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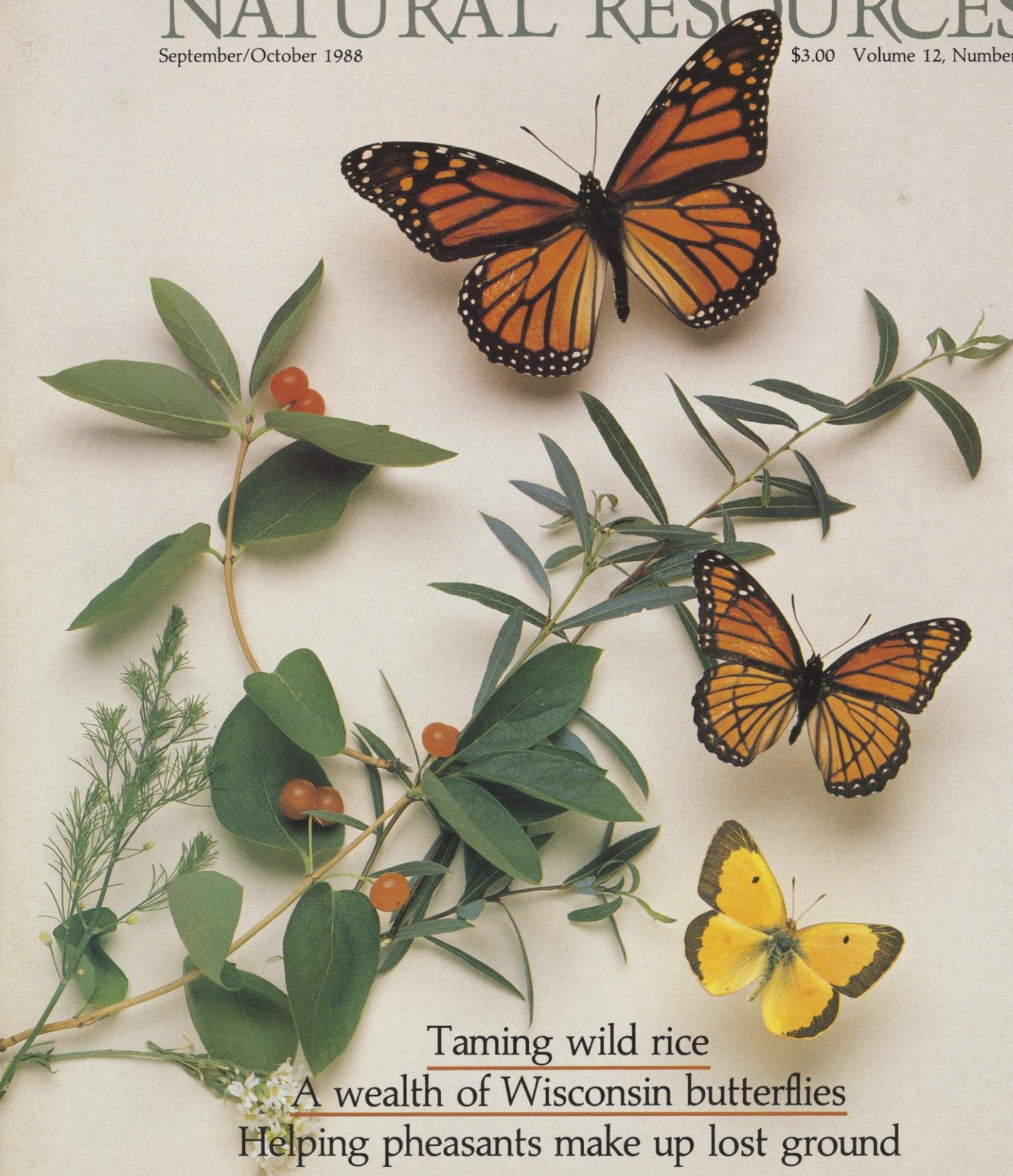
SPECIAL SECTION: Wisconsin's water quality challenges

