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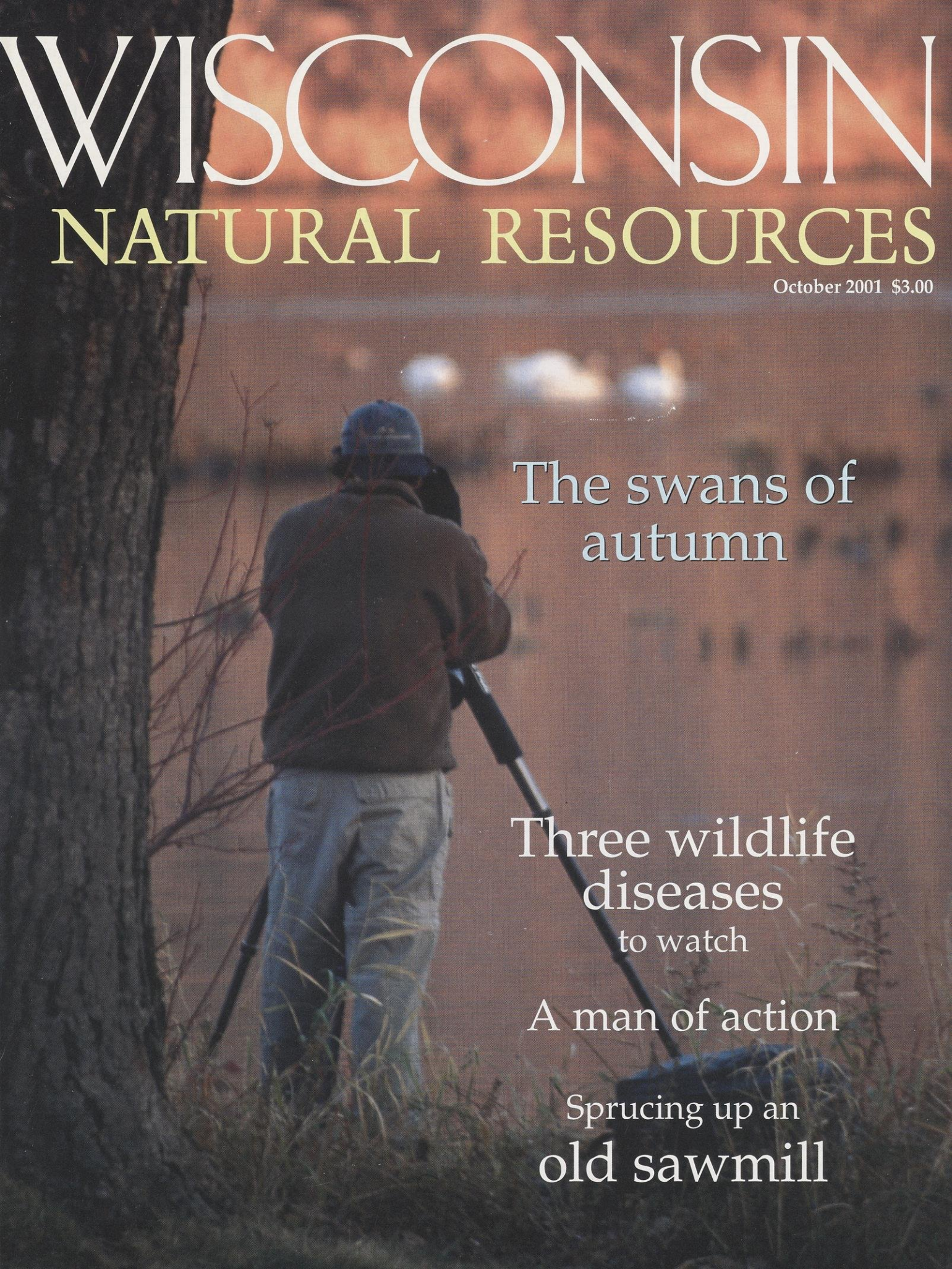
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WISCONSIN

NATURAL RESOURCES

October 2001 \$3.00



The swans of
autumn

Three wildlife
diseases
to watch

A man of action

Sprucing up an
old sawmill

THE VINE THAT TWINES

NATURE PROVIDES MANY WAYS TO TAKE HOLD WITHOUT HANDS OR FEET!

Anita Carpenter

Vines climb, loop, twist, trail, spiral and entwine. They cover fieldstone fences, encircle tree trunks, entangle shrubs and blanket historic brick buildings. Vines grow everywhere, slowly filling in the gaps on the landscape in their quest to reach sunlight. Vines are just doing what nature dictates because vines, by definition, can't stand by themselves; they depend on others for support.

In summer, vines blend in well with their supporters, waiting until autumn to out-shine those upon which they depend. One of the first vines to vividly announce its whereabouts is Virginia creeper, whose early turning crimson leaves on the fading green landscape portend shorter days and cooler nights.

Virginia creeper is a familiar vine that thrives in hedgerows, along forest edges and on buildings. It is easily identified as the vine with the salad-plate-sized, alternate, palmately compound (resembling a hand) leaves. Each compound leaf is composed of five serrated, dull-green leaflets which are longer than they are wide. Each leaf droops slightly on the vine.

Virginia creeper is a tenacious climber. Long, light green, branched tendrils enable Virginia creeper to grasp other objects and support itself as it climbs ever higher. The two- to five-inch tendrils, which are really modified stems, grow from nodes opposite the leaf attachment. As the tendril grows, its cells grow at different rates.



Virginia creeper slowly spreads over bark and brick, cloaking itself in summer green before revealing and reveling in its bright red and orange hues in early autumn.

Consequently, the tendril moves back and forth as it elongates. When the tendril contacts a solid object, cells grow rapidly. Those that touch the support shorten slightly while those on the opposite side lengthen slightly, coiling around the support. Wrapping can be fairly rapid and one or two coils can form per hour.

Coiling tendrils are useful for climbing fences and shrubs, but Virginia creeper also dramatically cloaks stone and brick buildings. How does this vine climb flat surfaces where coiling tendrils would be useless? As a tendril grows, tiny knobs appear on the ends of its many branches. As a tendril touches a bit of brick or stone, each knob flattens and becomes a mucilaginous disk that adheres to the surface. For such a small disk, the attachment is strong and solid, requiring some force to remove it.

Although Virginia creeper is now conspicuous on the autumn landscape, insects discovered and pollinated its tiny, greenish-white blossoms last June into July. The non-

showy flowers bloomed in small clusters of 50 to 150 blossoms. The stem supporting the flower cluster zigzags as it grows, resulting in a flower grouping that is longer than wide. Ripe purplish-black berries hang on bright red stems as leaves turn colors from September into October. Each berry holds from one to four seeds. The fruits are sought out by hungry migratory songbirds that unknowingly dis-

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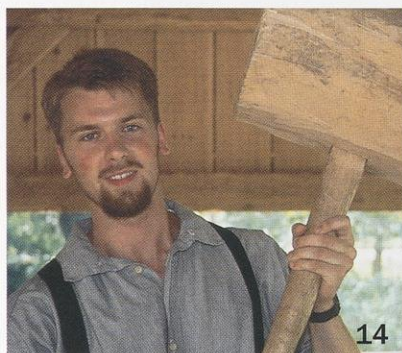
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FRONT COVER: A quiet fall afternoon photographing tundra swans at Rieck's Lake Park, a mile north of Alma on Hwy. 35.

RJ & LINDA MILLER, La Crosse, Wis.

BACK COVER: Roche-a-Cri Mound State Natural Area, Adams County. For a map or more information, contact the State Natural Areas Program, Bureau of Endangered Resources, DNR, P.O. Box 7921, Madison, WI 53707.

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Keeping an eye on the border and the future

Shawn Marchand

It's his watchful eye as much as his skillful work with a knife that put Tom Bechle on the front line in Wisconsin's battle to fend off wildlife disease. Last October, Bechle was cutting up a deer at the Brost Meat Market in Kiel when he noticed black spots inside the buck's chest cavity. The spots reminded Bechle of those depicted in a brochure for hunters on bovine tuberculosis (TB). He immediately stopped butchering the animal and telephoned Jeff Colon, a meat inspector from the Department of Agriculture.

A state inspector came quickly, took samples from the deer, and sent the tissue to a lab for analysis. Fortunately, the animal tested negative for TB, and Wisconsin still has a clean record — bovine TB never has been detected in our wild deer. However, since 1997, four cases have been reported in captive elk herds in Manitowoc County.

Bovine TB is just one of the "emerging" diseases tracked by wildlife, agricultural and public health officials in Wisconsin. These new ailments or existing diseases "are occurring more frequently, spreading over a wider geographic range, or developing resistance to known treatments," according to Julie Langenberg, Wisconsin DNR wildlife veterinarian.

Early detection of
emerging wildlife
diseases protects the
health of deer, livestock
— and humans.

Identifying and controlling disease in Wisconsin's wildlife protects hunters and others who eat game, sustains healthy wildlife, provides safe outdoor recreation and supports wildlife-related industries.

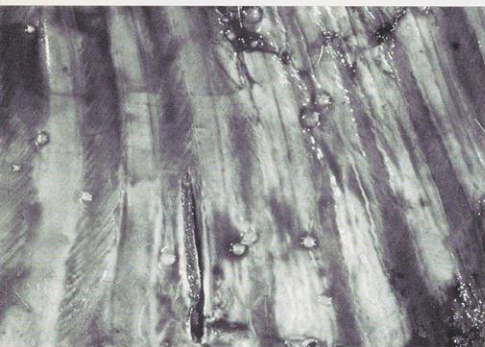
Monitoring disease in Wisconsin's wildlife also helps safeguard the health of livestock. Free-ranging deer and livestock can transmit bovine TB to each other. In Michigan, disease researchers believe wild deer were infected with TB several decades ago through contact with sick cattle.

Now, TB in wild deer populations has infected several cattle herds and cost Michigan's livestock industry millions of dollars.

Wisconsin's nearly 160 custom meat processors also have a stake in protecting themselves, their businesses and their customers from wildlife diseases. In factories and commercial meat markets where domestic animals are slaughtered and processed, at least one meat inspector from the Wisconsin Food Safety Division is on hand to inspect

DNR Wildlife Health Technician Barb Walser (right) ages deer and collects blood, lymph gland and brainstem tissue for sampling. Since 1996, DNR health teams have been on the watch for early warnings of deer diseases that could readily spread among wild and domestic herds.





(left) Bovine tuberculosis has never been detected in Wisconsin's wild deer herd, and animals may not show overt signs of disease. Those who process deer should be on the lookout for small white or yellowish lumps or nodules that may appear on the inside of the rib cage or lungs of infected animals.

(right) Cranial abscessation syndrome is regularly found here. A bacterium can infect bucks through cuts and nicks in antler velvet or head wounds. It causes a pus-filled inflammation at the base of antlers, around the eyes and in the brain.



WISCONSIN DNR (FAR LEFT) MICHIGAN DNR

carcasses and monitor equipment sanitation. But small custom butcher shops that only process deer for customers without retail sales to the public are not inspected, and it's up to the owner to recognize any diseased animals.

"The vast majority of deer are prepared at state-inspected plants," notes Terry Burkhardt, director of Wisconsin's Meat Inspection Program. Small custom processors may not butcher large numbers of deer, but it's still vital to alert them to the signs of disease.

The Big Three

Three emerging diseases to watch for are bovine tuberculosis (TB), cranial abscessation syndrome (CAS) and chronic wasting disease (CWD).

Bovine Tuberculosis (TB) develops when the bacterium *Mycobacterium bovis* attacks the respiratory system of goats, dairy and beef cattle, elk, deer and other ruminants. Only 45 percent of deer that carry TB show signs like tan or yellow lumps on the inside surface of the rib cage or lung tissue. Most deer with TB show no signs at all or simply look emaciated. Consequently, it's difficult for hunters to recognize TB when hunting or field dressing deer.

Though scavengers or carnivores can contract TB by eating diseased carcasses, transmission from handling or consuming infected meat is very rare for both animals and people. TB more frequently spreads as sick animals sneeze or cough bacteria-laden air on other animals or food, according to Steve

Schmitt, veterinarian for Michigan's Department of Natural Resources.

"There is no evidence of any hunters in Michigan getting bovine TB from deer," says Schmitt. Bovine TB was first diagnosed in the northeastern Michigan deer herd in 1994. Since then, TB has been confirmed in 285 deer, a dozen carnivores that feed on deer, six cattle herds, a captive deer herd and a goat herd.

Containing the disease is expensive. The Michigan Department of Natural Resources has spent \$2 million dollars in prevention and surveillance. Michi-

gan DNR and the livestock industry have spent \$97 million attempting to contain and eradicate the disease, and the state is building a new \$58 million diagnostic lab.

Cranial abscessation syndrome (CAS): Bill Ishmael, DNR wildlife biologist in Spring Green, responded promptly when he received reports that a deer in northwestern Sauk County was walking in circles, acting disoriented and lacking any fear of people. When Ishmael arrived on the scene, the deer was standing with its head down and did not react to him. As he got closer, Ishmael noticed the buck's antlers had broken off; pus was exuding from the base of the antlers and the animal's eye sockets. "It seemed as if it were blind," Ishmael noted.

All of these symptoms are characteristic of CAS, a disorder regularly found in Wisconsin's wild deer. The bacterium that causes CAS, *Arcanobacterium pyogenes*, is found naturally in the mouths of healthy Wisconsin deer, but can cause infections through broken antlers, abrasions in antler velvet, or through any open wound on a deer's head. After entering through the skin, the bacterium can "eat" through the deer's skull, causing abscesses in the brain.

