) 9 a.m.–noon or (B) 1–4 p.m. • Crex Meadows Wildlife Area, Burnett Co. • Pat Manthey, leader

CHRISTINE TANZER

On an NRF field trip, you can even find a quiet moment on a tour of Wisconsin Dells.

48 Canoe and Bike the Mighty Mississippi — Enjoy a fun-packed weekend on the mighty river! Saturday, canoe the backwaters to see fisheries, wildlife, and flora. Evening plans include an astronomy program and group camping at Merrick State Park (reservations included in trip cost). Sunday, enjoy a leisurely 15-mile bike ride along the Great River State Trail.
Sept. 16, 1 p.m.–Sept. 17, 3 p.m. • Merrick State Park, Buffalo Co. • Lois Larson & Ceil Inman, leaders • Cost: State park admission, + $10 per person bike shuttle, + $5 tent camp site or $10 electric trailer site

49 Geologic History of the Baraboo Hills — Learn about the geologic history of the Baraboo Hills, hike the east bluff of Devil's Lake, then enjoy a van tour to Rock Springs. Explore Abelman's Gorge State Natural Area, Van Hise Rock, a rock quarry and the seldom-visited north range of the Baraboo Hills.
Sept. 23, 9 a.m.–4 p.m. • Baraboo, Sauk Co. • Philip Fauble, leader • Cost: State park admission



50 Canoe the Wolf River — Explore Navarino Wildlife Area by canoeing the Wolf River in 25' canoes reminiscent of those used by fur traders in the region 200 years ago.
Sept. 23, 10 a.m.–4 p.m. • Navarino Wildlife Area, Shawano Co. • Eric Roers & James Robaidek, leaders

51 Migrating Monarchs — Discover how tagged monarch butterflies unlock the secrets of their migration. Capture, examine and tag some of these beautiful migrants.
Sept. 30, 12:30–3:30 p.m. • Bong Recreation Area, Kenosha Co. • Donna Mosca & Beth Goeppinger, leaders • Cost: State park admission

52 Return of the White Pine to the Sand Plains — Learn the history of white pinery in Jackson County. Then bus and hike to see how the Black River State Forest is recovering white pine as part of local public forests.
Sept. 30, 8:30 a.m.–4 p.m. • Black River Falls, Jackson Co. • Michael Luedeke & Jack Halbrehder, leaders • Cost: $5 per person

53 Plants of the Dunes — Learn about dune ecology and the special and rare plants they harbor. Participate in annual count of the federally endangered Dune Thistle.
Oct. 7, 10 a.m.–noon • Whitefish Dunes State Park, Door Co. • Carolyn Rock, leader • Cost: State park admission

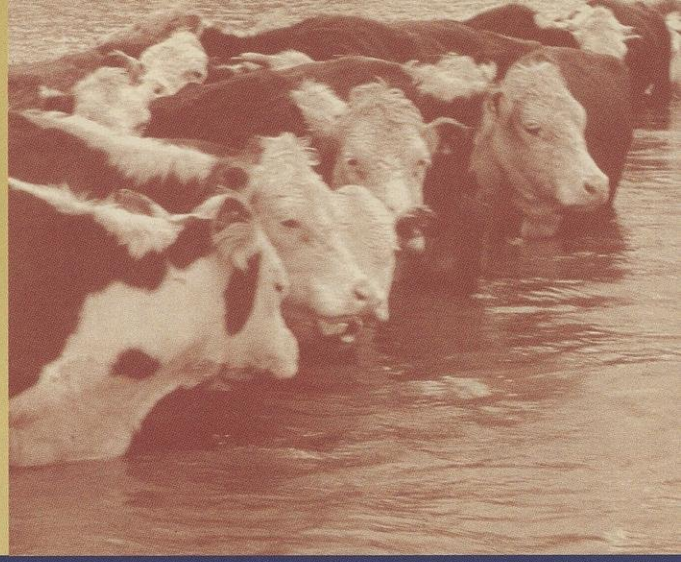
54 Canoe the Lower Wisconsin River — Paddle an 8-mile stretch (from Arena to Spring Green) of one of Wisconsin's most beautiful and cherished waterways. Enjoy a day of fall color, waterfowl and wildlife. Learn about river history and efforts to preserve its natural beauty.
Oct. 7, 10 a.m.–2 p.m. • Arena, Iowa Co. • Wayne Schutte, leader • Cost: $10.50 per person for canoe rental and shuttle, $5 per person for shuttle only

55 Autumn Dells Hike — Spectacular scenery and fall color, unique geological formations, gorges, glens, and rare plants await! Trek this gem of the Wisconsin landscape in areas not normally accessible to the public. Terrain of this 3-mile hike is rugged and not appropriate for small children.
Sunday, Oct. 8, 9 a.m.–12:30 p.m. • Wisconsin Dells, Columbia Co. • Thomas Meyer, leader

56 Gee Whiz Geology — Learn the geological history of Wisconsin's oldest state park. Hike to scenic overlooks to view geologically significant features, including world famous glacial potholes.
Oct. 14, 10 a.m.–2:30 p.m. • Interstate State Park, Polk Co. • Julie Fox Martin, leader • Cost: State park admission □

Christine Tanzer coordinates field trips for the Natural Resources Foundation of Wisconsin in Madison.

MIKE MEYER



What global climate change could mean for Wisconsin

WARMING TRENDS

The issue that's

HEATING UP

Global warming: It's a phrase we've been hearing on weather broadcasts and news reports, in science classrooms and around supper tables since the early 1980s. It's a vague concept that seems far removed from our everyday lives, something that concerns anonymous scientists digging into polar ice caps thousands of miles away — not *us*.

But global warming and the changes it could cause in world climate should concern us. The great majority of scientific research agrees that between now and the middle of the century the globe could very well warm up, and the results could significantly alter life in this little corner of the planet we call home. Credible scenarios show Wisconsin could face:

- wetter winters and drier summers with longer, hotter and more frequent heat waves
- weather and climate changes that could require farmers to raise different crops
- dairy cattle beleaguered by heat exhaustion and growing pest populations
- poor air quality and higher concentrations of ground-level ozone, an air pollutant that causes severe health problems
- warmer and more shallow river waters — conditions that could hurt populations of cold-water fish like trout
- denser algae blooms and lower oxygen levels in ponds and lakes
- more frequent floods, droughts, forest fires and damaging storms
- changes in tree species that could affect the forestry industry and wildlife populations
- increases in disease-carrying insect populations

All of these potential changes are just that: potential. Because of the intricate interplay of a whole slew of climatic factors, it's difficult to predict what an increase in global temperature might bring. This publication dips into the ocean of global climate change theory, and attempts to fish out the bits pertinent to Wisconsin.

If trapped greenhouse gases cause even small rises in average temperatures, drought and wildfire could become more common. Fires release more CO_2, increasing greenhouse gases. The combined effects of natural biology and human activities can clearly worsen the quality of the envelope of air we rely on.

(front cover) **Warmer days, more frequent flooding and changing storm patterns could all happen if global warming heats up Wisconsin.**

What is global warming?

Historical records indicate the average global temperature increased by 0.5 to 1° Fahrenheit (F) between 1890 and 1990. In the next 100 years, scientists predict the temperature may rise another 2 to 6°F. Such increases have occurred previously in Earth's history, but never over such a short time span. In fact, the average global temperature has risen more in the last century than at any time in the past 10,000 years.

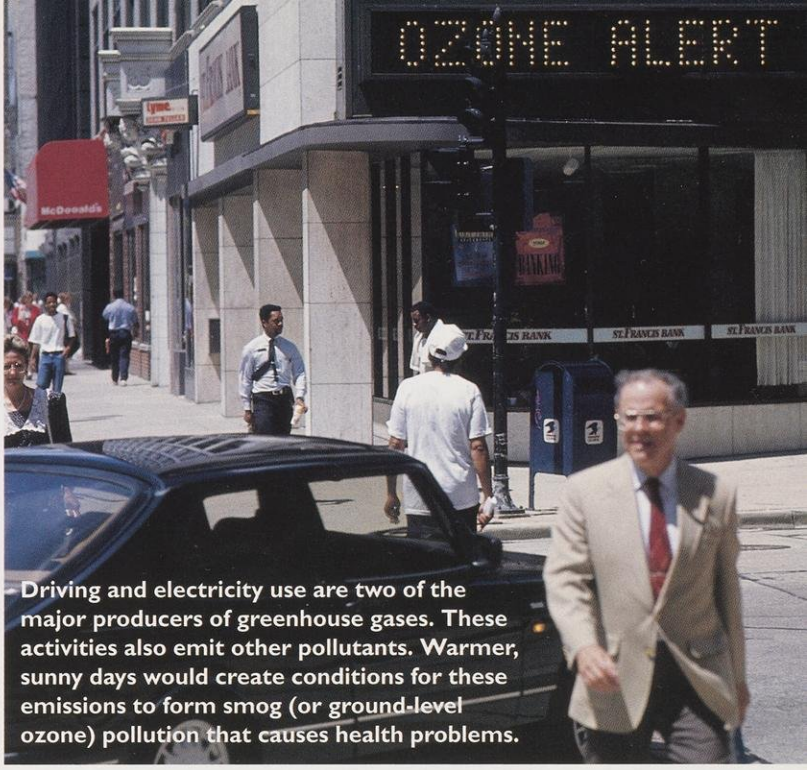
What's causing this warming trend? Scientists agree the answer hinges on the six main human-influenced greenhouse gases in our atmosphere. These gases — carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride — make up about one percent of our atmosphere. They keep our planet warm by trapping the sun's energy and slowing its escape back into space. This heat-trapping ability is called the greenhouse effect, and it allows us to enjoy an average global temperature of 60°F. If our atmosphere lacked greenhouse gases, the Earth would be a cold gray lump of cosmic matter, and life as we know it would not exist.

Since the Industrial Revolution, however, atmospheric concentrations of the most important human-influenced greenhouse gases — CO_2, methane and nitrous oxide — have increased at an unnatural rate. In the last 200 years, CO_2 levels have risen almost 30 percent, methane levels have gone up 145 percent, and nitrous oxide levels have increased by 15 percent. Where are all these "extra" greenhouse gases coming from? Us. Large-scale burning of fossil fuels for industry, motor vehicles, intensive agriculture, mining, electricity, heat, and other human activities pumps more and more greenhouse gases into the atmosphere, creating a heightened greenhouse effect that leads to a higher average global temperature — global warming.

Normally, the elements that compose greenhouse gases (carbon, oxygen, nitrogen, etc.) cycle freely through the environment between *sources* and *sinks*. Sources release elements to the atmosphere; sinks store them. For example, carbon is stored in most life forms on Earth, including trees; trees are *sinks* for carbon. When trees are cut down and burned, this stored carbon is released into the atmosphere as carbon dioxide; thus, the burning of trees is a carbon *source*.

For two centuries, we've been releasing greenhouse gases into the atmosphere at unprecedented rates while destroying forests and other natural sinks that could absorb those gases. In our attempts to improve the quality of life, we've created a greenhouse that's a little too effective.

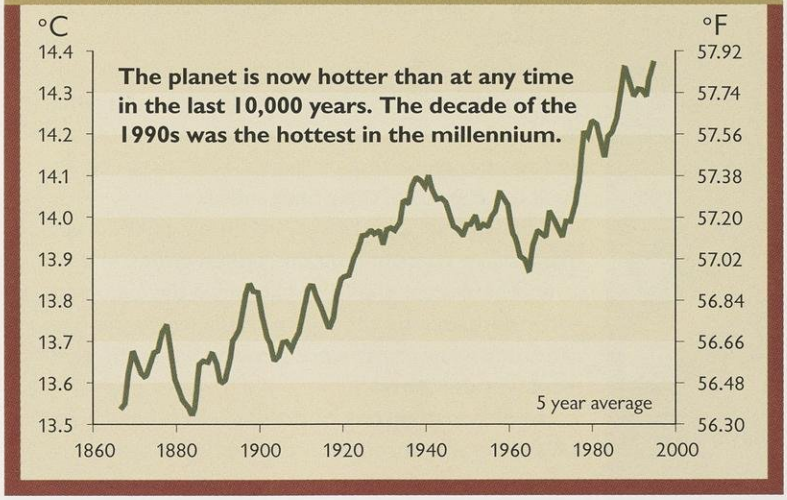
ROBERT QUEEN



ROBERT QUEEN

Driving and electricity use are two of the major producers of greenhouse gases. These activities also emit other pollutants. Warmer, sunny days would create conditions for these emissions to form smog (or ground-level ozone) pollution that causes health problems.

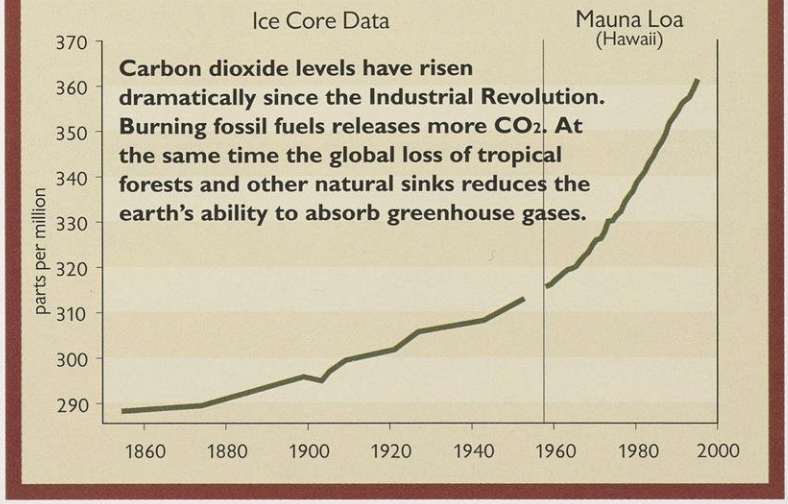
Global average temperature



The planet is now hotter than at any time in the last 10,000 years. The decade of the 1990s was the hottest in the millennium.

DATA FROM GODDARD INSTITUTE FOR SPACE STUDIES

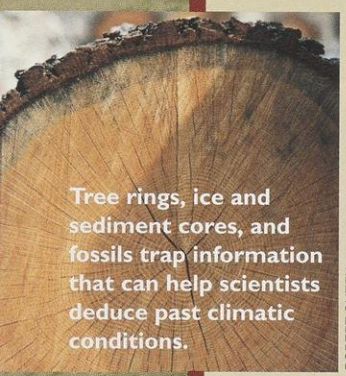
Carbon dioxide concentrations



Carbon dioxide levels have risen dramatically since the Industrial Revolution. Burning fossil fuels releases more CO_2. At the same time the global loss of tropical forests and other natural sinks reduces the earth's ability to absorb greenhouse gases.

OAK RIDGE NATIONAL LABORATORY

How do scientists study past climate?



Tree rings, ice and sediment cores, and fossils trap information that can help scientists deduce past climatic conditions.

ROBERT QUEEN

If scientists had to rely on written weather records for historical climate information, they would be in trouble. Such records only exist for the last 150 years or so. However, clues in the environment can provide information from thousands of years ago.

Ice cores — Ice in polar regions contains air bubbles trapped thousands of years in the past. Scientists can check the gases in the bubbles and provide a good estimate of the temperature at that time. Also, the thickness of the ice layers gives information about past climates.

