LIBRARIES
UNIVERSITY OF WISCONSIN - MADISON

Wisconsin natural resources. Vol. 33, No. 4 August 2009

[Madison, Wisconsin]: Wisconsin Department of Natural Resources, August 2009

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

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

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

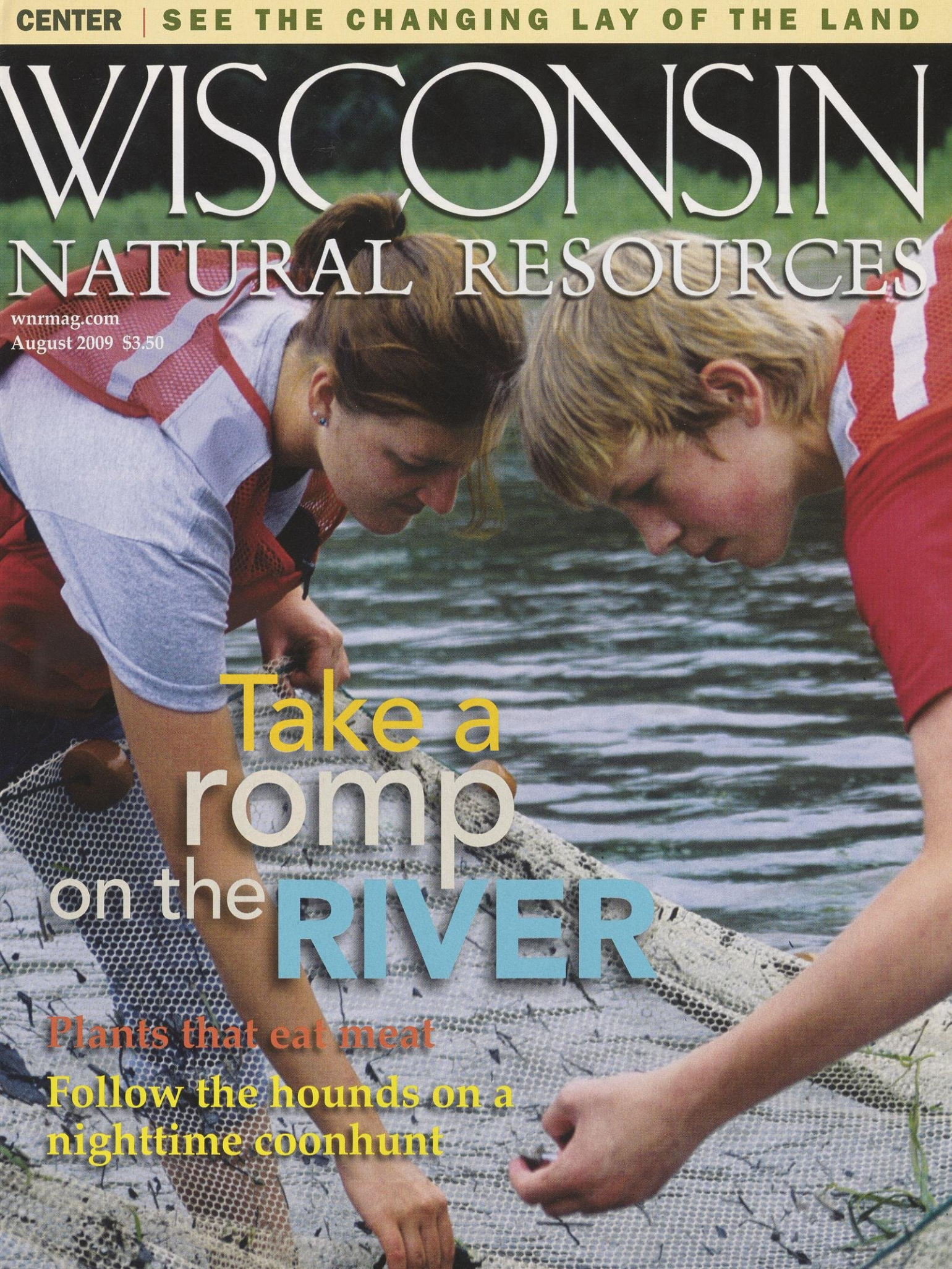
When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

728 State Street | Madison, Wisconsin 53706 | library.wisc.edu

CENTER | SEE THE CHANGING LAY OF THE LAND

WISCONSIN NATURAL RESOURCES

wnrmag.com
August 2009 $3.50



Take a romp on the RIVER

Plants that eat meat

Follow the hounds on a nighttime coonhunt

Bright, sporty and gone in a flash

During their first year, male summer tanagers can have this mottled appearance with head and breast splashed with red, yellow and olive-colored feathers before they acquire adult plumage. See adult male plumage on page 29.

DANIEL JACKSON

Off course and north of its normal range, it's a rare treat to see the red summer tanager on a warm day.

Judy Nugent

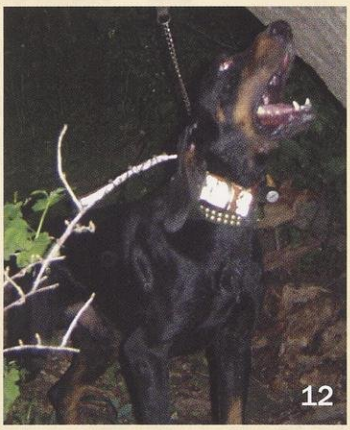
A select few Wisconsin residents had a rare encounter this past spring. Paul Hayes of rural Vernon County was enjoying his hilltop view one morning when he spotted a mysterious bird outside his feeder. Was that red — and yellow — together?

He quickly got his binoculars, but a closer look did not solve the mystery. This bird, slightly smaller than a cardinal, had a red head, streaks of red down its yellow breast, and yellow wings. Hayes had never seen anything quite like it. So before it flew away, Hayes grabbed his camera, snapped a quick picture, and immediately e-mailed it to avid birder Dan Jackson of La Crosse.

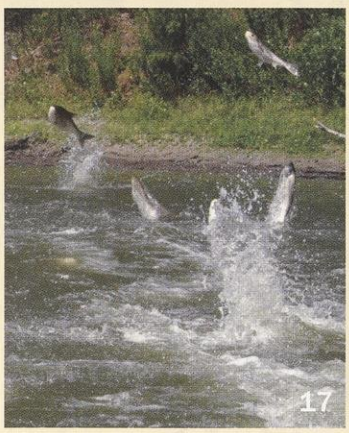
Continued on page 29 →

WISCONSIN NATURAL RESOURCES

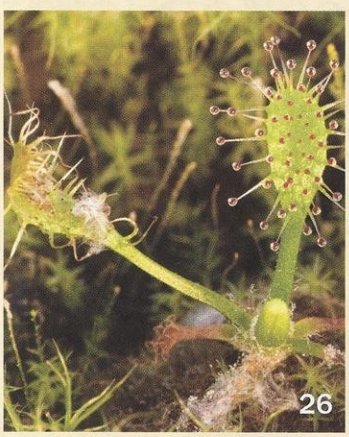
August 2009
Volume 33, Number 4



KATHRYN A. KAHLER



JASON L. JENKINS, UNIV. OF MISSOURI-EXTENSION



BARRY RICE, WWW.SARRACENIA.COM

FRONT COVER: Students get caught up in a close look at crustaceans, fish and aquatic insects trapped in a seine drawn through shallow waters. Join our Mississippi River Adventure Day story on pages 22-25.
ROBERT QUEEN, Madison

BACK COVER: A rich diversity of aquatic plants lines the shore of Huiras Lake State Natural Area in Ozaukee County. INSET: Bogbean (*Menyanthes trifoliata*). For more information, visit dnr.wi.gov/org/land/er/sna.
© THOMAS A. MEYER, Wisconsin Department of Natural Resources

Editor David L. Sperling
Creative Products Manager Natasha Kassulke
Circulation Manager Karen Ecklund
Art Direction Thomas J. Senatori
Printing Schumann Printers

PUBL CE-012
ISSN-0736-2277

Wisconsin Natural Resources magazine (USPS #34625000) is published bimonthly in February, April, June, August, October and December by the Wisconsin Department of Natural Resources, 101 S. Webster St., Madison, WI 53702. The magazine is sustained through paid subscriptions. No tax money or license fees are used. Preferred Periodicals postage paid at Madison, WI. POSTMASTER and readers: subscription questions and address changes should be sent to Wisconsin Natural Resources magazine, PO. Box 7191, Madison, WI 53707. **Subscription rates are: $8.97 for one year, $15.97 for two years, $21.97 for three years. Toll-free subscription inquiries will be answered at 1-800-678-9472.**

© Copyright 2009, *Wisconsin Natural Resources* magazine, Wisconsin Department of Natural Resources, P.O. Box 7921, Madison, WI 53707. wnrmag.com

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

Printed in the U.S.A. on recycled paper using soy-based inks in the interest of our readers and our philosophy to foster stronger recycling markets in Wisconsin.

Governor Jim Doyle

NATURAL RESOURCES BOARD
Christine L. Thomas, Plover, Chair
David Clausen, Amery
Preston D. Cole, Milwaukee
Jonathan P. Ela, Madison
Gary E. Rohde, River Falls
John W. Welter, Eau Claire
Jane Wiley, Wausau

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Matthew J. Frank, *Secretary*
Patrick Henderson, *Deputy Secretary*
Mary Ellen Vollbrecht, *Executive Assistant*

No Fair

Story by Dave Crehore
Illustrations by Heather Mulligan

On a wet Sunday morning in early June 1957, I was sitting at the dining room table in our old house on River Road, drinking a glass of milk and paging through the *Milwaukee Journal* comics section.

It was raining too hard to go fishing, I was fourteen years old and bored, and the comics weren't helping much. As usual, Dick Tracy was fighting crime and talking on his 2-Way Wrist Radio, the Dragon Lady was plotting Oriental intrigue, Fearless Fosdick was shooting neat round holes in the bad guys, and evil commies were kidnapping Little Orphan Annie while her dog Sandy looked on helplessly, saying "Arf."

I flipped to *Pogo* and *Li'l Abner*, the only strips I actually liked. *Pogo* was always good for a laugh, and I routinely checked out *Li'l Abner* to gawk at Daisy Mae, Moonbeam McSwine, Stupefyin' Jones and the other Dogpatch girls in their incredibly tight and skimpy clothes.

I was looking them over when Dad came in from the kitchen and handed me three envelopes of Burpee seeds — watermelons, acorn squash and cucumbers — and a slender book on raising vegetables.

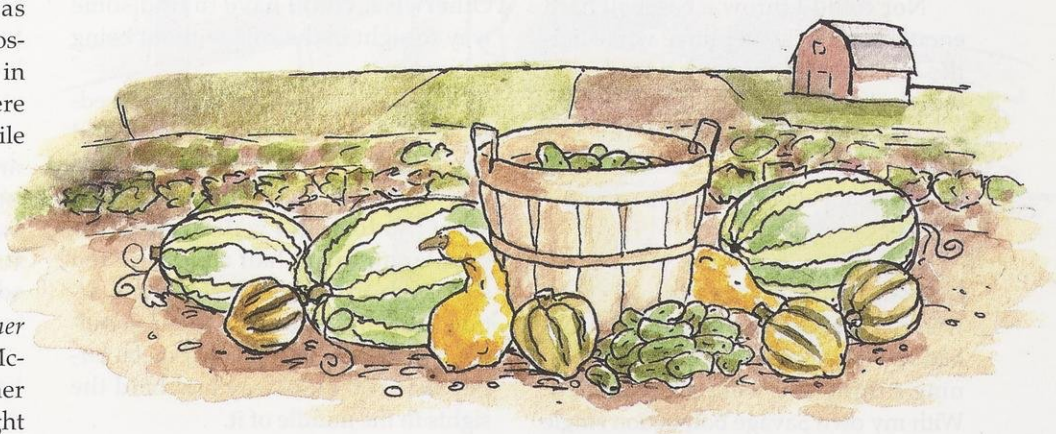
"Project for you this summer," Dad said. "Spade up a patch behind the shed and plant 'em according to the instructions in the book."

Cripes, I thought, school just got out Tuesday and already he has me digging.

"It'll be a money-making proposition," Dad said. "I'll pay you fifty cents for every watermelon that's big enough to eat, a quarter for the squash and a nickel each for the cucumbers. And if you enter some of them in the county fair, you'll get an exhibitor's pass that will let you in free every day, whether you win a ribbon or not. That's two bucks saved right there, and if you're lucky with your crops, you'll have all the money you need for the fair."

That got my attention. I was a fair fanatic. The Manitowoc County Fair was held six days each August about a mile and a half from our place, and I never missed a day. It ranked right up there with Christmas and Thanksgiving as one of the high points of my year. In Manitowoc, the fair was as close as we ever got to the bright lights.

To my surprise, the vegetables flourished. By the middle of August I had a dozen big watermelons, two rows of plump and profitable squash and about a hundred cucumbers that met the strict standards set by my book:



four inches long, an inch in diameter and warty. Bigger cucumbers, the book said, were full of seeds and too large to be conveniently pickled and put into Mason jars.

I decided to enter my cucumbers, and it was with great expectations that I paid the one-dollar entry fee, signed a form and picked up the pass. On Monday, the first day of the fair, I put a paper plate with five carefully chosen cukes on a long table in the Armory with hundreds of other cucumbers, mostly huge and undesirable. Apparently the people who grew them hadn't read the book.

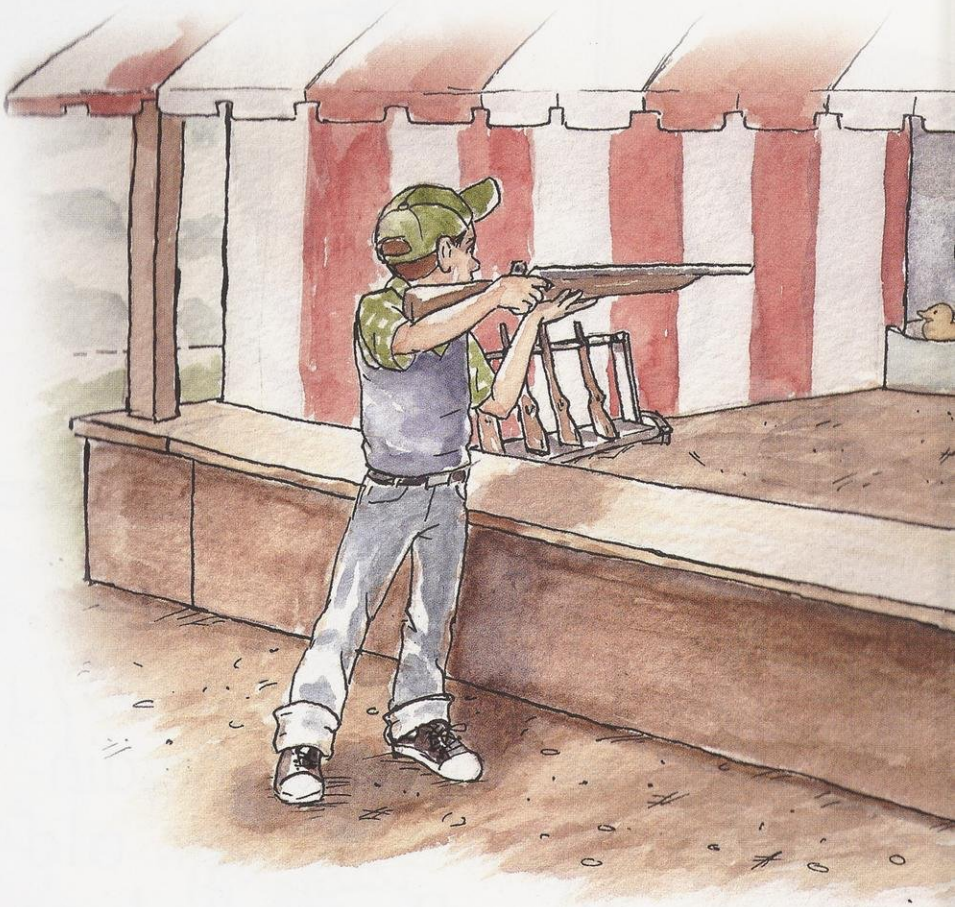
The largest cucumbers of them all, great swollen things like green submarines, were next to mine. They had been entered by someone named Laura Larsen. I pictured her as a chubby, snub-nosed little girl in a starched pinafore who would pout when I walked off with the blue ribbon.

I left the Armory and took a walk around the fairgrounds while the morning was still fresh and cool. On the north side of the midway, seriously sunburned men were walking slowly back and forth, assembling the Ferris wheel, the Tilt-A-Whirl, the Scrambler, the Octopus and other large and rickety rides.

Across the midway from the rides was a row of pitch-and-toss stands. They were already open for business, but I passed them by. I had been cruelly cheated by them in previous years, and I knew from bitter experience that I couldn't lob a five-inch wooden hoop over a four-inch square post from a distance of ten feet.

Nor could I throw a baseball hard enough to knock over three white bottles stacked in a pyramid. I suspected that the bottles were made of lead, and I was pretty sure the baseballs had been doctored as well. The only really good curve I ever threw was with one of those baseballs.

Just ahead, however, was my intended victim, a wizened old crook who ran the shooting gallery. In 1956 I had spent six dollars here without winning a thing and went away baffled. With my own Savage bolt-action single



shot .22 I could hit bottle caps at fifty yards, so my marksmanship wasn't the problem. For months I wondered how I could shoot so well at home and so poorly at the fair. Finally I asked Dad about it.

"Those gallery guns are so worn out they shoot around corners," he said, "and I'll bet the rear sights are buggered up besides. Annie Oakley couldn't hit a bull in the ass with one of them. If I were you, I wouldn't bother. Otherwise, you'll have to find some way to sight in the rifle without being noticed."

I plotted revenge while I was weeding my cucumbers that summer, and now, on the opening morning of the fair, it was time to settle the score. My heart thudded as I walked up to his counter and paid half a buck for ten shots with an old Winchester pump-action .22. I lifted the rifle to my shoulder, picked a freshly painted metal target about 30 feet away and held the sights in the middle of it.

I pulled the trigger and the slow-moving little bullet hit the target with a clank a fraction of a second later. With the sharp eyes of youth, I saw a small gray mark appear at the point of impact about an inch below the center and two inches to the right. I waited until the crook was talking to another customer, turned away, and bent the rear sight up and to the left with the screwdriver blade of my Boy Scout knife. I fired another trial shot and found that I was dead on for windage and about a quarter-inch low, which was close enough for my purposes.

Now that I was sighted in I began some serious shooting, pausing now and then to let the barrel cool. I shot up four dollars worth of .22s and won two pink teddy bears, three packs of Pall Mall cigarettes, a Benrus wristwatch, and an angry look from the crook when he handed over the prizes.

Vengeance was mine! As a member of the Methodist Youth Fellowship, I know that vengeance was supposed to

be the Lord's, but I didn't give a damn. I was walking about a foot above the sawdust when I headed down the midway with my loot.

After a while, though, I got tired of carrying the teddy bears, so I gave them to a woman who was pushing a couple of little kids in a stroller. I sold the Pall Malls for fifty cents to a teenage thug with a greasy ducktail haircut and a black leather jacket, turning a small profit.

Then I wound up my Benrus, and when the noon whistle at the shipyard blew I set both hands straight up. I waited impatiently for the minute hand to move, but it didn't. Five minutes later it was still noon. The watch probably needed a little jolt bump to get it started, I figured, so I took it off my wrist and tapped it gently against the heel of my shoe. The back of the watch fell off and a cascade of gears and springs fell into the sawdust.

At that moment somebody grabbed me from behind and spun me around. It was the thug in the black leather jacket. "Where the hell didya get them cigarettes?" he shouted. "Chrissake, they must be ten years old! The tobacco just falls right out! Gimme my money back!"

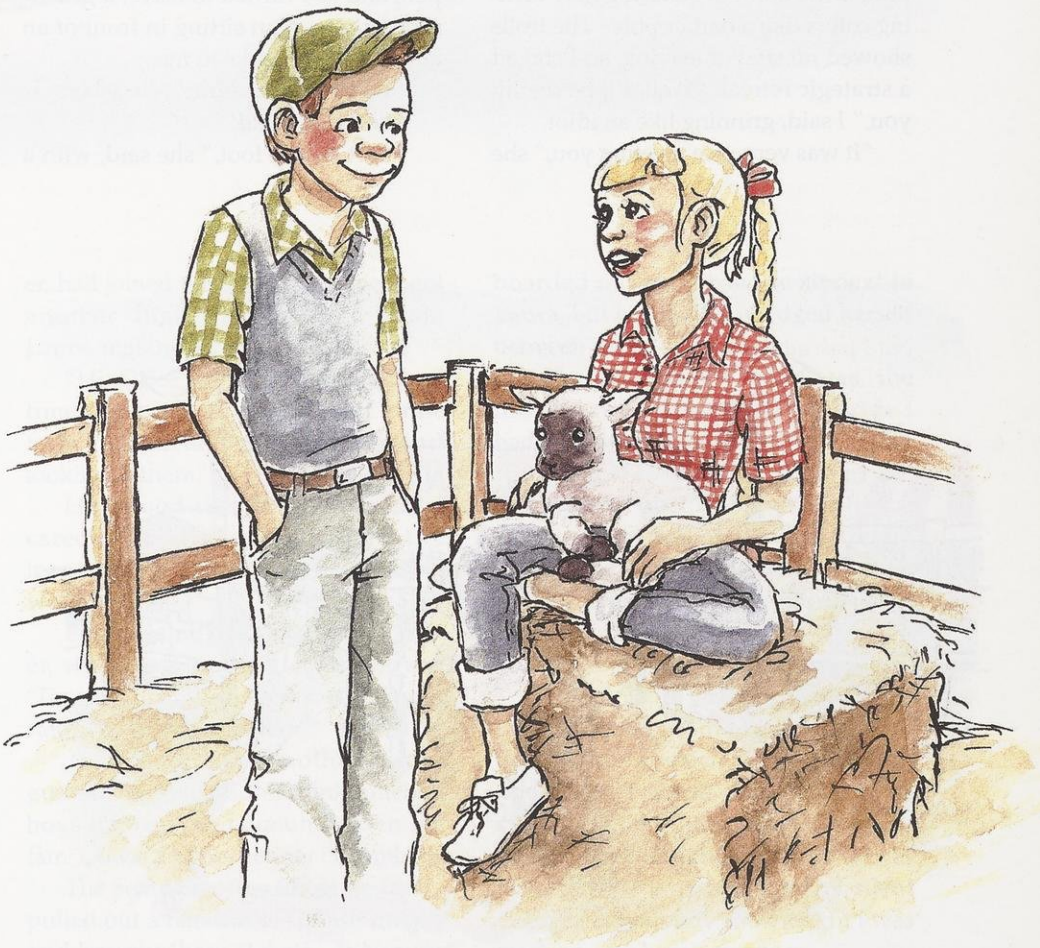
"OK, OK," I said. I dug out two quarters and handed them over. "What are ya, some kinda crook?" accused the thug. He waved his fist in my face. "I oughta pound ya," he added.