WISCONSIN

NATURAL RESOURCES

September/October 1988

\$3.00 Volume 12, Number 5



Taming wild rice

A wealth of Wisconsin butterflies

Helping pheasants make up lost ground

European ruffe

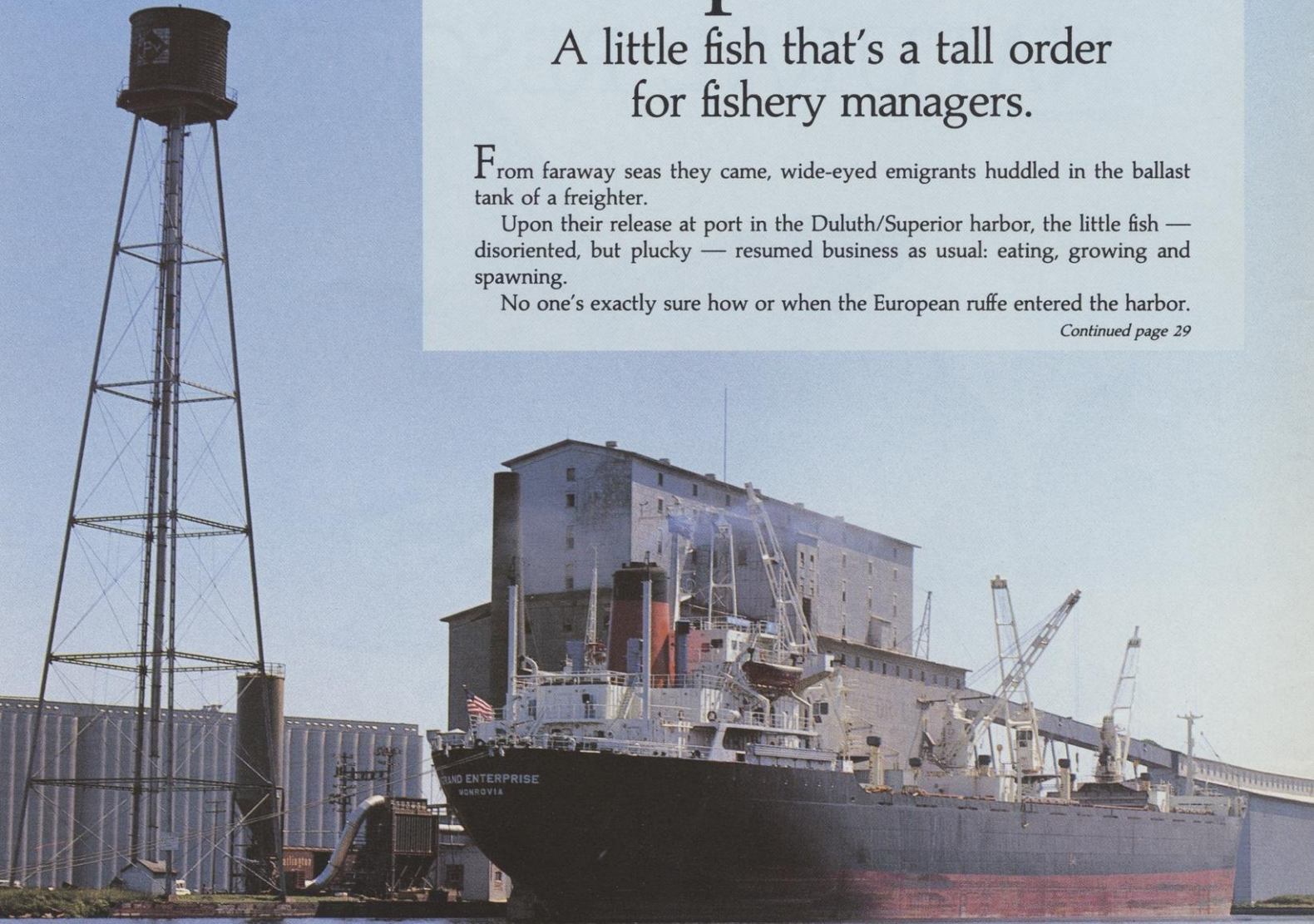
A little fish that's a tall order for fishery managers.

From faraway seas they came, wide-eyed emigrants huddled in the ballast tank of a freighter.

Upon their release at port in the Duluth/Superior harbor, the little fish — disoriented, but plucky — resumed business as usual: eating, growing and spawning.

No one's exactly sure how or when the European ruffe entered the harbor.

Continued page 29



Commercial ships can empty as much as six million gallons of ballast water before entering ports of call or shipping canals. Ballast water, often from polluted harbors, can carry exotic species like the European ruffe and the white perch into the Great Lakes. DNR photo by Staber Reese

(inset) This European ruffe was captured in the Duluth-Superior Harbor. The ruffe grows rapidly, displacing native whitefish and yellow perch.

Photo by Dennis Pratt

WISCONSIN NATURAL RESOURCES

September/October 1988

Volume 12, Number 5



Photo by James E. Meeker

4 TAMING WILD RICE

James E. Meeker

A green revolution out West challenges the Midwest's wild grain.



Photo by Rich Prange

9 FIFTY YEARS OF TALES FROM THE COUNCIL GROUNDS

John Gebert

How a Native American meeting ground near Merrill became a state park 50 years ago.

FRONT COVER: Three beauties from the butterfly kingdom — (top to bottom) the Monarch (*Danaus plexippus*), the Viceroy (*Limenitis archippus*) and the Orange Sulfur or Alfalfa Butterfly (*Colias eurytheme*). Photo by Greg Anderson, University of Wisconsin Photo Media Center



Photo by Gerald C. Johnson

12 HELPING PHEASANTS MAKE UP LOST GROUND

Richard C. Mulhern

New farmland programs can rebuild habitat vital to this popular game bird.



Photo courtesy of DNR F.G. Wislon Nursery

17 GROWING TOWARD TOMORROW

Richard F. Camp

State nurseries adapt to keep pace with our growing desire for trees.

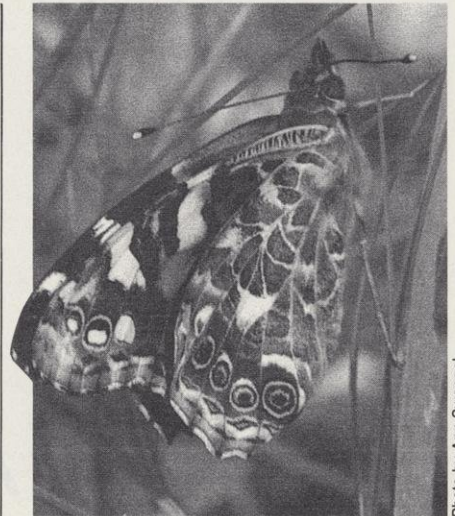


Photo by Ann Swengel

22 A WEALTH OF WISCONSIN BUTTERFLIES

Ann Swengel

Dazzling colors on gossamer wings that you can attract to your doorstep.