Tree rings — Trees can live for centuries, and for each year of their lives they add a ring of growth to their diameter. The width of these rings can give scientists information about climate during that year of growth.

Fossils — The bones of long-dead animals indicate which species lived in certain areas and when they were there. Since each species has a set of food and temperature requirements, scientists can deduce the climate of their time and area.

Sediment cores — A column of sediment from a lake bottom contains pollen grains in each layer. The deeper the layer, the older the sediment. After determining the age of the layers, scientists can study what plants were growing when the sediment was deposited.

Archaeological records — Humans have left their traces throughout the world for ages. How they lived and what they needed to survive can provide important clues about the climates they experienced.

Researchers think small rises in global temperatures could warm up nutrient-rich waters and increase algal blooms.

(top) Even subtle changes could increase flooding, drought and more damaging storms.

DALE LANG

From global temperature to global climate

Because of human activities, the average global temperature may become 2 to 6°F warmer by 2100. While the prospect of a few more degrees of warmth may sound appealing to anyone who's endured a Wisconsin winter, it's important to realize the repercussions of such a change. Consider that during El Niño, which tends to bring with it severe dry spells, storms and other dangerous weather events, average winter temperatures go up by only 0.5°F.

There is no longer much dispute over whether an increase in global temperature will affect global climate. Exactly *how* the climate will change, however, is a topic rife with debate. Researchers use computer models that mimic the Earth's climate to make educated predictions on what changes global warming may bring. The view they see is daunting: Nearly all regions of the globe would experience higher temperatures, but some, particularly inland areas in northern latitudes like Wisconsin, could get warmer than others. Some regions could become significantly drier while others would get more rain and snow. Altered weather patterns could affect agriculture, forest make-up and wildlife populations. By 2100, ocean levels could rise as much as three feet, causing extensive coastal flooding that could disrupt food supplies, damage or destroy human dwellings, and displace millions of people. Extreme weather events like hurricanes, floods, droughts, and forest fires could become more frequent and intense. Local and regional economies as well as human health could suffer.

STEPHEN J. LANG

Wisconsin

Celebrate the Colors of Spring

2000 Spring Sampler

Historic Milwaukee City Hall framed in springtime blossoms.

A Blooming Good Time

Spring is more eagerly awaited than any other season... and with good reason. From the joyous call of birds on the wing to the colorful panorama of new grass and blossoms, springtime in Wisconsin is a celebration of the senses.

Hear the rush of a waterfall, the roar of a rapids, or the call of a loon. Smell flowers newly blossomed or hot dogs on opening day. Feel a fish on the line or a golf club in hand. See exotic zoo animals, colorful festivals or lush botanical gardens. Taste fresh maple syrup and other seasonal specialties.

...the call of the loon.

D & G PHOTOGRAPHY

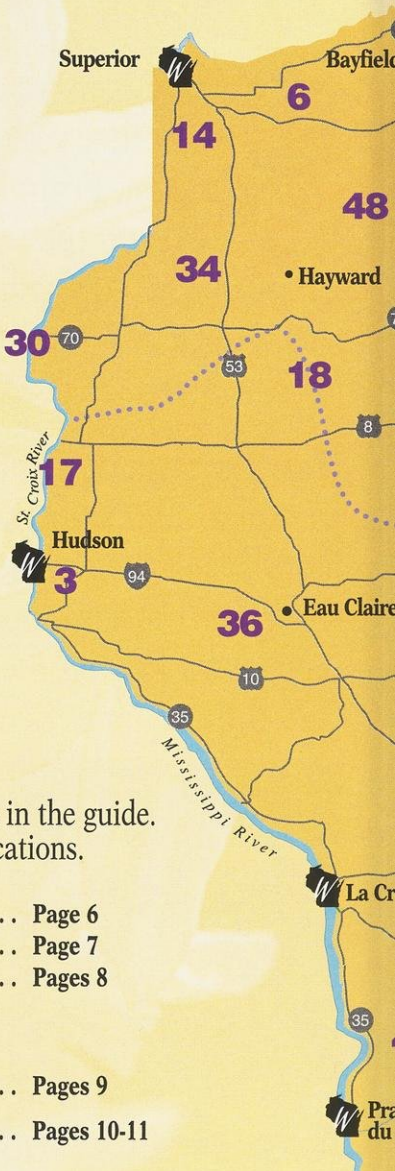
MARY LANGENFELD

Springtime pedals.

If your senses ache to be indulged, visit Wisconsin in spring.

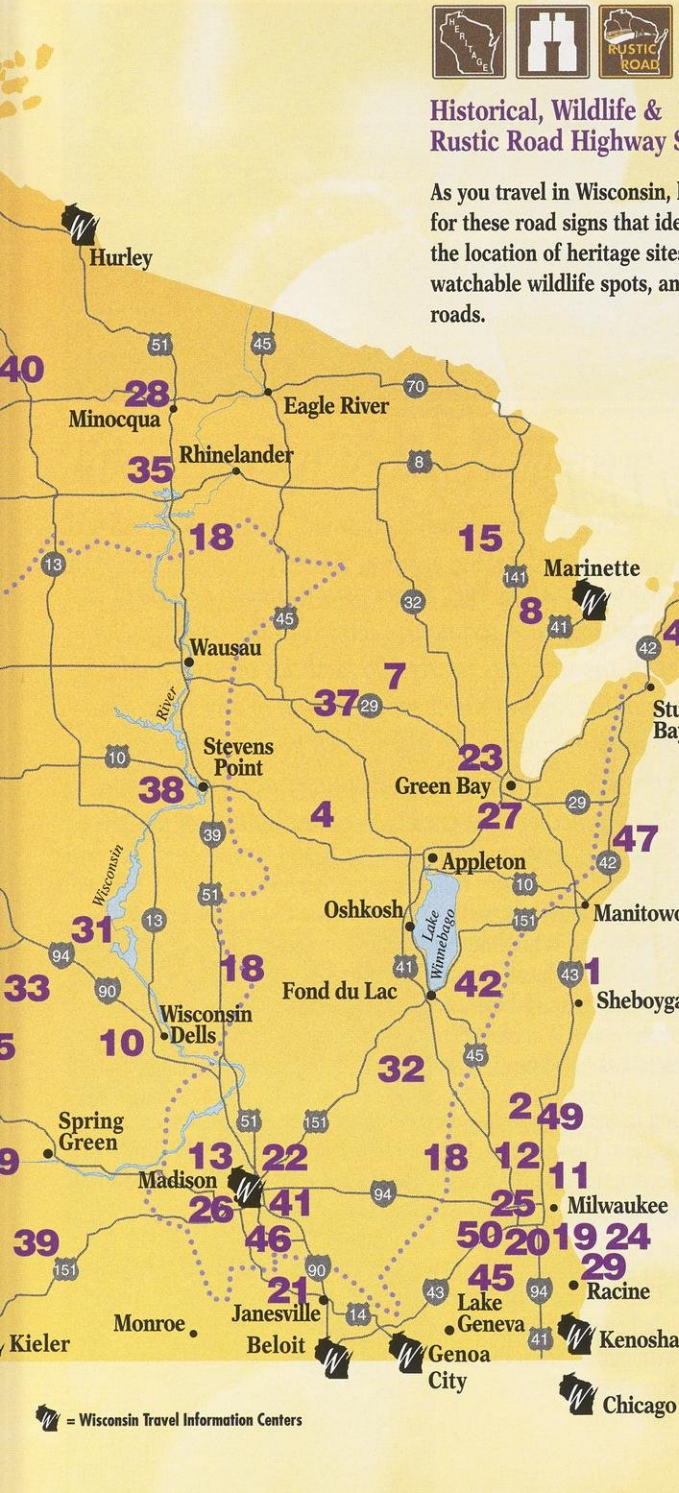
It's a blooming good time!

Catch Spring Fever in Wisconsin



Contents

This map identifies activities in the guide. Numbers identify specific locations.

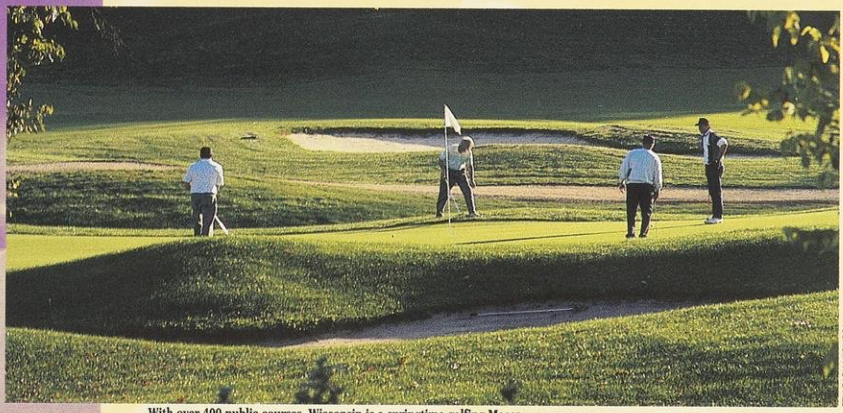


Historical, Wildlife & Rustic Road Highway Signs

As you travel in Wisconsin, look for these road signs that identify the location of heritage sites, watchable wildlife spots, and rustic roads.

Hurley
Minocqua
Eagle River
Rhinelander
Marinette
Wausau
Sturgeon Bay
Stevens Point
Green Bay
Appleton
Oshkosh
Manitowoc
Fond du Lac
Sheboygan
Wisconsin Dells
Spring Green
Madison
Milwaukee
Racine
Janesville
Lake Geneva
Kenosha
Monroe
Beloit
Genoa City
Kieler
Chicago
Wisconsin River
Lake Winnebago

= Wisconsin Travel Information Centers



TOURISM PHOTO FILE

With over 400 public courses, Wisconsin is a springtime golfing Mecca.

Cool Links

With its wooded, rolling hills, Wisconsin has been described as having the best natural golf course terrain in the country. Not surprisingly, the state has nearly 500 facilities open to public play – one of the highest numbers per capita of any state. That means Wisconsin courses are uncrowded and serene, particularly in springtime. Wisconsin's golf courses also offer exceptional values, whether they are PGA-caliber layouts or family-friendly par threes. Here are a few highlights:

1 Designed by Pete Dye as part of The American Club's golf complex, **Blackwolf Run** and **Whistling Straits** rank among the best courses in the country. Kohler's Blackwolf Run, site of the 1998 U.S. Women's Open, offers two challenging 18-hole tracks, winding through hills and river valleys. Sheboygan's Whistling Straits is a British-style links course along the shores of Lake Michigan. (1-800-618-5535; www.americanclub.com)

2 **The Bog** in Saukville tests golfers with a variety of blind tee shots and dogleg fairways. However, the biggest challenge on this Arnold Palmer-designed course may be the marshy wetlands rough from which the course derives its name. (1-800-484-3264)

3 The first course designed by Ryder Cup team member Tom Lehman, Hudson's **Troy Burne Golf Course** sports 121 bunkers, making it one of the most challenging courses in northwestern Wisconsin. It is very popular with golfers from the Minneapolis/St. Paul area. (1-877-888-8633; www.troyburne.com)

4 Nominated in 1997 for Golf Digest's best new public golf course, Waupaca's **FoxFire** boasts bent grass tees and fescue grass fairways designed to bring a traditional Scottish links golfing experience to the Northwoods. (715/256-1700; www.foxfiregc.com)

Other perennial favorites include **Trapper's Turn** in Wisconsin Dells (1-800-221-8876; www.trappersturn.com); **Lake Arrowhead** in Nekoosa (715/325-2929); **SentryWorld** in Stevens Point (715/345-1600); **Geneva National** and **Grand Geneva**, in Lake Geneva (262/245-7000; www.genevanationalresort.com); **Teal Wing** near Cable (715/462-9051; www.rossteal.com); and **Lawsonia** in Green Lake (1-800-529-4453).

For a free guide to the state's public golf courses, call 1-800-432-TRIP or visit www.wisgolf.com.

Take Me Out to the Ballgame

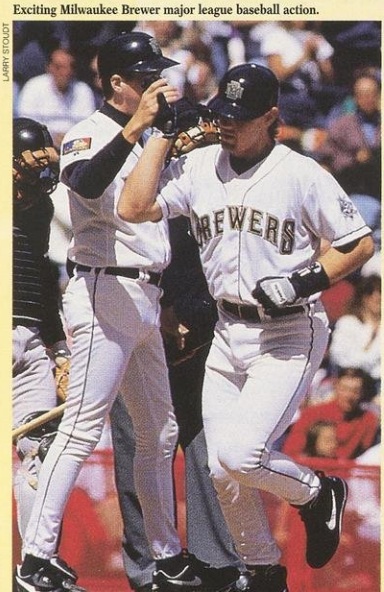
The crack of the bat. The roar of the crowd. The smell of hot dogs and peanuts. There is nothing quite like the beginning of baseball season in Wisconsin. And with five pro teams in the state, fans here have ample opportunities to root for the home team.

The major-league **Milwaukee Brewers** (414/933-9000; www.milwaukeebrewers.com) open their final season at venerable Milwaukee County Stadium on April 10, hosting the Florida Marlins. In addition, one of the Brewers' minor-league affiliates, the **Beloit Snappers** (608/362-2272; www.snappersbaseball.com) play just down the road in Beloit, while the **Wisconsin Timber Rattlers** (1-800-WI-TIMBER; www.timberrattlers.com), a Seattle Mariners farm team, play in Appleton. Fans can also cheer for two independent clubs, the **Madison Blackwolf** (608/244-5666; www.madwolf.com) and the **Wisconsin Woodchucks** (715/845-5055; www.woodchucks.com).

B. STAFFZAK-ASSOCIATES

Meeting future major leaguers in Appleton.

Exciting Milwaukee Brewer major league baseball action.



LARRY STOUDT

Hook into Springtime

For serious anglers, spring in Wisconsin means one thing: the start of fishing season. And with 14 DNR fish hatcheries stocking Wisconsin's 15,000 inland lakes, 33,000 miles of rivers and two Great Lakes, there are lots of fish to catch! Spring is a particularly good time for anglers to find bass, northern pike and musky in shallow, easily accessible waters. It is also prime season for walleye fishing, as spring spawning runs make for heavy action on many rivers. Here are a few of Wisconsin's best springtime "fishin' holes."

April is the hottest time of the year for walleye fishing on the **Wolf River**. After the spring run ends, the walleye move down river into the Lake Winnebago system (which also includes lakes **Poygan**, **Winneconne** and **Butte des Morts**).

No fish is more revered in Wisconsin than the mighty muskellunge. Although muskies are found in almost 800 lakes and rivers in Wisconsin, they are most prevalent in the Northwoods. Two particularly famous areas are the **Chippewa Flowage** near Hayward and Boulder Junction.

Top quality fishing isn't just found in northern Wisconsin. **Lake Geneva**, near the Illinois border, is a favorite with bass fishermen across the Midwest, while **Pewaukee Lake** in Waukesha County is know for its musky.

TOURISM PHOTO FILE

Releasing a rainbow on a Wisconsin stream.

More than 2,500 trout streams spread their way across Wisconsin. The west fork of the **Kickapoo River** in Vernon County and **Black Earth Creek** in Dane County are among the best. The **Bois Brule** and **Peshtigo** rivers in northern Wisconsin are also popular.