I walked away as fast as dignity would allow. So much for revenge. I had shot up the money for eight of my watermelons with nothing to show for it.

The livestock barns were next: sheep, swine and cattle. It was always best to visit the livestock barns early in the fair, because they got pretty ripe after three or four days of hot weather. The sheep barn was full of big blatting rams and ewes, but in a back corner was a small pen containing a single lamb, a late-born knock-kneed little charmer with a black face and socks. I looked at the card stapled to the wooden gate. "Breed: Hampshire lamb," it read. "Entrant: Laura Larsen, St. Nazianz, Wisc."

It was the little girl with the big cucumbers! The lamb wobbled over to me, and as I reached down to scratch its head I heard a sweet feminine voice. "Isn't he cute?" it said.

I turned around, expecting the chubby third-grade girl I had imagined. Instead I was face to face with a Nordic princess. Her long blonde hair was braided into a pigtail that reached to her tiny waist and she wore jeans almost as tight as Daisy Mae's, rolled up to reveal trim ankles. The front of her red-and-white checked blouse had bumps that were a preview of coming attractions. I was smitten. No, I was



overwhelmed.

Laura slipped through the gate and sat down cross-legged on the straw. She called the lamb to her and it jumped into her lap. She rubbed noses with it, and then smiled up at me. I stood there with my mouth open, possibly drooling. I had just discovered that nothing is more appealing to a 14-year-old boy than a 14-year-old Norwegian farm girl with a lamb in her lap.

"Do you have sheep in the fair?" she asked.

"No, no sheep," I stammered. "Cucumbers, but no sheep."

She rubbed noses with the lamb again and cooed at it. "His name is Barney. I just think lambs are so cute," she said.

"Yeah, real cute," I said. Especially when sitting in that lap.

Some other farm girls walked up and began talking to Laura. Compared to her, they were ugly as trolls. Dammit, I thought, the moment is slipping away and I'm standing here turning colors like a barber pole. The trolls showed no sign of leaving, so I staged a strategic retreat. "Well, I'll be seeing you," I said, grinning like an idiot.

"It was very nice meeting you," she said. "My name is Laura."

"Yeah, I know," I said. "My cucumbers are right next to yours."

"Oh, are they?" she said. "Well, good-bye. Barney and I will be here until Saturday night." It was an invitation to return, and I got another of those smiles.

"Yeah, good-bye," I said, and got out of there.

I stumbled through the swine barn in a romantic trance. Usually pigs interested me, but I barely noticed them. "Laura Larsen, Laura Larsen," I muttered. There was poetry in that name.

When I emerged from the stifling heat of the swine barn I was beaded with sweat and filled with resolve. I shall return, I vowed, quoting General MacArthur. I shall return with a little savoir-faire. I shall return and tell her my name.

After supper I rode my bike back to the fairgrounds. My first stop was the sheep barn. Barney was alone in his pen, and as I turned to leave, a grandmotherly woman sitting in front of an adjoining pen spoke to me.

"Looking for Laura?" she asked.

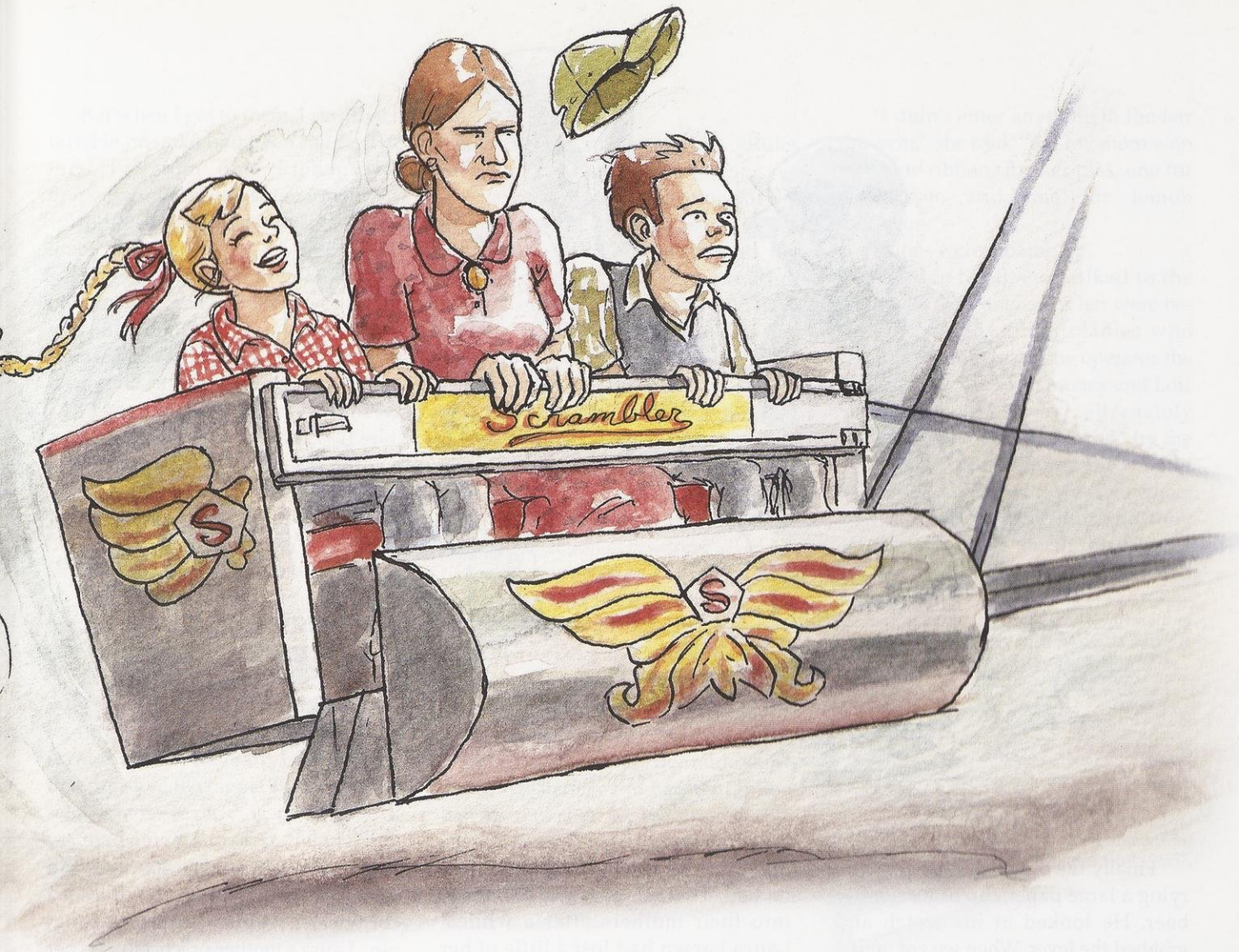
"Sort of," I said.

"Sort of, my foot," she said, with a knowing smile. "She and her mother are out walking around the fairgrounds. You might run into her, enso?"

"Yeah, maybe," I said, but I didn't think much of my odds. It was the first night of the fair and at least 2,000 assorted shipyard workers, high-school kids, farmers and good-natured drunks were clogging the midway. I decided to lurk there, walking back and forth and hoping that Laura would pass by on her way to tuck Barney in for the night.

I bought a bag of salt-water taffy and started looking for a blonde pigtail. But Laura and her mother were nowhere to be seen, and after about an hour I gave up and got in line for a ride on the Scrambler.

I liked the Scrambler because it did not hurl its victims into the air or spin



them around like the other rides. Instead, it did its evil work at ground level. The passengers sat in steel cars with slippery bench seats and were thrown violently from side to side while rotating around a central column, constantly accelerating and decelerating.

The idea was to ride the Scrambler with a girl, maneuvering her so that she sat on the end of the seat. The operator would yank a lever, feeding power to the Scrambler's huge motor. You would fly off to the left, stop suddenly, pause for a second, and then rocket back to the right. When the car slowed down, momentum slammed you into the girl, when it sped up again she slammed into you, and a good time was had by all.

The Scrambler had just come to a stop when I heard that voice again. Laura and her mother, a grim six-footer, had joined the line behind me. I got another high-voltage smile from Laura, making three for the day.

"Hi, Dave, are you having a good time?" she asked. "I got your name from your cucumbers — we were just looking at them."

Hot blood shot to my face. She cared! She had walked the entire length of the fairgrounds to find out who I was!

Laura introduced me to her mother, who gave me a quick once over. "Dave's cucumbers were cute," Laura said. "Weren't they, Mom?"

"I suppose," her mother said. I guessed that she didn't think much of boys who entered cucumbers in the fair. Cows, maybe, but not cucumbers.

The Scrambler was filling up fast. I pulled out a handful of squash money and bought three tickets. When we boarded our car, I tried to sit next to Laura, but her mother wedged herself between us.

What happened next was the longest and fastest Scrambler ride I had ever experienced. When we got up to speed, the operator jammed the throttle wide open and walked off. The ride went on and on. We were really getting our money's worth, but instead of colliding pleasantly with Laura, I was battering her mother's large and bony hips.

I held on with all my strength, but I couldn't resist the massive G-forces of the Scrambler, which had shifted itself into overdrive and was throwing us back and forth at maniacal speed. Laura shrieked delightedly while her mother fixed me with a look of silent disgust. Apparently she thought I was crashing into her on purpose.

Finally the operator returned, carrying a large paper cup of Kingsbury beer. He looked at his watch and grabbed the lever. When we got off the Scrambler, Laura's mother walked away without a word, her long legs pumping.

"Wait up, Mom," Laura said. "I'm dizzy." When we caught up with her, I handed out taffy as a peace offering. Laura's mom declined at first but finally gave in, took a piece and began to chew. Then she gagged and turned away from us. She stuck two fingers into her mouth and pulled out a dripping gob of taffy. A large and expensive-looking chunk of broken bridgework was imbedded in it. She put the gob into her purse.

"Come, Laura, we must be going," she said, whistling like a hockey player through the gap in her front teeth. All I could do was stand there as she strode rapidly down the midway, pulling Laura behind her.

Something my great-grandfather Albert once told me popped into my head: "Never get serious about a girl until you've had a look at her mother," he said. "A real close look. Girls turn into their mothers after a while." Laura Larsen had lost a little of her luster.

The next morning I hung around the sheep barn, but Laura was always guarded, sometimes by her mother, sometimes by the trolls. When I walked by, her mother glared and the trolls tittered. She acted like I was invisible, and I soon found out why. A new admirer had appeared, a tall, good-looking kid of 15 or 16. Compared to him I was grubby and strictly ordinary. From then on he practically lived in the sheep barn and Laura stuck to him like flypaper.

The fair went on, day after day but a lot of fun had gone out of it. Just before closing time on Thursday night I made a final trip to Barney's pen. He was sleeping and no one was around except the woman I had talked to on opening day.

She gave me a sympathetic look. "In case you're wondering," she said, "that tall kid lives down the road from Laura. His father owns 400 acres and milks about 75 head, and he's a seed corn dealer besides — the local kingpin. Laura's mother practically has her married off to the kid already. But you still have a chance, enso?"

"Yeah," I said, without much conviction. I couldn't compete with the young Prince of St. Nazianz and I knew it.

Friday was vegetable-judging day. I waited in the doorway of the Armory as the cucumber judge moved slowly up and down, distributing ribbons. When he was done I walked calmly to the long table of cukes, fully expecting a blue ribbon, although a red ribbon for second place would be OK, too.

But when I got to them, I saw that a terrible mistake had been made. The First Premium Blue Ribbon was draped across Laura's submarines. My splendid entries did not even get honorable mention.

The cucumber judge was on the other side of the table. He was a thin man of about 50 who wore horn-rimmed glasses and parted his hair in the middle. I worked up a little nerve.

"I got a book that says cucumbers are supposed to look like these," I said, lifting my plate. "But you gave the blue ribbon to some that are way too big."

The judge looked back and forth at my cucumbers and Laura's. Then he shuffled through a pad of entry forms on a clipboard. "I think I see the problem," he said. "You entered your cucumbers in the wrong division."

He handed me my entry form and put his finger on a block of small type I hadn't read when I signed it. "This form is for the table division, and in that division, the bigger the better," he said. "Yours are pickling cucumbers. If you had entered them in the pickling division, you would have taken first prize. Those are beautiful little cukes for pickles."

"But..." I said.

"No buts," said the judge. "Rules are rules."

He walked on. I was alone at the cucumber table, and I said some things about rules and the judge and the shooting gallery and Laura and her mother and the Prince that would have gotten me drummed out of the Methodist Youth Fellowship. I felt a lot better when I was through.

Outside, a cool breeze was blowing off Lake Michigan and towering white clouds were drifting by under a sky of perfect blue. As I headed back to the midway I added four axioms to my meager collection of wisdom:

Rules are rules.

Always read the fine print.

Never try to cheat a cheater.

Always take a close look at the mother.

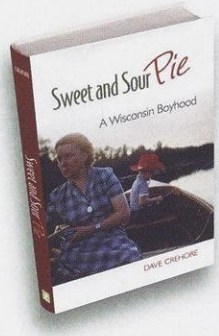
Along the way I met Lois, a girl I knew from Woodrow Wilson Junior High. She was wearing Bermuda shorts and a sweatshirt, and her light brown hair was cut short for the summer. She was no princess, but I was no prince. I told her about my cucumber fiasco and she didn't laugh, which endeared her to me.

"I didn't enter anything in the fair this year," she said, "but my mom won two blue ribbons for her pies, one for apple pie and one for lemon meringue."

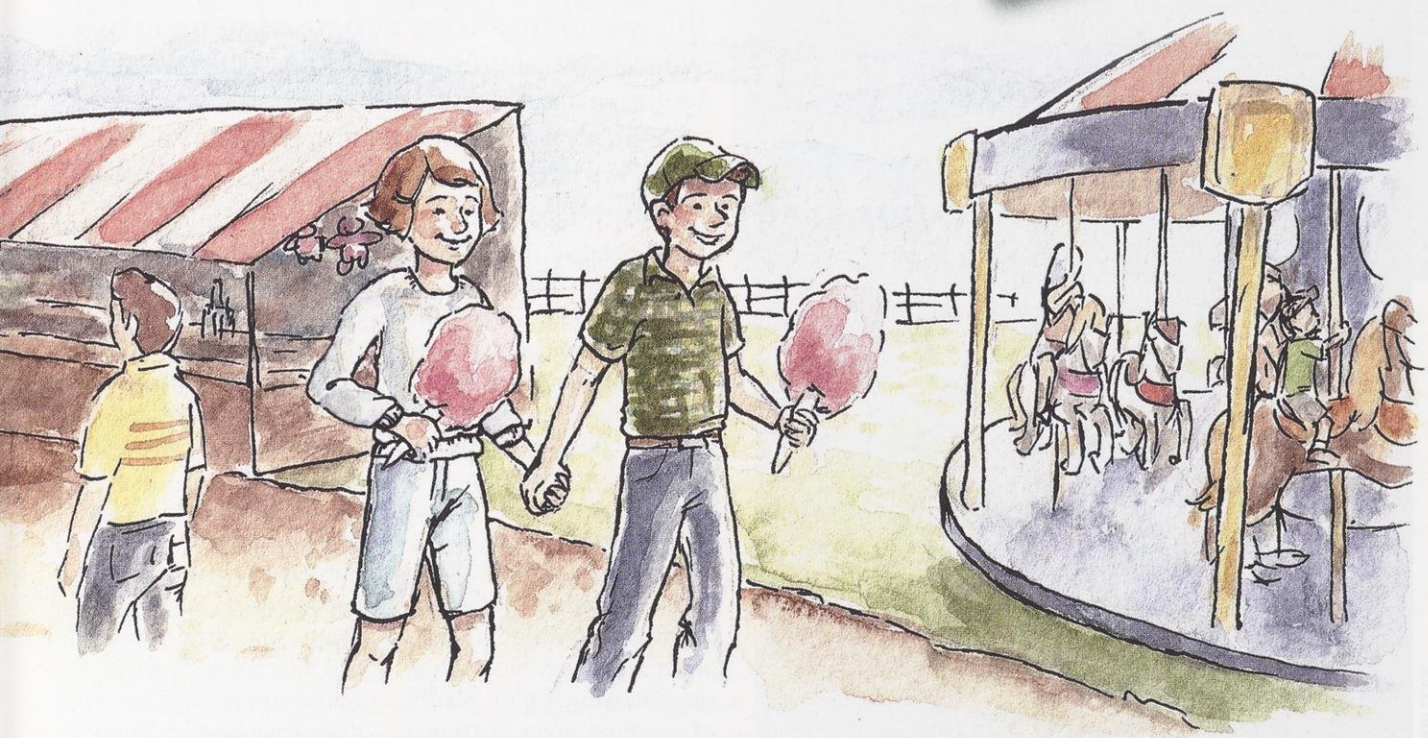
Things were looking up.

Hand in hand, we walked to the Scrambler. The only seats left were between two jolly plump ladies who smelled of beer. I gave the operator the last of my watermelon money and Lois and I whirled away, alternately squashing and being squashed by the ladies, who were having the time of their lives. And so were we. Two whole days of the fair were left, and they were bound to be worth the price of admission.

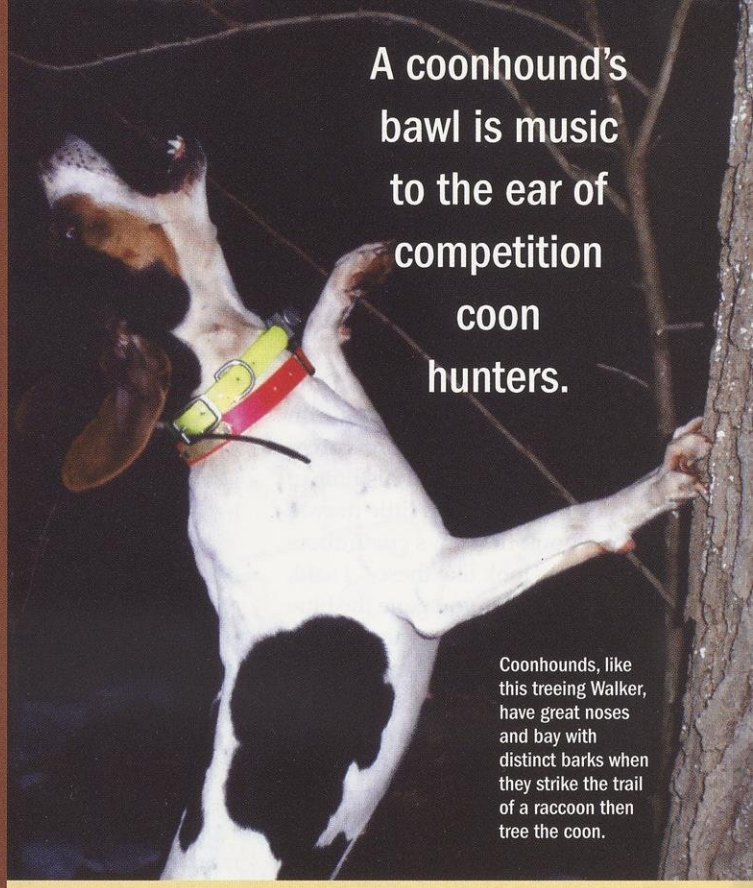
Dave Crehore retired from the Department of Natural Resources where he served as a public information Officer in Madison and Green Bay.



© 2009 excerpted from "Sweet and Sour Pie" by Dave Crehore. Published by and reprinted with permission of The University of Wisconsin Press. This title available at wisc.edu/wisconsinpress/books/4557.htm



A LITTLE NIGHT MUSIC



A coonhound's bawl is music to the ear of competition coon hunters.

Coonhounds, like this treeing Walker, have great noses and bay with distinct barks when they strike the trail of a raccoon then tree the coon.

"When a coondog sniffs, there's a total involvement of the blood and sinews as though the scent flows like electrical current through him and sets him aquiver from whiskers to tail. On a trail or at a tree, he becomes as pure a creature as there is, driven and timorous, made whole by his union from centuries of breeding. But the chase revives the hunt in a man's blood too, mixed with a kind of diluted longing and fear that defines his kinship with the dog and the raccoon too."

• *O. Victor Miller*

HERBERT LANGE

Kathryn A. Kahler

Best laid plans of coonhounds and hunters often go awry. That was my conclusion when after half an hour of pleasant conversation beneath the stars, my companions kept assuring me that this wasn't the way things were supposed to happen. I wasn't complaining, but I knew they wanted to show me a typical competition coonhound nite hunt, one full of excitement and adventure. Apparently the coonhounds — or coons — had other plans.

Ken Nehrkorn (Bristol, Wis.) and Ted Feeler (Vienna, Mo.), and their Grand Nite Champion coonhounds, Lonesome Patches and Beast, were competing in the Wisconsin State Championship Coonhunt on Memorial Day weekend. Patches is a treeing Walker breed and Beast, a black and tan coonhound. Erika Froeming, Edgerton, the guide for our group, had taken us to a section of prime raccoon habitat with plenty of swampy river bottoms, corn fields and tree lines. As we jumped from the trucks into the pitch black night, the only sound was the *thump-thump-thump* of the hounds' tails against their cages in the bed of Ken's pickup.

The night held plenty of promise as the two seasoned hunters let their hounds off-leash into the dark to do what comes so naturally for them and their noses. Beast quickly found a trail and let out a distinctive bawling howl.

"Strike, Beast," announced Ted. Patches soon followed suit with a similar announcement from Ken, "Strike, Patches." In the periods of silence that followed, interspersed with distant howls from Beast and Patches, my companions explained how things were supposed to happen on a competition coon hunt.

According to plans

The 80-member Jefferson County Coon and Fox Hunting Club, founded in 1952, sponsors nite hunts from its clubhouse on the banks of the Bark River, eight miles east of Ft. Atkinson. It's one of 26 clubs statewide that sponsor such events. The deadline for entries for this particular competition was set at 8 p.m. on the last Saturday in May. Twenty-two entries were in the hat by the deadline and randomly assigned to groups of four dogs, called casts.