This western elk contracted chronic wasting disease (CWD). The disease progresses very slowly. Symptoms may ultimately include weight loss, a rough coat and behavioral changes like lack of awareness, droopy ears, repetitive walking, teeth grinding and excessive salivation. It hasn't been detected here, but it is highly contagious among deer and cattle. CWD is closely related to diseases that affect people.



BETH WILLIAMS, WYOMING DEPT. OF VETERINARY SERVICES

CAS occurs most commonly between October and April and may account for up to six percent of the natural mortality in bucks. "This disease affects adult antlered deer almost exclusively," says Kerry Beheler, DNR wildlife health specialist. The annual cycle of shedding antlers, getting nicks when new antlers are in velvet, and rutting battles provide plenty of opportunity for head wounds through which CAS bacteria can enter.

"We know that CAS can cause loose or deformed antlers, or kill trophy bucks," Beheler said, "but we don't have enough data to gauge the impact on the whole buck population."

In theory, meat from a deer infected with CAS isn't unhealthy and can be eaten if cooked thoroughly until the juices run clear. In practice, it's not advisable to eat such meat because the bacterial infection can make the meat tough and unpalatable.

Chronic wasting disease (CWD) is a fatal degenerative brain disease of elk, white-tailed deer and mule deer. It has never been found in Wisconsin and appears to pose little health threat to people or livestock, but it's closely related to diseases that are killers. CWD is a form of transmissible spongiform encephalopathy (TSE), a disorder that causes sponge-like holes to form in and around brain cells. Other TSE's include scrapie in sheep, bovine spongiform encephalopathy (BSE) in cows (mad cow disease) and Creutzfeldt-Jakob disease (CJD) in humans.

CWD was first found in a captive mule deer at a Colorado research facility in 1981. Since that time, CWD has been diagnosed in wild elk and deer populations in Colorado, Wyoming, Nebraska and Saskatchewan, and in captive elk in South Dakota, Colorado, Montana, Oklahoma, Nebraska and Saskatchewan. The disease is spreading very slowly among wild deer in northeastern Colorado, southeastern Wyoming and extreme western Nebraska.

Symptoms of CWD include progressive weight loss and behavioral changes such as a lack of awareness, lowered head, drooping ears, excitability, repetitive walking, teeth grinding, excessive salivation, difficulty swallowing and a

rough, patchy coat. Symptoms may not be visible for months or years after infection.

Many researchers now believe that CWD and the other TSE's are caused by microscopic, infectious proteins called prions (PREE-ions) that can change normal healthy proteins. The World Health Organization has said there is no scientific evidence that CWD can infect humans, but test tube studies have shown that CWD prions can slowly alter healthy human prions.

Prions are difficult to eradicate. According to Barbara Walser, DNR wildlife health technician, heat, ultraviolet light, radiation or common disinfectants cannot break down prions. They are undetectable by the immune system, and there are no tests to detect and diagnose CWD in live animals.

Although the exact mechanisms by which CWD spreads are unclear, those studying the disease believe animals infect each other through contact with bodily fluids. There is also worrisome evidence that CWD prions may persist in the environment and infect deer that have never had direct contact with a diseased animal.

Wildlife health officials are concerned that deer and elk infected with CWD could be imported into Wisconsin from areas where the disease persists at low levels. On three occasions, elk have been quarantined on Wisconsin game farms because they were imported from a CWD-infected farm in another state. Farmed deer and elk are fenced in, but escapes or entry by wild deer that hop fences could allow contact between captive animals and wild deer.

Wisconsin game farms holding captive elk or deer are encouraged to participate in a voluntary testing program to screen for signs of the disease. All dead animals over 18 months of age are tested, regardless of the cause of death. A clean bill of health is vital to those farms that want to sell elk to other states. Montana, for example, requires an out-of-state game farm to be CWD-free for five years before animals from that farm can be imported. Currently, Wisconsin does not require similar certification before animals can be brought into the state.

Safety steps for hunters

Wisconsinites who hunt big game in western states should take additional precautions to protect themselves and their home turf. Those hunting deer and elk where CWD infections occur should avoid shooting an animal exhibiting any CWD symptoms unless the hunters are willing to tag and donate these animals for testing.

Wear disposable gloves when field dressing your harvest and dispose of offal properly so other animals won't be exposed to it. Don't even consider eating internal organs like the brain, spleen or the spinal cord.

If deer are harvested from areas where TB or CWD have been detected, don't make the meat into sausage or jerky, because the cooking temperatures used in these preparations are not high enough to kill many bacteria. Have your harvested game completely processed and packaged out West to lessen the chance of carrying infection back to Wisconsin. Local deer might feed around the discarded remains of deer or elk that were partially dressed after returning to Wisconsin, notes Langenberg. Bringing back fully processed animals definitely lowers the risk of spreading disease.

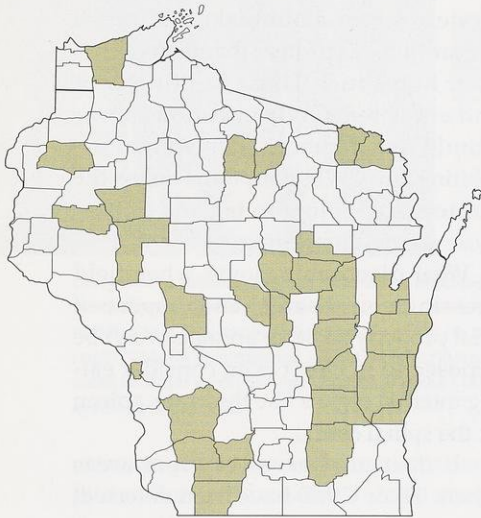
Field checking the herd

Since 1996, the DNR Wildlife Health Team has analyzed samples from sick deer, from deer removed by sharpshooters and from deer harvested by hunters to get early warnings of wildlife diseases. Each year the team selects at least six deer registration stations closest to sites where disease outbreaks might occur — near elk or deer farms that have experienced significant disease outbreaks, near spots where animals were quarantined, and near areas with high densities of wild deer and deer farms.

No edible meat is sacrificed in the testing. If hunters choose to participate, two lymph nodes from either side of the deer's jaw are collected and tested for TB, and a small portion of the animal's brainstem at the base of the skull is taken to check for the presence of CWD.

"Our hunters really care about having healthy deer in the state," says Lan-

Deer TB and CWD Surveys 1996-2000



Shaded areas show deer management units where the wildlife health team has collected samples. These locales are near game farms where animals are imported and near places where disease outbreaks have been confirmed — both potential hot spots that bear watching for early signs of disease.

genberg. "They are highly receptive to the testing and we really appreciate that cooperation."

This year, the disease trackers hope to test at least 500 animals. "It would be great to double that number," Langenberg said. "We need to test a lot of animals to stand a chance of detecting rare diseases that occur at low levels."

Aside from taking part in disease testing at registration stations, Wisconsinites can help keep deer populations healthy by reporting sick or abnormal-looking deer to a local DNR office or the DNR Wildlife Health Program at (608) 267-6751 or (608) 266-3143.

"There's another step we can take, and I know it's not popular," Langenberg says, "but curtailing deer feeding and baiting would help."

"Scientists in Michigan have demonstrated a connection between the spread of TB and activities like feeding and baiting that promote deer to gather in close proximity. Limiting these practices would help prevent a significant disease outbreak."

MAP BY MOONLIT INK FROM WIS. DNR DATA



ROBERT QUEEN

Wisconsin hunters help by allowing researchers to age and sample deer at registration stations to monitor our deer herd's health.

(left) Hunters can fill out a post card to be notified of test results.



ROBERT QUEEN

ture and the State Department of Agriculture, Trade and Consumer Protection have created task forces to anticipate how to deal with FMD in livestock. Controlling the disease in wildlife, however, is "all a big unknown," according to DNR's Langenberg.

Future vigilance

Given Wisconsin's large, healthy deer herd and known disease outbreaks elsewhere, our need to monitor emerging wildlife diseases will only increase. Finding and containing these diseases is no simple task, especially when wild deer populations remain large and widespread, the captive elk and deer farming industry is growing, and both wild and domestic animals are frequently transported to and through Wisconsin.

Vigilance is the key, through continued monitoring, emergency planning with animal regulators, cooperation from animal industries and help from hunters.

"We need as many eyes in as many places as possible to provide early warning of diseases that can be terribly costly if they get away from us," Langenberg says.



Watch out for foot and mouth

Foot and mouth disease (FMD) is a highly infectious ailment of cloven-hoofed animals including cattle, sheep, swine, bison, deer and elk. This disorder causes the hooves and mouth to blister, making it difficult for the animal to chew and forage for food.

Caused by an airborne virus that persists for a long time in the environment, FMD can be carried to different locations on clothing and equipment.

Containing an FMD outbreak in Great Britain has been very expensive and has changed people's habits in a hurry. Beef sales plummeted and the country spent the equivalent of \$28 billion this year quarantining areas, sacrificing herds and containing outbreaks. FMD also has been detected in Africa, South America and Asia.

FMD has not been found in the United States since 1929, but if it were reintroduced, it could spread rapidly in livestock and wildlife populations. The United States Department of Agricul-



- ✓ Katy's science teacher
- ✓ Sue, the scout leader
- ✓ Alec, the paper boy
- ✓ friends who've moved from Wisconsin
- ✓ the Hills, who let me hunt on their land
- ✓ Jerry, who watches our pets . . .

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UND19



The man of action

A hot-headed hunter on a cool morning set the scene for a showdown.

Dave Crehore

Story illustrations by Tom Lowes

Jeez, you should see the shiner my old man's got! He got in a fight in the tavern last night, and he really caught one. But he knocked the other guy down so I guess he won."

The school bus that hauled us country kids rattled down Waldo Boulevard on its way to Woodrow Wilson Junior High in Manitowoc. In the seat beside me, Frank was laying it on thick, making his old man's scuffle at Romy and Helen's Tap sound like a title fight.

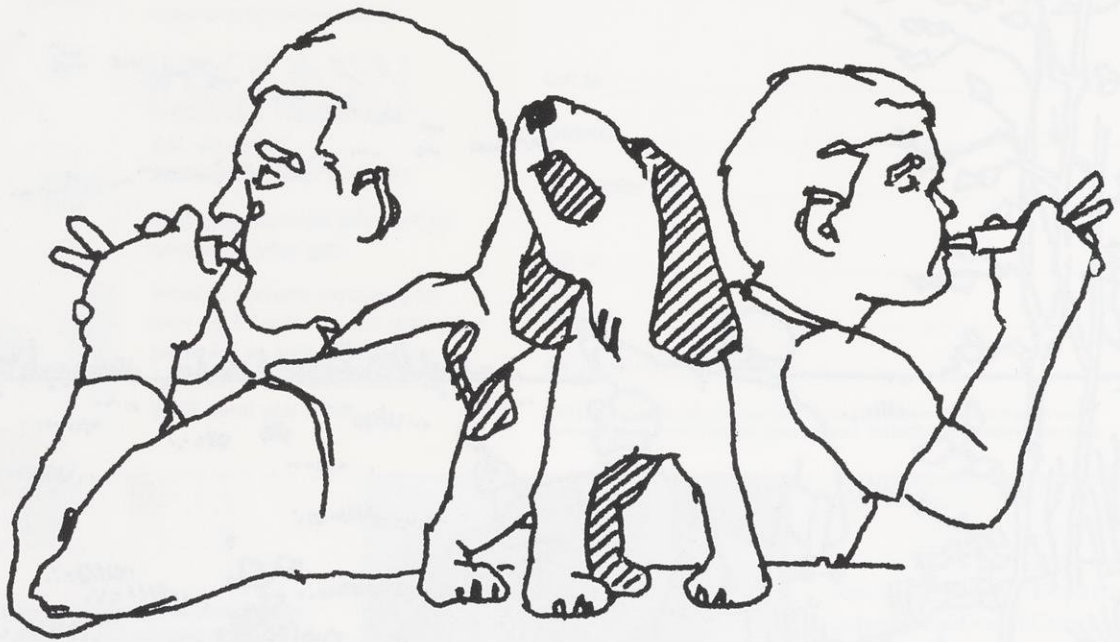
But I was impressed, and kind of jealous of Frank. He had an old man who hung around taverns, got into fights and bragged about them afterwards, a tough guy who didn't take crap from anybody. My dad, on the other hand, took a lot of crap as chairman of the Methodist church building committee.

Not that Dad was a milquetoast. Far from it. In col-

lege, he had played the line on both sides of the ball in the days of leather helmets. And he spent most of the '30s as an engineer on a Great Lakes ore boat.

No, Dad was no softy, but he wasn't exactly a man of action, either. There was an Irish temper behind his smile and his ever-present pipe, but few people ever saw it. Words, patience and humor were his tools, and if they didn't work the first time, he'd try them again. "Patience is a virtue, find it if you can, seldom in a woman, never in a man," he used to say.

I put all that out of my mind as the bus pulled up at Wilson. I had bigger worries that September of 1956, starting with a C in geometry that would probably get worse before it got better. And in any case, my jerrybuilt idea of manhood was about to be knocked flat at Horicon Marsh.



In the spring and fall, immense flocks of Canada geese gathered at Horicon, and Dad loved Canadas the way most people love sunsets. Back in the mid-fifties, the big gray voyagers were not as common as they are now, and even when we were in the thick of a grouse cover, he would whoa the dog and look up when chanting flocks of Canadas passed overhead. He'd stand there, listening, until they were out of sight.

That fall, Dad decided to try some goose hunting at Horicon. In those days the Horicon season didn't open until well into November, but Dad was a thorough sort of man and got an early start.