Wisconsin's 200-mile section of the **Mississippi River** is a prime habitat for smallmouth bass, largemouth bass, walleye, crappie, bluegill and pike.

"Big water" fishing fans will delight in the opportunities provided by Wisconsin's two great lakes, **Lake Michigan** and **Lake Superior**. Both are famous for their coho, king salmon and lake trout, while Superior's **Chequamegon Bay** is also a top spot for springtime bass and Lake Michigan's **Green Bay** is a prime walleye and bass destination.

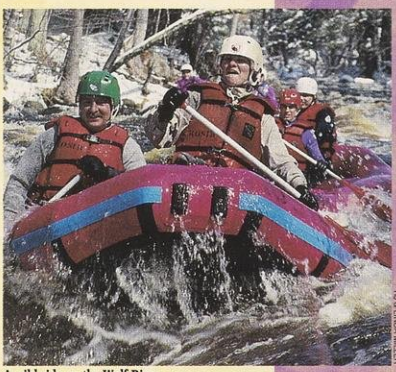
Fishing locations are not identified on the map on pages 2-3. For a free Wisconsin Fishing Guide, call 1-800-432-TRIP or visit www.travelwisconsin.com. For information on regulations, contact the Wisconsin Department of Natural Resources at 608/266-2621 or www.dnr.state.wi.us.

Ride Spring Currents

Spring definitely receives high marks for kayaking, canoeing and rafting in Wisconsin. During this season, the state's rivers and streams are swollen with snowmelt, making them faster and more challenging than any other time of the year. Of course, plenty of calm, languid waters can also be found. Consult one of the state's many outfitters and you'll be sure to find the trip that fits your appetite for adventure. Of course, if you prefer slides and whirlpools, rather than paddles and rapids, one of Wisconsin's many indoor water parks might be just the answer.

5 Southwestern Wisconsin's **Kickapoo River** is particularly popular with canoeists. Often called "the most crooked river in the world" the smooth-flowing Kickapoo twists and turns for nearly 120 miles. (608/872-2504)

6 The **Bois Brule River** in northwest Wisconsin offers something for everyone. The lower part of the river features almost continuous rapids and will challenge even the most avid kayakers and canoers. The upper Brule is perfect for the less adventuresome, flowing through a broad, flat, bog-filled valley. (715/372-5678)



A wild ride on the Wolf River.

PJ & LINDA MILLER

7 A part of the National Wild and Scenic Rivers System, the **Wolf River** in northeastern Wisconsin offers enthusiasts more than 20 miles of serious (class 1-5) whitewater rapids. (1-888-526-4523)

8 An even more intense series of rapids is offered by the **Peshtigo River**. Running through the scenic Chequamegon-Nicolet National Forest in northeastern Wisconsin, a five-mile stretch of the Peshtigo, boasting class 2-4 rapids, has been called the best whitewater in the Midwest. The river also offers calmer, lake canoeing near Crivitz. (715/674-4481; www.fs.fed.us/r9/cnnf)

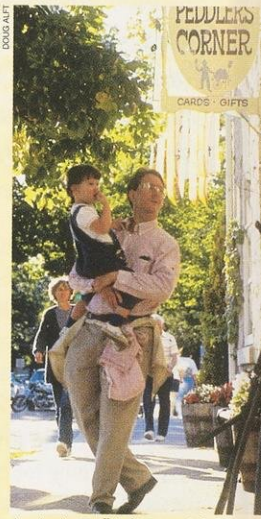
9 The **Wisconsin River** provides paddlers with a completely different experience. Dotted with islands and sandbars, this mighty river offers countless opportunities for camping and picnicking, as well as eagle watching, fishing and hiking.

10 Children of all ages will love Wisconsin's many indoor water parks. Concentrated in the **Wisconsin Dells** area, these aquatic playgrounds offer many amenities, including slides, wave pools, whirlpools and water-activity stations. (1-800-22-DELLS; www.wisdells.com)

Take a Hike

For a dose of fresh spring air, nothing beats a walk through a budding forest, by a rushing waterfall or down an urban street alive with fair-weather seekers.

11 Milwaukee's **Riverwalk** meanders through downtown, providing a pleasant urban stroll along the Milwaukee River. The route passes several restaurants, some with sidewalk cafes; the Marcus Center for the Performing Arts; sculptures; and Pere Marquette Park, which has a gazebo, pavilion and boat dock. (1-800-554-1448; www.milwaukee.org)

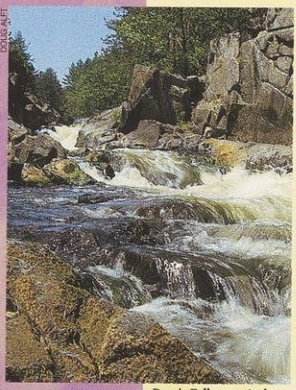


DOUG AUFT

A springtime stroll in downtown Cedarburg.

12 With its quaint small-town feel, downtown **Cedarburg** is a charming setting for a leisurely jaunt. Specialty shops, confectioneries, a cultural arts center and winery are among the finds on the restored Main Street of this historic town. (1-800-CDRBURG; www.cedarburg.org)

13 **State Street** in Madison, a bustling strip between the State Capitol and University of Wisconsin campus, is the perfect place for people watching. A mix of unique shops, bookstores, eateries and coffee houses make this a popular spot for people from all walks of life. (1-800-373-6376; www.visitmadison.com)


DOUG AUFT

Dave's Falls near Amberg.

14 Spring is the ideal time to see the rushing waters of Big Manitou and Little Manitou Falls at **Pattison State Park**. At a height of 165 feet, **Big Manitou Falls** is the state's highest waterfall and the fourth highest east of the Rocky Mountains. A mile upstream, the wider, two-pronged **Little Manitou Falls** drops 31 feet. Hiking trails offer scenic vistas of both as well as **Interfalls Lake** and the **Black River**. (715/399-3111)

15 Crisscrossed with fast-flowing streams and rivers, Marinette County in northeastern Wisconsin is known as the state's "Waterfall Capital." Several of the area's 14 falls are easily accessible, including **Long Slide Falls** north of Pembine and **Dave's Falls County Park** south of Amberg. (1-800-236-6681; www.mari.net/marinette)

16 A great vantage point for taking in the Mississippi River, **Nelson Dewey State Park** in Cassville offers bluff-top trails overlooking the river valley. Sights include the long sandbars, skinny islands and side channels of the nation's biggest river as well as native prairie, migratory birds and other wildlife. (608/725-5374)

17 At **Interstate State Park**, a dramatic steep-walled gorge and spectacular potholes stand as testaments to the torrential glacial meltwaters that carved the volcanic rock thousands of years ago. Visitors may catch a glimpse of a red-tailed hawk, turkey vulture or warbler, which are among the many bird species that nest in the park. (715/483-3747)

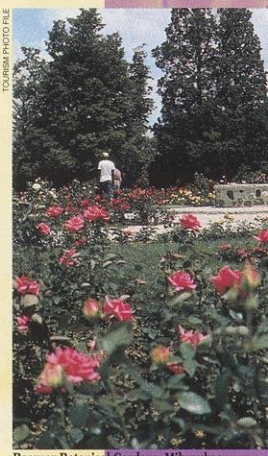
18 One of only eight National Scenic Trails nationwide, the **Ice Age Trail** spans nearly 610 miles of topography shaped thousands of years ago by Wisconsin's last glacier. Winding through 31 counties, the trail traces one of the country's best glacial imprints. Among its many points of entry are the Chequamegon-Nicolet National Forest, Devil's Lake State Park, the Kettle Moraine State Forest Northern and Southern units and Potawatomi State Park. (1-800-227-0046; www.iceagetrail.org)

Have a Blooming Good Time

Spring brings rebirth of flora and fauna, and Wisconsin offers plenty of places to observe their natural beauty.

19 The three glass domes that comprise the **Mitchell Park Horticultural Conservatory** in Milwaukee house permanent tropical rainforest and desert habitats as well as a seasonal display that becomes a springtime sea of flowering bulbs. Known locally as "the Domes," these seven-story structures are bordered by outdoor sunken gardens. (414/649-9830; www.countyparks.com/horticulture)

20 Fifty acres of formal gardens at **Boerner Botanical Gardens** in Hales Corners include more than 3,000 perennials, 5,000 rose bushes and 21,000 tulips, surrounded by 400 varieties of blooming crabapples, the nation's largest flowering crabapple orchard. (414/425-1130; www.countypark.com/horticulture)


TOURISM PHOTO FILE

Boerner Botanical Gardens, Milwaukee.

21 Spread over 15 acres, **Janesville's Rotary Gardens** demonstrate various landscaping styles – Japanese rock, English cottage, French, Italian, sunken and American perennial. Visitors can enjoy the flora of different geographic regions while appreciating the gardens' theme – world peace. (608/752-3885; www.jvlnet.com/~gardens)

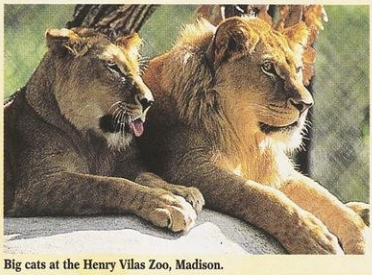
22 **Olbrich Botanical Gardens** in Madison is a springtime treasure, with outdoor exhibits including tulip, rock and wildflower gardens as well as an indoor tropical conservatory housed in a 50-foot glass pyramid. (608/246-4550; www.olbrich.org)

23 The 700-acre **Bay Beach Wildlife Sanctuary** in Green Bay highlights native Wisconsin fauna with a popular timber wolf area; a birds of prey exhibit housing eagles, falcons, owls and turkey vultures; and a deer yard. Miles of hiking trails traverse the woods and fields. (920/391-3671)

24 A tropical experience awaits visitors to the **Milwaukee Public Museum**. Its simulated Costa Rican rainforest, a permanent exhibit, is complete with the chatter of monkeys and parrots; displays of butterflies, beetles, macaws, jaguars and tropical plants; and a waterfall. (414/278-2700; www.mpm.edu)

25 Home to 2,500 animals, the **Milwaukee County Zoo** is among the nation's finest. It features a newly renovated aquatic and reptile center, renowned dairy complex in a century-old barn and innovative animal exhibits grouped by continent. (414/771-3040; www.milwaukeezoo.org)

26 Madison's **Henry Vilas Zoo** is one of the few nationally accredited zoos that is free to the public. With more than 800 animals, the zoo boasts a new primates complex, big cats outdoor area and tropical forest aviary. (608/266-4732; www.vilaszoo.org)


MARY LANGENFELD

Big cats at the Henry Vilas Zoo, Madison.

27 At the **N.E.W. Zoo** in Green Bay, animals are grouped into Prairie Grassland, International and Wisconsin Trail areas. From a Galapagos tortoise to a Wisconsin red fox, the zoo offers glimpses of various exotic, as well as native, species. (920/434-7841)

28 Visitors to the **Warbonnet Zoo** near Hazelhurst can see 300 species of birds and animals. Enjoy a Northwoods Safari Ride to the Pioneer Village and Fort. Petting zoo, family fun. (715/356-5093)

29 Among the 200 animals at the **Racine Zoological Gardens** are a rare white tiger, prairie dogs and flamingos. The petting zoo, wolf exhibit and recently renovated primate house are popular spots. (262/636-9189)


TOURISM PHOTO FILE

Springtime traveller.

30 Hundreds of ducks, geese and sandhill cranes nest at **Crex Meadows**, 30,000 acres of prairie, marsh and woods that were once the bottom of a huge glacial lake. Great blue heron, ospreys and bald eagles have also been spotted, making this a prime bird-watching location. (715/463-2896; www.dnr.state.wi.us)

31 More than 30 miles of hiking trails wind through the 44,000-acre **Necedah National Wildlife Refuge**, allowing up close views of spectacular scenery and wildlife. Ducks, Canada and snow geese, sandhill cranes and trumpeter swans frequent the wetlands. (608/565-2551)

32 One of the world's largest freshwater cattail marshes, **Horicon Marsh** is a stop for hundreds of thousands of Canada geese on their spring migration. More than 250 species of birds have been sighted in the 32,000 acres of wetlands, prairie and woodlands, known as the "Little Everglades of the North." (920/387-2658)

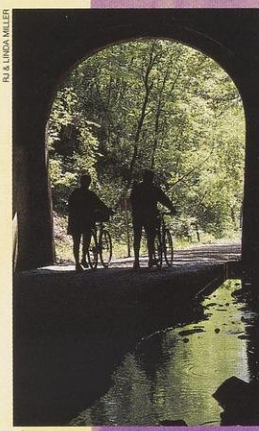
Shift Gears

Cyclists itching to go bicycling after the winter hiatus find that Wisconsin has both excellent on- and off-road options.

33 The grand daddy of all rail-to-trails, the **Elroy-Sparta State Trail** (1-888-606-BIKE) was the nation's first such conversion. Covering 34 miles of southwestern Wisconsin countryside, the trail includes three century-old stone tunnels that on warm days offer cool respites for bikers who must walk through, flashlights in hand. Connecting at the Sparta Depot, the **La Crosse River State Trail** (608/337-4775) offers a 21-mile route alongside an active rail line to La Crosse and joins with the **Great River State Trail** (1-800-873-1901). Adding another 24 miles, this path passes Lake Onalaska and stays east of the Mississippi River, bridging 18 streams and channels. It provides a scenic route to Perrot State Park, where towering bluffs overlook the river valley.

34 A recent addition to the state's rails-to-trails network, the **Wild Rivers State Trail** stretches 96 miles from Rice Lake to Solon Springs, 40 of which are now accessible to bikers. Running through the woodlands of northwestern Wisconsin, the trail follows Highway 53 and crosses the beautiful Namekagon River. (715/635-2101)

35 A converted railbed that once carried the famed Hiawatha Streamliner from Chicago, the **Bearskin/Hiawatha State Trails** traverse almost 25 miles of picturesque Northwoods landscape. Here, cyclists peddle long trestle lake crossings and are apt to spot a flock of ducks or even a great blue heron. (1-800-446-6784)



PAT & LINDA MILLER

Elroy-Sparta State Trail.

36 The 14.5-mile **Red Cedar State Trail** has drawn cyclists to its peaceful countryside for decades. Skirting the banks of the Red Cedar River, it reaches an iron bridge at its southern end that joins with the new Chippewa River State Trail to form a continuous 37-mile route between Menomonie and Eau Claire. (1-800-283-1862)

37 The **Mountain-Bay Trail** in northeastern Wisconsin is a pleasant mix of farm fields and meadows. This 83-mile touring trail winds from the Green Bay area to the Wausau area, crossing more than 20 streams. (1-888-867-3342; www.co.marathon.wi.us/parks)

38 Located in a Portage county park frequented by skiers, the off-road **Standing Rocks Trails** are rated "mostly moderate;" yet sections will test even the hardiest mountain bikers. The area takes its name from the huge granite boulders left by a continental ice sheet. (715/346-1433)

39 The off-road **Governor Dodge Trails** in southcentral Wisconsin's Governor Dodge State Park mix steep climbs with moderate terrain. Serious mountain bikers won't want to miss these stunning trails located in a park characterized by narrow gorges and soaring rock faces. (608/935-2315)

Spring Celebrations

Wisconsin's cities, towns and villages welcome the return of warm weather in grand style. From ethnic festivals to historical re-enactments to regional food fairs, you'll find plenty of opportunities to head outside and join the fun.