Under United Kennel Club (UKC) rules, one of the handlers in each cast is designated the role of judge, to apply rules and record scores for the group. Each group has two hours of "scorecard time" during which they can accumulate points for "striking" (finding a fresh trail) and treeing raccoons. The first dog to strike a trail is awarded 100 points, with 75, 50 and 25 points awarded to the second, third and fourth places. The first dog to tree the coon gets another 125 points, with 75, 50 and 25 points awarded to those who follow.

Each cast is assigned a guide who is responsible for the hunters' and dogs' safety and takes the group to likely hunting spots. Guides have a wealth of personal knowledge of the surrounding area and good relationships with landowners whose permission they seek for access. Some guides also take their cast to public hunting land in the area.

Once the dogs, handlers, guide and spectators (each handler can bring up to two) are on the ground at the first hunting spot, the dogs are simultaneously let off their leashes and the judge starts the clock. Dogs run freely in search of a scent trail and as soon as they find one, "open" on the trail with a long drawn out howl. Each handler knows his or her dog's voice, and as soon as they hear the first bark on track, they announce it to the cast — "Strike, Beast" — and the judge records the score.

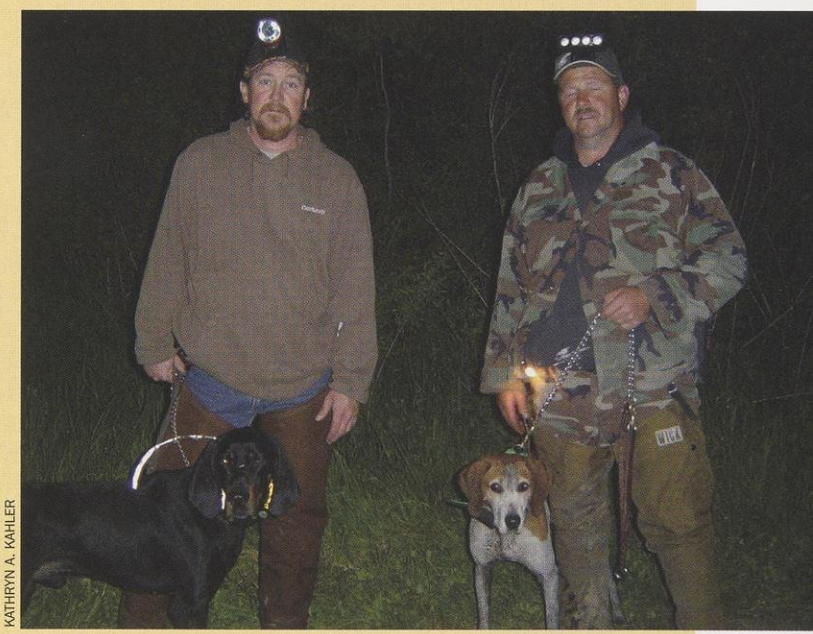
The group stands quietly, intently listening for their dogs' voices to join the hunt. If they do, the dogs are assigned subsequent placements and scores. Once the coon is treed, the dog changes over to a short, choppy bark as it stands, circles or sits at the base of the tree barking up at the coon. When the handler hears his dog's bark change over, he announces it — "Tree, Patches" — and points are assigned. The members of the cast then walk to the tree and shine their headlamps up in the branches to locate the coon. Once the group confirms the presence of a coon, the clock is stopped and points are added up for that tree. No firearms are permitted on these competitive nite hunts, and raccoons are not harvested.

The process starts all over at the next hunting spot selected by the guide as the hounds are set loose and the clock is started again. The event ends after two hours of active hunting time. The group then returns to the club house and turns in their scorecard to the Master of Hounds, or hunt official.

Sometimes dogs split up and follow different trails and end up "split treed," or are found barking up a tree where no coon is found, a so-called "slick" tree. While a slick tree is a rule infraction, a split tree is not and just means the dog doesn't have to share its points with the others. Infractions cost points that are deducted from the dog's scores. Dogs will also lose points for running or treeing animals other than raccoons; molesting game; leaving a tree before the hunter has arrived to confirm that the raccoon has officially been declared treed; quitting a trail for more than eight minutes once they have been declared struck; babbling (when a dog barks and no track is evident); or a variety of other infractions. Dogs can also be scratched from the hunt for several reasons, most importantly for aggressive behavior or fighting.

Time-outs must be called and the clock stopped when dogs wander onto highways, into areas of danger, out of hearing distance in different directions, or onto private land where the cast does not have permission to hunt. Time-outs are also called while the group is traveling from one hunting area to another.

Once the deadline is reached and all casts are back to the clubhouse, the Master of Hounds resolves any disputes, checks all the scorecards and tallies points. Dogs are ranked by point totals and place first



KATHRYN A. KAHLER

Ted Feeler with Beast (left) and Ken Nehrkorn (right) with Lonesome Patches take part in the Wisconsin State Championship Nite Coonhunt. In these competitions dogs are awarded points for finding as many fresh trails as possible during a two-hour period and keeping the raccoons treed until owners verify the presence of a coon.

ERIKA FROEMING

through fourth for the night's hunt. Throughout the season and the years the dog's point totals in sanctioned events accumulate as they compete to earn the prestigious title of Nite Champion or Grand Nite Champion. Once they've achieved those high honors, dogs compete with other Grand Nite Champions in breed sectionals, state championships or national events.

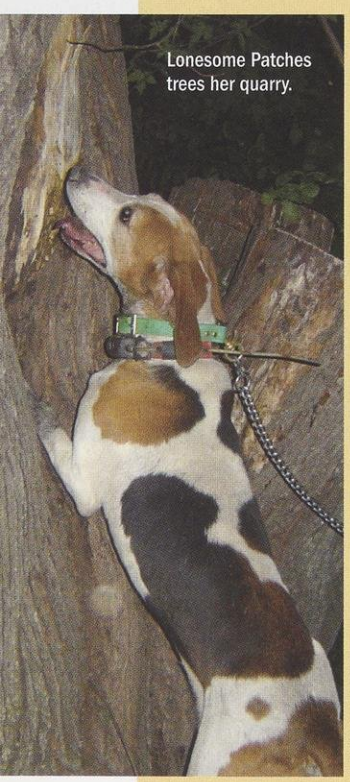
Plans gone awry

We'd been standing for quite some time listening to Beast and Patches follow their trail, their bawling growing more distant to the east, then circling back toward the south.

"They sound like they're on the riverbank," Ken speculated.

"Sounds to me like they're running off-game," said Ted. "We've got a lot of gray fox where Beast competes in Missouri and that's just how they run, in a big circle."

The three continued to speculate on what I gathered to be the shameful practice of coonhounds running off-game — a coon hunting term for chasing game other than coons — and coming to grips with the possibility that their dogs might be engaging in it.



Lonesome Patches trees her quarry.

KATHRYN A. KAHLER

"Why don't we tighten up. I'm getting worried they're tracking so far away," said Ken.

So off we went through the blackness, in the direction of the distant barking. My admiration of my companions' night vision and their ability to walk without tripping over stumps or falling into holes grew stronger with each stumble I took. I kept my eyes riveted to their backs and concentrated on just keeping up.

Just as quickly as the pace we had been walking, the group came up short and stopped.

"They've turned back to the east," said Ted, confirming what we all heard. "Maybe they were following a fox and now they're on a coon." The barking grew stronger and again headed away from us. Again we waited, listening. The barking grew more and more distant.

"We might want to call a time-out, go back to the trucks and drive over to where they are," suggested Erika.

"Sounds like a plan," said Ken. That called for an about-face and again we marched through the night back to the trucks. Almost there, we came up short again, listening.

"Wouldn't you know it?" said Ken. "They're treed." The march continued to the trucks.

Climbing into the driver's seat, Erika must have heard me gasping for air.

"Water? There's a bottle next to the seat."

When I could breathe and talk again, I asked her if it was common for coonhounds to run after other game and what happens if they go on private land.

"Well, they're not *supposed* to, but hounds do what their noses tell them first. If they're headed in the direction of posted or private land, we may intercept them. If they pass us, we may wait for them to come back or pass through the property. If they tree in the center of the property, we get permission from the landowner to retrieve them. But you try not to get into that situation and a good guide will usually keep you out of those situations."

It took only a couple of minutes to locate the treed dogs, just off the road about a mile away, going crazy at the base of a huge silver maple. Ken and Ted shone their headlamps up into the branches and found a big, fat coon hiding among the leaves. If dogs were physically able to climb trees, Patches and Beast would have been up there with that coon.

Back in the truck on the way to our next location, I asked Erika how that hunt would be scored, since the dogs treed while in a time-out.

"Unfortunately, neither dog will get points, and the points they got for striking won't count either."

The next hunting spot was sure to be better. It had proven a productive spot the previous year and Erika knew there were plenty of coons. She told the handlers that there were some marshy areas, wet ditches, fields and lots of trees. Again, the hounds were released with great anticipation and the clock started.

The silence of the dark night was broken only by a chorus of spring peepers and the rattling echoes from a couple of sandhill cranes the dogs must have startled off their nest. A little later, owls hooted in the distance. Again, my companions assured me this was not a typical hunt. I began to think I had jinxed them.

"No, if anything it was Arlander who jinxed us," said Ken. "He came up to us before we left the clubhouse and told us we were going to be the big scorers, with two Grand Nite Champions making up the cast."

Eventually, Beast struck, but Ted could tell from his bark that it wasn't a good one, meaning he wasn't very enthusiastic about the track.

"I can always tell when he's on a good one."

As the clock ticked on, the conversation turned to past hunts, other dogs and the tradition of coonhunting. Ken told a story about how he almost lost a dog a couple of years back.

"When the hunt was over, I couldn't find my dog. Of course she had a collar on so I went back to the truck and got my radio antenna. I was able to get a signal, but in the dark, I just couldn't locate her. I didn't find her until 3 p.m. the next afternoon. It turns out she had followed a coon into the open end of a drainage tile at the edge of a field. In the middle of the field, four feet underground, the tile was broken, or changed over to a smaller pipe which the coon could get through but the dog couldn't and got stuck. I kept tracking the signal to the middle of the field. The signal faded

when I would walk toward a row of trees, or to a ditch where it was likely the dog might be. Each time as the signal faded, I turned and followed it back to the middle of the field. I had to go to town to buy a shovel and dug four feet down, broke through the pipe and found her almost hypothermic. I washed her off in the creek and tied her out in the sun to warm up. It was a close call."

As we listened to Beast's intermittent bawls, Ken observed that we still hadn't heard from Patches. As if on cue, her higher pitched bawl echoed in the distance.

"Strike, Patches."

More theories evolved about the lack of "action." Maybe the sow raccoons were staying tight in the trees with their kittens and things would be better in a week or two. The previous night's hunt had gone well when there was a lot of dew on the ground, but it's very dry tonight. Maybe that's a factor. The group learned later that evening that all the casts experienced the same difficulty in tracking. Many attributed it to the dry weather and lack of dew that helps leave more scent for the dogs to follow.

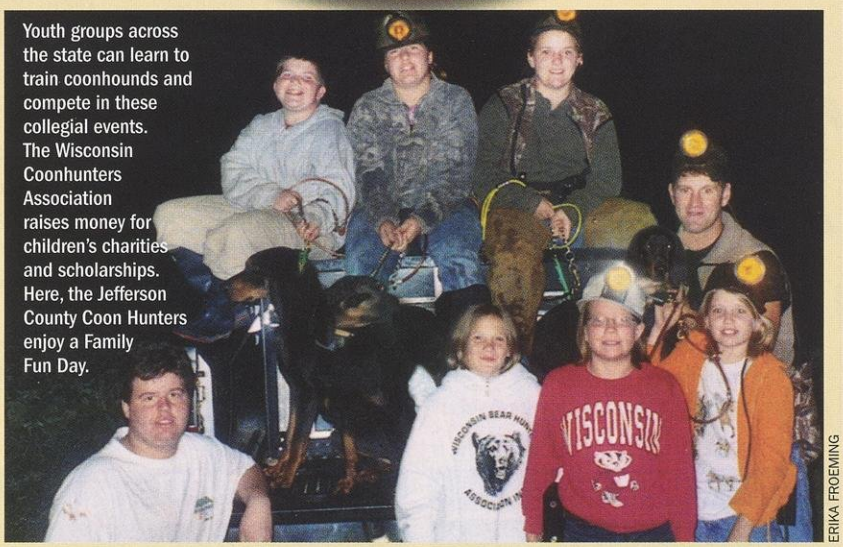
The dogs' distant barking grew more enthusiastic, but they still had not treed a raccoon. Ken glanced at his stop watch and announced there were only five minutes left and it wouldn't matter much at that point anyway.

"We might as well start walking and round them up," said Ken.

With time running out on our cast's hunt, we trudged across a freshly plowed field to retrieve Patches and Beast, still gallantly searching for their elusive quarry. Ted quietly said that it's always been his opinion that a good hunt was one where the weather cooperated, nobody got hurt and no dogs were lost. Everything beyond that was a plus. My companions need not have worried about disappointing me. In my mind, it had been a great nite hunt.

Kathryn A. Kahler keeps company with outdoor enthusiasts, runs with the big dogs and writes from Madison.

YOUNG RINGTAILS



Youth groups across the state can learn to train coonhounds and compete in these collegial events. The Wisconsin Coonhunters Association raises money for children's charities and scholarships. Here, the Jefferson County Coon Hunters enjoy a Family Fun Day.

ERIKA FROEMING

It's a recurring theme when talking to coon hunters. Ask them how or when they started hunting and the typical answer is, "Gosh, I don't know. I've been doing it as long as I can remember. My Dad used to take me and my brothers and sisters in a backpack before we could walk."

Erika Froeming, Edgerton, has helped promote outdoor activities with a group of 20-25 middle- and high-school aged youngsters from southeastern Wisconsin since 2006. A group of them were having a great time fishing, playing with their dogs and wrestling with each other before the Wisconsin State Championship last May.

"The group is called the Ringtails," says Erika. "We take them hunting and trapping, teach them about conservation, responsible hunting and dog care. Some of them have parents that are members of the [Jefferson County Coon and Fox Hunting] Club, but others have never had any experience with outdoor sports like hunting. They just come to learn and have fun."

Savanna (12) and Ryan (9) Brooks, whose parents have been taking them coon hunting since they were toddlers, love the family fun days sponsored by the club and special youth hunts sponsored by national organizations like UKC, American Kennel Club and Professional Kennel Club.

"At youth events, prizes are donated for the winners," said Savanna. "Sometimes the overall winner will get a headlamp, or even a bike. It's something we do as a family all year-round and we get to travel to places like Georgia for the Winter Classic, or Indiana for Kid's World where they give scholarships to the winners."

Ryan loves hearing their bluetick, Remmy, open on a trail. When asked how he could tell his dog's bark from the others in the cast, he said they're part of the family.

"It's just like you know your mom's or dad's voice. Each dog has his own voice and you just get to know it," he explained.

Erika said coon hunting has a strong family tradition.

"You hear about generation after generation, going way back of people involved in the sport. It's sad when kids don't follow in the footsteps of generations before them. The group of kids we have are such good kids and such good sports. They know the rules inside and out and always shake each other's hands when the hunts are over. They're just really, really good kids."

"The Ringtails have fun events for kids to keep the sport alive," Ryan explained, before running off to squirt another youngster with his water pistol.

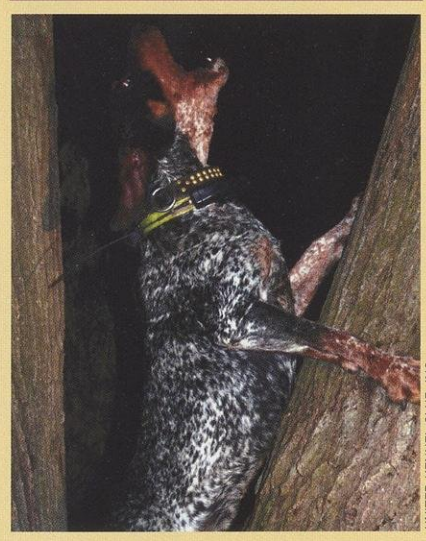
COONHOUND BREEDS

Coonhounds come in six different breeds, and coon hunters usually have a favorite that they grew up with. The six breeds are: bluetick, Plott, black and tan, English, redbone and treeing Walker coonhounds. The basic qualities of a good hound, according to coonhuntinginfo.com are: a highly-developed sense of smell for raccoon, a great desire to chase them, good mobility, the ability to run through all types of terrain, loyalty and obedience.

Erika Froeming (with her treeing Walker, Moxie, bottom right), explained that each breed has its special characteristics and she doesn't believe that one breed is better than another.

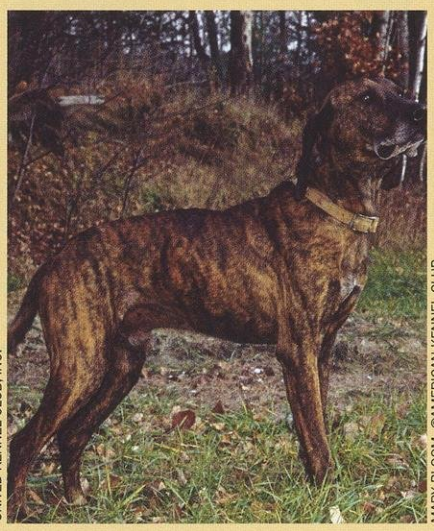
"It's more a matter of individual dogs and their bloodlines," she explained. "There's just a really strong relationship between the handler and the dog. The closer you are to your dog, the more excitement you feel as it becomes successful, gains titles and wins hunts. It's a healthy obsession!"

BLUETICK



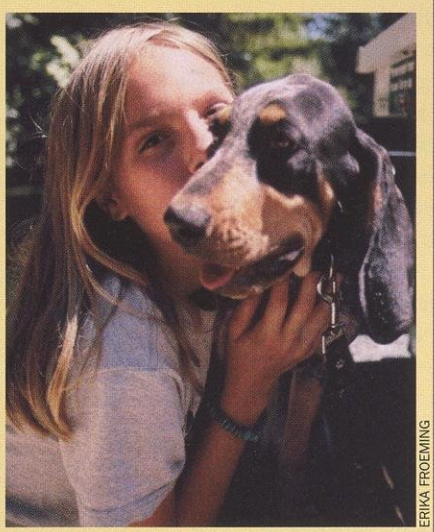
UNITED KENNEL CLUB, INC.

PLOTT



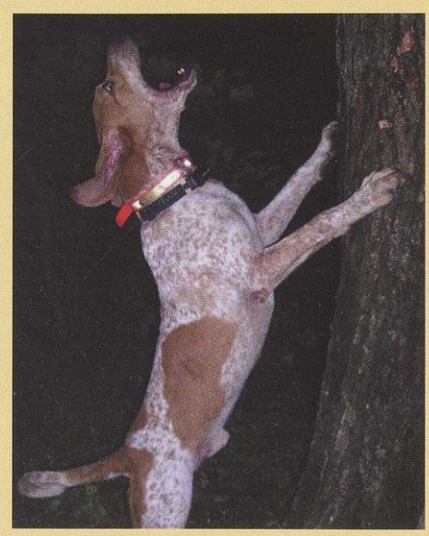
MARY BLOOM ©AMERICAN KENNEL CLUB

BLACK AND TAN



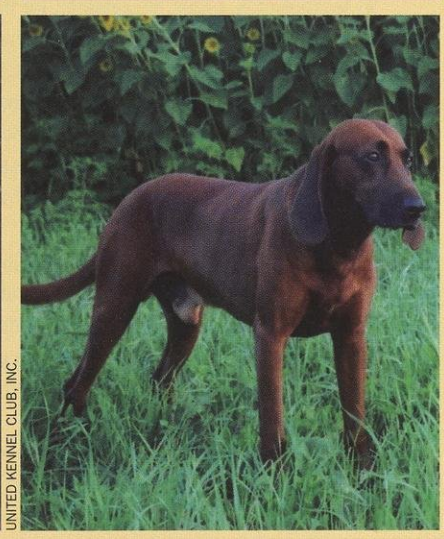
ERIKA FROEMING

ENGLISH



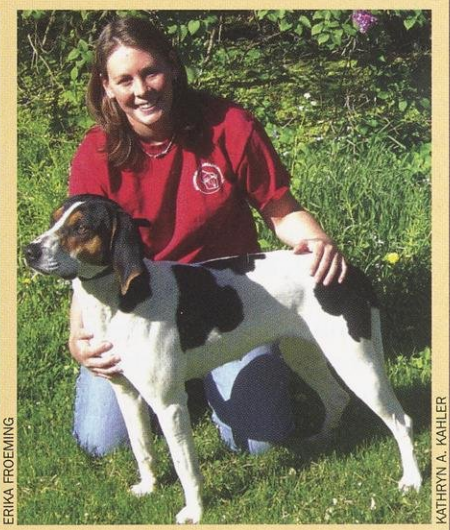
UNITED KENNEL CLUB, INC.

REDBONE



ERIKA FROEMING

TREEING WALKER



KATHRYN A. KAHLER

Historic notebooks play a critical role in the future of sustainable ecosystems.