In August, he bought three books about goose hunting and read them front to back at the kitchen table, smoking his pipe and taking notes. On September evenings, while I struggled with hypotenuses, Dad was down in the basement, jig-sawing sheets of Masonite into the outlines of geese. Later, turpentine vapor filled the house as he turned each outline into a simplified oil painting of a Canada with a moveable head and neck. When 30 of these profile decoys were complete, Dad bought a couple of Navy surplus sea bags to carry them in, and got out the goose calls.

The calls had been purchased mail order from Herter's, with an instruction book and a 78-rpm record of expert calling. During October, we spent a half-hour most nights playing the record on the Magnavox and calling along with it. These rehearsals were loud and repetitive; they sent our two house-beagles into ecstasy and Mom into the kitchen.

Then Dad brought home two goose guns in plain brown wrappers, a well used but sturdy Model 21 side by side for him and a Model 12 pump for me. In early November, we practiced at the local skeet range, stepping back thirty and forty yards from the targets. Over and over, I tried the long crossing shots from stations three, four and five. "Lead 'em the length of your gun," Dad told me.

Most goose hunting stories start when the hunters struggle out of bed in the cold, dark hours of the morning, but if you hunted at Horicon in those days you had to get going the night before. The federal government had built goose blinds around the edges of the northern part of the refuge, and they were assigned to hunters on a first-come, first-served basis before dawn each morning.

To get a good blind, you had to get your car into line on a country road near the marsh by about midnight, and that meant leaving Manitowoc no later than 9:30.

And so, on a Friday night in late November, we hit the road to Horicon in our Studebaker station wagon crammed with decoys, guns, ammunition and bags of lunch.

Nothing much was going on in Valders as we passed through, and other than a couple of kids buzzing the gut, Chilton was pretty quiet. Nothing was stirring in Brothertown, Calumetville or Pipe, and by the time we got there, Fond du Lac was dark. Then I fell asleep until Dad pulled into the waiting line of cars on the refuge.

He hopped out and counted the cars ahead of us. "Eight, nine, ten — we're eleventh in line, I guess that's

During October, we spent a half-hour most nights playing the record on the Magnavox and calling along with it. These rehearsals were loud and repetitive; they sent our two beagles into ecstasy and Mom into the kitchen.

pretty good for a Saturday morning," Dad said. "Get some more sleep if you can."

But I couldn't. Up and down the line, drivers were idling their engines to warm up their cars. Men and dogs, their breath smoking in the cold, ran errands into the cornfields along the road. One guy had set up an Army cot on the shoulder. He was sound asleep with a big Chesapeake Bay retriever curled up under the cot.

At 4 a.m., the line began to move. We drew up to a sort of roadside stand where the blinds were assigned.

"We want blind 56 if it isn't taken," Dad said. A friend of his had gotten a goose from blind 56 on Thursday morning.

"Fifty-six it is," the warden said. He checked our licenses and duck stamps, wrote down our names and gave us a hand-drawn map. And off we went again into the darkness, the Studie bot-toming out on the rutted clay.

After a mile or two of back roads, our headlights jabbed into a small, muddy parking lot that served blinds 55, 56 and 57. Following the map, Dad and I lugged our goose gear down a steep hill into the blackness.

Blind 56 was a six-by-six-foot structure of snow fence and corn stalks about a quarter-mile from the parking lot. Dad walked around with a flashlight to get the lay of the land.

"Let's set up the decoys in that picked cornfield just up the hill," he said, shouldering the first bag. He laid the folded decoys on the ground, spaced a few feet apart in a curving, upwind V shape, and heeled their wooden stakes into the soil. My job was to follow along behind him and attach the decoys to the stakes with carriage bolts and wing nuts.

Setting up profile decoys is hard work, and it turns into desperate work when dawn sneaks in from the east and threatens to expose you. I had the feeling that thousands of beady black Canada goose eyes were watching me as I spun the last few wing nuts and ducked into the blind.

"OK," Dad said, "I've paced it off, and that big willow over there is about 40 yards away. So is the fence and the edge of the decoy spread. We'll cripple birds any farther away than that, so don't shoot at anything that is beyond the decoys, the tree or the fence."

"The best part is that we've got the place to ourselves," Dad said. Sure enough, blind 55, about 200 yards north of us, was empty, and so was 57, the same distance to the south.

We took our guns from their cases and loaded them, poured cups of coffee into the steel caps of our Thermos bottles, and unwrapped a couple of Mom's bologna and mayonnaise sandwiches. "Might as well have some breakfast now," Dad said, "because they're going to start moving any minute."

And as though they had been waiting for his cue, ten thousand Canadas lifted themselves from the marsh with a wild fanfare and began to wheel chaotically on the western horizon. As we watched, the whirling galaxy of geese broke into flocks and sub-flocks spinning off to all points of the compass.

"Here comes a string of about 20 right at us," Dad whispered. "They're climbing to get over the hill, so we've gotta call them down into our decoys. I won't shoot this first time. Let's start calling and I'll tell you when to stand up. Remember, nothing over 40 yards!"

Hunkered down in the blind and watching the geese through holes in the corn stalks, we began the "Hink, honk, hink-honk, honk, hink-honk" duet that Herter's had assured us would sound like dozens of geese.

Apparently it did. The birds were headed straight for our decoy spread, slowing, gliding, dropping lower. Then they were so close that I couldn't see them through the stalks and slats of the blind. "Stop calling!" Dad said, and in the sudden silence I could hear the hiss of wind in the pinions of the geese overhead.

"Now!" Dad said.

I stood up and spun around toward the decoys. Dad's Masonite flock and our five-dollar calls had fooled all of the geese in the string. They were dropping in for a landing, talking to each other, their great webbed feet extended.

Then they saw me. Twenty geese accelerated wildly in all directions. I picked a goose headed to my right and swung the Winchester through him. On the skeet field, it would have been a station three high-house shot, and I could hit those. I led the goose a gun-length and yanked the shotgun's trigger.

The gun barked and bucked and I pumped the action so hard that the ejected shell flew completely out of the blind. But I didn't need a second shot. The goose folded, fell end-over-end to the ground and bounced, stone dead.

I stood open-mouthed. My ears roared. The goose lay there, crumpled among the decoys. Dad was saying something. I couldn't hear him.

"What?" I shouted.

"Put your safety back on," Dad said, "and go pick up your bird."

All was well in blind 56. Dad congratulated me on my shooting. I congratulated him on the high quality of his decoys. We polished off some more coffee and bologna sandwiches.

And then trouble arrived, in the form of two guys who walked down the hill to blind 55. They wore ordinary work clothes and carried uncased shotguns, several boxes of shells and what looked like a bottle in a paper bag. No

All was well in blind 56. Dad congratulated me on my shooting. I congratulated him on the high quality of his decoys. We polished off some more coffee and bologna sandwiches.

calls. No decoys.

Dad hadn't killed his goose yet, and small groups of Canadas were still trading back and forth on the borders of the marsh. But whenever some geese headed our way the men in 55 would scare them off by firing shot after shot at impossible distances.

An hour passed. Three times we called geese almost close enough, and three times we were thwarted by the skybusters in blind 55. Their supply of ammunition seemed inexhaustible. Finally, after firing at about a dozen geese apiece, they scratched down two. The Horicon goose limit in those days was one goose per hunter per season; that meant the men in 55 were through for the year, but they showed no signs of leaving. "Well," Dad said, "I'm sick of running a guide service for those bastards. Let's give it another hour and then pack up."

I was half asleep when Dad poked me. "Here comes a little string from the south," he said, "real low. Don't call. I'll try to get one before those guys see them."

When the geese were as close as they were going to get, Dad stood up and shot a big one going away at 40 yards. It locked its wings in a glide and then died in the air, falling about halfway between us and blind 55.

"At last," Dad said. "Now, do your old father a favor and go get that goose."

I squeezed out of the blind and walked toward Dad's bird. Then I saw one of the men from blind 55 heading for it too, at a dead run. I sped up, got to the goose first, and picked it up by the legs.

The man from blind 55 came puffing up and took the goose by the neck. "Give me that goose, kid," he yelled. "I shot it!"

I froze, my heart hammering. I didn't let go of my end of the goose. "The hell you did," I said. "My dad shot it."

"Gimme the goose, you little puke, or I'll knock you on your ass," said the man from blind 55.

"Why don't you pick on somebody your own size," said Dad from behind me. I hadn't heard him come up. There was an unfamiliar edge to his voice. "Davy, step aside," Dad said.

I dropped the goose's legs and scuttled sideways, glad to be out from between 500 pounds of angry men. I took a good look at the guy from blind 55.

He was a man of action, all right, the first I had ever seen up close. He was a little bigger than Dad and 20 years younger, with a stubble of beard and a smell of brandy on him that would cut varnish. He dropped the goose, cursed and swung a wild right hook at Dad's head. Dad's left hand shot out and stopped the punch in mid-air. His right fist, which measured six inches from side to side, was poised a foot from the man's face.



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"I shot it!"

I froze, my heart hammering. I didn't let go of my end of the goose. "The hell you did," I said. "My dad shot it."

It was the moment I had been waiting for. This was the kind of violence you seldom saw in Methodists. Boy, would I have a story to tell on the school bus!

But Dad never threw his punch. Instead, he maintained his grip on the man's right fist and pushed him away.

The man stumbled and fell heavily, backside first on the frozen ground.

"Take the damn goose and get back in your blind," Dad said. The man obeyed. We turned and walked away.

What was this? It was Dad's goose! Why did he let the man take it? Had we won or lost? My emotions wound themselves into a pretzel. Back at our blind, Dad grabbed the decoy bags. "You pull 'em up and I'll bag 'em," he said. I didn't argue. Within 45 minutes we were in the parking lot with all our gear. When it was stowed away, we sat on the Studie's tailgate to finish our lukewarm coffee.

As soon as Dad's pipe was drawing well, I figured it was OK to ask a question.

"Jeez, Dad, why didn't you hit that guy?" I asked.

"He was drunk, and he was afraid," Dad said. "And this is supposed to be hunting, not kids in a sandbox."

"Why did you let him have the goose?"

"Because it put him over the limit, that's why," Dad said.

Some geese were moving again, and as we watched from the hilltop, the men in 55 fired salvoes at a passing flock.

"You hear that?" Dad said. "One of those guys fired five shots in a row, and the other one at least four. They've been doing that all morning and it's against the law."

Then as now, hunting regulations required waterfowl hunters to put wooden "plugs" in the magazines of pump and autoloading shotguns, limiting the guns to three shots at a time. I had watched Dad put a plug in the magazine of my Model 12 pump the night before. Obviously the men in 55 hadn't bothered with plugs. That made two more violations. They were getting away with murder; it wasn't fair, and I said as much.

"Don't worry about it," Dad said. "That bird was kind of shopworn, and I've still got my goose tag. If you can stand another day of this, we'll come back next Saturday and you can help me call one in. Now let's go and find a federal game warden."

Dad fired up the Studie and we headed out of the parking lot. I was dead tired and wildly excited at the same time. What a day! I had killed my first goose. And Dad had ended a fight with nothing more than a stare and a shove. I was confused. I no longer had a juicy story for the school

bus, but somewhere in the back of my fourteen-year-old brain, a new notion of manhood was peeking over the horizon.

We hadn't gone more than a hundred yards when we saw a brown Chevrolet pickup bouncing down the road in our direction. Dad waved and the truck stopped alongside us. We recognized the federal warden who had assigned us our blind that morning.

"It's a good thing you came along when you did," Dad said. "I think you should check blind 55. There are two men in there with three geese, and I don't believe either gun is plugged."

"We'll see about that," the warden said. He examined my goose, made sure it was tagged and then drove on to

the parking lot we had just left. Soon we saw him walking down the path to blind 55. Dad got out his binoculars and we passed them back and forth to watch the little drama unfolding on the hillside below us.

The warden unloaded both men's guns and pulled the magazine caps. There were no plugs. He looked at one goose in the blind and found two others that had been hidden in a clump of cat-tails a few yards away. Then he started writing citations.

Dad lit his pipe and shook out the match. "And what did you learn from this wonderful day?" he asked.

"Patience is a virtue?" I said.

"No. The lesson for today is that revenge is sweet, especially when somebody else does it for you. And it looks like Uncle Sam has just landed a swift kick to the wallet."