ANDY KRAUKMAR

Wade House Spring Muster, Greenbush, May 6-7.

40 Park Falls' **Maple Fest**, April 8-9, offers visitors the opportunity to see how sap from maple trees is harvested and converted into syrup. Self-guided tours, special maple syrup recipes and plenty of sweet syrup make the festival fun for all ages. (1-800-762-2709; www.parkfalls.com)

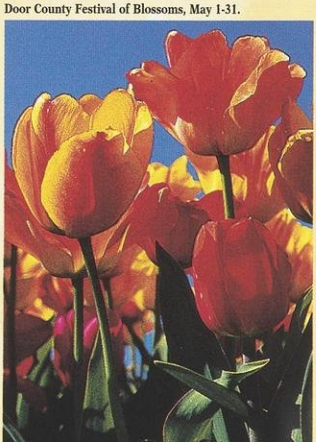
41 Jazz fills the air, April 29-30, at the 12th Annual **Capitol City Jazz Festival** in Madison. Great music, food, drink and more will keep festival goers hopping at the Dane County Expo Center. (608/877-4171; www.visitmadison.com)

42 Union and Confederate soldiers bring the Civil War era to life at the **Wade House Spring Muster**, May 6-7, in Greenbush. Re-enactors portray the life and times of soldiers during one of the most turbulent eras in U.S. history. (920/526-3271)

43 The sweet smell of apple orchards welcomes visitors to the **Gays Mills Spring Festival**, May 13-14. Located in the heart of Wisconsin's apple growing region, the festival includes orchard tours, a flea market, food stands and a folk festival complete with music and dance. (608/735-4810)

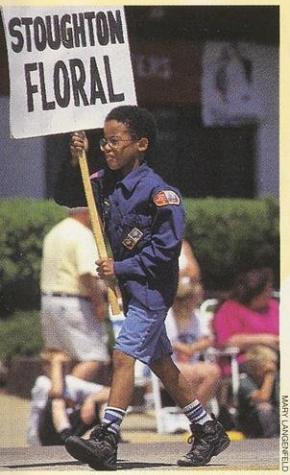
44 The **Door County Festival of Blossoms**, May 1-31, celebrates the blooming of more than 1 million daffodils and tulips, as well as the apple and cherry blossoms, in Door County. Also in May are the Seventh Annual Door County Lighthouse Walk, May 20-21; the Sturgeon Bay Shipyards Tour, May 13; and the 28th annual Maifest and Parade in Jacksonport, May 27-28. (1-800-52-RELAX; www.doorcountyvacations.com)

Door County Festival of Blossoms, May 1-31.



RJ & LINDA MILLER

45 Burlington's **Chocolate Festival**, May 19-21, has been a chocolate lover's dream for 14 years. Live entertainment, a sculpture made of Nestle's chocolate, a parade and carnival, and free chocolate delights put a smile on everyone's face. (262/763-6044)



MARY LANGENFELD

Syttende Mai, Stoughton, May 19-21.

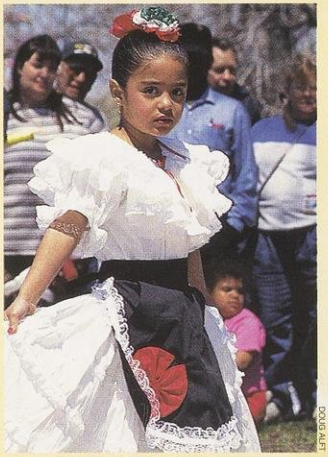
46 From May 19-21, Stoughton is home to the largest **Syttende Mai** (Norwegian Independence) festival outside of Norway. Folk dancing, quilt-making demonstrations, parades and traditional costumes help honor the town's Norwegian heritage (608/873-7912; stoughtonwi.com). Visitors can also celebrate Syttende Mai in the city of Westby, May 19-21 (608/634-4011; www.westbywi.com).

47 Kewaunee and Manitowoc counties are home to the annual **Smelt Extravaganza**, May 19-21, as more than 100 area restaurants serve up the delicious fish. Festivities also include the "Schmelt Run" for runners of all ages. (920/388-4371, 1-800-627-4896; www.manitowoc.org/tourism.htm)

48 The **Cable Area Off-Road Classic**, May 20, invites mud lovers from across the country to help kick off the new biking season. The 25-mile race challenges bikers of all levels as it twists and turns its way through the beautiful Chequamegon-Nicolet National Forest. (1-800-533-7454; www.cable4fun.com)

49 Learn the ways of the pioneers during the **Crossroads Rendezvous**, May 19-21, in Saukville. This re-creation of a fur traders' encampment features historic frontier demonstrations, battle re-enactments, music, food and drink that take visitors back to the days of this country's birth. (1-800-403-9898)

50 Celebrate Wisconsin's Mexican heritage at **Cinco de Mayo**, May 13-14, at State Fair Park in West Allis. Authentic Mexican food, music, dance and art create a festive setting that will lift the spirits. (414/389-6010)

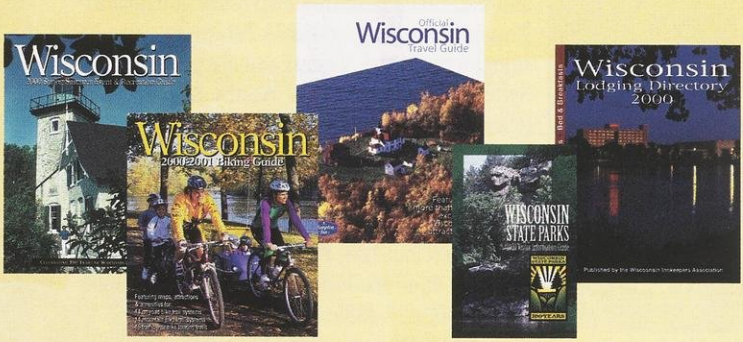

DOUG ALF

Cinco de Mayo, West Allis, May 13-14.

WISCONSIN STATE PARKS
100 YEARS

2000 marks the 100th year of Wisconsin State Parks. Hundreds of events will take place throughout the year to celebrate the Centennial. For more information on these events, pick up a special listing of Centennial programs at your favorite state park property or DNR service center, or visit www.wiparks.net. You can also write to: Centennial Events, DNR Bureau of Parks and Recreation, P.O. Box 7921, Madison, WI 53707, or call 608/266-2181.

More Free Wisconsin Travel Guides



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Wisconsin Department of Tourism
1-800-432-TRIP
www.travelwisconsin.com

Wisconsin under the heat lamp

Because the models scientists use to study climate change are not sufficiently precise to offer specific predictions for an area as small as the state of Wisconsin, the following discussion is taken from predictions for the upper Midwest region. While it's fairly safe to say that global climate change won't turn our state into a tropical paradise, scientists agree that it could significantly alter the way we live.

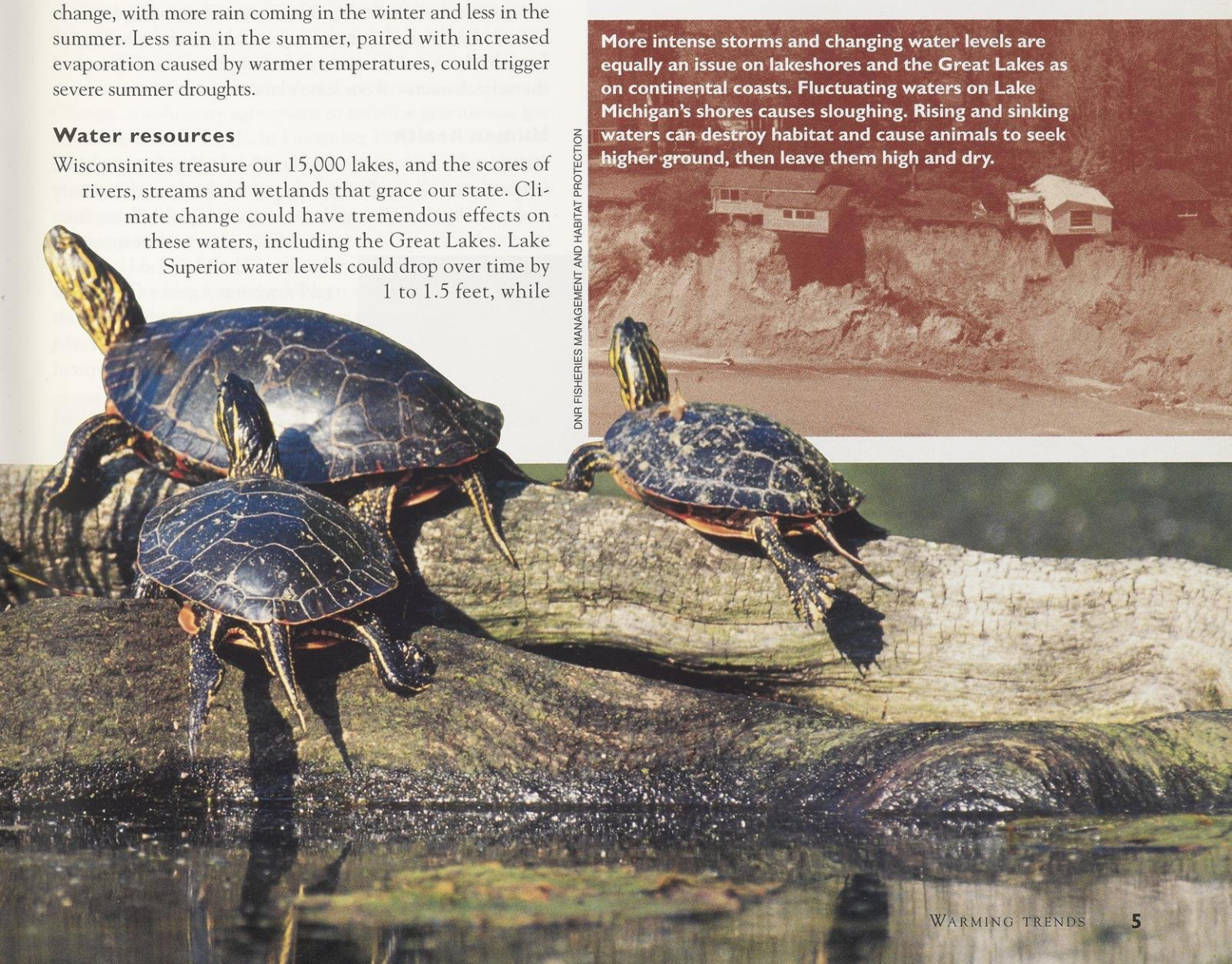
Weather and climate

Researchers speculate the upper Midwest would generally become warmer and wetter, with the average temperature increasing by about 4° F. The increase doesn't mean we'd simply up the daily temperature by 4°; a more likely scenario is that summer heat waves would be longer and hotter, and nighttime winter temperatures wouldn't sink so low. Precipitation could increase by as much as 10 percent on average, but much of the increased precipitation could come in the form of intense storms, leading to local flooding and more runoff. Precipitation patterns could also change, with more rain coming in the winter and less in the summer. Less rain in the summer, paired with increased evaporation caused by warmer temperatures, could trigger severe summer droughts.

Water resources

Wisconsinites treasure our 15,000 lakes, and the scores of rivers, streams and wetlands that grace our state. Climate change could have tremendous effects on these waters, including the Great Lakes. Lake Superior water levels could drop over time by 1 to 1.5 feet, while Lake Michigan levels could fall 3 to 8 feet. Such drops could result from longer and drier summers during which more of the lakes' waters would be claimed by evaporation. Winters might have less snow and shorter periods of snow cover. Lowered Great Lakes levels could strike a heavy blow to industries like shipping and hydropower generation. Smaller inland lakes could also get shallower, and some ponds and wetlands might disappear altogether, jeopardizing wildlife habitat and our tourism and recreation industries. Finally, groundwater levels could drop significantly, threatening drinking water quality and quantity.

Water *temperature* could also be a problem. Warmer water would encourage algal blooms and other aquatic plant overgrowth in the summer, transforming more clear blue waters into a thick, smelly pea soup that turns off boaters, anglers and swimmers, and makes survival difficult for fish and other aquatic species. Cold-water species like trout could decline in number or disappear from their traditional areas altogether. And decreased winter ice cover could disturb both lake ecology and the ice fishing season.



DNR FISHERIES MANAGEMENT AND HABITAT PROTECTION

More intense storms and changing water levels are equally an issue on lakeshores and the Great Lakes as on continental coasts. Fluctuating waters on Lake Michigan's shores causes sloughing. Rising and sinking waters can destroy habitat and cause animals to seek higher ground, then leave them high and dry.

Agriculture

Anything that affects farming affects the state's economy. Some researchers predict that under the influences of climate change, southern Wisconsin farms might begin to resemble those in present-day Kansas. Wheat would do well, but the ideal range for corn and soybeans would shift northward, and these crops might not grow as well in the soils of northern Wisconsin. High levels of carbon dioxide in the atmosphere may actually increase crop production, because certain plants can become larger and more productive in a CO_2-rich environment. However, gains in crop productivity might be counter-balanced by more frequent and severe droughts, and by more weed, pest and disease problems.

Dairy and other livestock farmers might see productivity decline as their herds suffer from heat stress, the feed supply is disrupted (from changing crop yields), and the water supply reduced. Warmer, longer summers might encourage the growth of pest populations that could further stress livestock and spread disease.

Forests and wildlife

As temperature and precipitation patterns change, habitat ranges for flora and fauna are expected to shift northward. Some species might be able to migrate with their ideal habitat, but others, especially those already endangered, could face extinction. Researchers predict that mixed northern hardwood and oak forests would be transformed to oak savannas and grasslands within 30 to 60 years. Typical northern forests could completely disappear from Wisconsin, along with the eastern hemlock and the sugar maple. Such radical changes in forest makeup could have far-reaching effects on the forestry industry, some types of hunting — and the very character of our state's landscape.

Human health

Weather changes could directly affect human health. More frequent and severe heat waves would threaten the elderly — especially those living alone — and people suffering from cardiovascular and respiratory diseases. The U.S. Environmental Protection Agency (EPA) projects that a 3°F warming could almost double heat-related deaths in Milwaukee during a typical summer, from 30 to about 55.

ROBERT QUEEN

Aside from deaths caused directly by heat, climate change poses other health-related threats. A longer, hotter summer, along with increased emissions from power plants trying to keep up with greater air conditioning demands, would likely intensify air pollution problems. This could result in more, and more serious cases of asthma, emphysema and lung disease for Wisconsin residents. Wisconsin's allergy season could lengthen because some plants would flourish in the extended summer. Warmer weather might also be more hospitable to disease-carrying insects like mosquitoes and ticks, leading to more cases of Lyme disease, tick-borne encephalitis, and possibly even malaria. Finally, more frequent severe weather events like forest fires, floods and dangerous storms could cause injuries and take lives.

If we warm up, crops like soybeans might thrive while corn cultivation moves northward. Warming weather can trigger more crop-destroying and disease-spreading insects in fields and forests.