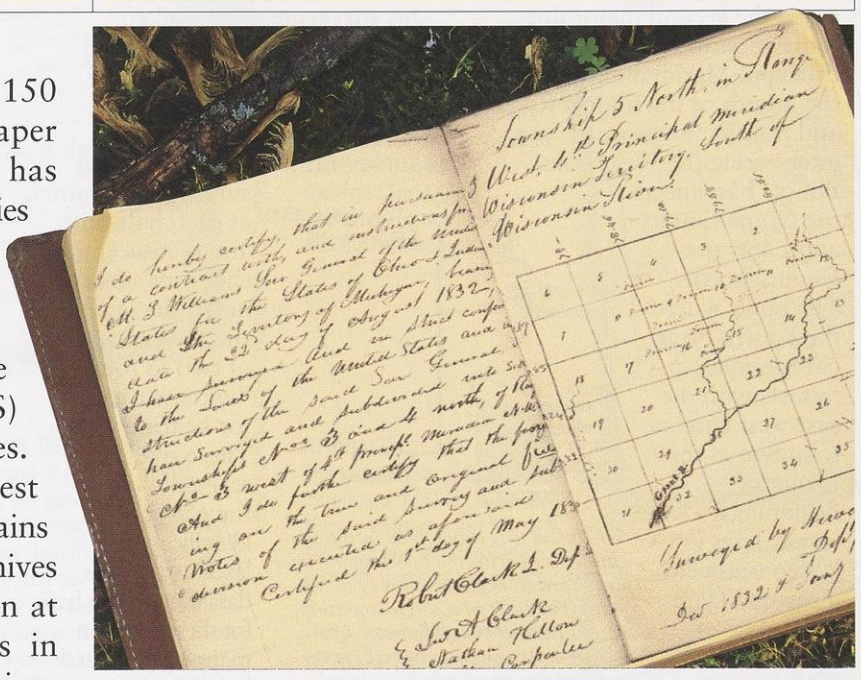
SEE WISCONSIN THROUGH THE EYES OF 19th CENTURY SURVEYORS

IOWA HISTORICAL COLLECTIONS

U.S. Deputy Surveyor Ira Cook

Natasha Kassulke

The notebooks are about 150 years old. Some of the paper has deteriorated and ink has faded. The handwriting varies from fine script to an almost unreadable scrawl. And the records are written in shorthand. ■ Yet, those able to decipher these U.S. Public Land Survey System (PLSS) notebooks are treated to some useful tales. University of Wisconsin-Madison forest ecology professor David Mladenoff explains that these notes (collectively known as Archives Series 701) provide a view of vegetation at the time of the original land surveys in the 19th century, before intensive logging, farming, industrial development and Euro-American settlement. They are used to recreate historic vegetation maps with general descriptions of the dominant vegetation, such as forest types, wetlands, prairies and savannas. →



WISCONSIN BOARD OF COMMISSIONERS OF PUBLIC LANDS

Deputy surveyors, who led the field crews, generally were private contractors and they recorded observations of land cover and use in Wisconsin in the 1800s.

Microfilm copies of surveyors' notes are housed with the Wisconsin Historical Society. Original notes and survey plats plus additional local land office records are held by the Wisconsin Board of Commissioners of Public Lands in Madison. Images of surveyors' notes and the survey plats can be found at digicoll.library.wisc.edu/SurveyNotes

HOW IT ALL BEGAN

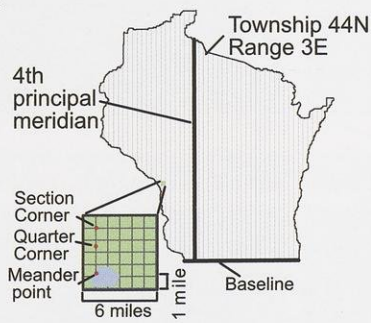
Between 1832 and 1866, United States government contractors surveyed lands that would become the State of Wisconsin for the purpose of subdividing and selling land to timber companies, speculators and settlers. The survey also was needed to make land grants to railroad and canal companies to finance construction.

The Public Land Survey work in Wisconsin was directed by a Surveyor General. For the rectangular land survey to proceed, two major directional lines were established: an east-west line and a north-south line. The east-west line (the baseline) ran from Lake Michigan to the Mississippi forming the boundary between Illinois and Wisconsin. The federal government designated the second major line (north-south) called the Fourth Principal Meridian, beginning at the mouth of the Illinois River and running northward intersecting the Wisconsin/Illinois baseline at the Grant County and Lafayette County border. The point where the Fourth Principal Meridian intersects with the east-west baseline is known as the "Point of Beginnings." All survey lines in Wisconsin were measured from this point.

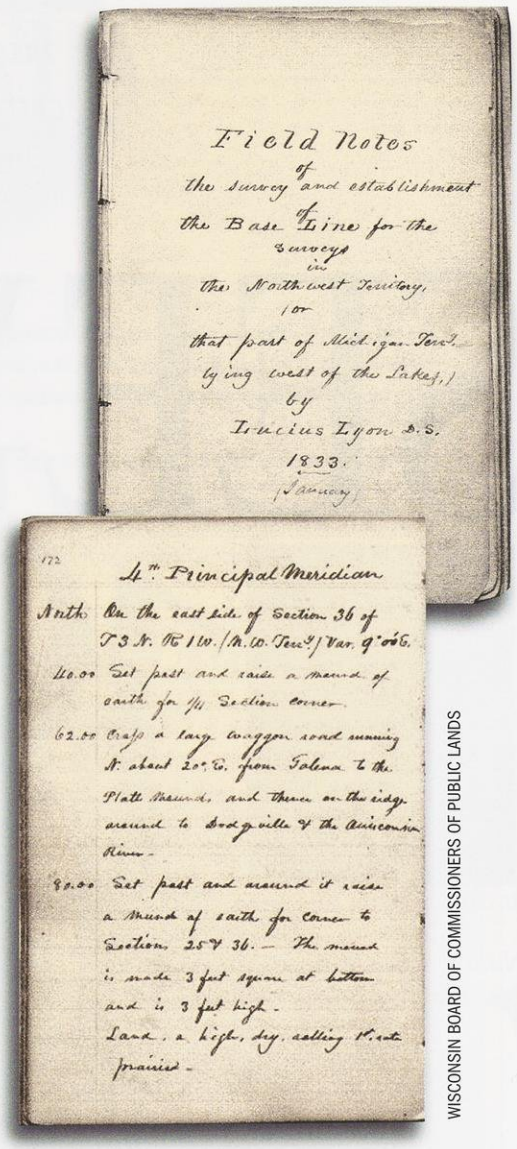
After establishing the Point of Beginnings, surveyors began to lay lines for individual townships. Over 100 surveyors worked in Wisconsin over the survey period. The survey was systematically carried out, with survey posts (wooden posts or stones) set every half mile along a grid of one mile square blocks of land called sections. Surveyors were joined by chainmen who stretched out the measuring chain, and sometimes by axmen, flagmen or markers and general laborers. Surveying crews carried tools, camping supplies and sometimes even canoes.

The Wisconsin survey series begins with a field notebook completed by deputy surveyor Lucius Lyon in 1830. He and his surveying team walked and marked a portion of what would become the Wisconsin/Illinois border.

Although this was a land survey rather than a botanical survey or inventory, at each half-mile and section (mile) endpoint surveyors noted the location, species and size of two to four "witness trees" (or bearing trees). These trees were scribed with the corner post identification. It is largely these tree data that are the basis for the vegetation mapping presented here. In areas without trees such as prairies and marshes, mounds of earth or stone were constructed to mark the corner locations. With each section corner, a brief description of the vegetation, soils and other note-worthy observations were summarized for the last mile of survey run.



Wisconsin was subdivided into townships, along with the two original baselines used to begin the survey in the state. The inset of a single township shows its further subdivision into square-mile sections, and where the main survey markers were placed.


Field Notes
of
the survey and establishment
of
the Base Line for the
Surveys
in
the Northwest Territory,
for
that part of Michigan Terr.
lying west of the Lakes,
by
Lucius Lyon D.S.
1833.
January

172
4th Principal Meridian
North On the east side of Section 36 of
T 3 N. R 1 W. / N. W. Terr. / Var. 9° E.
40.00 Set post and raise a mound of
earth for ¼ Section corner.
62.00 Cross a large waggon road running
N. about 20° E. from Galena to the
Platte Mounds, and thence on the ridge
around to Dodgeville & the Wisconsin
River.
80.00 Set post and around it raise
a Mound of earth for Corner to
Section 25 & 36. — The mound
is made 3 feet square at bottom
and is 3 feet high.
Land, a high, dry, rolling Prairie.

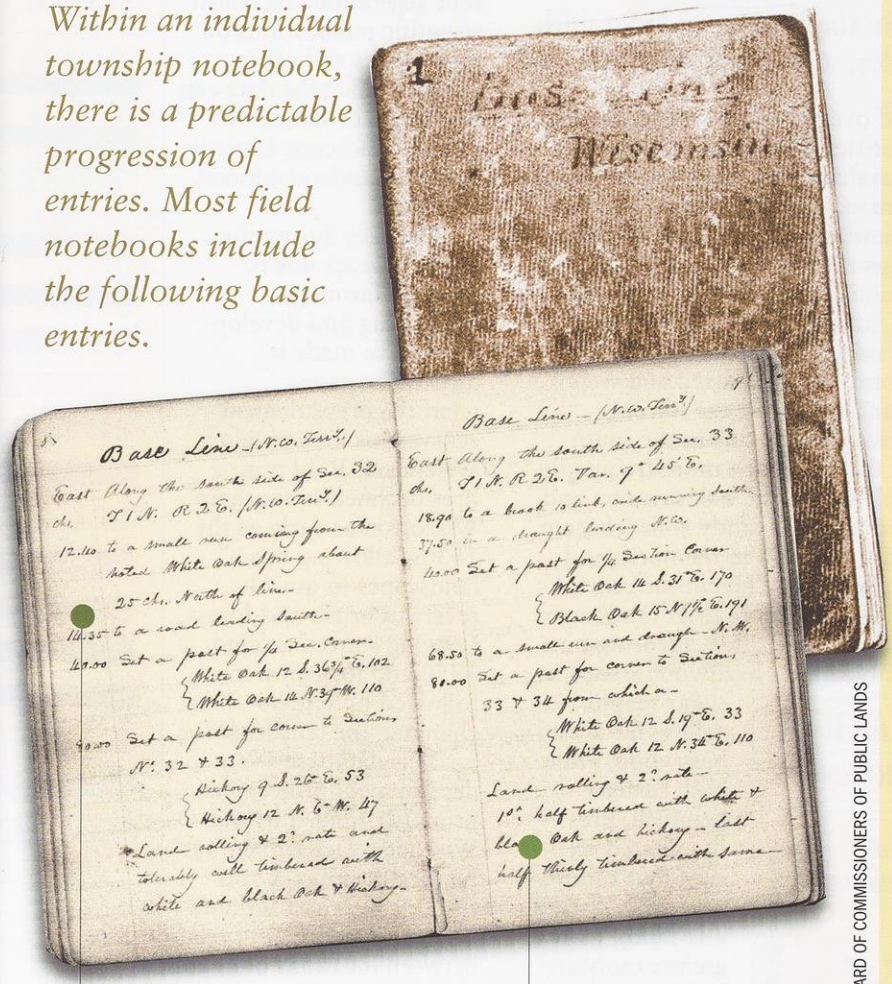
WISCONSIN BOARD OF COMMISSIONERS OF PUBLIC LANDS

Excerpt from a letter by surveyor H.A. Wiltse in 1847

During four consecutive weeks there was not a dry garment in the party, day or night... we were constantly surrounded and as constantly excoriated by swarms or rather clouds of mosquitoes, and still more troublesome insects; and consider further that we were all the while confined to a line; and consequently had no choice of ground . . . and you can form some idea of our suffering conditioning. I contracted to execute this work at ten dollars per mile . . . but would not again, after a lifetime of experience in the field, and a great fondness for camp life, enter upon the same, or similar survey, at any price whatsoever.

UNDER THE COVER

The public land survey work was recorded in small notebooks that became the official survey record. Collectively these are known as the field notes. Within an individual township notebook, there is a predictable progression of entries. Most field notebooks include the following basic entries.

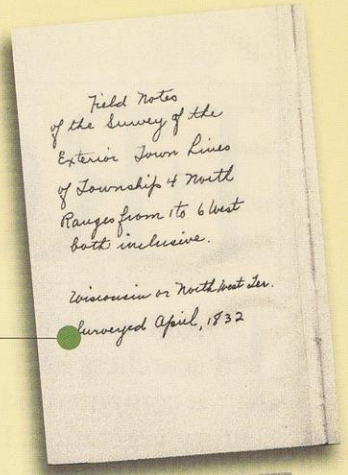


WISCONSIN BOARD OF COMMISSIONERS OF PUBLIC LANDS

SECTION LINE NOTES
The measurement system used was the statute mile subdivided into chains and links, not feet and inches. A measuring chain is 66 feet long and there are 80 chains in a mile. Each chain is composed of 100 links each of which are 7.92 inches in length. To convert measurements from chains to feet, multiply the number of chains by 66, i.e. 80 chains x 66 (feet per chain) = 5,280 feet. Entries also list the species and diameter of bearing trees as well as direction and distance to those trees from survey posts. Other entries include locations on the section lines where they entered and left fields, swamps, prairie, wetlands, timber or other landscape or other vegetation types, crossing streams, or intersecting trees directly on the survey line. At the end of each section line, the surveyor wrote a brief description of the mile just traveled.

GENERAL DESCRIPTION
At the end of the township's survey, the surveyors wrote a general description of what they had seen (such as level, rolling, broken) and soil (first, second or third rate) as well as the dominant timber and understory species seen along that mile. Some field notebooks list Indian trails and villages, wagon roads, sugar camps, trading posts and single cabins. Some surveyors found lead mines, mill sites, scatterings of farms and cultivated fields.

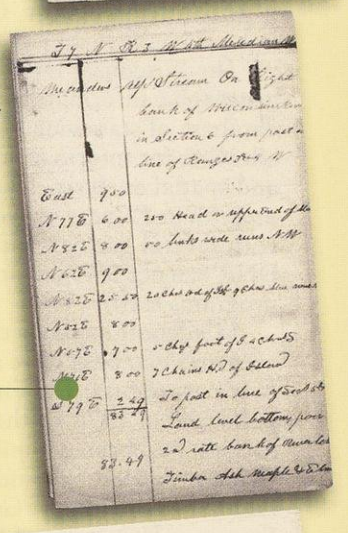
TITLE PAGE
This page includes the legal description of the surveyed township, Deputy Surveyor name and the dates that the work was done. Sometimes the survey crew is also listed here, and occasionally on the next page.


Field Notes of the Survey of the Exterior Town Lines of Township 4 North Ranges from 1 to 6 West both inclusive.

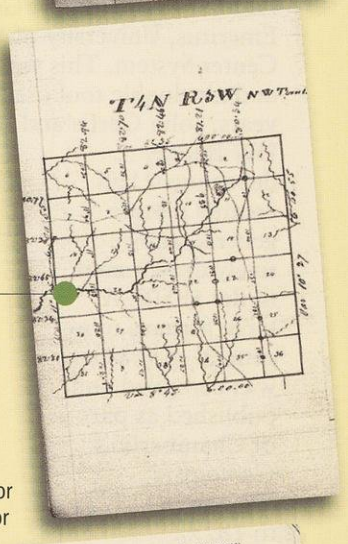
Wisconsin or North West Ter.

Surveyed April, 1832

MEANDER NOTES
Whenever the surveyors encountered a sizeable lake or river along the line, they set a post at the shoreline. For larger lakes, once these meander posts were set at the section lines that intersected the lake, the shoreline around the lake was surveyed by connecting the meander corners by tangential lines.

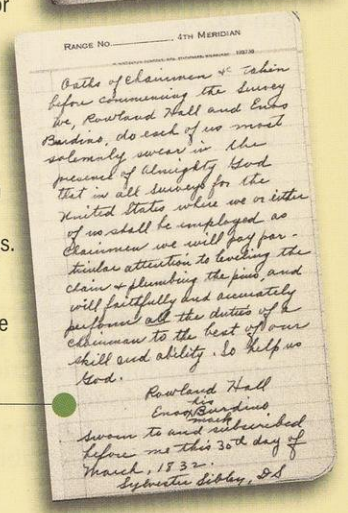


SKETCH MAP
This map was drawn in the field. Later, these maps, the township summary and field notes were used by U.S. General Land Office draftsmen to draft larger maps of each township.



AFFIDAVIT
The last portion is an affidavit or certificate by which the surveyor swears to have done his work properly and in compliance with the terms of his contract.

There is variability in the field notes. It's likely that each surveyor had his own approach to surveying and his own interpretation of the instructions. Researchers have been careful to remember, when using vegetation data, that these were collected by surveyors rather than botanists or ecologists.


Range No. _____ 4th Meridian

Oaths of Chainmen &c taken before commencing the Survey

We, Rowland Hall and Enos Burdine, do each of us most solemnly swear in the presence of Almighty God that in all surveys for the United States which we or either of us shall be employed as Chainmen we will pay particular attention to keeping the chain & plumbing the pins, and will faithfully and accurately perform all the duties of a Chainman to the best of our skill and ability. So help us God.

Rowland Hall
Enos Burdine

Sworn to and subscribed before me this 30th day of March, 1832.

Sylvester Sibley, J.P.

FROM NOTES TO MAPS

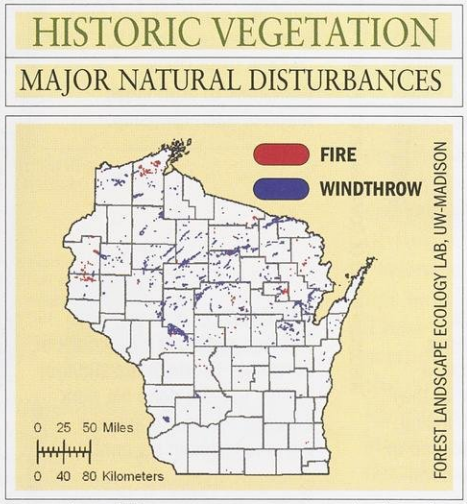
From microfilms of these notebooks, University of Wisconsin researchers have extracted ecological information and compiled a computerized, statewide tabular database of Wisconsin's 19th century vegetation. David Mladenoff began the project in 1994 with a graduate student, GIS scientist Ted Sickley, and hired students.

The Wisconsin DNR produced a geographic information system (GIS) database of statewide PLSS corners, allowing for information mapping and spatial analysis. This has been a more than 12-year ongoing project with several partners including DNR Science Services and Forestry programs staff.

Mladenoff explains that this map and database have advantages over past efforts. The Finley map, published in 1976 by the U.S. Forest Service, had been compiled and qualitatively mapped by hand by Robert Finley — Professor of Geography Emeritus, University of Wisconsin Center System. This was a huge effort and a valuable tool used for many years. John Curtis and others in the UW Botany department had created a more general, subjectively drawn map in the 1950s. A large format, more general map also was compiled and published as part of Chamberlin's *Geology of Wisconsin* (1873 to 1879).

The big advantage of the current GIS database is that it can be analyzed with many other mapped data sets, or classified at different levels of detail. Large or small areas can be selectively mapped and analyzed for many uses, such as understanding the relationship of vegetation to soil type and understanding how landscape patterns, forests and wildlife habitats have changed over time, as well as identifying priorities and locations for restoring ecosystems. For example, looking at this map, it is clear that vegetation is not randomly distributed statewide. The vegetation pattern is a product of interaction among climate, soils and Native American use. Disturbances such as natural fires, and especially windstorms, also occurred and were important in shaping the forests.

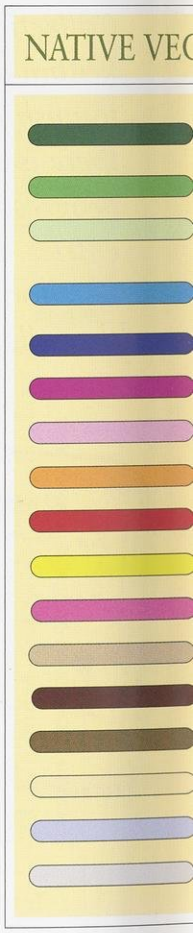
Native populations in the south burned the landscape more frequently, favorable to prairie, oak savanna and open woodlands. Sandy soils left here by glacial outwash in the north and an old glacial lake bed in the central part of the state were drier landscapes and burned more often, favoring pine species. Northern hardwoods, such as sugar maple, yellow birch and basswood, along with eastern hemlock, predominated on sites that rarely burned and were less sandy with greater moisture-holding ability.



In northern Wisconsin surveyors noted where fire and windthrow disturbances had occurred. Fewer locations were mapped in southern Wisconsin because the open prairie and savanna showed less evidence of such events.

Surveyors also recorded fire and windthrow locations and Mladenoff's group has used these data to show where natural disturbances were important in the northern forests.

Before the data are used, it is important to understand the limitations of how the data can be applied. Because the data were not collected for ecological purposes, they approximate, but do not duplicate, quantitative methods used for forest inventory or ecological surveys today. Therefore the variability and potential biases of the data need to be known and considered. Several studies have been done to understand biases in the data. One such study used the same survey methods as the original surveyors in today's current vegetation to see how accurately the survey data matched current vegetation. Technical scientific publications on these issues and other research using the data can be found at Mladenoff's Forest Landscape Ecology website: landscape.forest.wisc.edu/



Changes during the last 150 years due to logging, farming, reforesting and development have made it difficult to assess what the presettlement ecosystems looked like in Wisconsin. Wild prairie fires declined in southern Wisconsin as early as the 1830s, allowing open landscapes to quickly revert to brush and forest. Logging started around 1850 and loggers were followed by settlers changing the landscape.

This database development project was primarily funded by the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service to understand relationships between locations of historical vegetation and potential wildlife habitat management. However, the data have much broader implications and contributions were also received from the U.S. Forest Service, U.S. Geological Survey and the UW-Madison. The goal of the project was never to suggest restoration of the state to historic conditions. That is not desirable or possible. The goal was to understand where in the state are the best places to manage different habitat types based on where they occurred naturally in the past.

The main user of the data has been the DNR for improving the land management planning process. Dozens of agency projects, consultants, conservation organizations,

WISCONSIN'S *Land cover* IN THE 1800s

What survey notes tell us about the landscape before logging, farming and development.

WISCONSIN BOARD OF COMMISSIONERS OF PUBLIC LANDS

0 25 50 Miles

0 40 80 Kilometers

NATIVE VEGETATION 1832-1866

Tree labels below indicate the dominant and most abundant species in each class.*

- **Hemlock** *Tsuga canadensis*
  Yellow Birch *Betula alleghaniensis*
- **Sugar Maple** *Acer saccharum*
- **Aspen** *Populus tremuloides, P. grandidentata*
- **Elm** *Ulmus americana*
  Basswood *Tilia americana*
  Sugar Maple *Acer saccharum*
- **Beech** *Fagus grandifolia*
- **Cedar** *Thuja occidentalis*
- **Tamarack** *Larix laricina*
- **Jack Pine** *Pinus banksiana*
- **Red Pine** *Pinus resinosa*
- **White Pine** *Pinus strobus*
- **Red Oak** *Quercus rubra*
- **Black Oak** *Quercus velutina (includes* **N. Pin Oak** *Q. ellipsoidalis)*
- **Bur Oak** *Quercus macrocarpa*
- **White Oak** *Quercus alba*
- **Prairie**
- **Water**
- **No Data**

* Note: other species, some quite common, are contained within the dominant classes labeled. For example, these include in part in the north, balsam fir (*Abies balsamea*),white spruce (*Picea glauca*), red maple (*Acer rubrum*), white birch (*Betula papyrifera*) and ash species (*Fraxinus*). Ash and red maple are also common in the south. Also, species may occur in multiple classes, but classes are defined by the most abundant species. Wetlands are under-represented by the data.