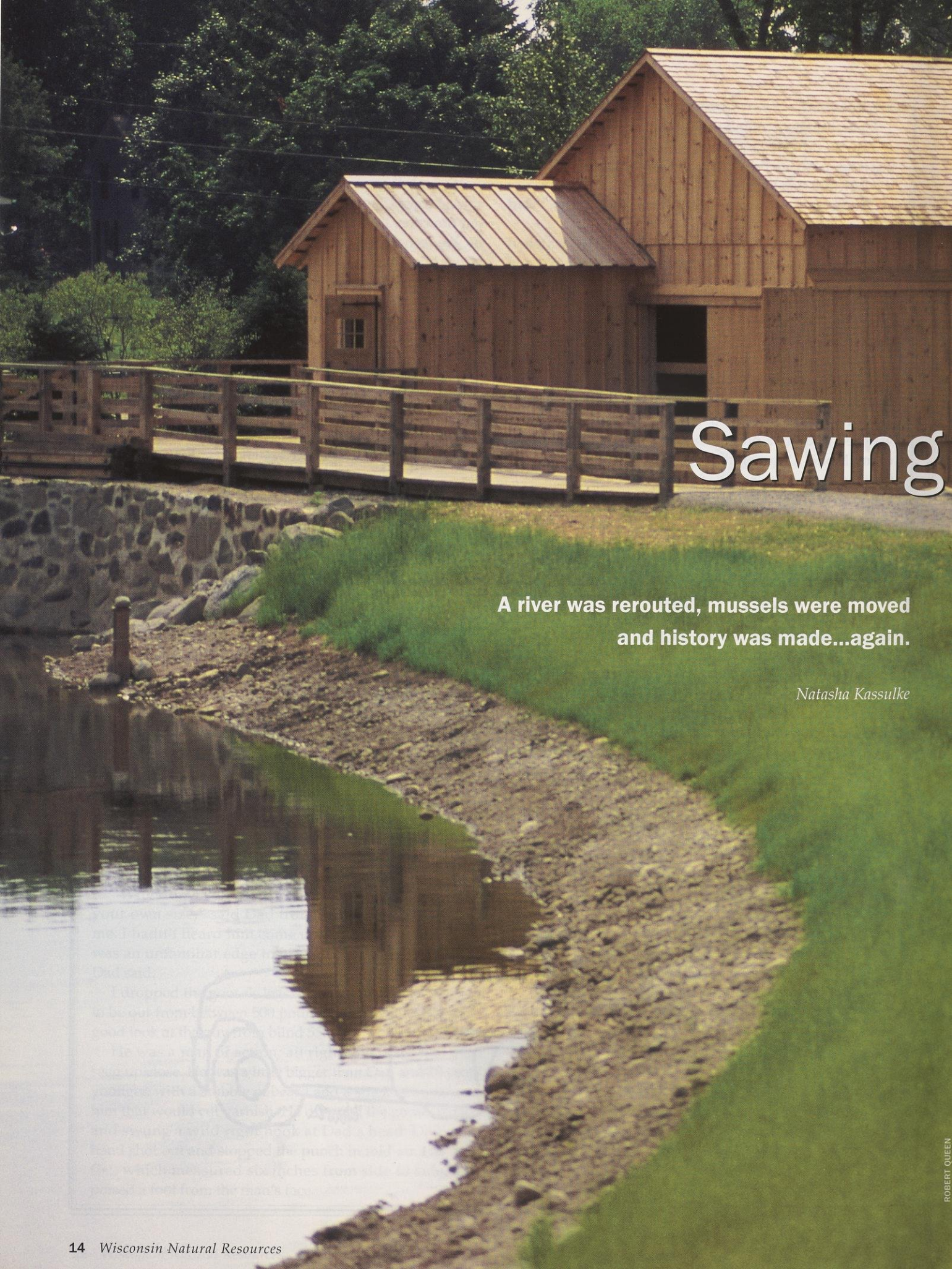
Dad laughed and let in the clutch and we headed for home.

Dad lit his pipe and shook out the match. "And what did you learn from this wonderful day?" he asked.

"Patience is a virtue?" I said.

Dave Crehore hunts and fishes as often as possible. He lives in Green Bay and retired from the Department of Natural Resources last year after nearly 27 years as a journalist and information officer.





Sawing

**A river was rerouted, mussels were moved
and history was made...again.**

Natasha Kassulke

a cleaner slice of history

They had to move a river to do it.

But the Herrling sawmill on the grounds at the State Historical Society of Wisconsin's Wade House in Greenbush (Sheboygan County) has been reborn as one of few working water-powered sawmills of its kind in North America.

On June 16, the long-envisioned sawmill was opened in the image of a mill that occupied the spot from 1854 to 1910. The re-creation culminated years of planning by various partners and was made possible by a \$1.8 million gift — the largest ever received by the State Historical Society — in 1999 from Herbert V. Kohler Jr. and the Kohler Trust for Preservation. That gift was coupled with a \$400,000 federal grant.

Today, the turbine-powered sawmill draws energy from a reconstructed millpond, fed by the Mullet River. In reconstructing the mill, the Historical Society provided a case study of how modern historical enterprises can sensitively portray cultural and environmental history.

During a tour, site director Jeff Schultz was excited that the mill along with the Wade House tells the story of



At the Wade House's newest attraction, visitors see how axes, crowbars, log lifters and cant hooks were used to align sawlogs that were cut into timber at sawmills.

how a pioneer town developed. The Herrling sawmill derives its name from the second of two mills that stood near the Wade House stagecoach inn. The mill operated on a seasonal basis mainly producing sawn hardwood lumber for local markets.

During the winter of 1847–48,

Charles Robinson, son-in-law of Wade House builder Sylvanus Wade, built the first of the two mills that would occupy the site beside the Mullet River. When fire destroyed the Robinson mill, it was rebuilt in 1855 and sold to German immigrant Theodor Herrling. From 1848 to 1860, Greenbush was a stop for stagecoach travelers heading west along plank roads from Sheboygan. The roads were often made of oak and the mill may have sawed such planks.

Although Herrling died in 1885, his descendants operated the mill until 1910. It subsequently fell into disrepair.

Reconstructing the mill became a dream for Marie Christine Kohler and, later, Ruth De Young Kohler, who led the effort to restore and reopen Wade House as a museum in the early 1950s. Both women died, though, before seeing their vision fulfilled.

The Department of Natural Resources' involvement at the site began in 1952 when a predecessor agency (the Wisconsin Conservation Commission) signed an agreement with the Historical Society to co-manage the Wade House property that had been obtained by the Kohler Foundation. In addition to maintenance and property management, DNR staff completed drawings in

ROBERT QUEEN

the early 1970s showing what a reconstructed dam and impoundment could look like. The State Building Commission put the project on hold until archaeological work was done.

The Kohler Trust funded the necessary archaeological investigations at the site 10 years ago to determine what kind of a mill had stood there. At that time, a cofferdam was built around the area and Schultz recalls that he was in his office when an archaeologist from Northern Michigan Technological University (who had been digging in the riverbed under the direction of the State Archaeologist's office) told him they had made a discovery.

"The template of the building was in the mud," Schultz recalls. "Huge white oak beams. The sense of discovery was like finding a dinosaur's bones."

A second excavation in 1993 revealed the 20- by 40-foot foundation.

With that archaeological work completed, plans for the sawmill project proceeded including environmental impact studies and historical research.

Stephen Galarneau, a DNR water resources management specialist in Milwaukee, has been involved in the project for seven years and keeps track of the water quality on the Mullet — a warmwater sport fish stream that is home to bluegill and largemouth bass.

"There has been extensive monitoring here," Galarneau notes. The Department of Natural Resources surveyed the aquatic resources and collected chemical, biological and stream flow data. The fishery was surveyed and the stream classified in the vicinity of the proposed dam. DNR staff assisted the State Historical Society in identifying wetland boundaries.

The Department of Natural Resources also consulted with project engineers to protect the area's sensitive ecosystem, which included two threatened mussel species — the slippershell mussel (*Alasmidonta viridis*) and the ellipse mussel (*Venustaconcha ellipsiformis*).

DNR staff was concerned how the proposed dam and impoundment might change the river by increasing water temperature, lowering dissolved oxygen, raising suspended solids and



STATE HISTORICAL SOCIETY OF WISCONSIN

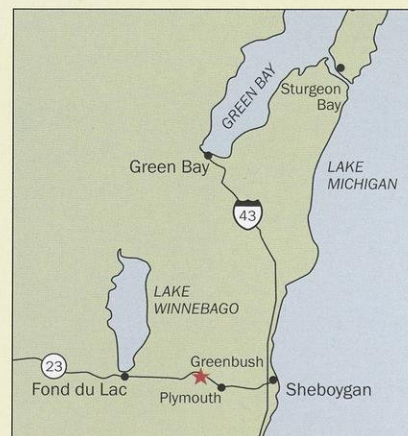


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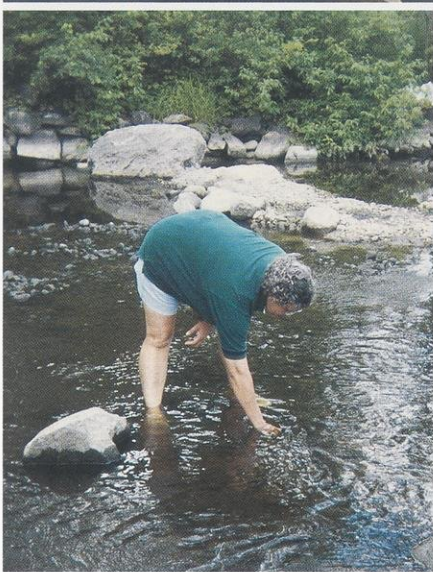
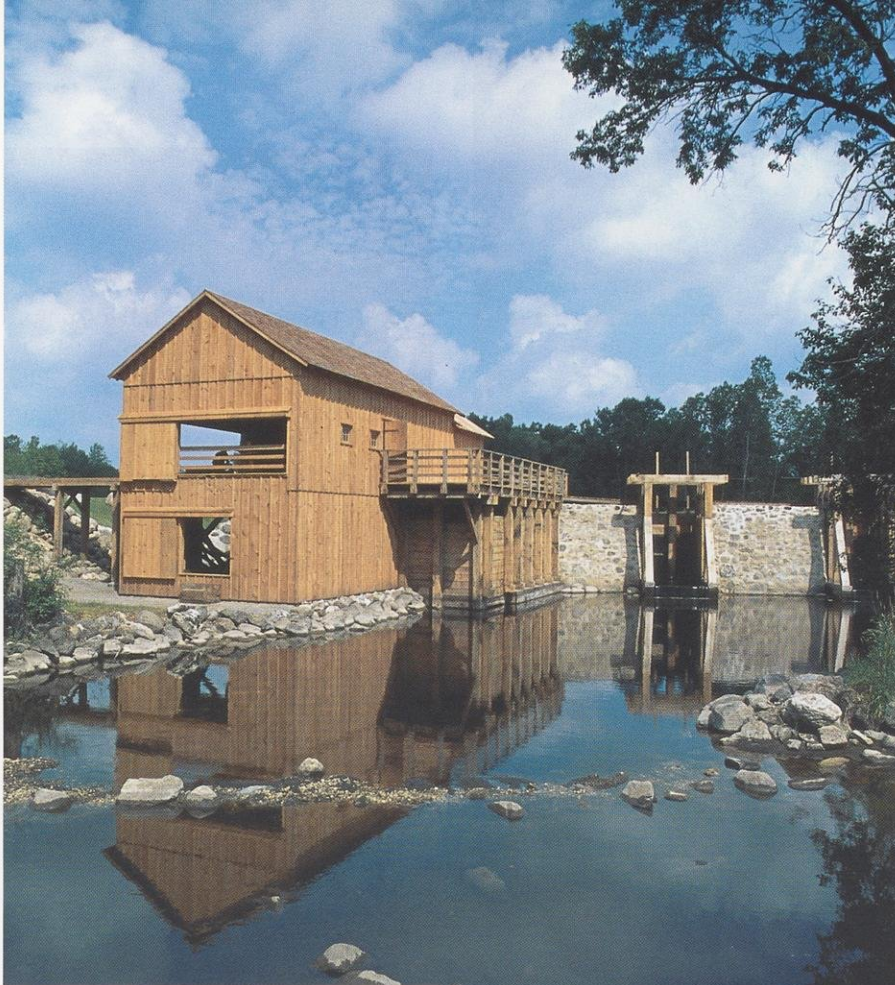
Visitors today tour the restored stagecoach inn and mill in comfort.
(top) The Robinson-Herrling dam and millpond circa 1900.

To see the saw

The Wade House and Herrling sawmill are open 9 a.m. to 5 p.m. daily May 1 through Oct. 31. Admission is \$10 adults; \$5 children (5–12); \$9 senior citizens (65 and over); \$27 family (two adults and two or more dependent children 5–17). A season ticket costs \$25 (adult) and \$12.50 (children). Call (920) 526-3271. The Wade House is west of Plymouth off Highway 23 in Greenbush, 20 miles from Sheboygan and Fond du Lac; 60 miles from Milwaukee; 95 miles from Madison; and 150 miles from Chicago.



MOONLIT INK



DNR ENDANGERED RESOURCES

(above) To protect river life, a new channel rerouted the Mullet River around the sawmill site. Water below the mill is slowly mixed back into the river. (left) Lisie Kitchel, a DNR specialist on rare mussels, led a DNR team that searched the river reach foot-by-foot several times. They found and transplanted two threatened mussel species to three upstream locations before construction began.

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that water and its aquatic life would continue to flow unimpeded around the millpond, dam and spillway.

"The DNR wouldn't allow us to dam up the Mullet River the way it had been dammed when the first mills were built," Schultz notes. "If we had, we would have wound up with a pond that would have eutrophied and potentially killed fish and two threatened mussel species. We had to create a new river channel."

In 1996, ownership of the Wade House property transferred to the Historical Society from the Department of Natural Resources. That same year, DNR staff proposed an alternative design for the dam and impoundment that appeared to meet the Society's historical objectives while addressing the environmental issues.

The new alternative did not involve damming the free flowing river. By rerouting the river, dam construction and sawmill reconstruction would not adversely modify habitat critical to the mussels. An environmental assessment (EA) for the project was prepared and public comments were solicited in 1998. Additional partners in the project included the Army Corps of Engineers, Sheboygan County and the U.S. Geological Survey.

DNR approved the project in 1999 and various stages were completed over the next two years. Among the components — relocating the Mullet River, forming dam plans and modeling hydraulics, providing supply line and building a weir, constructing a millpond, re-regulating water flow, excavating a turbine pool and forming a complex monitoring plan.

The threatened mussels were relocated two years before construction began. Lisie Kitchel, a DNR endangered resources specialist, was instrumental in safely moving the mussels. They were collected from downstream of the dam site and in the channel that was being relocated from the pond. They were then moved to three sites upstream.

"We didn't want to put all of our eggs into one basket," Kitchel notes.

Mussels — common and threatened — were collected under low water conditions by visual inspection. After those mussels were removed, the river substrate was carefully disturbed four to six inches deep using garden rakes and by carefully teasing mussels out by hand.

"The process is mostly sifting through handful by handful," Kitchel notes. "It is slow going, but necessary since we are looking for all mussels, including juvenile mussels, which are quite small."