ROBERT QUEEN

ROBERT QUEEN

Responding to a global threat

Despite the uncertainty of predicting the effects of climate change, scientists and policymakers are not sitting idly by. Wisconsin is working with other states and nations to understand climate change and find ways to limit or prevent the disruption and devastation it could cause.

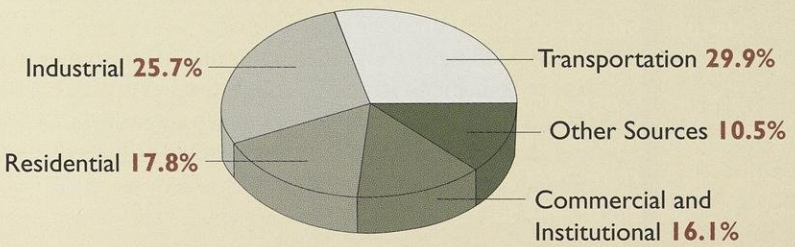
The Wisconsin Department of Natural Resources (DNR) has completed several studies showing that the use of energy-efficient technologies could reduce the state's emissions of greenhouse gases with little or no net cost. One study showed that if Wisconsin adopted improved energy efficiency measures, we could reduce the growth of greenhouse gas emissions by 12.5 million tons by 2010 (compared to projected levels) and save $490 million in energy expenditures at the same time. Another study predicted that investing in energy efficiency measures could create a $490 million increase in disposable income, a $41 million increase in gross state product, and 8,500 new jobs in 2010. Based on these studies, the Wisconsin DNR created the Wisconsin Climate Change Action Plan. For more information on the studies or the plan, see the following website: http://www.dnr.state.wi.us/org/aw/air/global/global.htm

In 1992, 154 nations and the European Union adopted the United Nations Framework Convention on Climate Change, a voluntary agreement to stabilize greenhouse gas emissions at 1990 levels. In December 1997 at a United Nations meeting in Kyoto, Japan, some industrialized countries went a step further and agreed to the Kyoto Protocol, which requires developed nations to reduce their greenhouse gas emissions to an average of five percent below 1990 levels by 2008–2012. Specific reduction commitments vary among nations. The U.S. has signed the protocol, but it hasn't been ratified by the Senate and a new agreement may need to be negotiated. If the protocol goes into effect, the U.S. would have to reduce greenhouse gas emissions to seven percent below 1990 levels. At current rates, our nation's emissions will increase 30 percent above 1990 levels by 2010. Our country is already the world's largest emitter of greenhouse gases, contributing approximately 23 percent of global emissions despite having only five percent of the world's population.

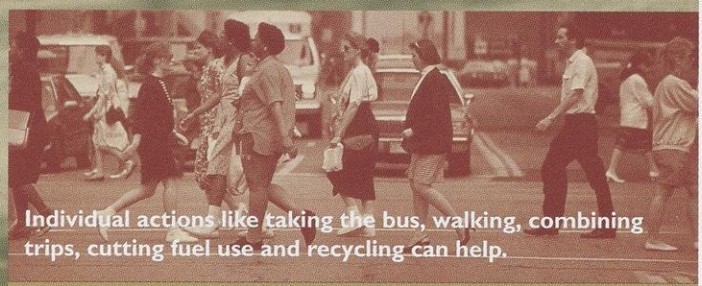
ERIC MOSHER

Energy-efficient technology and cleaner fuels can reduce Wisconsin's greenhouse gas production. A bigger challenge is changing our habits at home and on the road. These contribute almost half of our state's emissions.

Greenhouse gas emissions



WISCONSIN ENERGY STATISTICS



Individual actions like taking the bus, walking, combining trips, cutting fuel use and recycling can help.

Hot stuff

For more information on global warming and climate change, peruse the following websites and publications:

- U.S. Environmental Protection Agency Global Warming website — http://www.epa.gov/globalwarming
- U.S. Global Change Research Program — http://www.usgcrp.gov
- United Nations Framework Convention on Climate Change — http://www.unfccc.org
- United Nations Environment Program and the World Meteorological Organization, *Common Questions About Climate Change* — http://www.unep.org
- Intergovernmental Panel on Climate Change — http://www.ipcc.ch
- Consortium for Integrated Resource Planning, Engineering Professional Development, University of Wisconsin, Wisconsin Department of Natural Resources and Leonardo Academy, Inc., *The Economic and Greenhouse Gas Emission Impacts of Electric Energy Efficiency Investments: A Wisconsin Case Study*. Report 4 of the Wisconsin Greenhouse Gas Emission Reduction Cost Study, February 23, 1998.
- Intergovernmental Panel on Climate Change, *The Regional Impacts of Climate Change: An Assessment of Vulnerability*, 1998.
- Office of Science and Technology Policy, *Climate Change: State of Knowledge*, October 1997.
- U.S. Department of State, *U.S. Climate Action Report*, ISBN 0-16-045214-7, July 1997.
- U.S. Environmental Protection Agency, Inventory of *U.S. Greenhouse Gas Emissions and Sinks: 1990–1997*, EPA 236-R-99-003, April 1999.
- Wisconsin Department of Natural Resources, *Global Climate Change: Management Strategies for Wisconsin*, Publication Number AM-066-91, December 1991.
- Wisconsin Department of Natural Resources, University of Wisconsin Consortium for Integrated Resource Planning, and Leonardo Academy, Inc., *Wisconsin Greenhouse Gas Emission Reduction Cost Study, Report 3: Emission Reduction Cost Analysis*, Publication Number AM-269-98, February 1998.
- Wisconsin Department of Natural Resources and the Wisconsin Climate Change Committee, *Wisconsin Climate Change Action Plan: Framework for Climate Change Action*, Publication Number AM 271-98, May 1998.

What can I do?

The solutions to global warming may seem to be out of our hands, but we can take action — and many of the things we can do to reduce greenhouse gas emissions offer personal benefits as well.

The biggest contribution individuals can make is to use less energy. By tuning cars, insulating homes and using energy-efficient appliances, we can decrease our use of fossil fuels and save money. We can carpool, use public transportation, or walk or bike to our destinations. These activities cut fuel consumption, decrease traffic congestion, decrease emissions of other air pollutants, and may even get our hearts pumping. Finally, we can purchase items with reusable, recyclable, or reduced packaging — all options that help decrease the amount of energy being used to make new packaging.

Those willing to invest even more in guarding against climate change have further options. Alternative energy sources like solar and wind power can supply home energy needs. Cars that use propane or natural gas — fuels that burn more cleanly than gasoline — are already on the roads. Hybrid cars, which use electricity from batteries along with gasoline for power, are entering the market. And solar-powered cars, as well as fuel-cell cars powered by hydrogen, may be available within the next 10 years.

Responding to the complexities of climate change won't be easy, but the State of Wisconsin has never backed down from a challenge. With cooperation from business, industry and individuals, Wisconsin can continue to serve as a national leader as the global warming issue heats up.

PRODUCED BY THE DNR BUREAU OF AIR MANAGEMENT AND BUREAU OF COMMUNICATION AND EDUCATION

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FRONT AND BACK COVER PHOTOS BY ROBERT QUEEN

Owners who restore manicured shorelands to a more natural state spend less time mowing the lawn and more time enjoying their lakes.

Less work, more beauty, better protection

Paul Cunningham

A little lawn here, bits of sand beach there, a pier here, a boathouse there — and soon enough the natural habitat around a lake or river shoreland disappears. Fifty years ago, most Wisconsin lakeshores were virtually undeveloped. Today, many lakes are ringed with year-round 2-, 3- or 4-bedroom homes on small lots with lawns, driveways and two-car garages. The growth hasn't been benign: Water quality often declines to the detriment of fish and other aquatic species; wildlife dwindles with the loss of habitat; once-wild scenery becomes tame. As we simplify the environment and remove protective elements like trees and aquatic plants, the very things that drew us to the water vanish.

What happens on the shore is reflected in the water. The slow but insidious influence of many small actions can devastate the ecological health of our shores and waters. Fortunately, the inverse is also true: The cumulative impact of many small individual improvements can restore and preserve our waters for generations to come.

Natural shorelines harbor diversity and beauty.

By establishing a buffer zone of native trees, shrubs, grasses and wetland species that extend inland from the ordinary high water mark, a project to restore shoreline habitat can bring back the natural functions provided by the original vegetation.

Landowners at water's edge have an investment in — and a responsibility for — a healthy future for Wisconsin's lakes and rivers. Across the state people are gathering data on lake waters and shore areas, attending workshops on restoring native vegetation, and building homes that *suit* rather than *assault* the environment. You'll meet some of them here, and learn about the programs available to assist property owners seeking to return their shores to a more natural state.

Restoring the shores of Green Lake

On Green Lake, the namesake and aquatic gem of Green Lake County, Nancy Hill, president of the Green Lake Association and project leader, advises new property owners to be patient. "I ask them to not remove near-shore vegetation immediately after moving in," she says. "I encourage them to live on the property for a couple years, to pause and reflect before they cut anything."

Her important message gets a lot more mileage thanks to RSVP — The Revitalization of Shoreland Vegetation Project, a group of area citizens, businesses, local and state government officials. The organization aims to preserve or restore native plants along Green Lake's shores by educating property owners, nurseries, landscapers, lawn services, contractors and realtors. Businesses following sound environmental practices can obtain RSVP certification.

The group receives technical assistance from Sarah Mandleco, a DNR wetland and shoreland restoration specialist. Mandleco spends three or four days a week meeting with shoreline property owners and making site evaluations. "What I tell people is that it's okay to start small," she says. "Really, the first step is to realize that you can do something to help your lake. Then, make a decision to do it.

"Usually, I start by asking people to quit mowing so close to the shore," she says. Mandleco also suggests "editing the view" by selective pruning, or removing a few branches instead of a whole tree.

Mandleco marveled at the enthusiasm of one homeowner: "He came to us with some concerns about shore erosion due to ice," she says. "Soon he was off experimenting with bush wattles and buckthorn control measures on his shoreland, and sharing his thoughts with others during a recent workshop."

"That's the contagious nature of this project," notes Hill. "The benefits of shoreland revegetation are obvious: less work, more beauty, better protection. We've seen a real domino effect of interest."

Astute landscapers, realtors and others in property-related businesses see opportunity in the trend toward restoration. Bloch's Greenhouses has followed Lakeway Property Management to become the second area business certified by RSVP. Owner Sue Ellen Bloch and three employees attended an RSVP workshop, where they discovered they already were employing many proper shoreland management techniques, such as creating large group plantings and using native grasses. "We just didn't know the terminology!" says Bloch.

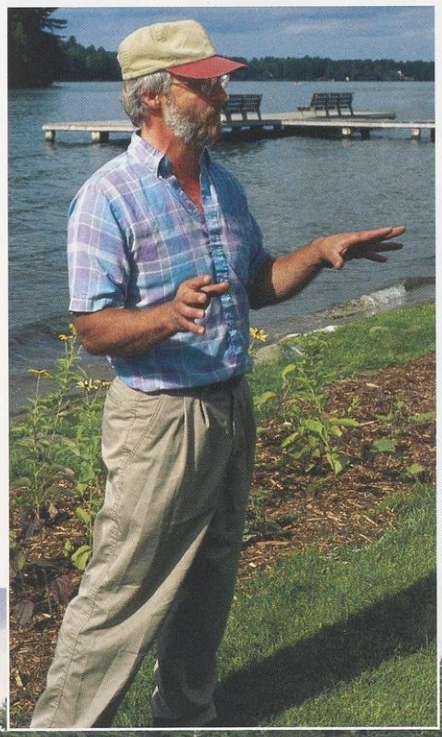
Bloch's greenhouse inventory, which includes 900 varieties of Wisconsin-grown perennials, overlapped nicely with the list of native plants recommended by RSVP. "I find the growing concern about the health of this superb

PAUL CUNNINGHAM

PAUL CUNNINGHAM

(top) I ask shoreland owners to live on the property a couple of years before they cut anything. — *Nancy Hill.*
(above) Hill leads a group that works with property owners, nurseries, landscaping services, builders and realtors to preserve or restore natural shorelands surrounding Green Lake in Green Lake County.

body of water to be exciting," Bloch says. "RSVP is a major force behind this enthusiasm. I love knowing that we are making a difference. We're listening to the water."



TIFFANY LYDEN

A new view for Vilas County

What does a revegetated shoreline really look like? And how does a person start to replant a shoreline that's all grass?

The City of Eagle River tried to answer these questions through a cooperative demonstration project with the Vilas County Lakes Association, DNR, and the Vilas County Land and Water Conservation Department. For the demo, the group selected a popular public park and boat landing on the Eagle River Chain of Lakes known as the "T-docks" (appropriately named for its T-shaped dock) because, like so many shorelines, it had been maintained as a lawn for many years.

(left) Nurseryman Brent Hanson developed a landscaping plan to replant a grassed dock and boat landing with native vegetation.
(below) Planting day when volunteers from Eagle River restored a more natural look to the T-docks landing.

TIFFANY LYDEN

Natives or nuisances?

Many communities have weed control ordinances to ensure landowners maintain their lawns and other properties in an "acceptable" condition. In most cases, these ordinances were originally adopted to regulate plants perceived as harmful to agriculture.

Unfortunately, many such ordinances were put on the books at a time when the benefits of a natural shoreline were not well known. As more property owners are deciding to go with natural shorelines, these same property owners are facing enforcement action by local communities.

What's a waterfront property owner to do?

According to Linda Meyer, Wisconsin DNR attorney, Wisconsin courts have established that a local ordinance is invalid if it has the effect of frustrating a regulatory policy established by the State Legislature. Under section 59.692(7), Wis. Stats., a local unit of government cannot legally enforce a local ordinance that conflicts with the state shoreland zoning ordinance (NR 115). This applies if the property is located in an unincorporated area, in an area incorporated after April 30, 1994, or in an area annexed to a city or village after May 7, 1982.

What if your property lies in an area not subject to shoreland zoning under state statute? It might be possible to educate your city or village leaders explaining why you want to maintain a natural shoreline. Visit your local DNR or County Extension office for brochures on the benefits of shoreline vegetation — and share that information with your local officials. — *John Hagengruber, DNR Shoreland Management Specialist*

Buffers for frogs, birds and plants

DNR researchers Mike Meyer and Martin Jennings have been studying how shoreland development affects fish and wildlife. Their research shows just how vital undisturbed shoreland and near-shore habitats are to lake ecosystems:

Green frogs are an excellent indicator of healthy near-shore habitat. Male green frogs establish breeding territories within two feet of a lake's edge and defend it against other breeding males. During the breeding season (early June–late July) researchers survey green frogs on 24 developed and undeveloped lakes in Vilas and Oneida counties. Results indicate that as lakeshore development becomes denser, green frogs decline in abundance.

During the summer of 1997, biologists measured the **native vegetation** at 146 lake sites to compare the physical structure of vegetation along undeveloped shorelines with those along developed shorelines. Understory trees and shrubs were reduced to very low levels along developed shorelines.

Songbirds may also be affected by shoreland development. Meyer's results show that although the total number of birds has not changed, the species have changed. Less common neotropical migrant species like warblers and vireos have declined, while abundant suburban-style birds like bluejays and grackles have increased.