FOREST LANDSCAPE ECOLOGY LAB, UW-MADISON

The land area now known as the State of Wisconsin was surveyed by the federal government between 1832 and 1866. The survey was done to divide the vast public domain into lots that could be sold, or otherwise divested, to raise funds for the federal government and to encourage development. The work was done using the Public Land Survey System (PLSS), which divides land into townships of 36-square-mile sections. ■ Along the way, surveyors also recorded notes about tree species, diameters, and distance from survey corners; waterbodies, swamps, marshes, prairies, barrens and geological features; evidence of fire and windthrow; and evidence of Native American and other human activity. More recently, researchers analyzing these notes have been able to create this map to paint a picture of Wisconsin's 19th century vegetation. ■ This map may be used by ecologists, researchers and other land management agencies as they reconstruct past ecological conditions, evaluate and explain changes in the landscape over time, and plan for the future of Wisconsin's environment and economy. ■ The data were not originally collected for ecological purposes, and analysis and use of the data require understanding of the variability and possible biases in the data. Technical details analyzing these issues, classification and mapping of vegetation and disturbances, and change in vegetation and land cover since the 1800s are detailed in published journal articles by the contributors credited below and listed at landscape.forest.wisc.edu/

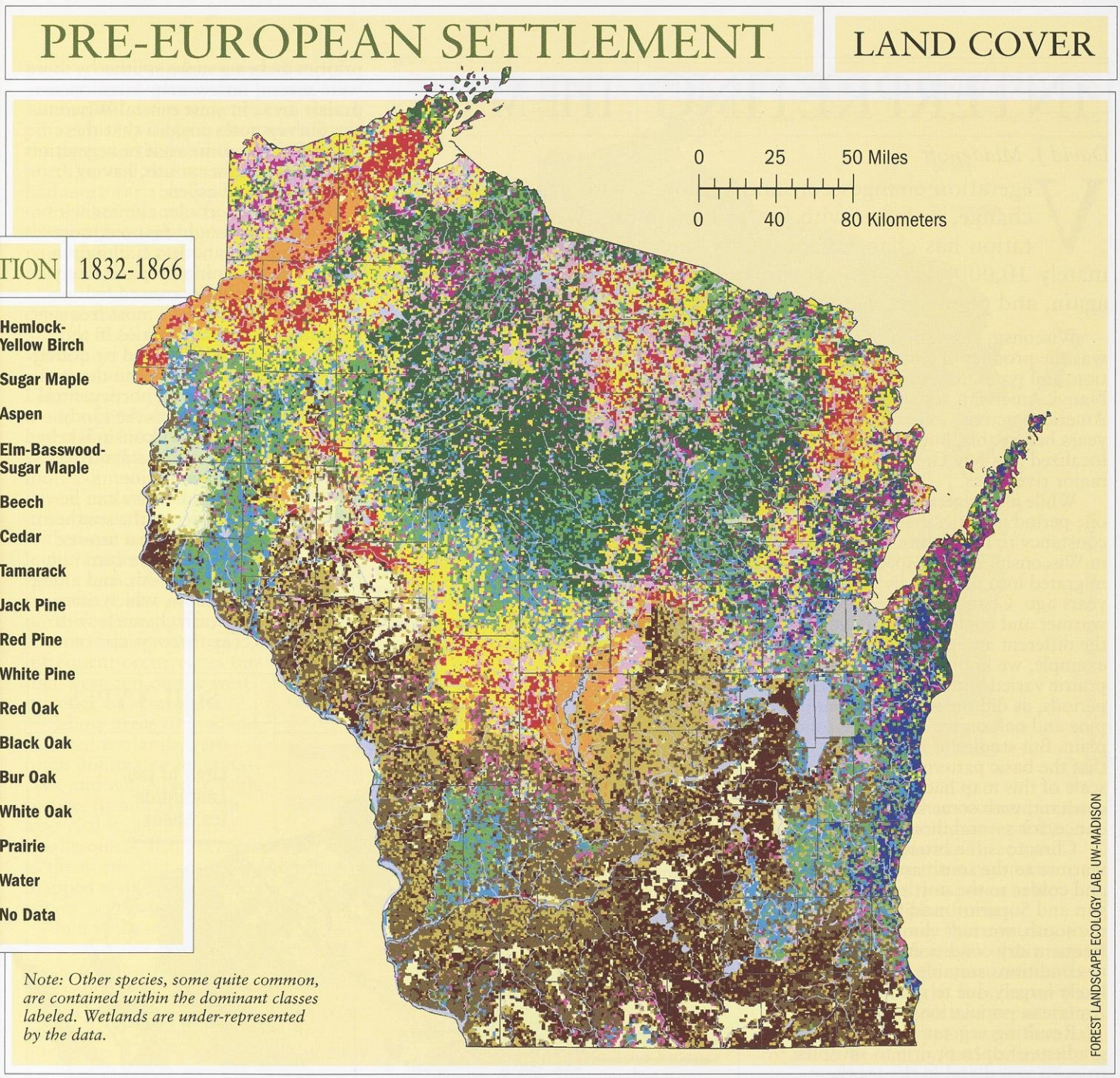
THE UNIVERSITY of WISCONSIN MADISON

WISCONSIN DEPT. OF NATURAL RESOURCES

This map was produced from work led by David Mladenoff, with Ted Sickley, Lisa Schulte, Jeanine Rhemtulla and Janine Bolliger, and with assistance from Sarah Pratt and Feng Liu. Other substantial contributors to this project include Kristen Manies, Volker Radeloff and Hong He, all while at the Forest Landscape Ecology Lab, Department of Forest and Wildlife Ecology, University of Wisconsin-Madison. We have also benefited from discussions with many colleagues who have reviewed and commented on our work. Poster designed by Thomas J. Senatori, Ted Sickley, David Mladenoff and Sarah Pratt. Funding for this long-term project was provided by Wisconsin DNR Bureau of Science Services and Bureau of Forestry. Particular thanks to Jerry Bartelt, DNR Science Services, for vision and support. Additional funds provided by the U.S. Forest Service, U.S. Geological Survey, UW-Madison, U.S. Fish and Wildlife Service and the Federal Aid in Wildlife Restoration Act, Pittman-Robertson Project W-160-P and the Wisconsin Department of Natural Resources. Thanks to the Wisconsin Board of Commissioners of Public Lands.

For more information, contact: David J. Mladenoff, Forest Landscape Ecology Lab, Dept. of Forest & Wildlife Ecology, University of Wisconsin, Madison, WI 53706. Website: landscape.forest.wisc.edu/

PUB-CE-4017 2009



private individuals and researchers have used the data and been assisted by Mladenoff's lab. Agency data use has provided information about what the land formerly held and what vegetation types different parts of the state were capable of supporting.

This is very useful information for understanding sustainable management and managing within the ecological boundaries of an area. It contrasts past practices in which individual agencies or programs developed plans for the few species or resources for which they were responsible.

From the perspective of the cost of achieving the desired goals, management plans will be most effective when they respect the natural variability of the area and work within its boundaries and constraints. For example, reintroducing a species to an area where it once existed is more likely to be successful and less likely to have unexpected, unwanted effects than introducing a species never found there.

More uses for the data are continually being found. For example, Mladenoff's lab has used the understanding of past vegetation, soils and climate to simulate modeling of future forests in the state with climate change.

"Ironically, paleoecologists are helping us to better understand the past climate that created the vegetation we see in the public land survey data," he says. "The more we understand these past relationships, the better we understand in general how tree species respond to climate, even as it continues to change. The usefulness of these data will only continue to grow and help us manage land use today and in the future."

Natasha Kassulke is creative products manager for Wisconsin Natural Resources *magazine.*

INTERPRETING THE MAPS

David J. Mladenoff

Vegetation changes constantly; slowly with gradual climate change, or faster with fire or human use. Wisconsin's vegetation has changed constantly since de-glaciation approximately 10,000 years ago, as climate warmed, cooled and warmed again, and plant species migrated north at different rates.

Wisconsin vegetation of the 1800s was the product of climate interaction, soil types, topography and Native American activity. Euro-American activity existed for 200 years before this, but was highly localized at a few Great Lakes and major river sites.

While any vegetation map from one period is static, there is some constancy to the picture of the 1800s in Wisconsin. All tree species had migrated into the state by about 3,000 years ago. Change occurred during warmer and cooler periods, and with the different amounts of fire. For example, we know that the extent of prairie varied with warm and cool periods, as did the relative amounts of pine and oak on the northwest sand plain. But studies of fossil pollen show that the basic pattern we see at the scale of this map had been relatively constant, with some shifting abundance, for several thousand years.

Climate is the broadest gradient: warmer to the south and southwest, and colder to the north. Lakes Michigan and Superior modify extremes. In the south, warmer climate and more frequent dry conditions contributed to conditions suitable for burning, likely largely due to greater Native American populations.

Resulting vegetation was largely a gradient of open prairie to savanna, to open woodland in the southern part of the state. A noteworthy mesic forest island, predominately sugar maple, basswood, oak and other species, occurred in the southwest along the Kickapoo River, which served as a firebreak from fires being driven by prevailing southwesterly winds. Black oak was most abundant in the central areas on sandy soils. White oak and bur oak were more abundant to the west and east, respectively, but common throughout.

More closed canopy mesic forest, with beech a major component, occurred along Lake Michigan, with sugar maple and other species, and more northern white cedar and hemlock on the Door County peninsula in Lake Michigan. Beech abruptly reaches its western range limit just a few counties in from Lake Michigan.

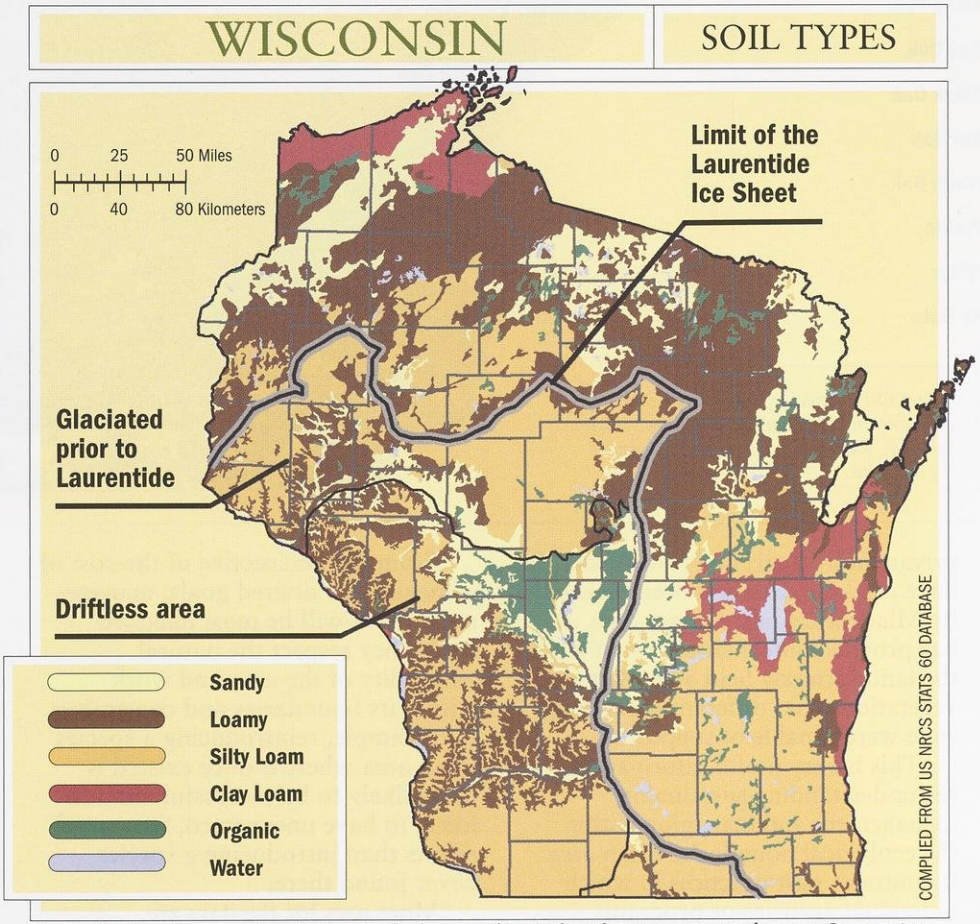
Especially away from Lake Michigan, this mosaic in the south was the result of dominant use of fire, interacting with climate, soils and topography.

Wetlands do not map well in the south based on the Public Land Survey System data because of the density of the PLSS survey points on the landscape, and because wetlands are often small and patchy, or long and narrow and were missed by survey points.

While we usually think of the prairies as being more southerly, there were several noteworthy large open prairie areas in west central Wisconsin. Survey notes suggest that these likely differed somewhat in vegetation from those further south, having more brush and aspen.

In the north, cooler climate with less frequent drought favored more conifer species, and less fire than in the south. Lightning fire, and likely more commonly fire caused by Native Americans, was most frequent in the sandy outwash plains in the north. These can be located by noting the concentration of pines in these plains in the northwest, north central and northeast, as well as the sandy former glacial Lake Wisconsin lakebed in the central part of the state. Red oak was common with pine.

Pine concentrations also can be seen along the border of the southern oak savannas and northern forests, where fires were also more common than generally in the north, and along the major river valleys, which often have glacial outwash channels with sandier soils. The three species of



General soil regions are largely due to the legacy of past glacial activity, or its absence. Comparing this map with the 1800s vegetation map shows the importance of soil types, especially dry, sandy soils, in driving vegetation. The Laurentide Ice Sheet covered northern and eastern Wisconsin during the last glacial period.

pines generally indicate a gradient of greater fire frequency and poorer, sandier soil, from white, to red, to jack pine. This is visible in the variability of the three northern sand plains. The north central and northeast plains also had more variable topography and more lakes to act as fire breaks than the northwest plain. Aspen (often with paper birch) occurred most often with pine on the fire-prone sand plains and along the savanna border in the west central area.

The PLSS data have shown that white pine especially was more common than we had thought along Lake Superior, often on clay soils with a mix of boreal conifers and white birch. Similarly, yellow birch was even more common than believed, and often dominant in the mesic forest region with sugar maple and hemlock. Hemlock and yellow birch reach the edge of their range east of the northwest sand plain, except for a few scattered infrequent occurrences further west and on the western edge of Minnesota.

Many areas of lowland forested wetlands were often dominated by tamarack and white cedar, with spruce, fir and black ash also visible. Many more smaller areas also occurred in the north, but are too small to be mapped well by the density of the survey points on the landscape.

In a wide arc around and in between the pine plains, the northern mesic forest of sugar maple, hemlock and yellow birch constituted the largest and most abundant forest type, on better soils and with very infrequent fire. Again, contrary to common assumptions, this was the most abundant forest type in northern Wisconsin, followed by pine. In fact, sugar maple, yellow birch and hemlock trees were all more abundant than white pine, though white pine was a close fourth.

Vegetation change

While vegetation change is indeed constant, the change from the 1800s to the present has been unprecedented. Besides elimination of most prairie, savanna and pine ecosystems, fossil pollen studies show us that relative abundances of species changed about five times as much since the 1800s as changed in the preceding 3,000 years.

The most striking change in the 19th century map and the present vegetation map is due to agriculture. Nearly all prairies, savanna and the eastern mesic forest with beech have been replaced by agriculture. Those remnant areas of oak savanna not converted to agriculture grew into dense canopy following fire suppression. The majority of wetlands in the south, poorly mapped with this data source, have been eliminated by agricultural drainage and development.

In the north, the big change has been large declines in the evergreen conifers in the uplands, the pines and hemlock. White pine is only five percent of its volume level in the 1800s, and hemlock less than 0.5 percent. In the north, the major cause of these declines is logging that occurred from the mid-1800s to the early 1900s, followed by extreme, repeated slash fires. Significant agriculture followed logging and still persists in the south central area of northern Wisconsin.

On the other hand, the cessation of more varied, natural and Native American-caused fires has eliminated the open pine savannas and open pine woodlands that occurred in the 1800s, largely on and around the three outwash plains. These are probably among the ecosystems with the greatest loss, even more than the closed pine forests.

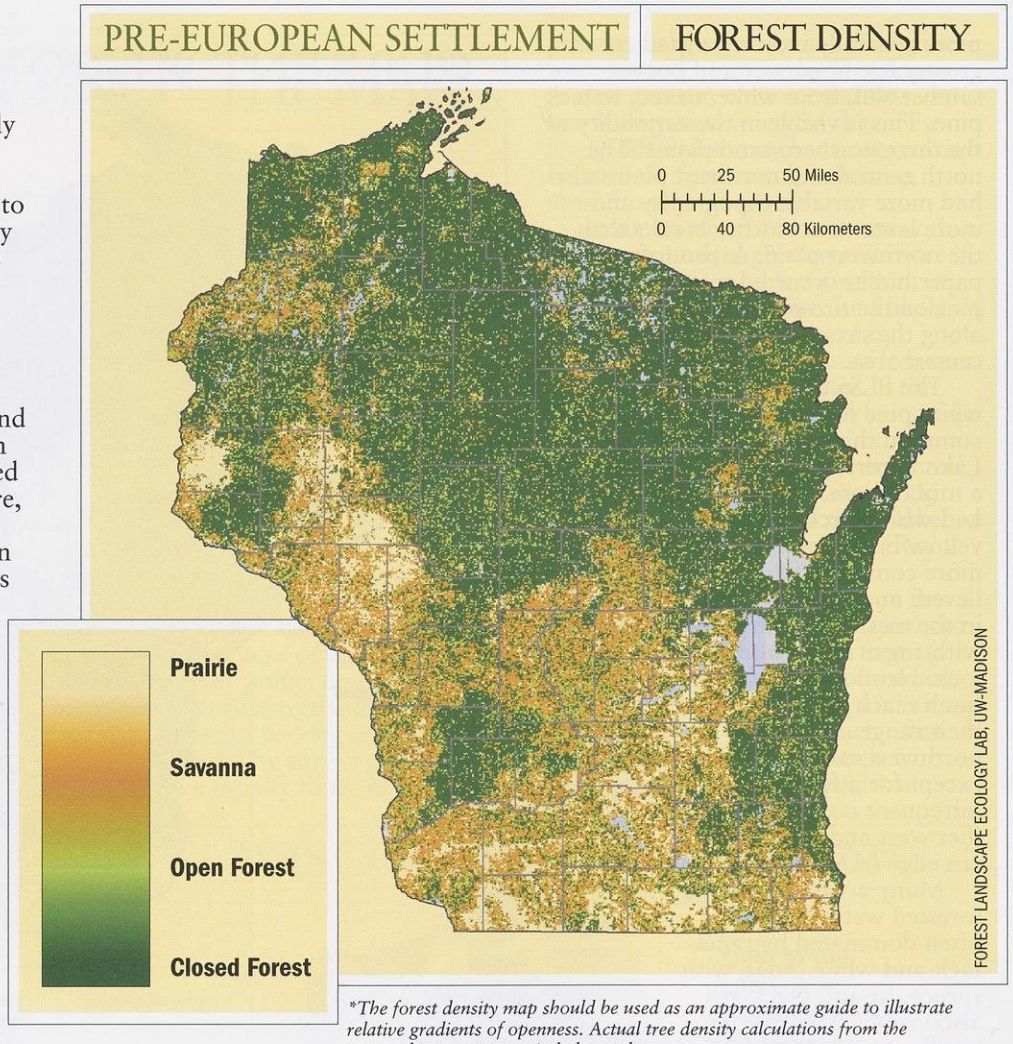
Research shows that contrary to common belief, less agriculture was attempted than often assumed in the north. Following the fires, aspen was favored in the north and became the dominant forest type for the first half of the 20th century, and the most important commercial species. Those areas in the north that did not burn, largely on the better soils, became dominated by a simplified mesic forest of predominantly sugar maple. This also increased slowly since the 1950s, replacing some aspen, but has stopped increasing. Yellow birch was largely lost from these forests as a dominant species, as was hemlock.

Ironically, the satellite map of today's vegetation cannot show the detailed species and genus level forest changes that we can derive from the survey data. Commonly available Landsat satellite data, while detailed, cannot distinguish tree types well, beyond evergreen and broadleaved deciduous.

Wetlands have not been lost in the north to the degree they have in the south, especially forested wetlands. However, northern wetlands dependent on frequent fire have likely declined significantly.

Less visible, with maps of this coarse scale, are continuing changes to the vegetation of the state due to very high deer abundance. This continues to affect both understory plants, herbaceous plants and shrubs such as Canada yew, as well as browse sensitive tree species, inhibiting their recovery. These include hemlock, northern white cedar, yellow birch and white pine, especially in the north. In the south, oak regeneration is affected by browsing as well as the lack of fire, which favors maple invasion.

Overall, changes have been driven by human use that directly eliminates ecosystems, such as agriculture and development, especially in the south, and logging followed by extreme fire in the north. Currently, commercial forestry is more important in the north, but also can either maintain types, such as aspen, or prevent forest succession to other types. Recent forest inventory data suggest that white pine is notably increasing in the north. The end of varied, natural fires has affected ecosystems in both the north and south.



**The forest density map should be used as an approximate guide to illustrate relative gradients of openness. Actual tree density calculations from the survey data cannot precisely be made.*

Future change

Future changes are perhaps less likely to be characterized by recovery than we have assumed. Loss of seed sources for trees such as pine, hemlock, yellow birch and cedar, along with deer browsing, will be the reason for some of this. Climate warming directly, and broader global change-caused effects, such as new insect and disease pests arriving due to global commerce, will undoubtedly have an effect and already have. Our recent research using computer modeling also suggests that northern forest species may decline with warming and some at the southern edge of their range may be lost over the next century. Our biggest challenge now is uncertainty associated with what future changes will be from climate to land use change.

Interestingly, even with great change in the recent past and likely change in the future, the data on the vegetation of the 1800s continue to be of great value. First, because of high future uncertainty and concern for biodiversity loss, a conservative approach to maintain what we have had is prudent. Second, as paleoecological research continues to increase our knowledge about past climates that produced the vegetation of the 1800s, it helps us to better understand species-climate relationships in general.