The mussels will be monitored every

increasing algae. They wanted to maintain river flow and riffles to sustain fish, keep healthy populations of invertebrates and protect habitat for threatened mussels.

The Historical Society committed to do as much as possible to mitigate these concerns and hired a consultant to work with DNR staff to address them. Project engineers were told that they would need to move the Mullet River to ensure

year in October to ensure that they are reproducing and thriving at their new sites. In addition, DNR staff is monitoring for the presence of the Johnny Darter, a small fish that is the mussels' host species. In part of the freshwater mussels' life cycle they encyst on this fish's gills. These two threatened mussel species have a unique relationship with this darter.

"With no darters, the mussels eventually die out," Kitchel notes. "So conditions need to be appropriate for both darters and mussels."

Silt fences and turbidity barriers were installed to hold soft sediment in place along the riverbank and to allow plants to reestablish themselves. After a channel was constructed to contain the rerouted river, water was diverted to redirect the river's flow. A millpond was then constructed. With the pond in place, work crews lined the bottom with clay.

Dam construction to control water released from the pond began in the fall of 2000. The dam was built from cement strong enough to withstand a 500-year flood. When the dam was completed, water was piped from the Mullet to fill the pond. Water drawn from the pond powers a turbine to run the saw blade.

Modern construction methods and materials were used to meet current construction standards. But in keeping with the mill's history, crews covered modern components, such as the steel-and-concrete spillway, with period stonework.

Near the mill, the river travels underground for a bit. Below the dam is a small pool area to keep the water that is discharged from the mill from going directly into the river and shocking the river system. By allowing the water from the mill to slowly mix with river water, the pool prevents a large flush of warmer water that contains less dissolved oxygen, which could kill fish.

"The DNR did not compromise its standards and fought to see that the river environment will stay intact," Schultz notes. "In the end, they were

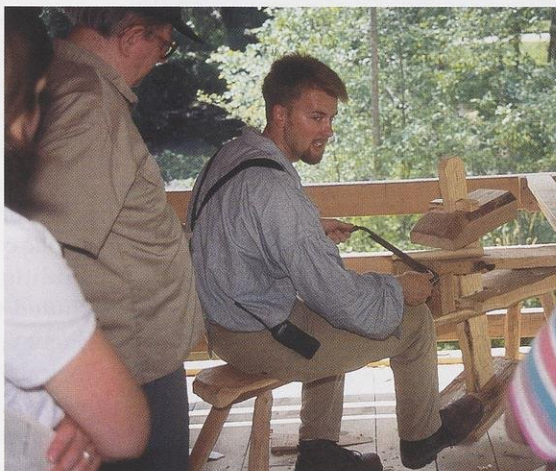
able to accomplish their goals and we were able to accomplish our historical goals. It's a different area today. When the original mill was built maybe they didn't even know that there were mussels here. Our understanding of nature and its needs has grown since then."

About two years ago, an ad in a Soci-

ety for the Preservation of Old Mills' publication generated a response for someone to do the mill replication work. Jim Krickler of Rondout Woodworking in Saugerties, N.Y. was hired.

Brett Edgerle of the Kohler Company became the project manager in 1999. Jeff Dederling, an engineer from Kohler, was the primary site engineer. Permits were needed from various government entities and Edgerle says the most technologically challenging part of the project was forming environmental models so the finished product would be designed to meet DNR's expectations.

The site has a five-year monitoring plan. The U.S. Geological Survey collects data (temperature, flow and dis-



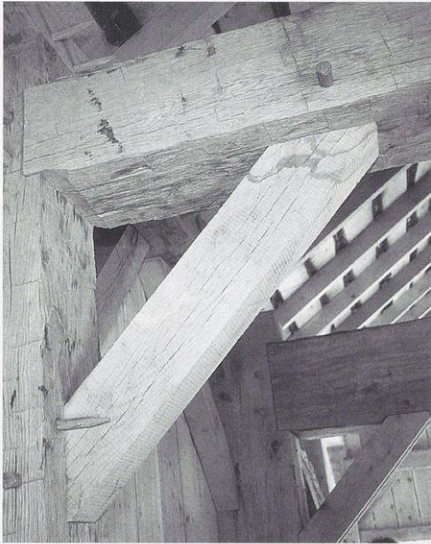
ROBERT QUEEN

(left) Historical interpreter Rick Peterson shows visitors how sawn lumber was shaped for buildings, furniture and commerce.

(below) Kerry Perkins runs the sawmill and explains how important local mills were to settlements and new communities.



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The sawmill's beams were joined with mortise-and-tenon joints and secured with wooden pegs. (right) Carts on a rail carry long logs to the mill.

solved oxygen) every day above and below the dam and keeps an operating log.

"This is the most difficult, complex and political project I've been involved in," Edgerle notes. "But at the end of the day, we joined arms and agreed that we had a pretty good situation."

Another challenge was finding a muley saw like that used in the original mill that works vertically instead of cutting in a circular motion. They found one in Ohio.

Mark Knipping, curator of the Wade House site, explains that historical photos, letters, newspaper clippings and other research provided a record of the mill's historic appearance. Research also uncovered that a turbine rather than a waterwheel powered the saw.

"Turbines were more efficient than the open style waterwheel," Knipping notes.

The technology that powered the original sawmill became antiquated by the late-nineteenth century, yet project engineers learned at least one manufacturer, an Ohio firm named The James Leffel & Co., still builds old style hydropower turbines. In April 2001, a Leffel turbine was hoisted into the sawmill's penstock.

Framing the mill structure with massive white oak timbers neared completion in May 2001. A 3,000-pound white oak beam supports the saw. The lumber



ROBERT QUEEN

came from Maryland.

Beams comprising the mill's skeletal structure were fastened with wooden pegs called trunnels and with mortise-and-tenon joints. No nails were used. The only metal supports were iron rods in the concrete foundation and oak timbers that support the structure to ensure the mill will withstand the ravages of time and the elements.

Kerry Perkins, a tool-and-die maker, was hired to run the saw.

"There is nothing like the smell of sawdust in the morning," Perkins beams as the saw slices up and down and sawdust forms on the floor. The floor shakes a little and the sound is loud but not deafening.

One of his concerns is that the saw blade remains rust-free. Moisture quickly rusts a blade if it sits idle. When the original mill was working it's likely the blade rarely got a rest.

"You don't wear out, you rust out in this business," Perkins notes.

Crews worked on landscaping and fine-tuning the mill mechanics right up to the mill's grand opening. Schultz admits they hadn't even cut their first log

until 36 minutes before the opening ceremony.

"I've had practical experience with the phrase, 'cutting it close,'" he says.

Wood sawed for demonstration is white ash from the Wade site. The saw can cut logs up to 4 feet across and 22 feet long. Logs roll into the mill on a rail cart-like system. The saw may operate once an hour for two minutes — dependent on water level and flow.

Rick Peterson, a logyard interpreter, recounts the story of the mill's rebirth for visitors and helps Perkins monitor for safety.

"People don't realize the power of water and what it can do," Peterson notes.

The project represents one of the most authentic re-creations of a historic water-powered sawmill in the nation.

"This is how much of the state got built," Schultz notes. "This is a great achievement, but what makes it more so to me, is all we had to go through to do it."



Natasha Kassulke is associate editor of Wisconsin Natural Resources.

Marking time with the

Swans

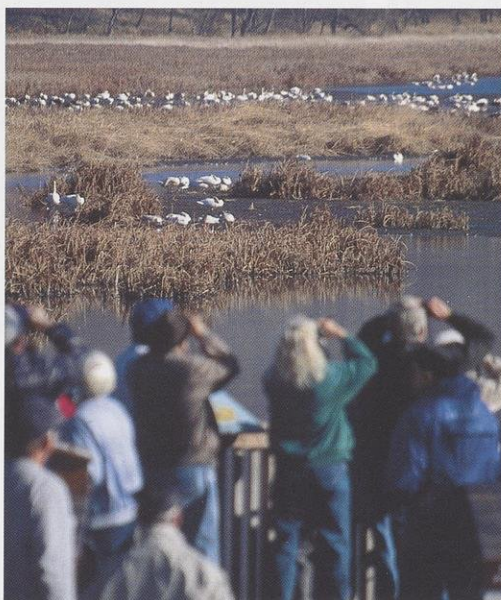
At Rieck's Lake, migrating tundra swans are the grace note of the fall season.

Don Blegen

The crowds stand along the shore, watching the sky. Some hold the finest cameras and lenses that money can buy, while others have the cheapest disposable cameras. Some have binoculars or spotting scopes; others have just their eyes and their curiosity. But all are here to mark the changing of the season from autumn to winter as certainly as the swallows' return to Capistrano marks the change from winter to spring. Some along the lakeshore have witnessed this event every year of their adult lives. As you grow old, there is sweetness in something that you can expect to happen year after year, without change. Others have the wide-eyed wonder of a first time experience. They spill out of yellow buses with little sense of history, but plenty of excitement gazing across the marshy lake at hundreds of large white birds scattered across the surface.

As the spectators gather, so do the birds, first sporadically in the distance and then they approach at surprising speed. As they come closer, it's clear the birds are much bigger and much faster than they first appeared. Impressive for their size and speed, their beauty and their grace, tundra swans sweep out of the North on powerful wings stretching to seven feet or more. In respect for their elegance, strength and dignity, the traditional term for a group of swans is a "ballet," not a flock.

The swans know exactly where they are going. They have been coming to Rieck's Lake where the Buffalo River enters the Mississippi River at Alma in late fall for as long as anyone can remember. Here the rivers form a backwater rich in aquatic delicacies and a backdrop for one of nature's artful, athletic performances. Swans swoop down against the wind, necks arched, wings outstretched, black feet



RJ & LINDA MILLER

Tundra swans congregate at Rieck's Lake Park at Alma and along the Mississippi River sloughs in late October through November; so do the birders who want to watch and photograph the big birds.

reaching. Their bodies tip back, increasing air resistance, braking their speed. Their feet hit the water and the huge birds ski for several feet, sink to their breasts and plow a wake for several more feet. Then they fold their wings and begin swimming, stately and dignified, effortlessly and gracefully making the transition from air to water.

The tundra swan (*Cygnus columbianus*) is a huge bird, one of North America's largest. A large male tundra swan will match a bald eagle's wingspread and, at 25 pounds or more, it's nearly triple the eagle's weight. A condor or albatross will exceed its wingspread, but not its weight. The only North American bird species that may outweigh a big male tundra swan would be the closely related trumpeter

SUSANNE L. JOHNSTON

autumn





(above) Tundras raise their cygnets in the Northwest Territories of the arctic and pass through Wisconsin en route to wintering grounds on the mid-Atlantic Coast.

(inset) The slightly larger Trumpeter swan has a straighter bill from eyes to the tip and a brassy call. Both birds are protected and can't be hunted in Wisconsin.

swan, a white pelican, or a large wild turkey tom.

The tundra swan was named "whistling swan" by Lewis and Clark on their Westward exploration. To me, the bird's call is really more of a melodious yodel, or a whoop, than a whistling sound. It is much like a louder Canada goose call, and quite different from the brassy cry of the trumpeter swan. Perhaps because of this, several years ago, they were renamed tundra swans because they breed in areas near the Arctic Circle in Alaska and Canada, especially the marshy deltas of the Mackenzie and Anderson rivers in Northwest Territories.

In the middle of the last century, these swans were hunted relentlessly for their meat and feathers. Hudson Bay

Company records show that the number of swanskins traded declined from 1,312 in 1854 to only 122 by 1877. These probably included both tundra and trumpeter swans, but clearly dramatic declines in swan numbers continued to the turn of the century and beyond. Both tundra and trumpeter swans were nearly wiped out. Once the first conservation steps started and the graceful birds were afforded some degree of protection, the population started a slow climb back from the brink of extinction. Tundra swan populations have done well, and are now so numerous that very limited hunting seasons are held in some western states. Trumpeter swans are doing well, too.

Tundras begin their arctic nesting season while spring storms may still

cover them with snow. Their nests are often constructed (atop beaver and muskrat lodges) of sedges and grasses, and may be five feet across and up to two feet above the water line, giving the adult birds a good view of possible threats. Two to six eggs are laid, taking six weeks to hatch cygnets. For comparison, pheasants and chickens incubate for three weeks, and ducks and geese take four weeks.

The female does all the incubating while the male stands some distance away to guard against predators. Usually no more than one or two cygnets will survive to fledging, which takes about 100 days. The juvenile birds have a brownish tint to their plumage, especially on the head and neck, and are easily distinguished from their parents. After about 15 months, they will produce the snow-white plumage of an adult swan.

After the cygnets fledge and the weather on the breeding grounds deteriorates, the tundra swans begin their long journey south to winter feeding grounds. They often travel at great heights, between 6,000 and 8,000 feet, taking advantage of northern tail winds that may push their flight speeds to nearly 100 mph. Without a tail wind, they can still maintain speeds of 60 mph, a mile a minute.

Traveling south and east, they stop at prairie potholes and other aquatic habitat to rest and feed.

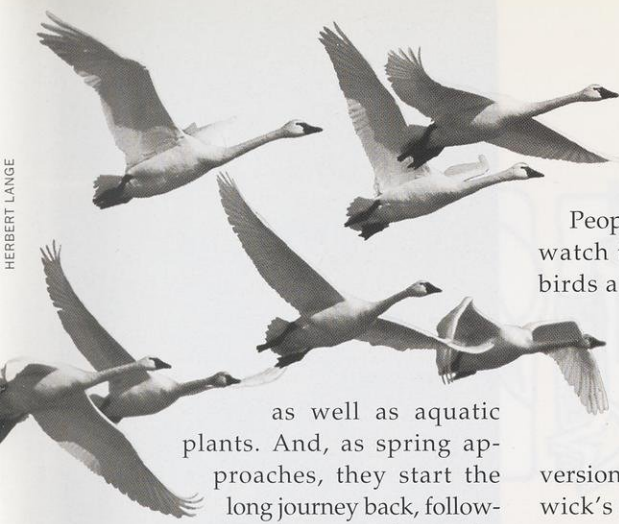
In this way, they traverse Canada into the Dakotas and east through Minnesota to the Mississippi.