FEATURES

Hunters' Almanac	16
Readers Write	30
Door County posters	30
Special Section	center

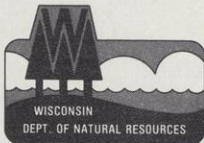
WATER RICH AND

WATERWISE:

Progress in meeting Wisconsin's water quality challenges

BACK COVER: Fall Colors. Photo by Chris Mattison

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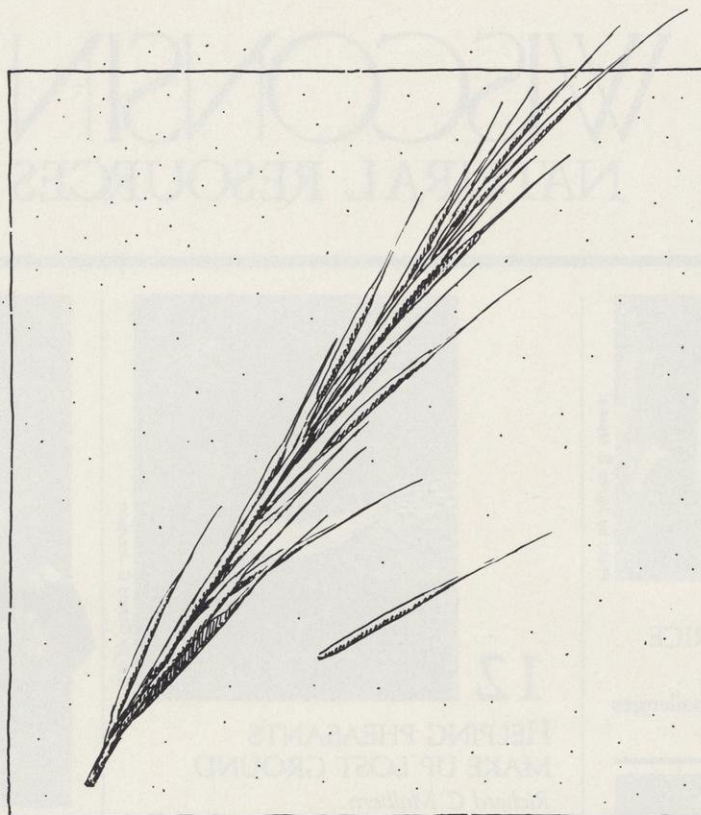


Illustration by Renée Graef

Taming wild rice

Culture, tradition and agribusiness clash in the drive to cultivate this native grain.

James E. Meeker

By the time we arrive at the boat landing, it's almost 11 a.m.; the chill in the morning air is long gone. I count 17 ricing canoes ahead of us. I'm thinking we're too late.

"We've got competition, Greg."

My ricing partner is undaunted. Moments later, we are gliding through the sparse wild rice near the landing. Even before we settle our equipment and ourselves into the canoe, ripe grain falls without any coaxing into the empty craft. The tinkling sound of ripe rice makes us smile.

I stand, maneuvering the canoe toward the denser stands with my

push pole. Greg's ricing sticks are talking. A steady rain of rice kernels settles into the canoe as he draws in stalks and taps the ripe riceheads. Slowly poling through the beds, we are engulfed by a sea of wild rice. That early panicky feeling subsides. We can only see the tip of someone's pole quite a distance away.

Twice, I am startled as we kick up flocks of blackbirds. They explode from the rice, and the sound of thousands of wings passes overhead. The bright green leaves of July, intermixed with the yellow and purple rice blossoms, are now buff colored stalks topped with a mix of green, purple and brown grains.

After two hours, the bottom of the canoe is covered with wild rice.

After five hours, our muscles sug-

gest that we've gathered enough. We estimate we've gathered 30 to 40 pounds of "green" or unprocessed rice — nothing to brag about when we consider that Bad River ricers I've met during my research take in 80 to 120 pounds of green rice a day — but we're pleased with our take.

We're satisfied to gather wild rice in a wild place. Until recently, this traditional food was entirely processed by hand — curing grain in the sun, parching or heating rice on hot rocks or in large kettles, hulling rice by dancing on the grain and winnowing away chaff in a good wind.

Like most harvesters today, we bring our rice to a processor who "finishes" the rice mechanically. Soon, we will run our hands through sleek, long grains mottled in browns, greens and

James E. Meeker researches wild rice ecology with the UW-Madison Botany Department. He also helps the Bad River Band of the Lake Superior Chipewewa manage its wild rice resources.

black. Our winter store of "wild" wild rice is set.

Our "wild" wild rice is not the same stuff you'll find at most grocers, which is a relative newcomer: bred, seeded, grown and harvested in a radically different, more efficient manner. It's a marketing miracle that has turned the true wild rice harvest upside down, and it all happened within the last 25 years. How did a wild crop get cultivated in such a short time?