THE UNIVERSITY of WISCONSIN MADISON

WISCONSIN DEPT. OF NATURAL RESOURCES

Funding for this research provided by the Federal Aid in Wildlife Restoration Act, Pittman-Robertson Project W-160-P and the Wisconsin Department of Natural Resources.

Additional funding for the research described here was provided by Wisconsin DNR Bureau of Science Services and Bureau of Forestry, U.S. Forest Service, U.S. Geological Survey and U.S. Fish and Wildlife Service. Thanks to the Wisconsin Board of Commissioners of Public Lands. For more information contact: David J. Mladenoff, Forest Landscape Ecology Lab, Dept. of Forest & Wildlife Ecology, University of Wisconsin, Madison, WI 53706. Website: landscape.forest.wisc.edu/

Designed by Thomas J. Senatori

PUB-CE-4018 2009

Containing the threat

Natural resource managers work to keep invasive species like Asian carp from spreading in Wisconsin waters.

Julia Solomon

When you head out for a day on the water you keep an eye out for all sorts of hazards — bad weather, hidden shoals, motor trouble, even sunburn — but until recently, dangerous leaping fish were not likely on any boater's list of concerns. That may be changing.

In December 2008, the Wisconsin Department of Natural Resources confirmed Asian silver "jumping" carp had reached Pool 7 of the Mississippi River, near La Crosse — the first documented finding of this species in Wisconsin waters. Silver carp (*Hypophthalmichthys molitrix*) are notorious for leaping out of the water in response to the vibration of passing motorboats. Since these fish can grow up to 40 pounds and leap in the air six feet or more, they have been known to cause serious injury to boaters, and are also bad news for native fish and aquatic plants.

CHRIS OLDS, USFWS

Fisheries Biologist Heidi Keuler with the U.S. Fish and Wildlife Service participates in a silver carp roundup on the Illinois River near Starved Rock State Park. Vibrations from passing motorboats lead these fish to try and escape by leaping out of the water.

These invasive carp have been moving up the Mississippi River into feeder rivers and tributaries for years. Flooding allows them to move upstream past locks and dams. They have now been detected as far north as Pool 7 near La Crosse.

WISCONSIN DNR FILE PHOTO

Several species of Asian carp (silver, bighead, grass and black) were imported to the southern U.S. to filter plankton and detritus from aquaculture ponds in Arkansas and Mississippi in the 1970s. They escaped to the Mississippi River during floods in the early 1990s and have been making their way upstream ever since. All species except black carp have now been reported in Wisconsin waters of the Mississippi.

Vulnerable borders

DNR fish biologists are realists when it comes to the Asian carp. "We weren't too surprised to hear about this recent finding in the Upper Mississippi. We have known for a long time that they were headed our way," says DNR Supervisor Ron Benjamin, who heads the Mississippi River Fisheries Team. He attributes their recent northward movement to the floods of spring 2008. "Locks and dams can be a barrier to upstream migration, but when flood waters overwhelm the dam, there's nothing to prevent fish from swimming upstream."

Benjamin is not about to give up hope, though. "We're worried about the impact of these invasive fish on the upper Mississippi," he says. "We don't know yet what those consequences will be. But diverse ecosystems with quality habitat fare better when coping with invasive species, so we'll focus on keeping the river healthy. Maybe the most important thing we can do is to prevent invasive species from spreading inland and to the Great Lakes."

This message of containment resonates with Jeff Bode, DNR chief of the Lakes and Wetlands Section. Bode also directs agency efforts to prevent and control aquatic invasive species. He points out that Asian carp are not the only species threatening Wisconsin's lakes and rivers.

"The Great Lakes contain over 180 non-native species, so unfortunately, Asian carp are just one of many potential invaders at our borders," he says. "People are familiar with invasive plants and animals like Eurasian watermilfoil and zebra mussels that are already found in Wisconsin lakes, but they may not know about some of the other species that we are working to keep out."

Bode mentions several lesser-known invaders like the quagga mussel (a close cousin to the zebra mussel), the round goby (a small voracious fish that preys on native fish eggs and young), and didymo (an algae also known as "rock snot" that forms slimy, impenetrable mats in streambeds). All of these invasive species occur in Lake Michigan, Lake Superior or both waters.

Stopping the spread

Between the invasive species already established in Wisconsin lakes and the ones knocking at the door, halting the spread of unwelcome invaders can seem like a daunting task. It doesn't intimidate Bode, though. "Some people say that the spread of invasive species is inevitable, but what is indomitable is the will and energy of the people of Wisconsin who love our lakes and streams. Together we are making a difference."

Wisconsin's long track record of commitment to controlling aquatic invasive species is built on partnerships with dedicated, active volunteers. Citizens across the state have taken the initiative to inspect boats at local landings and educate boaters about the threat of invasive species. In 2008 alone, watercraft inspectors, many of them volunteers, talked with more than 100,000 boaters around Wisconsin. Citizens also actively monitor their lakes for invasive species and educate local communities about the threats posed by these invaders.

"Volunteer commitment to this issue is truly inspiring," says Bode. "Folks routinely give up their holidays and weekends to stand at the boat launches talking to people."

The state of Wisconsin has also made big investments in aquatic invasive species. Since 2003, DNR grants have been available to local communities to fight aquatic invasive species. Funding for this program has increased steadily to its current level of $4.3 million per year.

DNR law enforcement professionals have also stepped up their efforts to stop the spread of aquatic invaders. Wisconsin has several laws designed to prevent the spread of invasive species and the fish disease VHS, and wardens take these regulations seriously. In 2008, the DNR secured funding for nine

new Water Guard deputy wardens whose sole focus is preventing the spread of aquatic invasive species and VHS by providing education as well as enforcement. They've been enthusiastically received around the state.

Bode says that increased funding for grants and enhanced enforcement are signs of a broader statewide trend. "Wisconsin takes the threat of aquatic invasive species very seriously," he says. "In the past several years we have seen an increased commitment by the state and our partners to approaching this issue strategically."

A culture of containment

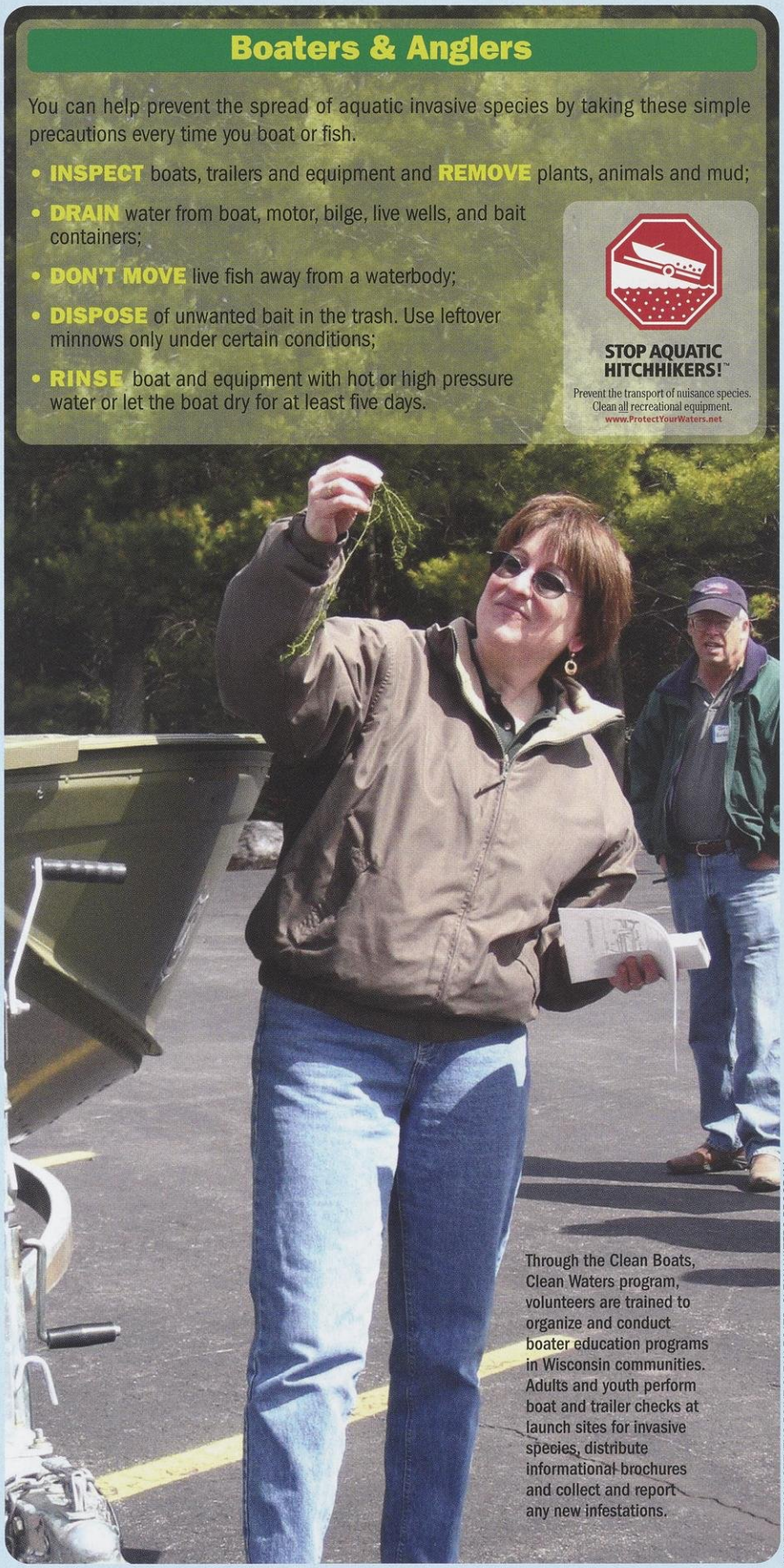
So what does it mean to strategically prevent the spread of aquatic invaders? Recent scientific research sheds some light on this question.

Dr. David Lodge and his research group at the University of Notre Dame have been looking for the most effective ways to keep aquatic invasive species from spreading, and their findings have profound management implications.

John Rothlisberger, a PhD student in Dr. Lodge's lab and one of the lead researchers in this work, explains that they set out to evaluate two common prevention approaches — containment and shielding. "In dealing with an invasive species, you can either contain it and focus your effort on keeping it from moving anywhere else, or you can shield the other places that it might spread to, focusing your efforts on keeping it out of those places. You can think of it as going on the offense (containment) versus playing defense (shielding)."

The defense or "shielding" approach is a common one — if you live on a lake that doesn't have invasive species, it is natural to want to keep them out, and the most obvious way to do that is to keep them from being introduced into that lake by incoming boaters. Rothlisberger agrees that if the goal is protecting a single lake, then, shielding is an effective tool. But if the goal is to reduce the overall rate of spread of invasive species across the landscape, the picture changes.

Mathematical models show that



Through the Clean Boats, Clean Waters program, volunteers are trained to organize and conduct boater education programs in Wisconsin communities. Adults and youth perform boat and trailer checks at launch sites for invasive species, distribute informational brochures and collect and report any new infestations.

UW-EXTENSION STEVENS POINT CLEAN BOATS, CLEAN WATERS PROGRAM

the offense or "containment" approach is actually more effective at reducing the overall rate of spread of aquatic invasive species in many situations. "Our models show that if less than half of the lakes on a landscape are invaded, then containing invaders where they are known to occur is the most effective strategy for reducing spread," Rothlisberger says. His findings with co-researcher Kevin Drury of Bethel College were published in the February 2008 issue of the ecological research journal *Oikos*.

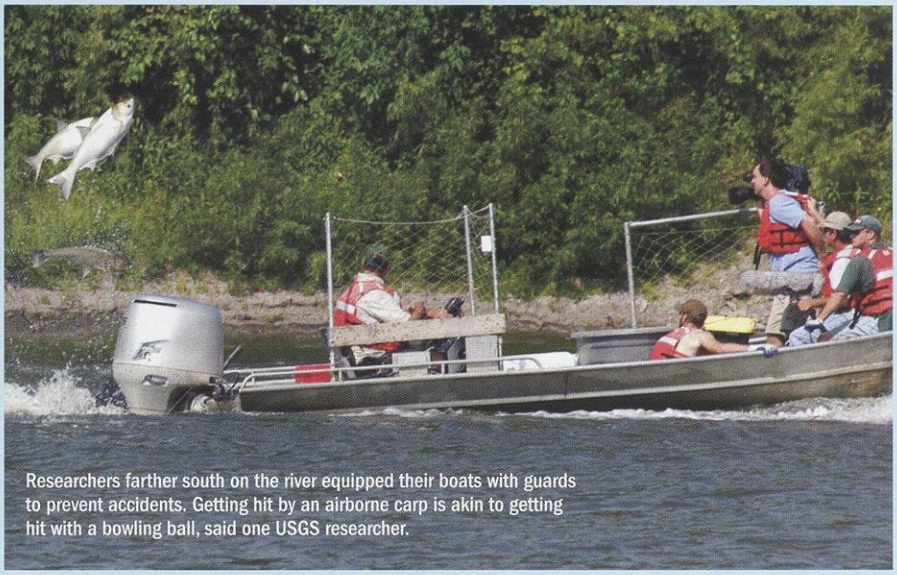
Their conclusions were of great interest to DNR's Bode. "Only a small fraction of Wisconsin's lakes contain the most problematic invasive species," he says, "so at a statewide scale, containment is really our best strategy."

Bode hopes to create a statewide "culture of containment" to keep invasive species from spreading. Programs will focus on popular fishing and boating waters like the Great Lakes, Lake Winnebago and the Mississippi River that contain multiple invasive species. The Department of Natural Resources has put containment into practice this summer, sending its watercraft inspectors to high-use waters and giving priority to grant applications from these areas.

Bode doesn't plan to stop there, though. "What we really want to do is promote an understanding of why we are concentrating containment time and dollars in certain waters. This will mean a cultural shift for a lot of people who have been working hard to shield their lakes. We'd like to get to a point where people recognize that to really protect a lake, you might have to look beyond one particular body of water. You might also need to help contain invasive species at the lake or river down the road."

Steps in the right direction

If you live in western Wisconsin, the river down the road is the Mississippi, of course, which brings us back to DNR fisheries supervisor Ron Benjamin, and those pesky jumping carp.



Researchers farther south on the river equipped their boats with guards to prevent accidents. Getting hit by an airborne carp is akin to getting hit with a bowling ball, said one USGS researcher.

STEVE MORSE, UNIVERSITY OF MISSOURI-EXTENSION

"In many ways, Asian carp are a perfect example for containment," says Benjamin. These jumping carp have not yet been found in any inland waters, so we're working to contain them to the Mississippi and its tributaries. Also, since they are a larger species, Asian carp are less likely to be transferred from one water to another accidentally — unlike many invaders that can spread undetected. "Small Asian carp can look a lot like common bait species," Benjamin points out, "but our current VHS rules already prohibit wild bait harvest in the Mississippi, so we're ahead of the game on that one."

The DNR has stepped up containment efforts on the Mississippi this summer. Watercraft inspectors and wardens are providing educational materials about the

The invasive bighead carp is even larger than silver carp. Through monitoring, help from anglers, the Water Guard program and other staff financed by federal stimulus money, Wisconsin officials hope to contain invasive carp species to the Mississippi.

U.S. GEOLOGICAL SURVEY

perils of Asian carp and other invasive species. The Water Guard will be spending more of its time on lakes and rivers that are known to contain multiple invasive species and are heavily used by transient boaters. More volunteers will also be recruited to talk with anglers and boaters in these riverside communities.

Boaters and anglers who want more information can pick up pocket-sized "watch cards," sort of a "wanted" poster about the size of a baseball card. They have pictures of the species on one side, information on the back on how to identify the invasive species and what to do if you believe you have caught an Asian carp or other invasive. Since Asian carp are filter feeders that don't readily bite a baited hook, most have been caught to date by commercial fishers who net their catch. Nevertheless, it is always wise for recreational boaters and anglers to be aware and vigilant. Note the waterbody and date where you caught it (GPS coordinates are helpful if you have them). Take photos, but do not bring the fish to DNR Service Centers or hatcheries. Contact the local fisheries biologist or call the DNR TIP line — 1-800-TIP-WDNR — 1-800-847-9367.

Though Ron Benjamin agrees that it is important to spread the word about the Asian carp, he points out how boaters can prevent spreading invasives by taking the same common sense precautions that are recommended statewide. "It's pretty simple, really," Benjamin says. "Clean your boat, drain water, never move live fish away from a landing. And always buy your bait from a registered Wisconsin bait dealer."

Jeff Bode agrees. "People are doing the right thing," he says. "We all love Wisconsin's lakes, and no one wants to see species like the Asian carp spread into our state. I am confident that together we can protect our waters for ourselves, our children and grandchildren."

Julia Solomon is an aquatic invasive species educator with a joint appointment at the Department of Natural Resources and the University of Wisconsin-Extension.

KEEPING CURRENT IN THE ELECTRIC CURTAIN

Before 1900, there was no permanent open water connection between the Mississippi River and the Great Lakes. That changed in the late 1890s when a massive engineering project reversed the flow of the Chicago River to carry sewage away from Lake Michigan and create a canal for barge traffic between Lake Michigan and the Des Plaines River that eventually flows into the Illinois River and the Mississippi. The 28-mile drainage system nearest the lake, dubbed the Chicago Sanitary and Ship Canal, was blasted through miles of rock to connect the two waterways. It also opened the door to the potential exchange of many unwanted species.

PHIL MOY, WISCONSIN SEA GRANT PROGRAM

The map shows where the carp barriers have been installed to try and keep invasive carp from connecting from the Mississippi River into the Great Lakes.

Scientists and policymakers recognized the importance of preventing the passage of fish and other aquatic organisms, and in 1996 Congress authorized construction of an electric barrier designed to allow boat traffic but prevent the spread of non-native species between the Great Lakes and Mississippi River basins. Today, the most immediate threat for non-native species dispersal through this manmade connection is Asian carp moving from the Mississippi River into the Great Lakes.

U.S. ARMY CORPS OF ENGINEERS

This schematic shows where electrical currents will aim to form an effective barrier repelling invasive carp.

The U.S. Army Corps of Engineers has constructed two barriers in the Chicago Sanitary and Ship Canal. The first, constructed in 2002, was a demonstration project. That barrier has since been supplemented with a larger and more powerful version that went into service the first week of April 2009 near Romeoville, Illinois about 37 river miles southwest of Lake Michigan. The micro-pulsed DC electric barrier effectively prevents fish passage, but is not without drawbacks. Sparks between barges and the health risks for a person in the water when the electric current is activated caused the U.S. Coast Guard to issue warnings to mariners in the area of the barrier.

Asian carp have not yet reached this dispersal barrier, but monthly monitoring conducted since May 2004 indicates the carp are only 13 miles downstream and are separated from the barrier by two locks. This summer, research at the Army Corps of Engineers laboratory in Vicksburg, Mississippi will determine how strong the electrical field must be to repel juvenile Asian carp. Thereafter, appropriate adjustments will be made to the barrier. Technological additions to strengthen and supplement the barrier are also planned for the future.

Although scientists are optimistic about the success of the electric barriers in the Chicago Sanitary and Ship Canal, they caution that they are not a panacea. Electric barriers work by causing fish to turn around and swim back when they enter the electrified area, but the barrier has no effect on plankton or plants. Also, since the electric field is not selective, it is not an appropriate tool for natural systems where passage of some migrating fish species is desirable.

Technical information about the Chicago Sanitary and Ship Canal dispersal barrier provided by Dr. Phil Moy, Fisheries & Aquatic Invasive Species Specialist, UW Sea Grant.

Romp on the

Adventure Day offers a Huck Finn mix of activities for kids and families on the Mississippi.

Ruth Nissen

On a warm day last July, 185 children with parents in tow descended on a small city park in Lansing, Iowa just across the Mississippi River from De Soto, Wisconsin. Though they gathered at a ball diamond complete with bleachers, these kids weren't here to play ball. They came from towns and cities in Wisconsin, Iowa and Minnesota to follow an enticing promise: a whole day on the Mississippi River enjoying a Huckleberry Finn-type Adventure Day. Under blue skies with a gentle breeze and temperatures that climbed to the eighties, the kids warmed up to the chance to just be kids, to get wet and dirty while pollywogging for mussels, netting fish, chasing jumping frogs and floating down the broad river; the stuff that dreams, memories and great stories are made of.

After a quick registration, the kids scurried to heaping piles where they donned life vests, which were sorted by size, then headed to the bleachers to find their seat in groups sorted by age from the two- to six-year-old "Bluegills" on up to the 17-year-old "Eagles." After listening to a short introduction and a wide open schedule of events, the kids went off in a flurry of energy

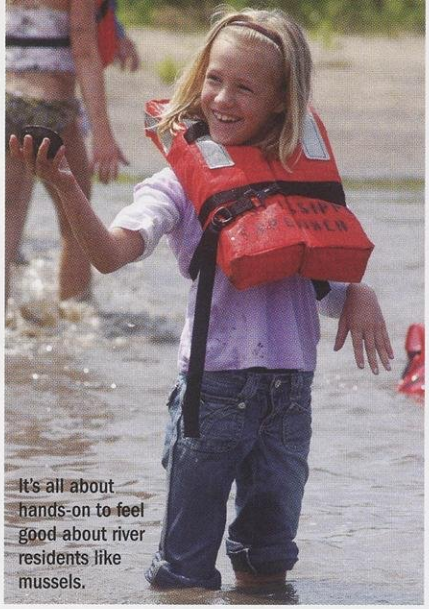
and excitement to find their boats and new friends for the day.

This day of outdoor adventure was free to all participants, sponsored by the Friends of Pool 9 on the Mississippi River, a group with members in both Wisconsin and Iowa who had been planning the event since January with the help of Tim Loose, refuge operations specialist, from the McGregor District of the Upper Mississippi River National Wildlife and Fish Refuge.

Previously, Loose spearheaded a yearly Mississippi River Festival for school groups along with partners from neighboring federal and state natural resource agencies. The festival, which has been held annually since 2001, alternates locations between Iowa and Wisconsin, and has been wildly successful, hosting 500-700 middle- and high-school-aged students. It has been so popular that a second education festival catering to fourth and fifth graders was started at the Trempealeau National Wildlife Refuge, 20 miles north of La Crosse. Loose had long noticed that the highlight for the kids, regardless of their age, was getting out on the water in boats, and if at all possible, getting wet in the process.