Here they will stop at several sites along the great river to feed until freeze-up, but one of their favorite places seems to be Rieck's Lake.

They will feed on wild celery, arrowroot, and other succulent water plants until winter locks away these aquatic goodies below a thick sheet of ice. This can happen anytime from November to December. Then the journey continues, not south, but east, to Chesapeake Bay and tidal marshes in Virginia and North Carolina where tundras spend the winter feeding on mollusks and crustaceans

DON BLEGEN

DON BLEGEN



as well as aquatic plants. And, as spring approaches, they start the long journey back, following the spring thaw to the Far North for another breeding season.

Long journeys carry risks. Bad weather is one. A hailstorm in March of 1954 battered a large group of swans to the ground in west central Wisconsin near Menomonie, killing about 40. These birds were confiscated by federal wardens and later used as museum mounts.

And hunters take their toll. Some western states issue a special permit allowing a hunter to legally take one tundra swan per season. Even in states where they are completely protected, like Wisconsin, hunters (accidentally or otherwise) kill swans. Hunters sometimes shoot swans claiming to mistake them for snow geese. This is a pretty weak argument, as a swan is enormous compared to a goose. It is also ALL white, without the distinctive black wingtips of a snow goose. Nevertheless, hunters in Wisconsin shoot tundra and trumpeter swans every year.

Rarely, there are impacts with airplanes. Ballets of swans flying at high altitudes are known to have caused at least two fatal air crashes.

If a swan survives to maturity, it will mate for life. If its mate is killed, however, it may take another. Swans are long-lived birds. There isn't much research on their life expectancy in the wild, but swans in captivity have lived 30 to 40 years.

Whatever the mortality rate from hunters, predators and weather, there are a lot more of these magnificent birds now than in the past, and more people get to see them. Often swans are glimpsed flying overhead and mistaken for snow geese. Remember that snow geese have black wingtips. If the birds in the flock overhead are all white, fly-

ing with their necks straight out, they are swans.

People who come to Rieck's Lake to watch the swans can experience the birds at relatively close range. Close enough to see the small yellow spot at the base of the concave black beak. That mark varies in size and is missing in some adult birds. In the Eurasian version of the tundra swan (called Bewick's swan) that mark is bigger and more common, and there is evidence that the swans use it to identify each other. The tundra swan's upper bill is concave; the trumpeter's is a straight slant. These field marks that separate tundras and trumpeters are very hard to see, because swans will not usually tolerate close human contact. But here it can be done with the aid of good binoculars.

Hundreds, sometimes thousands of the birds can be seen on the water among the emergent vegetation, some sleeping, some actively feeding in open water, some sitting on chunks of ice as comfortably as if they were sitting on a down comforter. And overhead, small formations of swans circle the area,

checking it out. It is the sight of these swans that stir the watchers the most. The birds have come from some far, far place, and are tired and hungry. Below them they see all the people along the shore, and some probably feel fear. But there on the water below is a city of swans, feeding, comfortable, resting their weary wings.

The newcomers circle into the wind, losing altitude, spreading their ivory wings, reaching out with jet-black feet, tilting their bodies back to brake, maneuvering down among their brethren with an amazing grace and delicacy, to become just a few more anonymous white birds among the throng, as serene and dignified as the others — a ballet of swans at rest.

For a few weeks this place echoes with the sounds of their calls and reverberates with their overwhelming presence. A bitter cold front will move in one night, freezing all the water, and the swans leave. An empty silence replaces the raucous, resonant music of their calls. Another year has passed. ▀

Don Blegen travels to watch and photograph nature from his home base in Spring Valley.

These big birds, often weighing 25-pounds or more, are remarkably graceful fliers and a joy to see on their annual migration.



DON BLEGEN

CHANGES ON THE CHIPPEWA

An agreement on Xcel Energy's six hydropower dams on the Lower Chippewa River will bring changes in power generation and improvements for river biology and recreation.

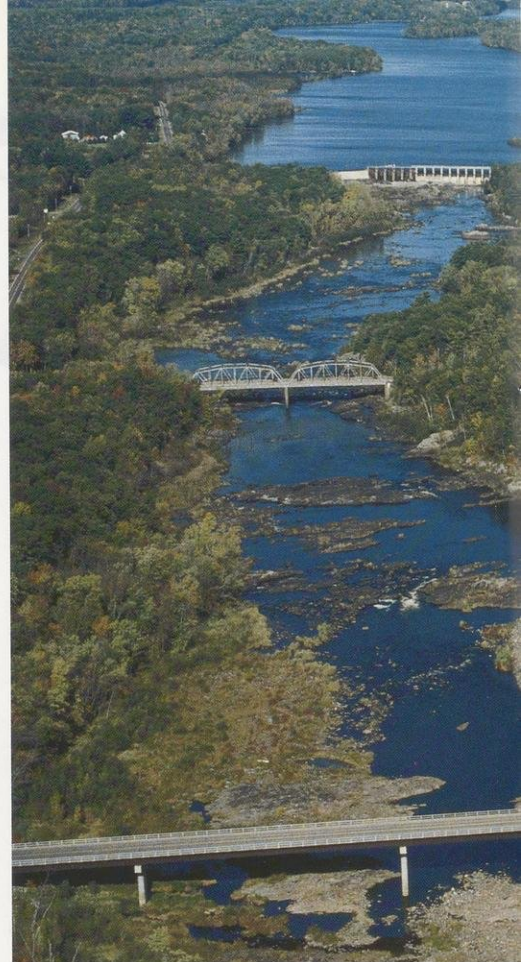
Thomas Lovejoy

There's a lot of talk going on about energy issues: deregulation, conservation, increased retail competition where consumers can shop for the cheapest supplier or for "green" sources, wind power, ethanol production, the separation of power generation and transmission sectors to prevent monopolies, blackouts, brownouts, skyrocketing energy bills.

If all that's not enough to drain your generator, recent new studies show global warming is worse than expected.

It's hard to keep track of it all, let alone figure out what it might mean down the road. But here's how one small piece of the puzzle will look for the next 30–50 years on 120 miles of the Chippewa River, and it's a pretty good-looking forecast. Who should care? Thousands of Xcel Energy's (formerly Northern States Power Company) customers, and thousands of residents and visitors who come to play on the Chippewa River.

It's a big river, the Chippewa. The headwaters, including the Flambeau River, start in Wisconsin's northern forests in Iron, Ashland and Bayfield counties. Flowing south and west with a mean annual flow of about 7,700 cubic feet/second, the Chippewa drops more than 700 feet in elevation before emptying into the Mississippi River near Lake Pepin. Along its shores are some of Wisconsin's great natural treasures — the Turtle Flambeau Flowage in Iron County, Lac Court Oreilles and the Chippewa Flowage near Hayward, Lake Holcombe and Lake Wissota in Chippewa County and the Lower Chippewa River State Natural Area in Dunn and Pepin counties.





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Warm wishes and a gift subscription to
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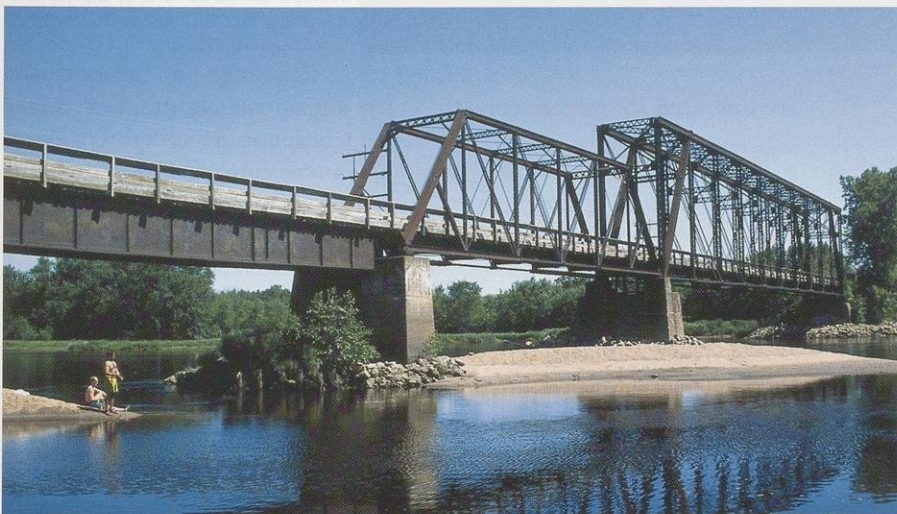
XCEL ENERGY

The Chippewa is a classic example of a multi-purpose river. People fish, boat, camp, hike, bike, snowmobile and swim on or along the river. The river provides healthy habitat for aquatic plants and animals. The Chippewa assimilates wastewater from municipal and industrial dischargers. And it generates electricity from hydropower dams. In fact, six Xcel Energy projects on the lower Chippewa generate over one-third of the hydropower in Wisconsin, enough to serve more than 65,000 households.

Multiple uses are often the source of multiple conflicts. For example, uncontrolled wastewater discharges reduce water quality, harm the fishery and make the water less attractive for recreation. Dams can block free navigation for boaters and fish, and dam operations can disrupt normal water levels and flows, creating unnatural fluctuations in both upstream flowages and downstream tailwaters. Such fluctuations can strand fish and other aquatic organisms in shallow areas; in spring, fish eggs deposited in shallows can be left high and dry. Changing water levels can reduce the diversity and the spread of aquatic plant communities, which in turn limits food and cover for fish and wildlife. Boaters can be swamped by a sudden flow increase below a dam, or cut off from landings and docks if the gates are shut.

Can dams, power and a quality environment coexist?

That's the challenge a diverse group recently faced when three dams on the lower Chippewa were due for relicensing by the Federal Energy Regulatory Commission (FERC). Xcel licenses for



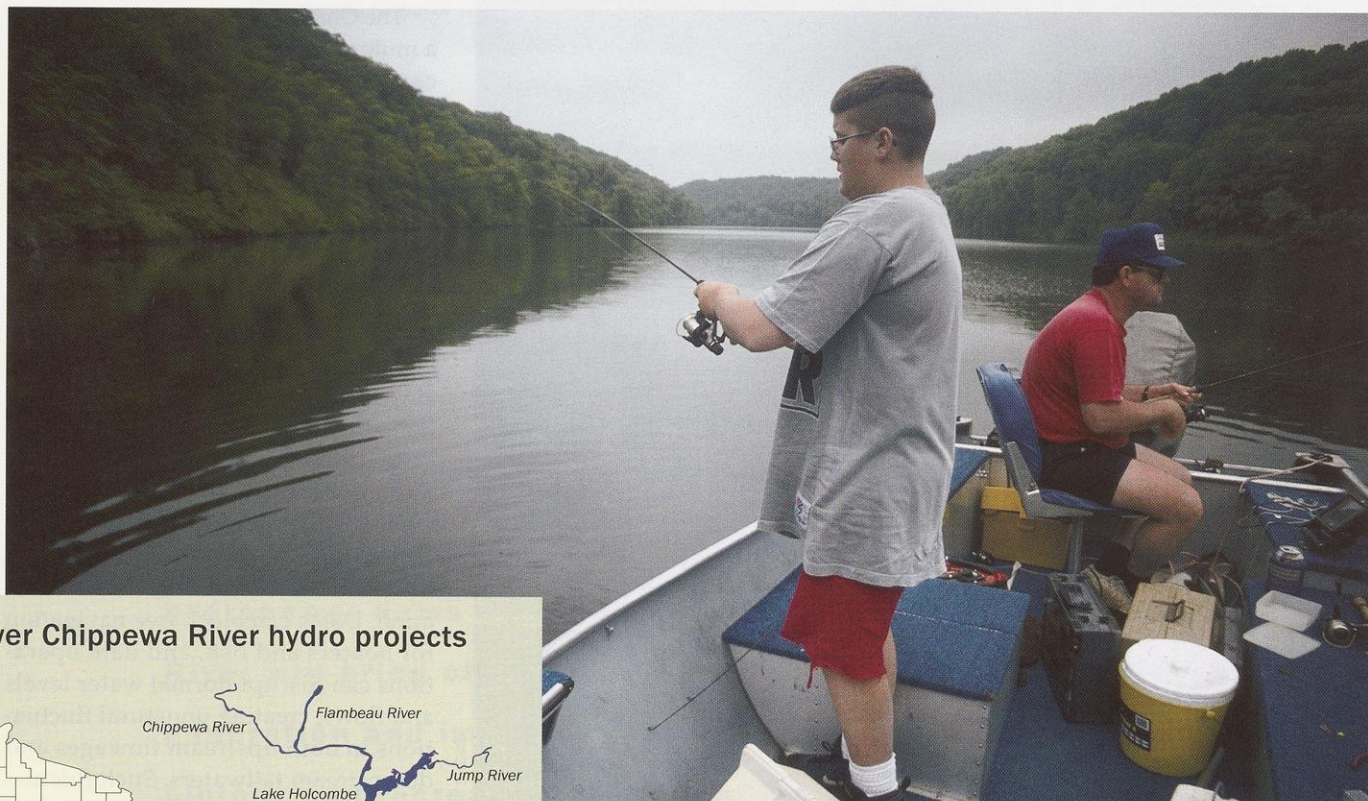
DON BLEGEN



ROBERT QUEEN

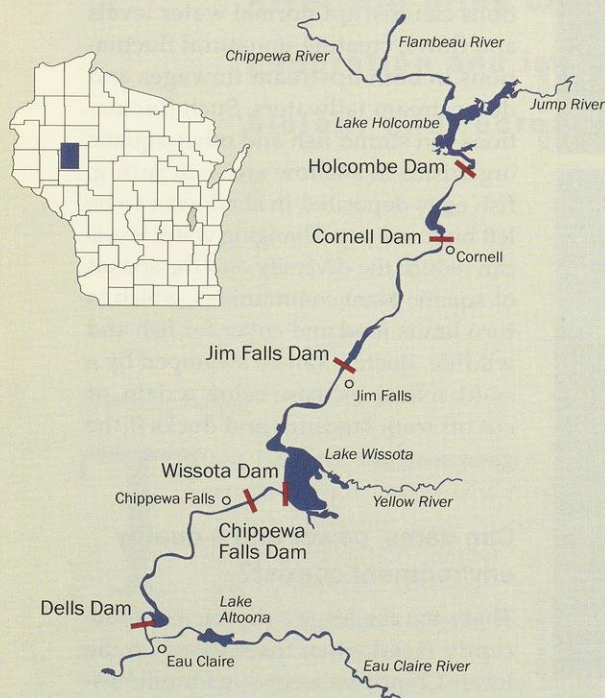
Xcel Energy's six dams on the Lower Chippewa River provide a third of Wisconsin's hydropower, enough to serve 65,000 homes. In reviewing the company's 30 to 50-year licenses for three of the dams, we equally consider the value of the aquatic environment and recreation on the vast 120-mile stretch of river.