Wild rice from early civilization through cultivation and commercialization

To appreciate how quickly the wild rice business has changed, you'll need a thumbnail sketch of ricing history. Here in wild rice country, glaciers left a legacy of shallow lakes connected by meandering rivers. Along these lakeshores and in wide bends in the rivers, wild rice flourished. To our west, the headwaters of the Mississippi formed the heart of the Minnesota rice beds. One massive bed on Sandy Lake in Aiken County, Minnesota was described as a "great rice marrais (marsh) some five miles long

and three miles wide, with water (up to) five feet deep, completely covered with wild rice." Northwest and north central Wisconsin was dotted by numerous small lakes, ponds and rivers replete with wild rice, waterfowl and fish. Missionaries often referred to the wild rice district of Wisconsin and Minnesota as the fabled land of plenty because the seemingly inexhaustible native grain was so important



Wild rice in the Wild West. Cultivated paddy rice seriously challenges midwestern wild rice markets. Photo by the author

to Native Americans. The total wild rice district supported about 30,000 people, perhaps the largest Native American group in the central United States.

Indirectly, wild rice was also an important factor in white European set-

tlements. Traders ate wild rice to survive the winter months and they relied heavily on Native American populations to harvest the furbearers.

Indian populations continued to rely heavily on wild rice throughout the 19th and early 20th centuries. Reservation boundaries were negotiated to preserve traditional wild ricing grounds. Treaties in the early 1800s retained off-reservation gathering rights for Native Americans.

By mid 19th century, however, a new wave of European settlers began to farm this region. They brought their own ways and their own staple grains, which did not include wild rice. However, for those living close to the reservations, "Indian rice" became a small part of their diet. This staple in the Ojibwa diet was regarded as a delicacy by non-Indian gourmets.

By the 1930s, Indians and non-Indians harvested wild rice as a cash crop. While demand for the grain increased, wild rice habitat declined. Rice lands were drained for farmland, streams were channeled and deepened, and rivers were dammed, flooding the rice beds. Like other once-abundant natural resources, wild rice was beginning to feel the pinch.

Raising rice. This California rice paddy will be plowed, planted, fertilized and flooded to grow a domestic variety of wild rice. Before harvest time, the paddy will be drained and dried so commercial combines can collect the crop. As in cranberry cultivation, dikes are used to raise and lower water in canals. This tube is lowered to flood the rice bed. It's far afield from traditional harvests of "wild" wild rice in the Midwest. Photo by the author



The first major inroads in commercializing wild rice began in the late 1950s when small plants perfected methods of mechanically parching and hulling wild rice. Commercial processors quickly created demand for more rice than harvesters could supply. Indian harvesters who previously kept most of their harvest were approached by middlemen who would buy green rice and sell it to the processors.

Bob Powless, Bad River Chippewa elder, recalled how economic demand profoundly changed the wild rice harvest on traditional ricing grounds.

"When the people began to sell their green rice, now that was different. The old-timers, you see, were meticulous about their ricing. There were no extra stems and leaves in their canoes. You'd look at their harvest, and all you'd see were layers of rice. They would be ricing for themselves and their families. Why haul back all that extra bulk?

"But the young ricers, heck, they were only nine or 10 years old and they had a different perspective. All the stems, leaves and extra stuff was just more money for them. You couldn't blame them though. They would all buy their school clothes with that extra cash."



Bob Powless.

Photo by the author

He thought for a moment and smiled, "Nope, those kids weren't dumb. They'd wait until they were almost back to the landing where the man with the scale was waiting. Then, they'd soak that rice down really well, maybe adding 20 pounds to their take."

Erv Soulier, one of those nine-

year-olds, recalls, "Some of the guys had 'cheaters.' They can't use them now, but cheaters were ricing sticks with prongs on them. Like a big comb, they'd get the seeds, leaves, stalks, everything that would add extra weight to your take. The first year, I made 35 cents a pound, and that was good money! I think top pay by the end was \$1.25 per pound."

As processing capacity increased, wild rice's potential as a commercial venture attracted both state governments and farmers with wetland acreage. Potential profits fueled efforts to domesticate wild rice and mechanize its cultivation.

The man-made wild rice paddy was a logical response.

Ervin Oelke, a prominent wild rice researcher from the University of Minnesota, recalls, "The first paddies were real small, just a few acres. They usually got good results. After the first two to three years though, these small operations usually went belly-up. Leaf blight or other diseases would get to them. But new areas were developed each time, while the diseased fields were left fallow. People were persistent, and it finally took off."

Major industries like Uncle Ben's Inc. sensed stable production for the first time and began to contract for acreage from the fledgling paddy rice industry.

The final step in domesticating wild rice came from the fields of one Algot Johnson, who grew wild rice for the University of Minnesota researchers. In 1963, he bred a variety of nonshattering wild rice that paved the way for more efficient harvesting.

Previously, paddies were planted with rice from natural stands. Since natural wild rice does not ripen all at once, early processors had to use gentle, floating harvesting machinery that could glean the rice stand several times without destroying the plant.

The new, nonshattering varieties changed all this. Paddies could be drained and harvested with conventional farming machinery.