With that in mind, Loose and John Verdon, president of the Friends of Pool 9 and a retired high school science teacher, thought it would be good to go one step further. They wanted to offer kids the freedom and the kind of experience that Verdon had enjoyed as a child, more of an unstructured experience in nature with ample time to explore; something today's kids don't often get to do even though research shows play in nature is especially important for developing capacities for creativity, problem-solving and intellectual development, besides being just plain fun.

Verdon has had a lifelong interest in the Mississippi River. As a boy, he spent years exploring the labyrinth of backwaters helping his father, who was a commercial fisherman. In the process, his dad had shared his knowledge of the river and a deep-rooted love of nature.



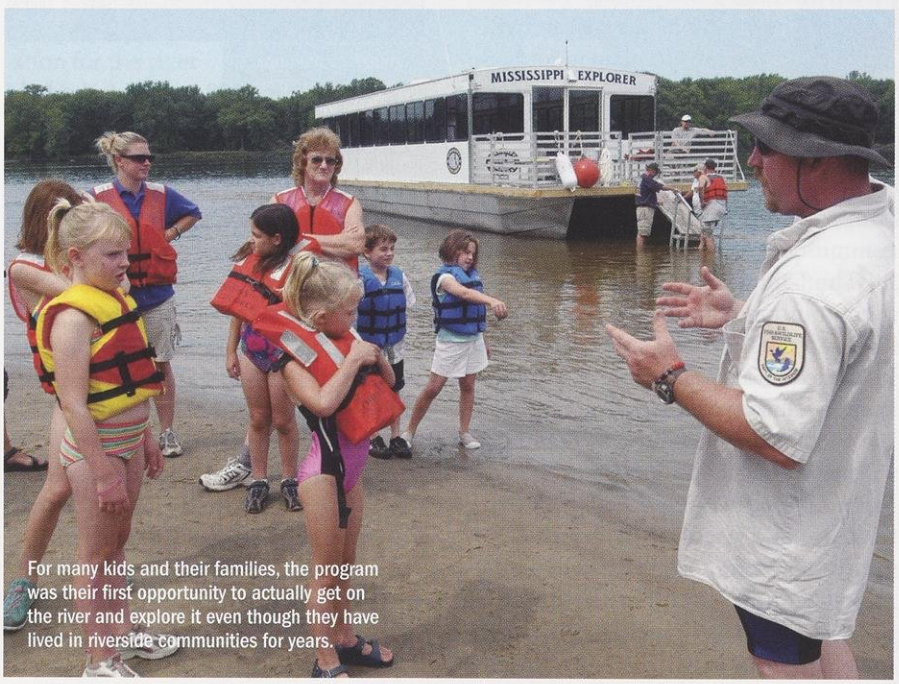
It's all about hands-on to feel good about river residents like mussels.

ROBERT QUEEN

The other members of the Friends of Pool 9 have similar stories from living in the towns that border this stretch of the river in Iowa and Wisconsin. "They belong to the Friends group because they want to share their love of the river and give back to the resource," Verdon says. Prior to this project, the Friends have tackled river clean-ups and refurbished public beaches on upper Pool 9. The members were well aware that although they spent much of their free time on the river fishing, hunting, boating or camping with their families, or had even earned their living on the water, times had changed. Today, many kids who live in the three-state area, have

"Grab a net and let's get wet," said DNR Fisheries Biologist Pat Short as he helped kids haul in a seine during the Adventure Day.

ROBERT QUEEN



For many kids and their families, the program was their first opportunity to actually get on the river and explore it even though they have lived in riverside communities for years.

ROBERT QUEEN

Hop to it! Youngsters gently handle toads, frogs, and turtles, and observe other wildlife on their river day.

RUTH NISSEN

never been out on the water or seen the Mississippi River except from a highway — even those kids who live in towns perched on the bluffs along the river.

Since Loose had contacts among conservation agency partners from the Mississippi River Festival, he rounded up government boats, drivers and presenters from the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, Wisconsin's and Iowa's departments of Natural Resources, the Clayton County (Iowa) Conservation Board, the Allamakee County (Iowa) Conservation Board, the Vernon County Land and Water Conservation Department, and the National Audubon Society. These agency people are willing to make the time to pitch in for both the river festival and the Adventure Day to pass on their enthusiasm for the river environment, their belief in conservation and the hope that kindling a connection to the river will kindle a commitment to its protection.

The Friends of Pool 9 used their own pontoon boats and skiffs to ferry kids and parents in separate boats. The kids piled into two Mississippi Explorer Boats — large, shallow drafting tour boats that could shuttle 25 kids at a time to each adventure area. The Friends donated about $500 worth of boat use and gasoline to the day and secured a $4,500 grant from the Allamakee County Community Foundation (ACCF). They purchased life vests for each child for the day and organized lunch for 250 people to be held on a sandy beach island in the river. Since the kids were going to be around water, the Friends organized and took on assignments as group leaders and station assistants to cover safety. They also had law enforcement officers on hand to coordinate any emergency or medical response. Last, but not least, they chose a rain date, which was a smart move since high water flooded out the original event day in June 2008.

They also learn to cast a purse net to collect small fish and aquatic invertebrates.

ROBERT QUEEN

When the day finally arrived, it was hard to tell who was more excited, the 30 Friends of Pool 9 or the kids. It was quite a flotilla that set off for adventure. As John Verdon said as we left the shore, "The best thing is parents and grandparents are with them on a great day on the river!"

Children were divided into eight groups according to age. The "Catfish," average age 6, headed off to check out frogs, toads and aquatic insects with presenters Angie Reid, naturalist with Clayton County Conservation Board and Dan Mohn, Iowa DNR. Reid told the kids how to handle the frogs to avoid injuring them: "Pass the bucket around, if you touch him, use one clean finger as sand is ouch on the frog's skin."

Touching is important because children have much more affection and respect for things they can actually touch. Next Mohn put a toad on the sand in the circle of kids and the fun began. Calls of "Don't squish him!" rang out among the excited squeals of six-year-olds as the toad jumped and some of the braver kids tried to get a closer view. Eventually Mohn put the toad back into the cooler so it could rest. Then it was on to the aquatic bugs.

Meanwhile a short distance up river the "Ducks" (age 8) and the "Otters" (age 9) were diving into the world of fish seining and pollywogging for mussels. Parents watched as their kids plunged fearlessly out into the sheltered bay where the Friends of Pool 9 station assistants were in the water, ready to help. Pat Short, Wisconsin DNR fishery biologist at Prairie du Chien, showed the kids how to throw a cast net which forms a purse when thrown. Nearby, Todd Roensch, fisheries technician, helped Sarah Yaeger and Brigid Berns pull a long seine net that has floats on the top edge and weights on the bottom to capture small fish and other organisms cruising the shallow shoreline. There was much giggling and laughing as the kids attempted to make the nets work as effortlessly as Short had shown them. About that time two boys in the pursuit of small fish with a hand net discovered a water snake hiding out in the branches of a fallen tree and the group dynamics changed again.

Short has worked on the Mississippi for seven years and has been involved with the river festival and the Mississippi River teacher workshops for most of that time. Although he always has an engaging way of

explaining the fascinating world of Mississippi River fish at education festivals or teacher workshops, it can't come close to the sheer exuberance of both the kids and the biologists when Short called out to the group after his first demonstration, "Grab a net and let's get wet!"

After a while it was time to switch stations and move onto Mussel Beach, an area where Tim Yaeger, McGregor district manager for the Upper "Miss" Refuge, and Tony Brady from the USFWS Genoa Fish Hatchery, had carefully placed live mussels in the sand to be discovered by the participants. The only problem is that the students were really quick and very diligent at finding them. This was way better than any treasure hunt! Any spectator could quickly see why kids were put to work pollywogging for mussels during the heyday of the button industry in the early 1900s.

At last it was lunch time — and the Friends' spread was greeted with expressions of "Wow, look at what's in this bag!" A sandwich and chips never tasted so good. The children and their parents sort of collapsed on the sand for a few brief moments, relaxed and then it was off on another boat trip up river to the next stop — exploring the bottomland forest with Kurt Brownell and Kristin Moe from the U.S. Army Corps of Engineers. The kids and their parents set off on a brief hike after learning about important details like how to identify poison ivy and nettles as well as how to savor mulberries right off the tree.

About this time, some of the kids were drooping a bit, but a fast trip downriver to check out the catch of some retired commercial fishermen revived them, especially when they saw Jerry and Guy Boardman from Ferryville pull up the hoop nets with some huge catfish in them. Questions rang out across the water: "How big is the fish (30 lbs.), what is the biggest fish you ever caught (98 lbs.), what's your dog's name?" The Boardmans answered the questions and told the kids a little about commercial fishing and a lot about the river.

All in all it was a delightful day, and this first Adventure Day was deemed a resounding success for everyone involved. Some kids, like Alexis Bahr and Emy Dehli, collected physical treasures in the form of shells, while others collected memories like the four-year-old boy, who was still pumped with energy as he scampered by his mom's side on the way to the car. When asked "What was your favorite part?" he answered exuberantly, "Swimmin!" Undoubtedly he slept well that night.

For the Friends of Pool 9, "It was nice to know you might make a difference in some small way and spark the interest in a child," Verdon said. For the natural resource agency people involved, Adventure Day offered a special opportunity to invest in the future by helping the kids and their parents develop a sense of place about the Mississippi River.

Encouraging the kids and their parents to get out and explore, develop an appreciation for the river and form an emotional attachment to nature is all part of the experience. We hope that sharing family time in a natural setting forms lasting memories that linger far longer than video games or even team sports participation where parents are in the audience but not part of the game. Such outdoor days remind families that they don't have to travel 500 miles to exotic locations to make memories of family time together. It is all possible much closer to home. And we look forward to making it easier for families and children to experience that sense of adventure. There may be no better way than to just get wet, find critters in the mud, eat lunch on a sandbar and share the discoveries of the day with your parents.

We hope to continue Adventure Day as an annual event. This year, the program ran on July 20th. To track future programs and receive registration materials, go to the Friends of Pool 9 website: friendsofpool9.org. There are many other opportunities on the Mississippi River and statewide to get connected with nature. Take DNR field trips, visit nature centers, sign up for weekend workshops, go camping, wet a line, float a boat, join hunts for wild foods, hit the trails, take a scouting trip, dust off the bikes or just hike the woods together to share an outdoor experience. For starters, check out the Wisconsin DNR web pages (dnr.wi.gov). If you are near the big river, try the U.S. Fish and Wildlife Service-Upper Mississippi River Refuge webpage, www.fws.gov/midwest/uppermississippiriver

Kids and adults got to meet both researchers and commercial fishers who use tools like these hoop nets to catch big fish and turtles in season on the Mississippi.

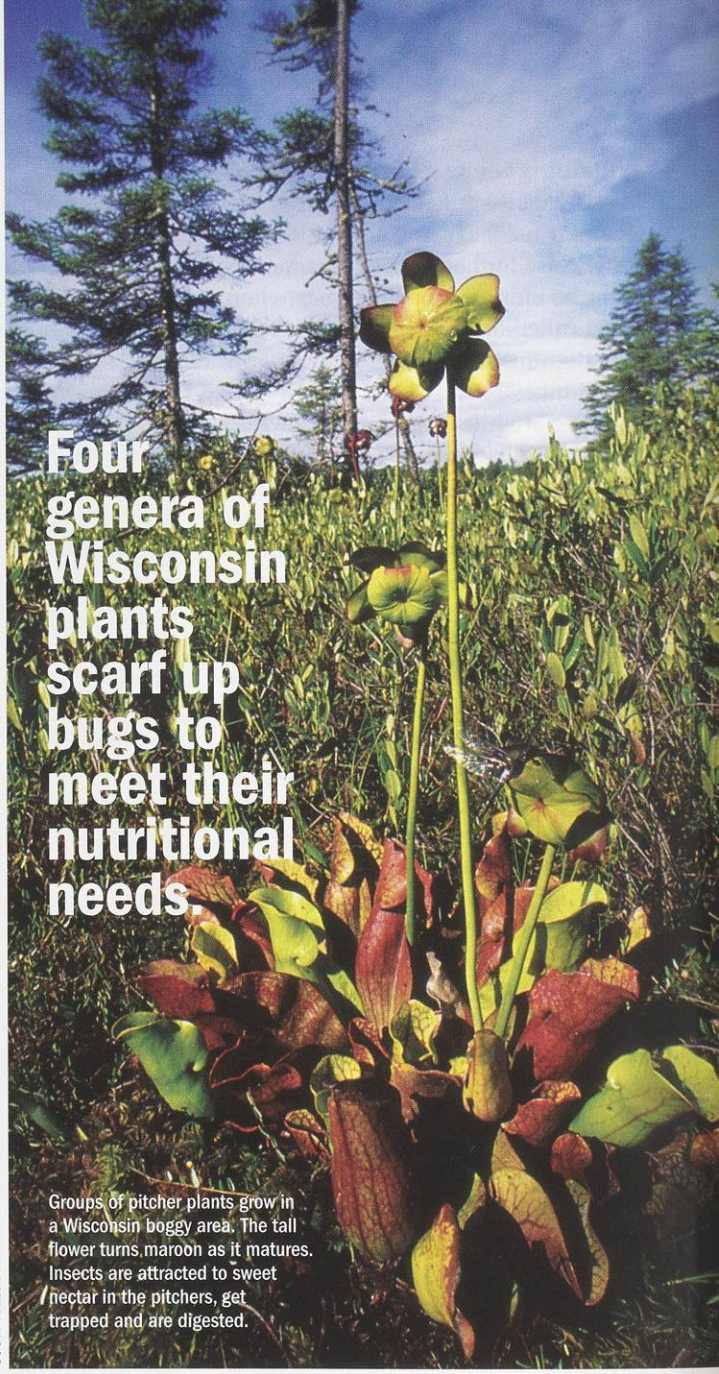
ROBERT QUEEN

Ruth Nissen is a biologist with DNR's Mississippi River Team based in La Crosse.

Meat eaters with roots and leaves

Teresa A. Golembiewski

Carnivorous plants, as their name implies, are plants that eat meat! This adaptation enables them to thrive in low-nutrient environments. Nearly all of Wisconsin's carnivorous plant species inhabit sphagnum bogs.



Groups of pitcher plants grow in a Wisconsin boggy area. The tall flower turns maroon as it matures. Insects are attracted to sweet nectar in the pitchers, get trapped and are digested.

SCOTT NIELSEN

Such bogs are northern peaty wetlands and if you visit one, you will be particularly impressed that it forms a bouncy mat of sphagnum moss and other plants. This mat is alive on top, but underneath lie several feet of barely decomposed organic matter, primarily dead plants. Sphagnum bogs are typically acidic, anaerobic and cold. These conditions discourage bacteria from fulfilling their role as decomposers. Plants and animals that die in a bog thus remain largely intact and their component nutrients don't break down, so they are unavailable for plant uptake. A carnivorous plant's ability to obtain essential nutrients (primarily nitrogen) from its insect prey allows it to thrive in this challenging environment.

Worldwide, most carnivorous plants grow in acidic, nutrient-poor, freshwater wetlands. The primary exceptions are tropical pitcher plants that grow in the nutrient-poor forests of southeast Asia. All plants (think of your garden) need sunlight, water and fertilizer (nutrients) to grow. For every plant, the absence of one of those factors limits its growth. Since carnivorous plants most often subsist in areas with adequate sunshine and with abundant moisture, the limiting factor is nutrients.

Carnivorous plants occur on all continents except Antarctica. There are nearly 700 species in about 20 genera; Wisconsin is home to 14 species in four genera.

Sundews, butterworts, pitcher plants and bladderworts are the more common and widespread genera, while the Venus flytrap (not a Wisconsinite) is the best known. Most of us have poked a pencil into a Venus flytrap at some time in our youth, and are familiar with its bear trap-like leaves, but that's just one of many techniques these plants use for capturing and dispatching prey. The carnivorous plants found in Wisconsin use strategies that more closely resemble flypaper, a pitfall trap or a spring-loaded vacuum cleaner. Let's have a look at these fascinating species!

Sundews

Sundews are closely related to the Venus flytrap and belong to the same family. Every bit as showy, Wisconsin's sundews are glistening jeweled rosettes. Their leaves are flattened green pads that sport bright red-stalked glands coated with shiny sticky liquid. Sundews capture their prey using the flypaper technique: small insects are attracted by the sundew's bright red coloration and sweet nectar,

English Sundew

JAMES EDWARD SOWERBY
Courtesy of Freckman Herbarium, UWSP

and become mired in its goo. As the insect struggles, the stalked glands further entrap and smother the prey. The insect dies of exhaustion or suffocation right on the leaf. Glands on the leaf surface produce acids and enzymes to break down the prey's protein. The digested products are then absorbed through the leaf surface. Any indigestible material, such as wings or exoskeleton, is later blown away by winds or washed away by rains.

With more than 180 species, sundews account for one quarter of the world's carnivorous plant species. Australia, southern Africa and South America are major centers of sundew biodiversity. Four species occur in Wisconsin: two common and two rare. They are most easily told apart by their leaf shape.

The round-leaved sundew (*Drosera rotundifolia*) has the shortest, squattest and roundest leaves. It is widespread, occurring throughout the northeastern and western states as well as in Canada, Asia, Europe and possibly New Guinea. The spoon-leaved sundew (*D. intermedia*) has longer, spoon-shaped leaves and is also found throughout the eastern states, South America, the Caribbean and Europe. The round-leaved and spoon-leaved sundews are found in suitable wetlands throughout much of Wisconsin.

The English sundew (*D. anglica*) has the next longest and narrowest leaves. It is threatened in Wisconsin, where it reaches the southern limit of its range. Fortunately, the English sundew is not in danger worldwide, and is found in the Pacific northwest, Hawaii, Europe and Asia. In Wisconsin, it occurs at the edges of a few acidic sphagnum bogs in Ashland and Bayfield counties.

The linear-leaved sundew (*D. linearis*), has the longest, narrowest leaves of the Wisconsin sundew species. It is also listed as threatened here and is truly rare. It is restricted mainly to the alkaline marl peatlands of the Great Lakes region of North America. Surprisingly, small populations are also found far to the west, in Montana and Canada. In Wisconsin, small colonies are found in Ashland and Ozaukee counties.

Butterwort

The butterwort, perhaps, looks least like a carnivorous plant. Its leaves are arranged in a rosette pressed flat against the ground. Especially when sporting its showy flowers, a butterwort looks more like a pallid African violet than a sinister meat eater. Take heed, however. Audrey of "Little Shop of Horrors" fame was a cross between a butterwort and a Venus flytrap!

Butterwort

WILLIAM CURTIS
Courtesy of Freckman Herbarium, UWSP

Speaking of Audrey, it is interesting to note that she is most often depicted in theater and film as eating with her flower. In real life, the flowers are not involved in carnage; their sole role is in reproduction. It is a carnivorous plant's leaves that do the munching.

It's also interesting to think about how carnivorous plants take in food compared to how people ingest. We derive both energy and nutrients from the food we eat. Since carnivorous plants are green, they get their energy through photosynthesis as do all green plants. They derive only select nutrients from the insects that they eat.

The butterwort is so named because its greasy leaves have the slick feel of cool butter. Although not closely related to the sundew, the butterwort also uses the same flypaper technique to secure its prey. However, its glands rest right on the leaf's surface rather than on stalks like the sundew. Also, the butterwort does not generally employ color or sugars to entice its prey.

Wisconsin has only one butterwort, *Pinguicula vulgaris*, that is found primarily on cool, sandstone cliffs on the Apostle Islands. The plant reaches the southern limit of its range at our northern border, where it is listed as endangered. North of us, its range extends from coast to coast and there are about 100 species of butterwort worldwide. The southeastern United States, Mexico, Cuba and northern Europe are major centers of butterwort diversity.

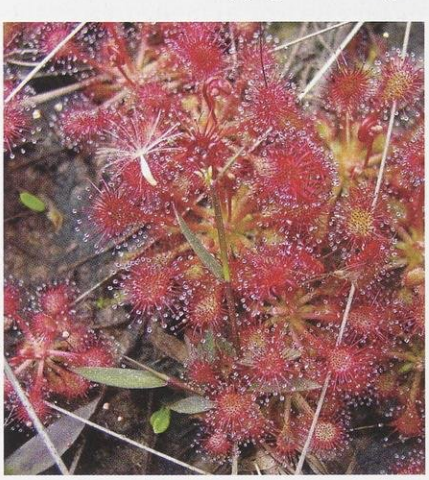
Pitcher plants

The purple pitcher plant (*Sarracenia purpurea*) is Wisconsin's largest and showiest carnivorous plant. Its leaves form into pitchers that have a widely winged edge and a flaring hood. The leaves can be a foot long and form a crowded cluster. The flower is large and maroon and is on a stalk that can tower to two feet tall.

Pitcher Plant

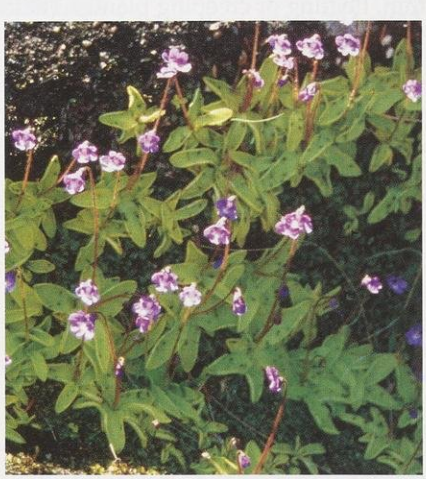
USDA ARS PHOTO UNIT

The pitcher plant uses a pitfall technique to capture its prey. Its pitcher-shaped leaves hold liquid, primarily rainwater. The hood, the leaf part above the trap opening, uses a bright color and sweet nectar to entice



JAMES HENDERSON/GULF SOUTH RESEARCH CORP

Spoon-leaved sundew is found in many wetlands throughout Wisconsin.



EMMET J. JUDZIEWICZ, wisplants.uwsp.edu

It's called butterwort because its greasy leaves have the slick feel of butter that attract insects.

insects to land. The inner wall of the hood is covered with hairs that point downwards; an insect traversing the hood can easily walk down towards the trap's opening, but not up against the forest of stiff hairs. Lower down, the inner wall of the trap is slick, providing no foothold for the hapless insect. It falls in and dies. In most pitcher plants the prey is digested by enzyme-producing glands found on the inner surfaces of the pitcher. However, the species found in Wisconsin depends on commensal organisms to break down the prey. Indigestible parts, such as wings and the exoskeleton, remain in the bottom of the pitcher through the life of that leaf.