(clockwise from top) Water flow and fluctuations at the dams is an issue. Scenic beauty, like this spot where the Red Cedar Trail crosses the river, is important to bikers, anglers and boaters. Canoeists and campers also enjoy the river and flowages. Anglers savor the walleye and bass fishing here.



DON BLEGEN

Lower Chippewa River hydro projects



The demands of hydropower mean that river levels will fluctuate behind dams. Area anglers were particularly interested in evening out the flow between dams to protect fishing habitat, food sources, spawning grounds and provide safe boating.

are operated to prevent conflicts.

The issues debated in dam relicensing discussions have changed in the last few decades. Following the oil crises of the '70s but before the mid-1980s, regulations focused on promoting domestic energy production and reducing dependence on foreign oil. There was little general concern for potential environmental problems. But our attention was refocused by the rapid development of Alaskan and offshore

oil and natural gas fields.

Under the Electric Consumers Protection Act of 1986, power and non-power values of public resources must be considered equally in hydro licensing. Court cases granted states the authority to impose restrictions to protect water quality and recreation. The rulings opened the door for natural resource agencies and *any* other interested party to raise issues as dams were relicensed.

The effects are less dramatic on the Lower Chippewa River hydro projects as the power company already had a strong environmental record before new federal rules were imposed. In fact, in 1984 Northern States Power had received the distinguished John C. Brogan Award for including measures to enhance the environment and recreation in its Jim Falls hydro project.

Nevertheless there were concerns, especially about the company's practice of "peaking" — turning a power plant on and off, usually in a daily cycle, to generate electricity during highest (peak) demand periods, when power generation is most profitable.

Dams that maintain normal river flow and make a steady amount of energy all day are called "run-of-river" plants. The Xcel dams on the lower Chippewa historically operate in peaking mode, storing water above dams at night and on weekends, and then releasing large volumes during weekdays, when energy use is higher. The practice causes pronounced, rapid changes in downstream flow when dam

the Holcombe, Wissota and Dells projects each expired between 1998-2000. New licenses must be obtained for the next 30-50 years. Federal rules require licensees to hold public meetings and consult with interested parties starting five years before licenses expire. Xcel's discussions with state and federal agencies, nonprofit groups, City of Eau Claire officials, and local sporting and outdoor groups aimed to identify and resolve any changes in the way dams

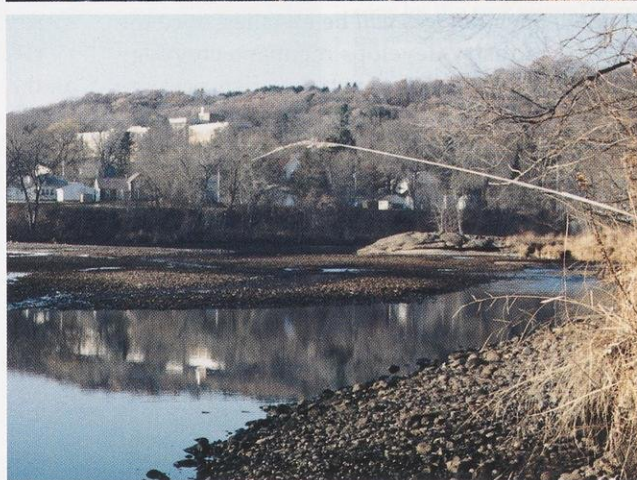
gates are opened or shut. At the Dells of the Eau Claire Dam, low flow passes a minimum of 500 cubic feet per second (cfs) during nights and on weekends, compared to a maximum flow of 5,400 cfs when generating at full capacity. The change from a minimum flow to full generation raises the water more than two feet below the dam.

People objected to the unnatural water level fluctuations, which disrupted fishing, wildlife observation and recreation on the Chippewa. There were other issues as well: Fish can be trapped and killed as they pass through powerhouse turbines during peak production. Dissolved oxygen levels dipped low during winter drawdowns. Shoreline erosion can occur during drawdowns. When given the opportunity to comment on 30- to 50-year plans, people wanted to hear how Xcel proposed to provide more recreation and greater access to the water, improve boat launches and recreational facilities, protect endangered and threatened species, and control exotic aquatic species.

Initial meetings between Xcel and the natural resource agencies made little progress. To move ahead, Xcel and local interests agreed to sit down together to try to work out their differences through a negotiated settlement. Any interested group or organization could join the "Settlement Team." Twelve parties agreed to participate: Xcel Energy, the City of Eau Claire, the Wisconsin Department of Natural Resources, the U.S. Fish and Wildlife Service, the National Park Service, the U.S. Army Corps of Engineers, the River Alliance of Wisconsin, the Wisconsin Conservation Congress, the Chippewa Rod and Gun Club, the Lake Holcombe and Lake Wissota improvement associations, and the Lower Chippewa River Restoration Coalition.

The team began meeting in late 1997

and quickly agreed on three goals: provide reasonable measures for the full 30- to 50-year term of the new licenses; protect and enhance the river's environmental and recreational resources; and use a flexible approach to sustain hydropower generation. Discussions focused on the three projects due for relicensing, but Xcel's other three dams on the lower Chippewa (Cornell, Jim Falls and Chippewa Falls) could also be considered.



These before and after shots from the same spot on the river show the potential that drawdowns have to drastically change river habitat and conditions in a short time. Fluctuations are more modest under the revised plans.

The Settlement Team met monthly from 1998–2000 to gather information and discuss issues. The team compared the benefits of quick-start hydro plants to coal and nuclear plants. Xcel's representatives described the difference between on- and off-peak energy value. They emphasized the company's need to maintain reliable service and retain

capacity to generate power as a member of the Mid Area Continental Power Pool (MAPP). Xcel needed the flexibility to draw on full hydropower to generate energy at peak use times, when power can be sold at higher profits. Otherwise, the company might have to build new power plants or purchase contracts from other utilities to dependably and economically meet customers' peak energy demands.

Next came biological information.

Surveys inventoried aquatic and terrestrial resources. Technical studies measured and predicted potential biological consequences from existing operations. Computer models compared aquatic conditions under current conditions and a variety of peaking and run-of-river alternatives. Those studies helped determine how each option could improve fish spawning success, protect or expand desirable plant growth, enhance water quality and reduce fish entrapment in shallow areas.

Other surveys measured current recreational patterns on the river and projected how modified power generation might change outdoor uses in the area. Studies examined how boating conditions and traffic would adjust as power generation varied the river flow. The company assessed the adequacy of existing boat launches, hiking paths, swimming areas, campsites, picnic and day-use areas along the river. It also identified locations needing erosion controls, surveyed historical/archaeological resources, and estimated what measures would be re-

quired to protect wildlife habitat and public uses.

Discussions produce a plan for action

Armed with stacks of new information, the team developed a plan to protect both power and non-power values on

XCEL ENERGY

XCEL ENERGY



Spring drawdowns like this one on Lake Holcombe and at Lake Wissota will be eliminated to protect aquatic habitat.

the upper Chippewa River. Some issues were quickly resolved, others were not so easy. Here's a summary of the outcome.

Xcel will continue to operate all six hydro dams as peaking projects, but flows will be substantially modified to reduce fluctuations both above and below each dam. Minimum flows will increase at Cornell, Jim Falls and Chippewa Falls. The Dells Dam will be operated to fine-tune and "re-regulate" peaking from upstream dams, especially during fish spawning. The difference between the low and high flows from Dells Dam will be less, to match more closely the natural flow rates on the river upstream of all dams. This will greatly improve aquatic habitat on the 60-mile river stretch from Eau Claire to the Mississippi River. Winter drawdowns at Lake Holcombe and Lake Wis-

sota will be eliminated. Xcel will also implement new plans to prevent serious damage from emergency drawdowns, drought and dam maintenance projects.

The power utility will finance a \$3.25 million Fish Protection Fund. The cost is roughly equal to the amount the company would have spent installing devices to exclude fish from dams. Such devices *will* be installed once the industry develops reliable technology to prevent downstream fish passage through power turbines. If there are no technical solutions, the funds will be used for fish habitat improvements. An additional half-million dollars will fund habitat protection/restoration projects and cover the costs of measuring how fish respond to changes in dam operations.

Xcel will cover the costs of improving boat launches, expanding and up-

grading parking, installing signs, and constructing barrier-free fishing piers in several locations. The firm will also install erosion controls, implement new natural resource and land management plans, and provide money to monitor water quality studies along the river.

During the next year or so, FERC will review the Settlement Agreement and decide if it will incorporate the provisions into new licenses and amend licenses for all six hydro dams. We expect the licenses will be issued, because all parties resolved the major issues. If and when that happens, an Implementation Team representing the same groups that negotiated the agreement would coordinate and monitor how the funds are used.

Can dams and a quality environment coexist? The Settlement Team thinks so. They recognized hydropower as a valued use on the Chippewa and found creative ways to maintain energy production and capacity. The Chippewa River will remain a public resource and the parties agreed that Xcel's use of the river must not jeopardize other public interests.

While this settlement may not solve all the world's energy problems, it just might make you feel a little better the next time you turn on a light switch. Or, for that matter, the next Saturday afternoon you decide to head out for Lake Holcombe, Lake Wissota or some other favorite spot on the Chippewa. ■

Thomas Lovejoy supervises the Environmental Analysis and Enforcement Team in DNR's West Central Region.

Fish surveys using seines helped establish populations and varieties of fish found along the river. Periodic census work remains an important part of planning.



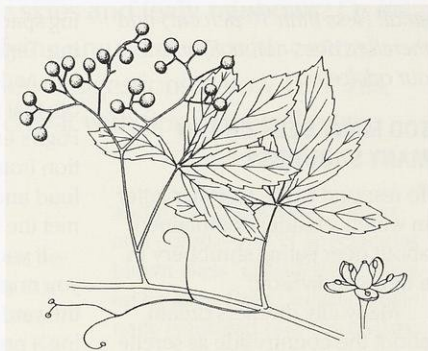
Channel modifications near Chippewa Falls and other physical changes in water flows are factored into future plans as well.



continued from page 2

perse the seeds to new locales.

Virginia creeper (*Parthenocissus quinquefolia*) is a member of the grape family, Vitaceae, and may be mistaken for a similar-looking vine called woodbine or grape-woodbine (*Parthenocissus vitacea*). Although the compound leaves of both species look alike, subtle differences appear in the tendrils and floral arrangement. Woodbine tendrils have fewer branches and almost always lack adhesive disks. So woodbine can't climb as high on flat surfaces and is unlikely to blanket buildings. The floral cluster in woodbine has a rounded, not oblong, appearance because the cluster stem forks at the top as each branch produces a rounded display of tiny flowers. Each cluster also contains fewer flowers. The two vines may grow together so it may not be as easy as it seems to distinguish them.



Parthenocissus quinquefolia



Virginia creeper holds tenaciously to rocks, bark and buildings as tiny knobs grow on the bottom of the weaving stems.

Autumn is a wonderful time to study vines and Virginia creeper, with its flaming leaves, is just one of the glowing beauties to admire at this time of year.

Anita Carpenter notes the season's changes from her Oshkosh home.

READERS write

CAUGHT THE BIG FISH

I know more about the photo of a record sturgeon catch on Lake Winnebago in your story "Honoring the ancient ones" (June 2001). The man on the right was "Ole" Olson and on the left, Earl Schroeder, both of Appleton. They both worked with my father at Kimberly-Clark in Neenah and were good friends. My father passed away last December and Earl died last fall. We have seen this picture in many places and it hangs in a local eatery. Thanks for printing it again as it brings back many memories.

We love the magazine as it brings out the best in Wisconsin and continues to help us learn more about our state.

Lynn & Steve Schleitwiler
Greenville

THAT STURGEON SEASON

In response to the sturgeon seasons for the past several years, it's no secret that these fish have been harvested over and above the allotted quota. I'd be the first to admit we all have to be concerned with this treasured resource. There are few places on this continent that can claim the population we have of this prehistoric species.