Increased use of these new wild



Long, mild growing seasons and nonshattering strains of wild rice enable bumper crops in California. Wild rice is a growing attraction at roadside markets. Photo by the author

rice varieties rocketed wild rice production in Minnesota from 900 acres in 1968 to 14,000 acres in 1980. As early as 1971, cultivated paddy rice production surpassed wild rice volumes collected from natural stands. Yields increased from 40 to 50 pounds per acre for hand-harvested rice to as much as 1,000 pounds per acre from paddies.

Wild rice was no longer wild.

The California connection

In 1977, the California Department of Agriculture introduced the Algot Johnson nonshattering variety to that state's white rice industry. Blessed with a mild climate, a lack of major fungal diseases and well-established rice paddies, California's wild rice industry took off.

In 1980, Minnesota claimed 80 percent of the world's wild rice market. By 1986, California surpassed Minnesota's total production, cornering an amazing 65 percent of the world market. California's output doubled each year between 1983 and 1986. The wild rice market was turned upside down.

The wild rice wars raged through 1986. Retail prices plummeted to well under a dollar a pound for a mixture of broken bits and pieces of paddy

Text continued page 8

Wild rice taxonomy

Taxonomists recognize two common North American species of wild rice. *Zizania aquatica*, or southern wild rice, is a more robust, larger leaved species found generally along the Eastern Seaboard of the United States and in wetland areas near the Gulf of Mexico. This species is small seeded. It's an important wildlife food but is generally not consumed by humans. *Zizania palustris*, northern wild rice, is the subspecies that sustained the Native American populations and graces our tables today. It was originally distributed from the headwaters of the Mississippi River in central Min-

nesota across northern Wisconsin and into Michigan as far as the western shores of Lake Michigan. The rice region extended north into Canada along the Rainy River and Lake of the Woods river systems and northeast along the Great Lakes shores of southern Ontario.

Wild rice is a member of the grass family, as are oriental white rice, corn, wheat, oats, rye, barley and millet. In each of these annual grasses, nature tends to store proteins, fats and carbohydrates in the seed to carry the species to the next generation. These same qualities make these grains nutritious for

people.

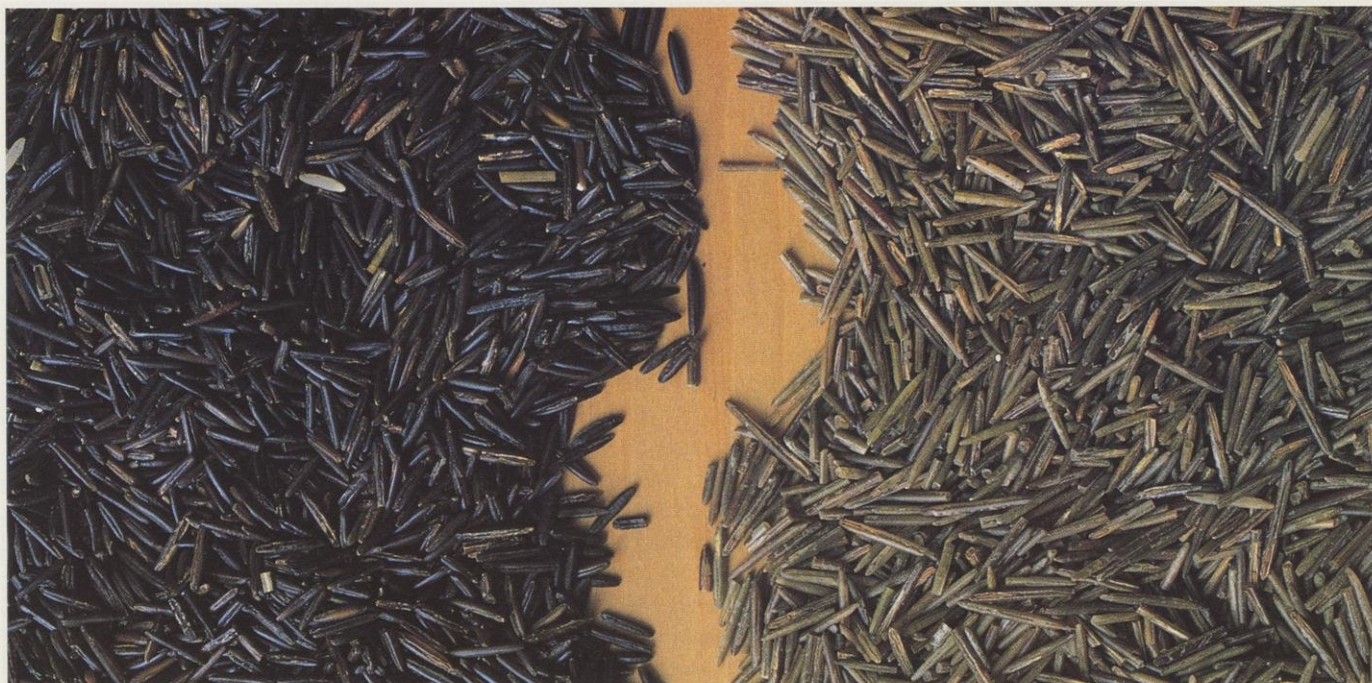
Wild rice has one outstanding difference from the other grass crop plants. The seed cannot be stored any longer than five to six weeks before it becomes nonviable, which explains why it took modern genetics and hybridizing to domesticate wild rice. It couldn't be inadvertently sown like corn, wheat and other grains that were domesticated 4,000 to 8,000 years ago.