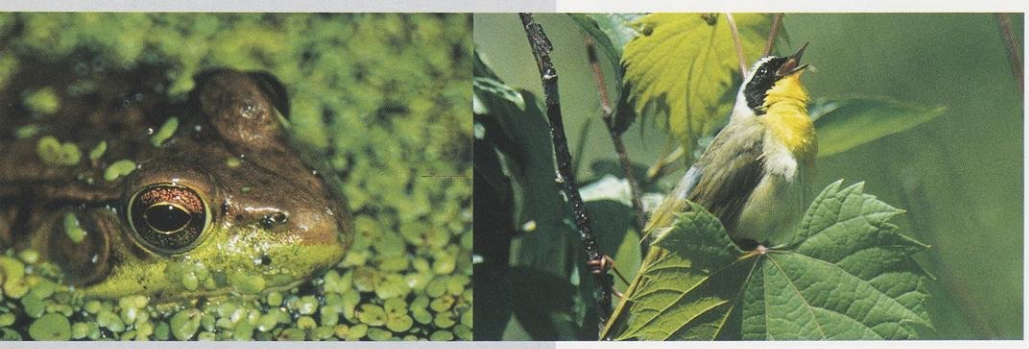
TIFFANY LYDEN

(above) The natural lakeshores that volunteers restore with native plantings are pleasing to the eye, protect water quality, and provide food and shelter to wildlife.
(below) Research shows that areas where shorelands are developed harbor fewer animals like the green frog and fewer songbirds like the common yellowthroat.

"We wanted to show people what a restored shoreline looks like, explain why it's so important to water quality and wildlife habitat, and demonstrate the use of various plants species and restoration techniques," says Tiffany Lyden, Vilas County lake conservation specialist.

Brent Hanson from Hanson's Rhinelander Floral and Garden, a local nursery that grows native lakeshore plants, developed a plan for the site and supplied all the plants, shrubs and trees for the project. "Brent did a lot of research into what to plant, including some inventories of nearby natural shorelines," says Lyden. "He wrestled with the 'native' issue — is a plant native to the Midwest, to Wisconsin, to northern Wisconsin, to Vilas County?"

Lakefront property owners, master gardeners, Wisconsin Conservation Corps youth, parks commission members, and interested citizens all volunteered time and effort to properly place the plants. Three employees from the Lac du Flambeau Tribal Natural Resources Department came to help and to learn more about shoreland restoration so they could recover a site on the



STEPHEN J. LANG *(LEFT)* DONNA KRISCHAN

reservation.

"Local leadership is key," says Lyden. "Eagle River native Jessica Eibner kick-started the project. She spoke to the Lions Club and the city council to get their approval. She had the local ties in the community that really helped." Joe Tomlonovich, public works director for the City of Eagle River, helped complete the paperwork for bids and located topsoil, wooden posts and hoses for watering the newly established plants.

In walking through the site, you'll see a "no-mow" area, various perennial plantings using different site preparation methods, a number of shrub and tree plantings, wildflower seeding and a bio-log demonstrating an alternative to rip-rap for erosion control.

A year later, the park has become quite a different place. It's still used just as heavily by boaters, anglers and picnickers, but much of the shore has been transformed from sterile lawn into lively shoreline habitat. Colorful Joe Pye weed and marsh milkweed, attractive red osier dogwood and highbush cranberry shrubs as well as new white pines and red maples provide food and shelter for birds, butterflies and other species. Now, the shore does a better job of protecting water quality.

Replanting St. Croix County shores

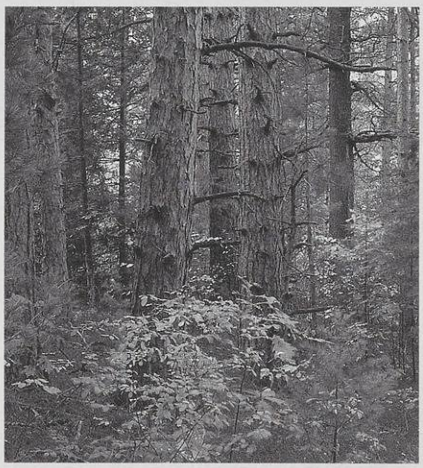
In the fall of 1996, DNR and the St. Croix County Lakes Priority Watershed made area shoreland property owners a tempting offer: The landowners would be reimbursed for up to 70 percent of the cost of plants, seed and mulch if they agreed to dedicate a 35-foot-deep strip above the lake edge as restored natural vegetation. Karen Voss, DNR watershed coordinator, and Pete Kling, project manager of the St. Croix County Lakes Priority Watershed, pioneered the effort.

Kling recalls how it all got started: "Four Squaw Lake landowners, together owning over 500 feet of adjoining shoreline, expressed an interest in restoring portions of their property. It was the perfect site — all of them used to mow right down to the water, leaving no buffer at all. When the soil got too wet for a mower, out came the weed whip to finish off any aquatic plants."

Despite their interest, the landowners still had doubts about how the restoration would look when it was completed. And all of them had reservations about entering into an agreement they had to honor for 10 years.

Plant a packet

DNR nurseries offer two planting packets for shoreland areas in northern Wisconsin — one for sandy soils and one for moist soils. The packets contain 100 tree seedlings and 200 shrubs, with different combinations of species: northern red oak, red pine, white spruce, white pine, hemlock, sugar maple, hazelnut, and red osier dogwood. Each packet costs $102 plus sales tax. Packets should be ordered in fall or winter and usually are available from DNR nurseries for planting in April or May.

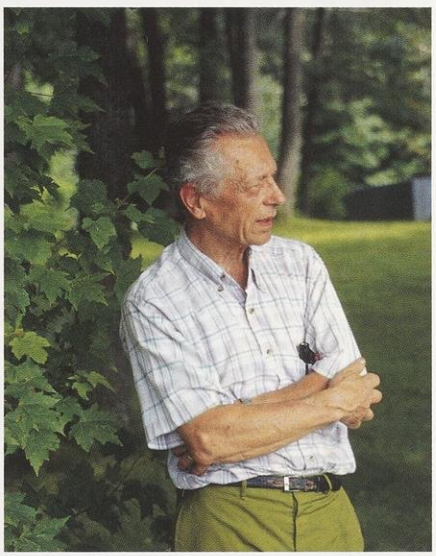


SCOTT NIELSEN

(above right) The look of a northwoods red and white pine forest graces many shores.
(below) A grassy shoreland on Four Squaw Lake before natural vegetation was restored.

PETER KLING

DAVID MARSHALL



PETER KLING

(above) Bob Houck hosts tours to show how lawns can be easily replaced with low-maintenance native shrubs, grasses and flowers.
(below) His shoreland was covered with plastic to kill grass, then weeded and planted in prairie species. Others use local grasses and shrubs.
(left) Downed trees and branches provide cover for baitfish and prey for game fish like muskies.

Let dead trees lie

Trees that fall into the water create vital fish habitat. Small fish gather to feed on invertebrates in the wood, and use the cover to hide from predators. Very large fish like musky haunt fallen trees, hoping to ambush reckless prey. And musky anglers flock to tree-falls.

Scientists from the University of Wisconsin Center for Limnology studied shoreline fish habitat on 16 northern lakes. They estimated the density of woody cover along undeveloped lakeshores at about 1,100 logs per mile — about one log every five feet. Their results show that as homes become denser, the number of fallen trees dwindle. Although some tree-falls are very persistent (submerged white pine trees can provide habitat for centuries), they don't last forever, and future "habitat recruits" must come from the shore. Dead trees standing along our shore provide wildlife habitat today, and are the future source for tomorrow's fish habitat.

PETER KLING

PETER KLING

"We began meeting as a group, which was a good forum to test the question, 'what will my neighbor think of my shoreland restoration idea?'" says Kling. "But soon I began to recognize divisions within the group. Surprisingly, they were not between individual landowners, but within single households. Landowners generally accepted, even respected what their neighbors wanted to do with their land. But differences of opinion between husband and wife about how the yard should look nearly dealt the entire restoration project a killer blow. I will never underestimate the power of a green lawn!"

Ultimately, only one couple, Bob and Martha Houck, signed on to the project. They agreed to try two things on their property: 1) kill the existing lawn and replace it with native prairie species, and 2) quit mowing a section of lawn near a patch of existing natural vegetation to see what might grow in. Ron Bursik of Dragonfly Nursery in Amery helped the Houcks select various plant species appropriate to an area that was historically prairie or oak savannah.

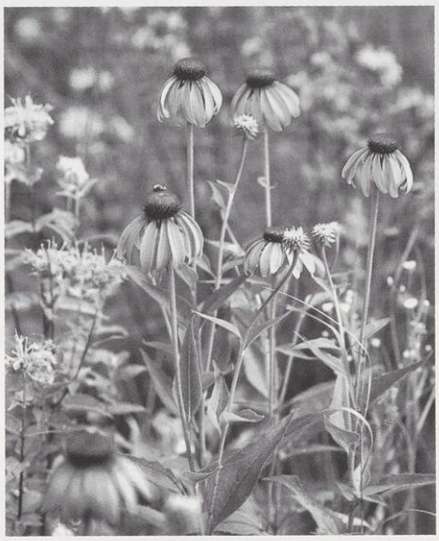
"The Houcks did 90 percent of the installation," says Kling. "We used black plastic to kill the existing grass. They hated it...thought it made their cottage look like a dump. Besides, people were talking! So they removed the plastic before the grass was completely killed. I thought future competition from grass would be a problem, but it wasn't." Altogether, the Houcks planted 1,000 native grass and flower plugs.

"Later that summer, the grass started competing with the plugs, but it was no match for Martha's weeding skills," Kling recalls. "At first I thought they were doing too much work — after all, one of the selling points was how much time they would save by not having a lawn to mow. They were turning the project into a flower garden! But during this time, they were taking ownership. It wasn't my project anymore; it was theirs."

By the summer of 1999 the restoration was looking great. Pioneering cattails, sedges and arrowhead along the shoreline helped give the site a more natural look, and the Houcks are especially delighted with the purple coneflower, lupine, liatris and black-eyed susan.

"They took a risk, and today they're proud of the project," says Kling. "They're always willing to host a tour to promote shoreline restoration."

Since the initial effort in 1996, response from area landowners has been enthusiastic: Twenty-nine new sites were completed in 1997–1998, 10 additional sites in 1999. The restored sites host a greater diversity of insect species, while manicured lawns remain havens only for ants. As the sites mature and develop further habitat, St. Croix watershed staff will complete surveys of other wildlife such as amphibians, songbirds and small mammals.



ROBERT QUEEN

Prairie flowers add color throughout the season. Naturalized shorelines could contain more grasses, shrubs and muted colors that provide cover for waterfowl, amphibians, fish and songbirds.

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The margins of our lakes and rivers bridge the two worlds of land and water. With fallen trees, overhanging cover, emergent and submerged plants, and a diversity of depths and bottom types, a natural shore shelters a uniquely rich and diverse habitat. Shoreland property owners who protect and restore this valuable resource do a great service to us all. □

Paul Cunningham is a Systems Ecologist with the DNR's Bureau of Fisheries Management and Habitat Protection in Madison.

More about the shore

The DNR and the University of Wisconsin-Cooperative Extension Service (UWEX) offer a variety of resources and materials to help lakefront and stream bank property owners plan restoration projects and improve habitat.

Websites:

DNR — www.dnr.state.wi.us/org/water/wm/dsfm/shore/develop.htm.

UWEX — clean-water.uwex.edu/

- ***Lakescaping for Wildlife and Water Quality* — A detailed guide for shoreland restoration in Wisconsin (180 pages, $19.95, available from the Minnesota Bookstore at 1-800-675-3757). Highly recommended by DNR staff.**
- **"The Living Shore" — A 17-minute video produced by UWEX and University of Minnesota Extension. Call the Wisconsin Association of Lakes (1-800-542-LAKE) to order a copy for $15 plus $2 in shipping, or check your local library for a copy.**
- **"The Water's Edge" — A 12-page brochure about improving lakeshore habitat. Available from your local DNR Service Center.**
- **"Life on the Edge: Owning Waterfront Property" — Produced by UWEX. Send $3 per copy plus $1.50 for shipping and handling for a total of $4.50 (make checks payable to UW-Extension) to: UWEX-Lakes Program, College of Natural Resources, UW-Stevens Point, 1900 Franklin St., Stevens Point, WI 54481.**

A star-studded night

Katherine Esposito

Eric Wilcots, a UW-Madison astronomer, says he no longer wonders at the paucity of people who find it fun to tilt back and gaze at the heavens.

"I was at first, but I've ceased to be amazed," he said, laughing, on a stellar September evening at Governor Dodge State Park in Iowa County. "A lot of people at some point know a few constellations in the sky. But I was surprised at how little time people actually take to look up."

I'm ashamed to say, I was once among those multitudes. But I made amends that September evening as I joined about 20 other night owls at the park for a stargazing session with Wilcots and two graduate students, D.J. Pisano and Birgit Otte. The "others" included a ladies' church group and several families with kids, who planned to crash at their campsite later.

Before the night was over, I'd recalled the legend of a desirable maiden named Andromeda, glimpsed my first binary star, and finally understood why astronomers say that our view of space is really ancient history. I'd also appreciated the limits of exploring the universe through an ordinary telescope.

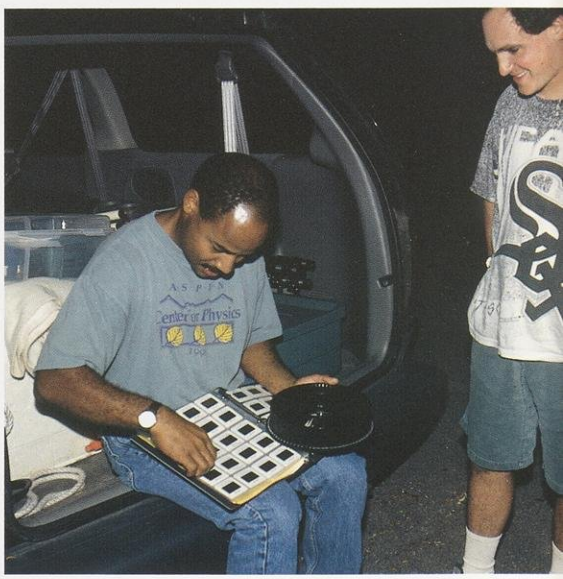
The University of Wisconsin's outreach programs decided a few years ago to cajole nonscientists like me to discover astronomy by marrying the expertise of real-life astronomers with a vital ingredient: dark skies. A perfect place was a state park — farther from artificial lights and full of people seeking natural outdoor experiences. So for the last four summers, the UW has held numerous sessions dubbed "Universe in the Park" at state parks, including Governor Dodge. That's where I caught up with Wilcots and his two students.

The three scientists brought the essentials of their craft: two telescopes, slides, and a hundred cans (it seemed) of bug spray. "The spray is the most important thing," Otte declared. "At home [Germany] I don't have a problem with them. American mosquitoes are different."

Even more important than bug spray, perhaps, especially on a night with no bugs, was rehearsing their stories. Their plan was to show slides of stars and then douse the lights and help us amateurs view the sky through the scopes.

But stars carry more than just a name and a position in the sky. Creative

Professor Eric Wilcots *(seated)*, UW-Madison Dept. of Astronomy and graduate student D.J. Pisano prepare for an evening stargazing talk at Governor Dodge State Park. Dark skies provide an ideal setting to explore the stars with telescopes the astronomers bring along.