I think the other "resources" we need to preserve are the diehard, dedicated spearers who not only consider this a sport, but a way of life, therapy, tradition and highly valued reason for a family get-together. We want to see sturgeon preserved and are willing to pay and sacrifice to do it. Kudos to organizations such as Sturgeon for Tomorrow and all the volunteers who give their time to protect the rivers every spring.

I think there were definitely too many license holders on the lake the past few seasons, resulting in large kills in a very short time. Some of the solutions tossed around in the local papers have been to shorten the season to one day or to issue li-

censes through a lottery. Both of these should be avoided until a few other tactics are looked into, like these four suggestions:

1. Require license purchases far in advance of opening day, for instance by the first of September. This would weed out a lot of the "Let's wait and see how clean the water is and how safe the ice is before we buy a license for us, the rest of the family and the neighborhood" crowd.
2. To offset lost revenue, the price of the tag should be doubled to \$20 or even \$25. The present price of \$10 has been with us for years. I believe this would thin out more of the "middle of the roaders."
3. Drop night spearing, without hesitation. Let's get back to the basics and normal way of spearing.
4. Eliminate an open water sturgeon season. I just can't see the value of this when you can practically pitchfork fish out of the hole on lakes Poygan and Winneconne. I've heard and read the stated reasons, but it makes no sense to me.

I think exploring these matters could bring the sport back to normalcy and people would welcome a seven- to nine-day season following quotas set forth by the DNR rather than one-day seasons or lotteries. These should be last resort measures in my opinion.

Jeff Schwabenlander
Hilbert

More people enjoy sturgeon fishing than the fish population can sustain. And some people would take the opposite stance from you that sturgeon spearing should be sacrificed in deference to the open water season. Clearly, the added challenge in managing sturgeon is we want to and need to protect these fish for decades when the females don't breed until they are 25 and the fish grow so slowly.

COMMENT ON A STORY?

Send your letters to Readers Write, WNR magazine, P.O. Box 7921, Madison, WI 53707 or e-mail letters to sperl@dnr.state.wi.us.

FORECASTING FISH DAMAGE

Is it my imagination or do weather forecasts consistently lack reliability? The advent of Doppler radar as a forecasting tool seems about as accurate as wetting your finger and holding it up to the wind. I compare those seven-day outlook forecasts to the accuracy of fishing tournament sponsors who state that 80 percent of the released walleyes survive. How do they know this? Do they tag the walleyes upon release and follow them as they sink to the bottom? I realize that fishing clubs do some good things, but I would appreciate it more if they didn't use revenues from fishing tournaments to promote their projects.

Fritz Krueger
Winneconne

DNR fisheries managers have made real headway in recent years working with tournament managers to plan how tournaments will be run to minimize the amount of time fish spend out of the water. Better run tournaments have on-water check-ins where fish catches can be verified and then quickly released near the places they are caught. Tournaments have also been canceled or changed their procedures when the weather is so hot that fish can't be kept in good shape in live wells.

WAS IT A FISHER?

In reading the June issue, I'm somewhat skeptical of the letter "Spied a Wolverine." I live in that area very near Bone Lake and I wonder if the animal the writer saw was actually a fisher or maybe a badger. I have seen

both in the area and have witnessed fishers exhibiting the type of behavior that was described. I wish the writer had given more of a detailed description of the animal he saw.

Mike Welling
Milltown

TRACKING BOOKS

Your February article, "The herd that tracks the packs," interested me in purchasing some of James Halpenny's books on the subject. Can you help me find a source?

Jim Denk
Reedsville

I'd bet the local library can help you track down his books and other guides. We found 11 of Halpenny's books right away on a Web search at an electronic bookseller. "Field Guide to Mammal Tracking in North America," was published in paperback by Johnson Publishing Co. in 1988. "Winter: An Ecological Handbook," also from Johnson Books was published in 1989. Mr. Halpenny also wrote a whole series of regional scat and tracking books for western and southeastern regions.

WHY TEST SKIN-ON FILLETS?

The June article on mercury testing ("Limiting the hitch in a day's catch") shows Jim Amrhein filleting a fish for testing with skin on. That is not the way most fish are eaten and this casts doubts on the ultimate results. Other than small trout and small bluegills, almost all fish have the skin removed before they are eaten, certainly the white bass he is cleaning. Shouldn't the procedure be changed to give truer results?

Dick Steiner
Richland Center

Jim Amrhein answers: *We do this because we often analyze the same filets for organic compounds like PCBs and pesticides that are often found in the fat of*

the fish. Since there is a fatty layer below the skin, we don't want to remove that during the filleting process.

Skinning the fish will result in only slightly higher mercury concentration since the skin does not contain most of the mercury and helps dilute out the sample. However, the difference is pretty small (less than 10 percent) and therefore does not really affect our advice.

TOO MANY DEER OR TOO MANY SUBURBS?

To respond to the October letter in which a reader complained about deer eating shrubbery in a new subdivision:

Many city dwellers dream about the countryside as serene with field and woodland habitats, though most evolve into vast yards. Commune with nature, life is fine, the smog, crowds and crime are left behind. We love God's creatures large and small (except the "varmints," shoot them all). Weekends come as small vacations to relax, fish, bike and tend flowers. (Come next week, we'll commute for hours.) Sip a beverage, munch Fritos. (Spray to death the flies and mosquitoes.)

It's curious that we still believe everyone can plant this seed of ill-conceived agronomy, but it's a "magic bean" economy. When everybody sows this wish, weed suburbs sprout and the country dies.

Deer aren't the problem. Raccoons, foxes, coyotes, wolves and bears aren't the problem. How much land was consumed for the 30-house subdivision that you live in? Here, in the Town of Somerset in St. Croix County, a 30-house subdivision will instantly reduce at least 105 acres of rural habitat into 105 acres of asphalt roads and expansive lawns: a suburban desert that's only useful to robins, pocket gophers and curious people playing with their garden tractors and weed-

whackers all weekend long.

The rural subdivision phenomenon is sweeping across Wisconsin and the entire nation like wildfire. Suburbanization has become one of the most serious environmental problems of our time. The deer are eating your hostas and roses because their traditional browse and living space is rapidly disappearing. Ditto the bear in the garbage can and the opportunistic coyote that attacks the family cat. Pogo's environmental observation from the 1970s still rings loud and true today: We have met the enemy and he is us.

If you'd really like to help, you might consider dumping the yard and garden and planting a prairie or woodlot instead. Get your subdivision neighbors to join in, and you could have a fairly serious plot of useful wildlife habitat again where you could possibly enjoy, rather than curse, those deer.

Kurt Sroka
Somerset

TURTLE TALE

I really enjoyed Anita Carpenter's story on a Blanding's turtle ("Time of the turtle"). I feed the bass and bluegills on and in our little four-acre manmade pond. It's spring-fed, 18 years old and a real beauty that's great for swimming.

This is the second year a little Blanding's turtle has joined the fish. He's cute and comes right up to the dock. The bass tip him over regularly.

In our pond, we now have what seems like tons of clams, live and empty. I don't know where in the world they came from. I sure don't care for the sharp empty ones in the swimming area.

Lita Reif
Kingston

Fall: In or out?

TRAVELER is no Mr. Blackwell of the seasons. From this perch, autumn is always in style. The day does come, however, when one must choose: Should a fall day be spent *outdoors*, frolicking in a riot of clear-blue skies and leafy rainbows? Or *indoors*, pursuing edifying amusements with central heating? We offer a few suggestions below. (P.S. Yes, you can wear a silk cravat with Sorel boots. If you must.)

INSIDE

If the bluebird of happiness neglected to visit your boxes this summer, don't despair. Instead, head over to West Bend on November 2-4 for the **Wild Bird, Wildlife & Backyard Habitat Expo**. This popular event com-

and the extraordinary shapes and colors — of 11 spectacular blown glass “chandeliers” created by artist Dale Chihuly. Originally exhibited over the canals and courtyards of Venice in 1996, the **Chihuly Over Venice** chandeliers illuminate the Quadracci Pavilion Galleries at the Milwaukee Art Museum through November 11. Chihuly's creations, profoundly inspired by nature, have been compared to fungi, flowers, anemones and sea creatures. Artists under Chihuly's direction in the United States, Finland, Ireland, Mexico and Italy crafted the chandeliers from hundreds of pieces of hand-blown glass, and each one reflects the country in which it was made. A shimmering waterfall of clear glass with etched surfaces, for instance, evokes the springs and streams of Waterford, Ireland. The chandeliers

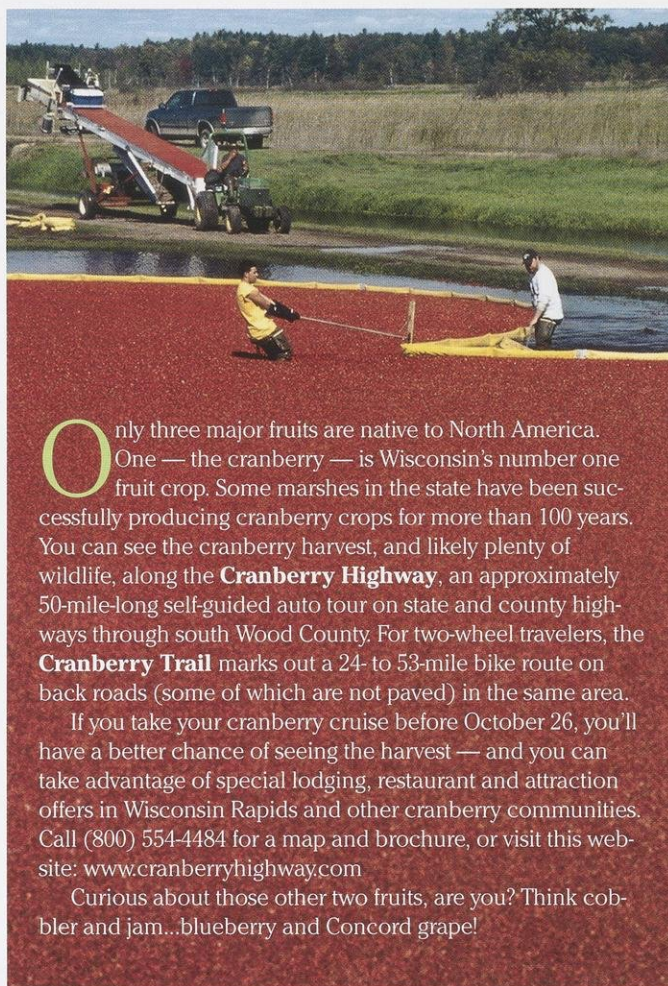
bines two of the fastest-growing outdoor activities in the country — bird and wildlife watching and gardening. The expo features demonstrations on building backyard ponds and other habitat, natural history talks and displays, and a special photography show. Visitors can learn which trees, shrubs, flowers and plants attract birds and wildlife, pick up tips on coping with problem wildlife, and get help planning special strategies for butterflies, bats, frogs and turtles. Attend this event, and next year that flighty little bluebird may actually come a-calling. Washington County Fair Park, West Bend. (800) 324-3337. Be dazzled by the light —



GLENN HELGELAND TARGET COMMUNICATIONS



LAURIE SMAGLICK JOHNSON



GARY KNOWLES

Only three major fruits are native to North America. One — the cranberry — is Wisconsin's number one fruit crop. Some marshes in the state have been successfully producing cranberry crops for more than 100 years. You can see the cranberry harvest, and likely plenty of wildlife, along the **Cranberry Highway**, an approximately 50-mile-long self-guided auto tour on state and county highways through south Wood County. For two-wheel travelers, the **Cranberry Trail** marks out a 24- to 53-mile bike route on back roads (some of which are not paved) in the same area.

If you take your cranberry cruise before October 26, you'll have a better chance of seeing the harvest — and you can take advantage of special lodging, restaurant and attraction offers in Wisconsin Rapids and other cranberry communities. Call (800) 554-4484 for a map and brochure, or visit this website: www.cranberryhighway.com

Curious about those other two fruits, are you? Think cobbler and jam...blueberry and Concord grape!

Inside or outside, enjoy the birding/backyard expo, the cranberry harvest, and the Eco-Halloween Hike this fall.

weigh as much as a ton apiece, yet appear almost weightless. (414) 224-3220.

OUTSIDE

Halloween goes underground this year at the **Ledge View Nature Center** in Chilton. On October 20, visitors can explore Ledge View's caves and trails by candlelight. If that's not spooky enough for your brood of little goblins, live bats will be on hand to lend that note of holiday authenticity. The kids

will also enjoy a puppet show, cider and caramel apples. Rumor has it that a “batmobile” will be flying in for the event. Holy echolocation, Batman! 6-8:30 p.m. W2348 Short Road, Chilton. (920) 849-7094. On October 27 at the Bong State Recreation Area in Kansasville, the whole family can take part in an **Eco-Halloween Hike**. Jack-o-lanterns light the trails while Halloween characters drift about in the shadows. This is billed as “a non-scary event,” which means it is safe for parents. 6-8 p.m., Group Side F, 26313 Burlington Rd. (262) 878-5600. 🦇

Wisconsin, naturally

ROCHE-A-CRI MOUND STATE NATURAL AREA

Notable: A small mesa, reminiscent of the arid southwest, featuring a long, narrow, flat-topped ridge bordered by sheer sandstone and limestone cliffs. The summit stands 300 feet above the surrounding central sand plain and affords a commanding view of the former bed of Glacial Lake Wisconsin. This and other nearby buttes and mesas were once islands in that lake. Vegetation on the top and flanks of the mound consists of dry oak-pine forest.

How to get there: From Friendship, in Adams County, go north on State Hwy. 13 about 2 miles to Roche-a-Cri State Park. Follow the park road around to the northwest base of the mound. A 303-step stairway leads to the summit. *Wisconsin Atlas*: page 52, grid D2.



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