The major breakthrough was the same in all cases — developing non-shattering grain that could be collected in a single harvest.

Traditional wild rice harvesting on the Kakagon Slough in Ashland County. Hand-harvesting and processing has rich cultural importance for Native Americans. The Department of Natural Resources is working with Indians to research, restore and improve Wisconsin's wild rice beds.

Photo courtesy of the Great Lakes Indian Fish and Wildlife Commission





Midwest marketers believe that 100 percent natural wild rice (*on the right*) will appeal to gourmets more than commercially grown paddy rice (*on the left*). A state truth-in-labeling law may help.

Photo by Robert Queen

rice. The dregs of the market glut that began in 1985 are still being felt today.

Native American ricers are understandably a bit shocked by the recent turn of events. Accustomed to receiving about \$6 to \$7 per pound for their finished product, they find it more difficult to compete.

"Nobody in his right mind would sell his rice that cheaply," pronounced Junie Butler, a Chippewa ricer.

"If I can't get \$7 for my rice, I'll give it away to my friends and relatives in the cities."

"That's mud rice," another ricer stated when asked about the low prices, "It's not anything like this rice from the sloughs."

Marketing the real McCoy

One possible solution is to market the traditionally harvested rice as a gourmet variety. The Great Lakes Indian Fish and Wildlife Commission makes such a pitch describing their Lake Superior rice as "grown organically and traditionally harvested to give it a delicate aroma and flavor."

The state Legislature gave the idea

a boost last session passing Act 375, which requires that wild rice which is mechanically planted and harvested or cultivated with fertilizers or pesticides must be clearly labeled as "paddy-grown" wild rice. Only unblended, true wild rice can be sold as "100 percent natural wild rice." In the age of Haagen-Dazs and designer everything, it just might work.

Meeting but not exceeding the market

The wild rice industry has an uncertain future. The two wild rice giants, California and Minnesota, have both suffered since the market glut.

California production was cut way back this year. Their profit margin is thin, and they do have some minor problems. Their winters are not cold enough to break the seed's dormancy and naturally reseed rice beds. They have to replant every year. That's an expensive proposition. Also, the Californians haven't developed major, regional processing plants, so their shipping costs are higher.

Nobody appears to gain in the long term when the prices fluctuate wildly. I suspect westerners will share

the market, but the industry's growth will probably never match the decades of the '70s and '80s.

In Wisconsin, increases in wild rice harvesting licenses are funding research to improve our wild rice beds and reestablish proper growing conditions in places where wild rice formerly flourished. The Wisconsin Department of Natural Resources, the Great Lakes Indian Fish and Wildlife Commission, and the Wisconsin Conservation Corps are cooperating to expand natural wild rice stands, which are currently considered a scarce resource in the state.

Ironically, changing attitudes among some Native American ricers are bringing them back full circle to the time when ricing had more spiritual and cultural importance.

"My rice sticks start rattling in the closet every year right before the season," says John Wolf of Bad River with mocked seriousness. "They let me know when to rice. It makes no difference what the market is doing."

Fifty years of tales from the Council Grounds

Folks still gather on this historical meeting ground to relax and enjoy the Wisconsin River.

John Gebert

A half century ago, a magnificent parcel of mixed hardwoods and majestic pines narrowly missed becoming just another patch of logging slash or marginally productive pastureland.

In the mid-1930s, few Americans were concerned about preserving natural beauty. It was a time of economic disaster, widespread unemployment, hunger, anger and despair. People talked about jobs, or the lack of them, or they talked about forest fires ravaging Wisconsin's cutover North Country.

Continued next page

A peaceful fall day at Council Grounds State Park. A new sign purchased by park volunteers will celebrate the park's heritage as a meeting ground for Native Americans.

Photo by Helen Schwantz



Sometimes they talked about both. Men were said to have deliberately ignited some of the North's raging forest fires so they might sign up to fight those same fires for a few days or weeks at wages of 30 cents an hour, securing grocery money for their hungry families.

Ads in the Merrill *Daily Herald* offered two jars of peanut butter for 25 cents, two pounds of best quality wieners for 29 cents and children's shoes for 79 cents a pair. Movies starring Claudette Colbert, Shirley Temple or Nelson Eddy and Jeanette MacDonald cost 10 cents for kids and 15 cents for adults. But going to the movies was a once a month treat for most folks.

Whatever else it was, it was not a time dominated by concerns for preserving Wisconsin's natural beauty or historical heritage, and even in Lincoln County, few cared about a 425-acre tract along the Wisconsin River and Alexander Lake just outside of Merrill.