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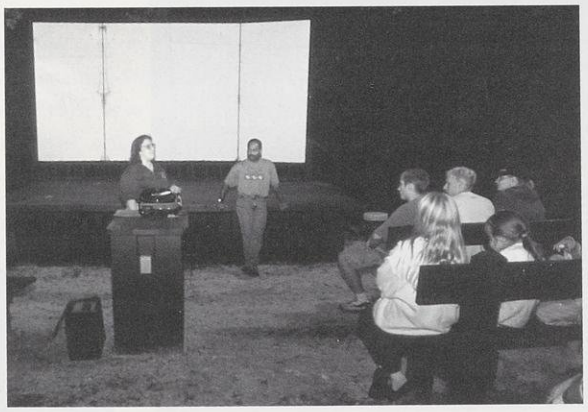


ROBERT QUEEN

(above) Park visitors learn the story of the constellation Andromeda, but they can't match the view of the Great Andromeda Galaxy from space. *(left)* The Universe in the Park programs offer the chance to star watch from June through October at state parks.

minds centuries ago assigned to them simple tales rivaling any of the Brothers Grimm. In many cases, it's those legends that draw people in to take a heavenly glance and let their imaginations wander.

Take the constellation Andromeda, for instance. According to Greek legend, Andromeda was the daughter of King Cepheus and Queen Cassiopeia, also constellations. Cassiopeia boasted that Andromeda was more lovely than the Sea Nymphs, and in retaliation the nymphs, who were goddesses, complained to Neptune, the Sea God. Neptune sent a whale who promptly began to devour Cepheus's people. The people complained, and the only solution was to sacrifice Andromeda. After Andromeda was chained to a rock, Perseus killed the whale and saved her, and they flew off in harmony on his winged horse, Pegasus. And somehow they all got thrown up in the sky as stars and constellations.

Now, if that doesn't hook people, nothing will. "The Greeks had fairly active imaginations, I think," said Wilcots.

The crowd saw a slide of Andromeda projected onto a screen that night, but I'm not sure she was visible through the telescopes. That's the reality of stargazing; it could be the right time of year, but clouds might distract, stray light can dim the sky, the telescope could be too weak or it might not be properly aligned. Even behemoth scopes like the ten-inch Schmidt-Cassegrain they brought that night can't see everything.

That scope is a smaller cousin of the 15-inch Washburn Observatory telescope on scenic Observatory Drive at UW-Madison, which was, until 1958, the second largest in the United States. To examine the starry sea precisely nowadays, the UW astronomers rely on even longer vision and technology. They just instruct a digital computer camera at an observatory in Arizona when to shoot the photograph they want. "You're sitting in a nice, warm, brightly lit room, happily drinking coffee, waiting for the next image to download," chuckled Wilcots.

In other words, no more fiddling in the dark. That's part of the reason these celestial junkies rejoin their forerunners every time they set up the Schmidt-Cassegrain at a state park.

The device was strong enough to show how one star, Albireo, is actually two: one blue, one reddish, and is now called a binary star. Back in 1952, when

ROBERT QUEEN *(FAR LEFT)* COMET HYAKUTAKE PHOTO BY SCOTT NIELSEN

NATIONAL GEOPHYSICAL DATA CENTER

Nighttime lights from the continental U.S. Nearly three quarters of the night light is wasted energy beamed skyward by poorly designed, poorly aimed light fixtures.

Darkening the heavens

Stargazers today face a problem that barely existed only a couple of generations ago. Light pollution has spread so much in the last few decades that it compromises nearly everyone's view of the stars. For many urban Americans, the stars no longer really come out at all.

Most light pollution is unnecessary. It is not an inevitable result of having well-lit streets and cities. As much as three-fourths of the murky glow you see in the sky at night is wasted light beamed directly skyward from poorly designed or improperly installed light fixtures. A standard security light, for instance, may send roughly half its rays above horizontal — directly into the sky — rather than down toward the ground where the light does any good. The upward half is pure waste. If the fixture is replaced with a well-designed, "full-cutoff shielded" fixture of various types now available — one that directs all the light down where it's supposed to go — the bulb wattage can be cut by half for a big savings of electricity and money. The quality of illumination is actually improved as glare is reduced from the near-horizontal beams that dazzle your eyes directly from a bulb. And we regain some of the lost starry heavens.

America is estimated to waste about $1–2 billion per year in electricity bills needlessly spilling light into the sky, according to a study by the International Dark-Sky Association (IDA), a nonprofit group founded to educate the public and industry about light pollution. More on light pollution is available from the IDA at 3225 N. First Ave., Tucson, AZ 85719. Or point your Web browser to http://www.darksky.org/~ida/. — *Fred Schaaf,* Sky & Telescope *magazine*

H.A. Rey, the children's author known best for a little monkey named Curious George, published a book called "The Stars," it was thought that binary stars were only one out of every five. Now it's known that they are more common, said D.J. Pisano. "There's a saying that three out of every two stars are binary stars," he said. "It's kind of a joke."

Even more amazing than the twins of Albireo was realizing just how dated that view was. Albireo may look peaceful enough, but the sight I saw that night was really old news; it took place thousands of years ago. That is how long the light from the twin stars took to reach Earth. If we were closer to them, we might discover that the stars look completely different now. Astronomers call this "looking back in time."

In 1987, a supernova exploded in the Large Magellanic Cloud, which is a galaxy named after the Portuguese sailor Magellan, in the southern hemisphere about 150,000 light-years away. (A light-year is the distance light travels in a vacuum in one year, about six trillion miles.) "It went off, from our point of view, all of a sudden," said Professor Wilcots. "But that star really exploded 150,000 years ago. It took that long for the light to get to us."

Wow!

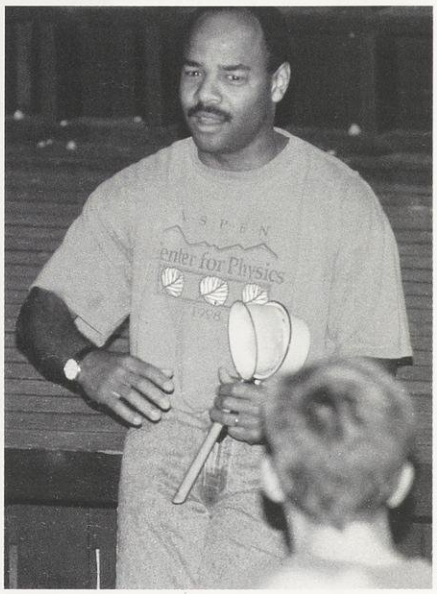
Insights like that are the sort that prompt kids (both young and old) to develop an interest in astronomy, not so different from the reasons Pisano got started as a boy. "I remember that on the beach, my father explained the stars to me," he said. "Everything is so far, everything is so big. It was beyond my imagination. And that's what's so fascinating about it."

Having a professional astronomer explain the mysteries doesn't hurt, either.

Fortunately, stars stick around, so there's ample opportunity for the next crop of Curious Georges to get started. For a schedule of upcoming sessions, check out the websites and addresses listed in the box on p. 27. Also, the books of H.A. Rey are highly recommended: *The Stars* (Houghton Mifflin, 1952, 1980) and *Find the Constellations* (Houghton Mifflin, 1954, 1976). □

Katherine Esposito is a staff writer based in Madison.

Wilcots shows how the celestial dippers got their name. His program aims to interest park visitors in looking up and enjoying nature above them.



ROBERT QUEEN

PHASES OF A TOTAL LUNAR ECLIPSE SCOTT NIELSEN

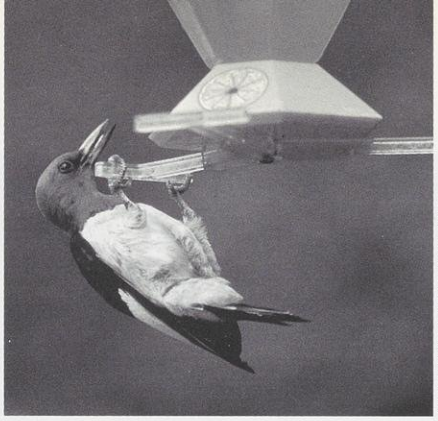
Eye on the sky

Universe in the Park programs are booked in May for the June through October season. The schedule will be posted at three websites — our magazine site: www.wnrmag.com; DNR parks: www.dnr.state.wi.us/org/caer/ce/news/events.html, and the UW-Madison's astronomy site: www.astro.wisc.edu/~ewilcots/uitp. State park naturalists will also post stargazing programs on kiosks and in offices where upcoming events are listed. You can also get a written copy of the season schedule for Universe in the Park after May 15th by writing to Universe in the Park Schedule, DNR Bureau of Parks and Recreation, P.O. Box 7921, Madison, WI 53707, or call (608) 266-2181.

Can't wait for Universe in the Park to begin? Here's a list of planetariums and observatories in Wisconsin listed by *Sky & Telescope* magazine.

- **Buckstaff Planetarium** — UW-Oshkosh, 800 Algoma Blvd., Oshkosh, WI 54901; 414-424-4433. Seats 53.
- **Charles Z. Horwitz Planetarium** — David A. Deremer, School District of Waukesha, 222 Maple Ave., Waukesha, WI 53186; 414-521-8841. Seats 38.
- **L. E. Phillips Planetarium** — Dept. of Physics and Astronomy, UW-Eau Claire, WI 54702; 715-836-5731. e-mail: gstecher@uwec.edu. URL: http://www.phys.uwec.edu/planetarium/. Seats 50.
- **Madison Metropolitan School District Planetarium** — 201 S. Gammon Road, Madison, WI 53717, 608-829-4053, e-mail: gholt@madison.k12.wi.us.
- **UW-La Crosse Planetarium** — Physics Dept., Cowley Hall, La Crosse, WI 54601; 608-785-8669, fax: 608-785-8332. e-mail: robert_allen@uwlax.edu. Seats 60.
- **UW-River Falls Planetarium** — Kausar Yasmin, Dept. of Physics, River Falls, WI 54022; 715-425-3196, fax: 715-425-0652. e-mail: kausar.yasmin@uwrf.edu. Seats 50.
- **UW-Stevens Point Planetarium** — Dept. of Physics and Astronomy, Stevens Point, WI 54481; 715-346-2208. e-mail: rolson@uwsp.edu. Seats 70.
- **Barlow Planetarium** — UW-Fox Valley Center, 1478 Midway Rd., Menasha, WI 54952; 414-832-2848. e-mail: tfrantz@uwc.edu. Seats 100.
- **Hobbs Observatory** — Beaver Creek Reserve, S-1 County Rd. K, Fall Creek, WI 54742; 715-877-2787, fax: 715-877-2787. e-mail: elliottb@uwec.edu.
- **Washburn Observatory** — UW-Madison, 1401 Observatory Drive, Madison, WI 53706, 608-262-9274 (closed for repairs) http://www.astro.wisc.edu/.
- **Whitewater Observatory** — Old Main Hill, Dept. of Physics, UW-Whitewater, Whitewater, WI 53190; 414-472-5766. e-mail: rybskip@uwwvax.uww.edu.
- **Yerkes Observatory** — Public Information, 373 W. Geneva St., P.O. Box 258, Williams Bay, WI 53191; 414-245-5555. URL: http://astro.uchicago.edu/yerkes.

Red-bellied and downy woodpeckers frequent a suet feeder.



The red-headed woodpecker has an entirely red head, bluish-black back, white belly and white wing patches.

(BOTH PHOTOS) STEPHEN J. LANG

continued from page 2

The red-bellied woodpecker flies in the typical flap-flap-glide undulating style of other woodpeckers. Several deep wingbeats carry the bird upward, then with wings closed briefly, the bird loses altitude only to recover with more wing flaps. It flies strongly and, with a final upward swoop, lands upright on a tree trunk, clinging to the bark with large strong feet propped up like a tripod by the short, stiff tail feathers. It often circles the trunk staying to the far side of a bird watcher. Every now and then the curious bird peers around to see what's happening and who's watching.

The red-bellied spends much of its time on trees. It hammers trunks and limbs searching for insects and larvae. It drums on hollow branches to proclaim its territory.

The bird nests in excavated tree cavities. For a few short weeks from May into July, the pair shares nesting responsibilities. Each takes its turn incubating a clutch of four to five white eggs for about two weeks. About 25 days after hatching, the well-fed youngsters leave the confines of the cavity home. Forty-five days after hatching, the now full-grown birds are on their own. Red-bellieds only raise one brood a year in our short summer season.

Though the red-bellied woodpecker can be secretive and unobtrusive in a thick woods, its loud "churring" calls reverberate through the trees. I have trouble separating its call from the red-headed woodpecker, but friends with perfect pitch tell me the calls are at slightly different pitches.

Every time I see a red-bellied woodpecker, I pause to take a second look because it isn't easily intimidated. This woodpecker was not very common in Wisconsin as recently as 20 years ago. The species has slowly extended its range from the south into our woodlands, becoming permanent residents in chosen neighborhoods. Unfortunately, the red-bellied competes with and often displaces the more retiring red-headed woodpecker from nesting cavities. Consequently, while red-bellied woodpecker numbers are increasing, red-headed woodpecker populations are declining. Both are interesting to watch and it's a pity we can't seem to enjoy both in equal numbers. □

Anita Carpenter flits around the country and the countryside watching nature from her home base in Oshkosh.

Readers Write

ANOTHER FRUSTRATED CAMPER

We would like to echo the words of the frustrated camper, Donald Fictum, in the December issue. We also are tent campers who have enjoyed many years in Wisconsin's beautiful parks and forests, and were great boosters of our beautiful state.

We camp for 12 days at a time twice a year. It was disappointing to see prime reservable sites empty during the week, but we were willing and able to find a nice unreservable site, which we could occupy all week and through the weekend.

We find this new system unsatisfactory. We also dislike the fact that an out-of-state company is making millions of dollars a year administering the new system while our parks have to cut back on improvements or maintenance because of limited budgets.

Mr. and Mrs. Ronald Parsons
Menasha, Wis.

DOUBLE DIPPING?

A "century of service" by the state park system ("Wisconsin State Parks — 100 years young," December, 1999) *is* worth attention. But another side of the story should also be recognized.

I live just across the Mississippi from two of the parks, both very attractive. But I have not set foot in either for years, and do not intend to. User fees represent unconscionable "double dipping," in my opinion. And while I realize that neither the governor, the legislature nor the DNR will miss my few dollars, it's a matter of principle felt most strongly!

Taxpayers have paid, and are paying, for the parks and their upkeep in the first place. Then if they *use* them, they have to pay again. Such "double dipping" is grossly unfair, even illogical! Parks should be supported by general revenue, spending on them kept in balance with available resources.

The "those who use, should also pay," argument should be consistent for *all* services provided by the state. It is not! Just *one* example: public-taxation support often sought to build sports stadia.

The June "Open Houses," when once-a-year free admission is provided to visitors, is just a gratuitous sop to citizens who, for the taxes they pay, should have free access all year long! After all, the parks *belong* to them!

Dr. J. H. Foegen
Professor of Business
Winona State University
Winona, Minn.

BAITING — RIGHT OR WRONG?