Of the 11 species of *Sarracenia*, 10 only occur in the southeastern United States and only the purple pitcher plant, *Sarracenia purpurea*, occurs in Wisconsin, throughout the eastern third of the United States and throughout nearly all of Canada.

Bladderwort

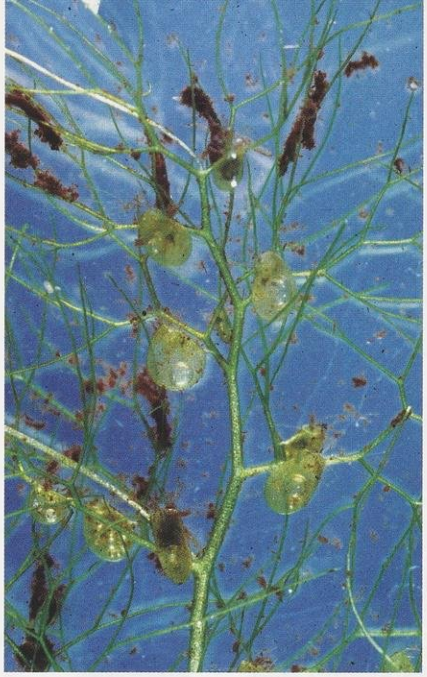
The biggest genus of carnivorous plants in Wisconsin and worldwide is the bladderworts (*Utricularia spp*). With more than 220 species, bladderworts account for two-thirds of all carnivorous plant species. They are found on all continents except Antarctica and reach their greatest number of species in Australia and the tropics.

The Wisconsin bladderworts are found in damp substrates and quiet waters of wetlands, lakes and ponds. They are small, inconspicuous wispy-thin, floating or creeping plants. Their tiny traps are found on filaments often just below the water surface. Each plant may have hundreds to thousands of traps.

Bladderwort

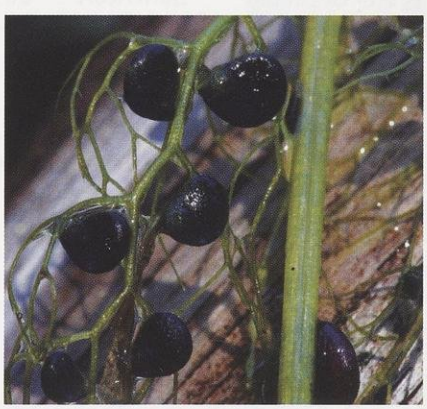
Courtesy of Freckman Herbarium, UWSP

The bladderwort trap is especially complex. Each is essentially a tiny sac with a door that opens inward. Glands inside the trap pump out the water within, flattening the sac-like trap and creating somewhat of a vacuum inside. The trap's door is surrounded by outward-pointing trigger hairs. When the hairs are touched, the door swings inward and the trap rapidly inflates, sucking in both water and prey. Once inflated, the door quickly snaps shut. Water is again expelled from the trap by the internal glands while the captured prey is retained. Enzymes released inside the trap break down the prey's proteins and the plant absorbs these released nutrients.



STURGIS MCKEEVER

Common bladderwort has a hair trigger that opens a trap door and a vacuum-like pressure draws in organisms that touch the trigger.



© STEVE MATSON, CalPhotos

The bladders grow along the shoots just under the water's surface.

Eight bladderwort species occur in Wisconsin. The common bladderwort (*Utricularia vulgaris*), is found statewide, except in the southwest corner or Driftless Area, which has far fewer suitable wetlands and quiet waters. The horned bladderwort (*U. cornuta*) and flat-leaved bladderwort (*U. intermedia*) are also quite common, though they do not range as widely. The five remaining species are seen much less often. Three of these later five are listed as rare and of special concern by the DNR's Bureau of Endangered Resources. They are Wisconsin's two purple flowered species: eastern purple bladderwort (*U. purpurea*) and the northern bladderwort (*U. resupinata*), as well as the hidden-fruited bladderwort (*U. geminiscapa*), one of the six species having yellow flowers. The other two members are the lesser bladderwort (*U. minor*) and creeping bladderwort (*U. gibba*).

The low-nutrient, boggy habitats where carnivorous plants thrive are relatively uncommon, and in places are sensitive to human disturbance. For instance, the well-known Venus flytrap, so ubiquitous as a cultured plant in nurseries, is at risk of extinction in the wild. Its native range is quite small — originally only within 75 landward miles of Wilmington, North Carolina. Today, its rapidly-shrinking native range consists of 13 counties in North Carolina and two in South Carolina. Poaching and habitat loss are placing it, and many of our own state's unique and precious plants at risk.

To learn more about carnivorous plants, visit the website of the International Carnivorous Plant Society at carnivorousplants.org. Don't miss the Frequently Asked Questions section at sarracenia.com/faq.html and its discussion of carnivorous plant books at sarracenia.com/faq/faq1520.html

Beyond reading about carnivorous plants, some are available as nursery stock and you can get detailed instructions for their care from reputable growers. Two such commercial growers include California Carnivores at californiacarnivores.com and Carnivorous Plant Nursery at carnivorous plant nursery. com. If you see carnivorous plants available through other local plant suppliers, check to be sure that the plants are derived from nursery-propagated stock and not collected from the wild.

Teresa A. Golembiewski is laboratory manager at the University of Wisconsin-Whitewater, Dept. of Biological Sciences. She raises carnivorous plants and gives many public presentations about these fascinating plants. You may contact her at golembit @uww.edu.

Continued from page 2

Bright, sporty and gone in a flash

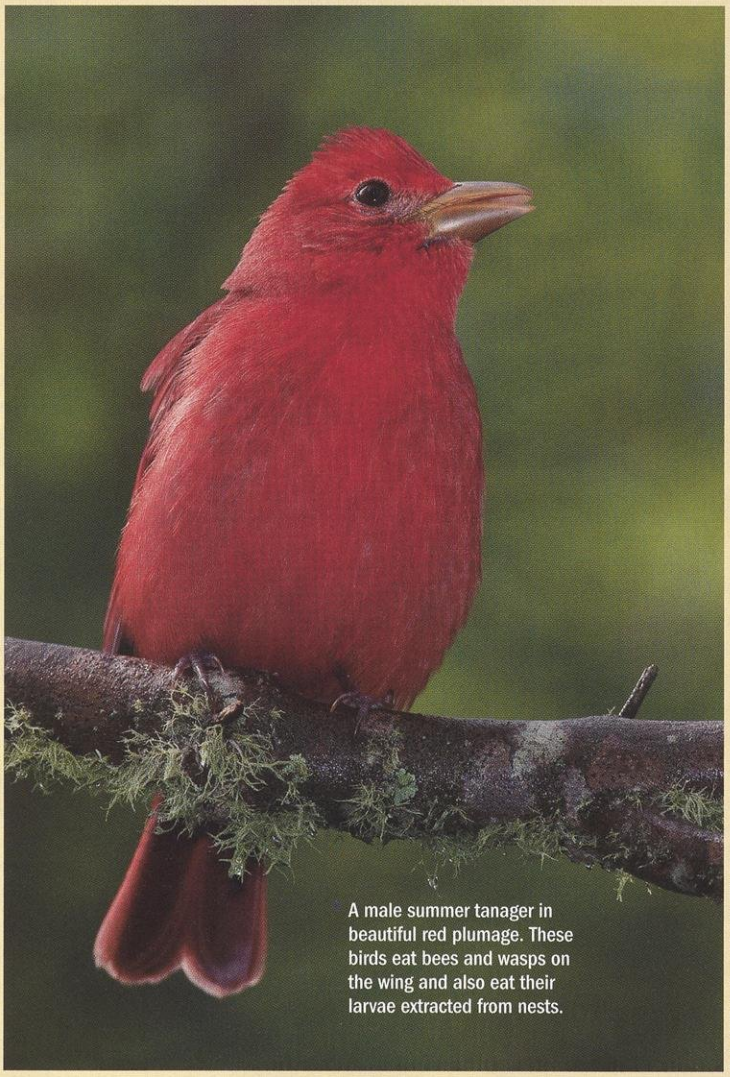
Jackson, president of the Coulee Region Audubon Society, downloaded Hayes' snapshot. The grainy, dimly lit photo was not conducive to a firm identification, but could it be a summer tanager, rarely seen in Wisconsin? To be positive, Jackson packed a few belongings and made the trek to the Hayes farm to listen for the bird's song to be positive.

Sure enough, within a few minutes of his arrival, Jackson heard the unique *chicky-tucky-TUCK* of the summer tanager, (*Piranga rubra*), only listed roughly 20 times in Wisconsin over the past century of record keeping. As the spring progressed, two other sightings were verified including one as far north as Port Wing on Lake Superior!

Many of you are probably familiar with the more common scarlet tanager. The main difference between the two species is that the adult male summer tanager is usually completely red, while the scarlet tanager has a black tail and black wings on an otherwise red body. The unusual mottled red and yellow bird on the Hayes farm did not have any of the telltale black, nor was he solid red. He was a young male who apparently overshot normal migration routes or got blown a bit off course.

Summer tanagers are unique in that they eat bees and wasps. They are skilled enough to catch these airborne buzzers in flight and then kill them by beating them against a branch. Then the birds carefully rub the bees and wasps against the branch until the stinger falls out. Often these tanagers will stake out a wasp nest or hive, kill the adults, and then rip open the nest to eat the larvae. They are also known to eat grasshoppers, spiders, dragonflies and other insects.

These tanagers are upper canopy birds that prefer the treetops of open woodlands, so getting a glimpse of them is often difficult. Bird watchers are more likely to see these birds in their typical range. They spend the winter in northern South America and Central America. Their summer range is from southern California, through Texas, and across the south all the way to the East Coast. They normally only come as far north as central Illinois.



A male summer tanager in beautiful red plumage. These birds eat bees and wasps on the wing and also eat their larvae extracted from nests.

© G. HOFMANN and F. SCHEFFLER

Summer tanagers are vagrants known to over-shoot their breeding territories in the spring on a fairly regular basis, Jackson says. One or two are often found in Minnesota and/or Wisconsin each year. Outside of the spring season, they are extremely uncommon — only four have been recorded in Wisconsin during the summer season (June 1 – July 31), 15 in the fall (August 1 – November 30), and three in the winter (December – February). Even in the spring, there have only been three sightings before April 28. When they are seen this far north, they are usually found in early May. This year was a big year for them. Four or five were found in Wisconsin and a couple were reported in Minnesota as well, Jackson adds. In fall and winter, the summer tanager inhabits and prefers humid evergreen forests and tropical forests — a far cry from the oak woods of Wisconsin.

Hayes says, "It was a thrill to see such a rare bird outside our window. And as I did more research, I was proud to learn that backyard bird watchers are carrying on a phenology tradition that included Aldo Leopold, who kept records of the arrival of several species of birds to his shack in Sauk County. The more people who report these kinds of sightings, the more scientists can learn," Hayes says.

So what do you do if you think you've seen a rare bird in your back yard? Fortunately there are lots of places and lots of people in the state interested in tracking such observations. Start at the Wisconsin eBird website to report your observation, www.ebird.org/WI. Then you could take part as a citizen scientist and report your observations to monitoring projects like the Wisconsin Nature Mapping program (wisnatmap.org).The Wisconsin Society for Ornithology also operates a statewide bird-alert, (262) 784-4032, that you can call to hear current sightings of unusual birds or report your observations. The Cornell Lab of Ornithology has an excellent website, ebird.org, where you can report sightings to an even bigger group of dedicated birders, learn more about specific birds, see pictures and hear their calls.

It's fun to share the news when an unusually colorful customer with a beak full of bee stops for a visit at a branch near you.

Outdoor writer, television and radio host Judy Nugent writes about hunting, fishing and outdoor recreation in the upper Midwest, especially Wisconsin.

CREATURE

Comforts

Natasha Kassulke

A blue-green algae warning

CHAD COOK

While not widespread, three Wisconsin dog deaths reported in 2008 were attributed to blue-green algae poisoning, according to Kent Van Horn, DNR migratory waterfowl biologist.

That raises concern this season as about 85,000 waterfowl hunters converge on wetlands and waterways and about 60 percent of those hunters use dogs to retrieve their harvested ducks and geese.

Blue-green algae is present in lakes, marshes, ponds and ditches across Wisconsin but the population survives at low levels, unrecognized except for when conditions trigger a bloom and the algae move to the water surface. When these algae bloom, the results are quite visible. The blue-green algae can cause unpleasant "pea soup" water conditions and release toxins that can cause illness and even death in dogs and humans.

While algal blooms occur most often in summer, outbreaks have been observed in Wisconsin in fall and winter. During the fall waterfowl hunting season, toxic bloom conditions can develop on warm fall days or on lakes in fall turn over.

Hunters should be on the lookout for the following conditions in field: dense layers of blue-green algae on surface waters with high concentrations of nutrients, particularly phosphorus. Look for blooms with dense colors or a thick foamy layer that may be green, blue-green, reddish brown, or brown in color. The bloom may float to the surface forming foamy scummy layers, mats or blobs. Keep your dog out of the water if blue-green algae is present and the water looks like "pea soup" or green or blue paint.

Symptoms of blue-green algal toxin poisoning may range from lethargy and loss of appetite to seizures, vomiting and convulsions. Dogs are particularly susceptible to blue-green algal poisoning because scums can attach to their coats and be swallowed as the dog grooms its fur.

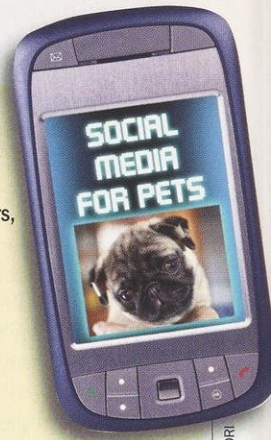


PHOTO ILLUSTRATION BY TOM SENATORI
DOG PHOTO BY STEVE APPS

Web profile for Stewart Quigley

Family: Five brothers, mom and dad; plus four human companions, a cat and a turtle.

Breed: Pug

Sex: male

Age: seven months

Home: Wisconsin

Hobbies: Long walks, chewing on toys and shoes and napping

Friends: I have 50 friends online

You knew it was coming. Dogbook and Catbook are social networking tools built on top of the Facebook platform. Pets use these social media sites to swap pictures and even messages – with the help of their owners, of course. They can list their favorite treats and even arrange meetings at local parks.

To use Dogbook, you must create a Facebook profile for yourself. Once you have such an account, you can add the Dogbook Application or Catbook Application. Visit facebook.com/dogbook or apps.facebook.com/catbook to get started. Or visit petzume.com, a social site for every pet from dogs to fish and lizards. It's free to join. What's next? Twitter for birds, anyone?

WEAR BLAZE ORANGE FOR A BRIGHTER AND SAFER SEASON

Whether hunting, camping, jogging or hiking, you don't want your dog to be mistaken for hunting prey. Be aware of hunting seasons and prepare to share the woods and paths with hunters. Staying visible and safe means keeping your pet on a leash (cats should remain indoors), staying on the trails and outfitting your pet with blaze orange when enjoying Wisconsin's outdoors.

It is easy to retrofit a dog with a vibrantly colored T-shirt, sweater or vest. Hunting outfitters, pet stores and businesses both in-store and online offer a variety of vests, collars, leashes, bandanas and blankets for dogs and even horses or llamas.

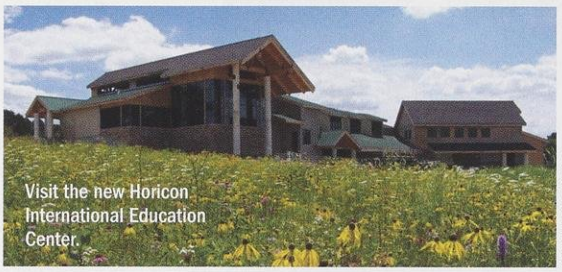
To outfit your pet, you will need to take some measurements including neck circumference, topline measurement (measure from the base of the collar to the base of the tail along the back), chest circumference, and midsection circumference. During the hunting season, also keep horses as close to your house and stables as possible. For pets in pens, consider painting blaze orange on a fence post or hanging blaze orange cloth from a fence line. Remember, in fall cover up with outdoor fashions for people and pets alike, the brighter the better!

GUNDOGSONLINE.COM

Natasha Kassulke is Creative Products Manager for Wisconsin Natural Resources *magazine.*

Wisconsin Traveler

Brandon Russell

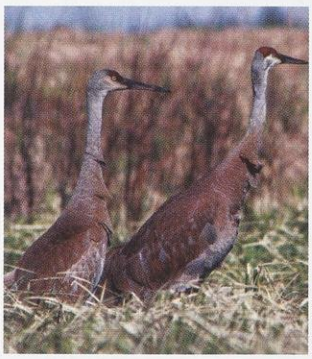

Visit the new Horicon International Education Center.

WILLIAM VOLKERT

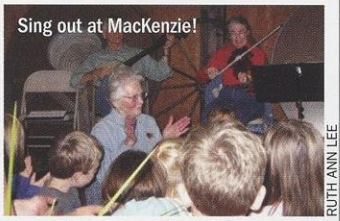
Educate yourself

As a new school year approaches, take some fun-filled day trips to some of Wisconsin's educational centers. These sites offer programs that are not only great experiences for kids, but are equally entertaining for curious adults who like to learn throughout their lifetime about Wisconsin's natural beauty.

Crex Meadows State Wildlife Area – 102 East Crex Avenue, Grantsburg. Come take part in the **Full Moon Wolf Howl** from 7:30 to 9:30 p.m. on Saturday, Sept. 5. For just $10/person, visitors will learn about wolf biology, track wolf footprints and make "howling" attempts to follow a pack. Come back a month later to bear witness as thousands of **sandhill cranes migrate and roost** through the area. Talks from the property naturalist are scheduled on Saturday, Oct. 3, 10 and 17 from 5 p.m. to dark. Cost is $5/person and advanced sign-up is highly recommended. Contact Jim Hoefler, Crex naturalist, at (715) 463-2896.


RON TOEL

MacKenzie Environmental Education Center – W7303 County Road CS & Q, Poynette. Come take a picture with Smokey Bear while enjoying a free musical sing-along at the **Hootenanny Community Event** on Saturday, Oct. 3 from 6:30 to 8:30 p.m. Also enjoy spooky nights of fun on the **Haunted Hay Rides**,


Sing out at MacKenzie!

RUTH ANN LEE

Saturday, Oct. 24 and Saturday, Oct. 31, 6:30 to 9:30 p.m. Cost: $5/adult and $3 for children ages 3-8. Contact: Ruth Ann Lee (608) 635-8105.

Havenwoods State Forest – 6141 N. Hopkins Street, Milwaukee. See and learn about **owls and their interesting adaptations** on Saturday, Aug. 22 from 10 a.m. to noon. No cost. Also swoop in for a free special event on Saturday, Sept. 26 from 11 a.m. to noon held by the **Bat Conservation of Wisconsin** to see and learn about these fuzzy flying creatures. Contact: Sue Johansen (414) 527-0232.

Mead Wildlife Area Educational and Visitors Center – S2148 County Hwy S, Milladore. The nearly 33,000-acre wildlife area offers visitors a wide variety of activities including: 70 miles of hiking trails, hunting, biking, boating, dog training and bird watching. The wildlife area is home to more than 248 species of birds, and an additional 19 species only seen on rare occasions. This year marks the **50th anniversary of the Mead Wildlife Area** and an event is planned for Saturday, Aug. 29 to honor this milestone. Further details are available at (715) 457-6771.

Sandhill Wildlife Area – 1715 Hwy X, P.O. Box 156, Babcock. Keep yourself full, safe and alive after a talk with plant expert Jason Faunce about **plants used for food, medicine and survival** on Saturday, Sept. 12. BYO lunch. Cost: $20/person. Maximum of 15 participants. Register by Sept. 4. Then come back a few weeks later to take in the magnificent **migration of more than 5,000 sandhill cranes** while camping by the Gallagher Marsh. This event offers overnight camping starting at 2 p.m. on Saturday, Oct. 3 and ending at 11 a.m. on Sunday, Oct. 4. Cost: $35/person includes two meals and a guide. BYO camping gear. Maximum of 20 participants. Register by Sept. 23. Contact: Dick Thiel (715) 884-2437.

Horicon International Education Center – N7725 Hwy 28, Horicon. This newly-built $5 million facility offers a wide variety of activities. Visit the 33,000-acre marsh to see and hear up to 300 different bird species featuring geese, swans, cranes, bald eagles, pelicans, ducks, songbirds and mammals. Watch from shore, take a pontoon tour or canoe and kayak through the state portion of the marsh in hopes of catching a glimpse of the rare black-necked stilt, normally found out west, but observed the past seven years at Horicon. Each fall, some **200,000 Canada geese stop over at Horicon Marsh on their migration** from nesting grounds in sub-arctic Canada to points south. The populations peak by mid- to late-October, making this a traditional fall spectacle on the marsh. Public naturalist talks are given on weekends, from mid-September through the end of October, focusing on a variety of topics related to the geology, history, wildlife and management of Horicon Marsh. Program schedules are posted on the DNR website at: dnr.wi.gov/org/land/wildlife/wildlife_areas/horicon or contact Bill Volkert, DNR wildlife educator/naturalist at 920-387-7877 or e-mail: william.volkert@wi.gov.


MONTY SLOAN/WOLF PARK

Editorial intern Brandon Russell is pursuing a jounalism certificate from Madison Area Technical College.

TO SUBSCRIBE CALL **1-800-678-9472**
OR VISIT OUR WEBSITE **WNRMAG.COM**

HUIRAS LAKE
STATE NATURAL AREA

Notable: Huiras Lake features a 26-acre pristine, hardwater seepage lake imbedded within a larger wetland matrix of hardwood and conifer swamp forests, shrub-carr, and marsh. Bog species such as pitcher plant, small cranberry, bog St. John's-Wort and bogbean are found in the acidic areas dominated by sphagnum moss. The lush growth of emergent vegetation and partial seclusion make this an excellent waterfowl nesting and migration site. The natural area is owned by the Ozaukee Washington Land Trust and the DNR and is recognized by the Wisconsin Wetlands Association's "Wetland Gems Program" as one of the state's 100 most significant wetlands.

How to get there: From the intersection of County Highways Z and I in Waubeka, go north on I for 2.4 miles, then west and north on Clover Valley Road 0.3 mile to a pull off where the road turns north. Walk south through the field to Huiras Lake. See dnr.wi.gov/org/land/er/sna/sna353.htm for more information.