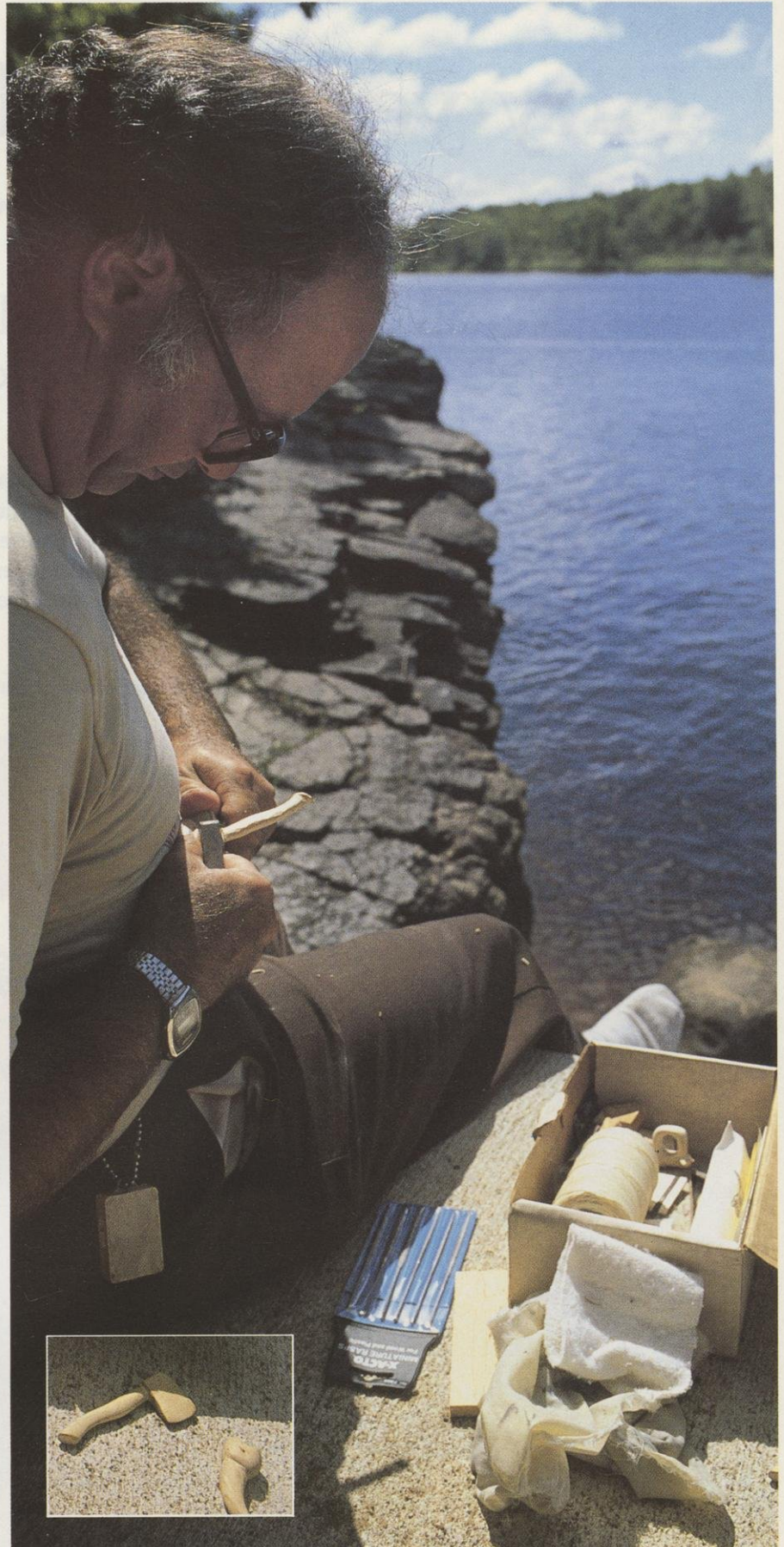
Less than a handful of local Merrill leaders looked beyond those searing mid-1930s summers of record-breaking heat, of drought, grasshopper plagues, dust storms, forest fires, bread lines and hobo jungles. But the land they saved later blossomed into Council Grounds State Park, a little gem that celebrates its 50th anniversary this year.

The few who cared were Joe Chilsen Sr., editor of the Merrill *Daily Herald*; Harry Peterman, a Merrill businessman and chair of the City Park Board; and Dr. A.R. Wittman, physician, former mayor, collector of Indian artifacts and advocate for schools, parks and recreational opportunities.

A June 17, 1936 editorial in the *Herald* called for better roads provid-

The park has quiet places to whittle awhile along the Wisconsin River. Photo by Robert Queen

John Gebert is a lifelong Merrill resident who is particularly fond of Council Grounds State Park. He recently retired as public information director of the North Central Technical College in Wausau.



ing auto access to Wildwood City Park (as Council Grounds was then known) so Merrill would be in a better position to benefit economically from "a coming age of tourist car travel."

Many people objected to spending any money in a time of scarcity. Letters to the editor said the park was: "too far from town to be useful." "If it burns, it won't be worth anything." "We don't need another park." "Sell it — there's enough woods around." "Get rid of it — taxes are too high already."

Private logging interests offered to buy the park for \$18,000 and take the timber. Public consensus was to "sell it before they change their minds."

After months of debate, a compromise was reached. The City Park Board would contact the Wisconsin Conservation Commission (a DNR forerunner) about transferring park ownership "only if the state would ensure its maintenance and preservation for public use."

It took nearly two years. In 1938, the land the City of Merrill had originally purchased from the Wisconsin Valley Electric Company for \$7,500 was sold to the State of Wisconsin for \$1. The undeveloped wooded tract was called Council Grounds State Forest.