Regarding "The bait debate" (December, 1999), please pass on my strong suggestion that the Deer 2000 group thoroughly investigate the serious consequences of long-term deer feeding and baiting in Alcona County, Michigan. A private hunt club, Lost Lake Woods, started the practice of heavy feeding and baiting 50 years or so ago. Over time all landowners got into the act and now tuberculosis is rampant. We don't want that problem in Wisconsin.

Ed Batton
Bayfield, Wis.

There is a distinct difference, in my mind at least, between baiting deer and feeding deer. Baiting consists of putting food out for deer near a hunting spot for the express purpose of attracting the deer and killing it.

Feeding deer is just that. There is no killing of the animal in the plan. Since 1990, when I moved to Hayward from downstate, I have fed deer year-round. I use shelled corn and I have a mineral block out also. Last winter, I also put out a couple of alfalfa bales, but the deer were not interested in them.

The last two winters were very easy on the animals. They ate the corn I put out, used the natural food in the woods and fields nearby. I can remember several winters in the past where all the feeding ended by the first of the year due to the snow. I can also recall seeing deer struggle through the snow to get to my feeders and eat what I had available. I have no doubt that in those winters, I maintained my own "herd" of 20 to 25 deer.

I fed about 5,000 pounds of shelled corn last winter! This is no cheap operation. The article brings out the fact that once you begin to feed you must continue to feed. If you aren't committed to this, don't even start it. I put out about 25 to 50 pounds of corn a night, depending upon the weather.

Why do I feed? Because the DNR has never had and probably never will have a plan in place to take care of the deer in emergency situations. I feel that if things really go sour for the herd, my little nucleus of animals will be there in very healthy form to continue on in spite of things. The DNR takes credit for the very large and healthy herd we have here in the state. The fact is, at least in this area, if it was not for the hundreds of folks who feed deer all winter long, there would be very few deer in Area 13!

Talk of outlawing the feeding of deer is almost a joke! I will continue to feed the deer on my property whether it is "legal" or not! I think that the DNR should not only talk to those folks who feed deer to see how they successfully do it, but should provide supplementary food varieties to people who feed. Upon showing receipts for the food they purchased, they should receive a free deer hunting license each year for their efforts! I have no problem hunting deer, as long as it is several miles from my home! I don't shoot "my" deer!

Greg Topp
Hayward, Wis.

The state's policy on supplemental deer feeding says that rather than feed deer through winter, DNR focuses on providing good summer and fall habitat. By doing so, the deer are better able to start the winter in good condition so that feeding is not necessary.

A consequence of so many people feeding deer these days is that herds are kept artificially high in the north. The resulting overabundance depletes the summer and fall deer range making it more difficult for deer to enter winter in good condition.

Deer herds have always fluctuated across the north, depending on winter severity. That is nature. As you've eloquently stated, winter feeding takes sustained time and money, and is not budgeted. We are also quite concerned about artificially supplementing wild animals with un-natural foods.

DNR has been trying to reduce *the herd size for a long time. For instance, the management Unit you discussed (13) has an overwinter goal of 15 deer per square mile based on carrying capacity for the habitat. Last winter the herd estimate was 28 deer/square mile — almost double a "healthy" level and a strain on nesting cover and valued plants.*

Finally, we remain concerned about possible health risks and disease as animals concentrate in areas where artificial feeding occurs.

I have been hunting whitetails in Wisconsin with gun and bow for 33 years.

As we move into a new millennium, I've decided to stop being an old-fashioned deer hunter and join the majority. Please allow me to suggest a few ways in which your publication could help me.

I don't need any more articles on scouting or reading deer sign: I will create my own deer sign by dumping a bait pile. Give me articles on whether to use corn, apples, or pumpkins.

I don't need to read how to play the wind. The attraction to my baits will be so strong that I'm going to sit that stand anyway, regardless of wind direction.

I don't need any advice on which rifle, shotgun, or bow to buy. I need advice on which ATV to buy to haul my bait. I need to know exactly where to build my cabin because I want to put a feeder behind it. Not to "cabin shoot" mind you — that's illegal — but to hunt 200 yards behind the cabin in the "wilderness."

Now we all know that this push to grow big bucks has caused land prices to skyrocket, so I'm probably going to be limited to establishing a sanctuary on about 40 acres. Therefore I won't be needing any more articles on little two-man pushes with my hunting partner or on still-hunting, because I certainly can't risk moving around and chasing some of those big bucks onto my neighbor's forty.

I will need an article to help me with the new hunter attitude. I need to be taught that I don't care if my baiting and feeding causes the deer to become nocturnal: I'm getting mine! I need to be taught that I don't care if my baiting and feeding pulls deer away from other hunters and spoils all their efforts: I'm getting mine! I need to be taught that I don't care if my baiting and feeding helps spread disease among the deer: I'm getting mine!

I really look forward to you helping me become a 21st century Wisconsin deer hunter. Could it be that there is something wrong with this type of hunting?

Mike Janssen
Wrightstown, Wis.

I began deer hunting in Wisconsin only about nine years ago and I learned to hunt over bait. My father did not teach me to hunt and I do not know any other way. This is the way I plan to teach my sons to hunt when they come of age. If baiting is restricted or eliminated then who will teach me to still hunt deer or teach the age-old methods of deer hunting in Wisconsin? Will the DNR offer courses or hands-on seminars? Will you publish books on how to deer hunt without baiting?

I am also one of those that Dave Nowak describes that needs to bait to draw the deer out of privately owned and posted land. In the area of Iron County that I hunt, a developer from Chicago bought up all the wooded land surrounding it and has posted it "No Hunting." He will not give permission to anyone else to hunt so his sons can come up on the Friday of opening weekend with their friends, kill their bucks and go home on Sunday. I'm left with only what I can draw off of his land after they go home. I can't afford to buy hunting land for myself or my sons in the near future, and permission to hunt is difficult to get sometimes even when you know who owns the land.

Dennis Rockwell
Kansasville, Wis.

As a hunter and a patron license holder I must voice my opinion about "The bait debate." This past year I finally shot my first deer with a bow. Yes, that deer was brought into a close distance because of a bait spot. I followed every rule from how much bait I could put down to what kind.

The bottom line is this — I never would have had the opportunity to shoot at this deer without baiting. I don't have days to hunt like some people do. This deer was a medium sized doe and because of the baiting I was able

to get a clear and safe shot off with my bow.

Kevin Doherty
Watertown, Wis.

Two definitions were left out of "The bait debate": *hunter* — someone with woodmanship (compass reading, tracking, wind-checking, marksmanship, etc.), and *shooter* — someone standing over a pile of corn.

As members of our family have become hunters, starting with my father in the early 1900's, to my sons in the 1990's, I have become dismayed with the shooters. Baiting has taught poor hunting practices along with the disregard for our wildlife.

What does baiting teach our young hunters? I would hate to see them referred to as shooters.

This should not be an issue. Baiting should not be allowed in any form.

Maybe, if baiting is to be continued, we should have two deer seasons — one for the hunter, where skills can be taught to our young hunters, and one for the shooters.

Fritz Krueger
Winneconne, Wis.

ENOUGH ARSENIC TO KILL A MOOSE

In the October story about drinking water ("A wet report card") someone slipped up. I'm a retired medical technologist and the "Standard for Arsenic" in drinking water, as printed in the "10 Reasons Your Drinking Water is Safe," can't possibly be 50 gm/L or less. That's enough to kill several moose. I suspect that it might be 50 mg/L or even micro-grams/L.

Henry DeBoer
Wauwatosa, Wis.

You may be retired, but your eyesight is better than ours! You are absolutely correct – the measurement should be in micrograms per liter, not grams.

WISCONSIN WATERFALLS

I am retiring and plan to see some of our beautiful state. Did you some years ago run an article on the northern Wisconsin waterfalls? If so could you tell me what issue? If not, could you suggest a source?

K. Eugene Bostian
Janesville, Wis.

We did, but it was so long ago (July-August 1977), you may not have saved your copy! A more comprehensive and up-to-date resource is Wisconsin Waterfalls, A Touring Guide, *by Patrick J. Lisi, published by Prairie Oak Press, Madison, Wis. The 128-page full-color booklet is available through bookstores and the author at 1015 Mosshaven Court, Menasha, WI 54952. The book features descriptions, directions and beautiful photos of 63 waterfalls in Wisconsin, five sites in Minnesota and 10 in Michigan.*

A DOUBLE STANDARD?

Here in Missouri, the DNR magazine is free to all citizens of the state, out of state is $3 a year. Why doesn't Wisconsin have a program such as that?

I have noticed that wetlands in Wisconsin are thought of in two ways. If you are farming and have a low wet spot, you could be in trouble with the DNR for draining it. But the new Agriculture Building east of Madison was allowed in the drained and tiled marsh. When I was growing up in the 40s and 50s you could bury a tractor to its rear axles, now building is allowed there. Why are there two standards?

David J. Paust
Theodosia, Mo.

Missouri has elected to assess a special tax from all taxpayers to pay for its conservation publications and programs. This magazine is solely paid for by our subscribers without using any state tax funds.

First, the DNR doesn't regulate wetlands drained for agricultural purposes; Section 30.19 Wis. Stats. specifies the exemption. Second, water was removed from this property so effectively for so many years that it was not considered "wetlands" under state law.

BURNED BY PARSNIP

You recently printed an article on wild parsnip (June, 1999). I wondered if our newspaper editor can reprint the article? We have lots of wild parsnip along our roadside and it is getting into the fields. I've had my time with it! I had always cut the heads off and put them in a paper bag to let them dry and burn them with my papers. About two years ago I had short sleeves and it was warm and sunny. I broke the tops off the parsnip and laid them over my arms to carry off to the edge of the field in a pile. In a couple of days I couldn't figure what was the matter. I rubbed my arms and face with hand lotion and it got worse. I went to La Crosse to a doctor. He thought it was poison of some kind. There were welts that looked like water blisters on my face and arms and I was sick about a week.

Koletta Steinmetz
La Farge, Wis.

We granted permission to reprint the piece. Several readers shared their wild parsnip stories. We plan to summarize them in our June issue.

MORNING "REGULARS" RECOGNIZED

My compliments on the illustrations by Tom Lowes to Dave Crehore's "The secret smallmouth lake in the U.P." (August, 1999). What Lowes can do with an economy of line has got to be uncanny!

I was especially drawn to the cover illustration which looks just like the café where I break a fast daily here in Stevens Point. I *know* all these people. Well, all except the big guy behind the counter, but he may come in evenings. Otherwise, all the homely folks in the drawing are morning "regulars." And they all look up and stare just like that when someone new comes in.

Dick Schneider
Stevens Point, Wis.

TAXUS OR TAXES?

I found Heather Rigney's article "Still at home in the badger state" (December, 1999) informative and interesting. I did know that the Wisconsin nickname pays homage to the lead miners of southwestern Wisconsin. I did *not* know that the scientific name of the badger, *Taxidea taxus*, pays homage to our State Legislature.

Harry Rollings, Ph.D.
Wautoma, Wis.

DIRECTIONS TO SNAKE CREEK WETLANDS TRAIL

Several readers inquired about directions to the Snake Creek Wetlands Trail featured in our October 1999 issue. Story author Thomas Eddy directs the way:

To the St. Marie segment — Turn north off Highway 23 onto Highway 49 (toward Berlin). Travel 1½ miles. Turn west on County Trunk J. Travel 3 miles. Turn south on St. Marie Road. Travel ½ mile. The St. Marie trailhead is on the west side of the road.

To the Swamp Road segment — Turn north off Highway 23 onto Highway 49 (toward Berlin). Travel 1½ miles. Turn west on County Trunk J. Travel 5½ miles. Turn south on Swamp Road. Travel ½ mile. The Swamp Road trailhead is on the east side of the road.

Refresh your memory

Spring can sneak up on you in any number of ways: Fierce winds suddenly soften to docile breezes, green becomes a scent as well as a color, the sky itself takes flight on the wings of birds bound for their summer homes. And if the rain cooperates, the ground may assume an aspect more liquid than solid.

Muck and mud aside, here's a short itinerary for a northwestern Wisconsin excursion to reacquaint you with the pleasures of the season. Two feet and a set of wheels (either two or four) are all you'll need to embark.

Point your compass to Balsam Lake, smack dab in the center of Polk County. If rain rules the day, duck into the **Polk County Museum** for an hour or two to see exhibits on Native American culture and logging. The museum opens on Memorial Day; call (715) 485-9269.

Head north through Luck (you'll never know when you'll need it) and then on to Grantsburg and the 30,000-acre **Crex Meadows Wildlife Area.** More than 240 species of native and migrating birds check in at this vast prairie and marshland. It's a good place to see sandhill cranes performing their annual rites of spring. (715) 463-2896.

Work your way northeast to Webster, where you can step (or cycle) smartly on the **Gandy Dancer Trail.** Built on an abandoned railbed, the trail runs for 100 miles between St. Croix Falls and Superior; some sections even creep into Minnesota territory. (715) 483-1410 or 1-800-222-7655.

Continuing in an easterly direction, you'll find long, lanky Trego Lake, formed by the **Namekagon River**, which has long been a favorite for canoeing, kayaking and tubing. The St. Croix National Scenic Riverway Namekagon Visitor Center in Trego opens on Memorial Day and features exhibits on the river's wildlife and history. (715) 635-8346.

All aboard for Spooner, your next stop. View railroad artifacts and a model railroad in action at the **Railroad Memories Museum** located in the former Chicago & NorthWestern Railway Depot. It opens on Memorial Day; (715) 635-2752 or (715) 635-3325. The **Spooner Fish Hatchery** — the largest musky-rearing facility in the world — also raises walleye and northern pike. The hatchery is open weekdays year-round, but there will be plenty of activity in early May, when hatching begins. (715) 635-4147. In nearby Sarona, you'll find the 339-acre **Hunt Hill Audubon Sanctuary**. Hike the nature trails winding through forests and bogs, or launch a canoe on one of the sanctuary's quiet glacial lakes. Hiking trails open year-round, programs run May 1–October; (715) 635-6543.

Further south, in Barronett, you can round out your springtime excursion with a visit to **Helstern's Custom Carving and Signs**. Skilled woodcarvers chisel prancing ponies, pouncing tigers and other life-size carousel critters using techniques developed a century ago. (The company also restores wooden rocking horses, should your own trusty steed be in need of repair.) Open weekdays, (715) 822-4189, www.helstern.com □

ROBERT QUEEN

COURTESY OF RON HELSTERN

(above) A complex of marshes and grasslands makes Crex Meadows Wildlife Area in Burnett County a premier spot to watch native birds and migrating species.
(left) If fanciful creatures are also your pleasure, visit Helstern's in Barronett.

Wisconsin, naturally

Tellock's Hill Woods State Natural Area

Notable: A beautiful little natural area situated in rolling terrain on the north-facing slope of a drumlin. Large, rounded boulders transported by the glacier litter the hillside. The woods are composed of sugar maple and basswood, with hemlock on the lower slopes. Large American beech trees, with their smooth, elephant-gray bark, are especially impressive. In spring, the forest floor is richly carpeted with wildflowers.

How to get there: Start at the junction of U.S. Highway 45 and state highways 22 and 76, about 5 miles south of Clintonville in northeastern Waupaca County. Go west on 22 for 5.5 miles, then north on Shady Lane Road about 1.8 miles. At the bottom of the hill, watch for a small parking area on the left. *Wisconsin Atlas:* page 66, grid D2.