When it was renamed Council Grounds State Roadside Park in 1964, it included one campground of 19 units, several picnic areas, a shelter building, a boat landing and a mile of hiking trail. The park has grown since then. Roads were repaved, the campground was relocated and expanded to 55 sites, rest rooms with showers and flush toilets were installed.

Northwoods variety and hospitality

Under the dedicated, professional leadership of Park Superintendent Mike Willman and Park Ranger Steve Wendland, Council Grounds looks forward to its second half century of providing public recreation. The park has a little something for every kind of camper — 19 campsites now have

electricity and 26 sites can be reserved from May through October.

For the day hiker, two miles of hiking trails have been revamped and a new Big Pines Nature Trail takes you on a 33-stop, self-guided tour. Nearby, in the 21-acre Krueger Pines Scientific Area, white pines tower more than 125 feet above the shaded forest floor. This classic example of climax forest and native timber pre-



Volunteer naturalist Marian Prange has interpreted park history, plants and animals at Council Grounds for five years. Three generations of her family have helped out at the park. Photo by Robert Queen

serves living remnants of the old Northwoods forest.

For anglers who know their business and hit it right, fishing can be excellent for muskellunge, northern pike, walleye, smallmouth bass and panfish.

A spacious, landscaped swimming beach slopes to Alexander Lake just above Alexander Dam on the Wisconsin River. A concession stand, boat landing and adjacent parking area keep the heart of the park a hotbed of summer activity.

By contrast, the quiet stroller may see ruffed grouse, other small game, deer and lots of birds, including bald eagles.

The park's small size and its proximity to services in Merrill is part of its charm.

"We love Council Grounds because we don't have to drive all day to get where the kids can experience real camping," said a Milwaukee

mother of four. "We like the big woods, and we can still enjoy swimming, biking, hiking and a family walk. Besides, if one of the kids gets sick or breaks an arm, we're only minutes away from a nice, friendly town with modern medical facilities."

A popular meeting place for centuries

It's a closeness that Merrill residents are proud of; they retain a strong sense of stewardship for their former city park.

Last summer, a local service club donated funds to build a large, decorative welcome sign at the park entrance. A cadre of volunteers helps the two-person staff keep the park attractive and entertaining for out-of-town visitors. Volunteers act as official park photographer, conduct informal lectures on the Wisconsin River's rich history and talk about the park's archaeological past.

Chippewa bands would gather here in spring to plan their annual journey 100 miles downriver to the U.S. Government Indian Agency at Portage. There, the Native Americans traded and received annual annuities. In autumn, the bands would again gather on "the council grounds" before dispersing to winter hunting and trapping sites along the Wisconsin River's numerous upstream tributaries — Copper, Newwood, Spirit, Somo, Tomahawk and other rivers.

Today's campers may find stone projectile points (arrowheads), scraping tools and pottery shards where Indian bands conferred.

More recent history rises into view when river flow drops during the summer. Massive log pilings, cribs and stone wing dams show where lumberjacks felled giant pines, skidded them to the water and drove them down the wild, unfettered Wisconsin to the hungry sawmills of Merrill and Wausau.

Just another taste of the past from the northern woods and lakes: Council Grounds State Park, 50 years young and still celebrating. ■

Helping pheasants make up lost ground

Given enough good turf to call home, the ring-necked pheasant could prosper again in Wisconsin.

Richard C. Mulhern

Heads turn when the male ring-necked pheasant emerges from cover with a slow, taunting strut, his shining, coppery breast feathers dazzling the eye and iridescent black head held high.

Relatively speaking, the birds have been strutting over Wisconsin turf but a short while. They were introduced in Waukesha County by Gustav Pabst in 1916, and the population readily spread to Jefferson County. The two-county area opened to hunting in 1927.

In response to the early success, the Conservation Department built an experimental game farm for pheasant propagation in 1928 in Door County. The game farm moved to its present Poynette home in 1934. By 1942, the pheasant harvest was estimated at 600,000 roosters — 100,000 of which were stocked birds. Then, the regal ringneck lived in all but 11 northern Wisconsin counties.

From 1942 to 1945, up to two million of the proud birds roamed the state. Pheasant populations topped out in the early '40s, however, and despite some valiant recovery work along the way by the department and private groups, spring populations of the Wisconsin wild pheasant have declined to about 200,000 birds. By 1986, department surveys indicated that the drop-off was leveling off.

Richard C. Mulhern is an editorial assistant with Wisconsin Natural Resources.



Chinese ring-necked pheasants. The hen's muted shades stand in stark contrast to the colorful rooster. Photo by Greg Matthews

That's not good news if you're a birder, photographer or hunter who enjoys the company of Wisconsin's pheasants. But it spurred department wildlife managers to work on a comprehensive management plan that aims to increase the number of wild pheasants and offer more pheasant hunting opportunities. Plans include increasing the state's fall population of wild roosters to 180,000 by 1993; increasing hunter days to about 860,000 by 1993; and increasing the state's pheasant harvest to 200,000 wild and stocked roosters by 1993.

Chuck Pils, DNR wildlife specialist, has been responsible for guiding plan development as chairperson of the pheasant management plan.

"The pheasant is probably the most challenging species to manage

in Wisconsin," Pils says. "Unlike deer and geese, pheasant populations have dropped following intensive agriculture practices to produce so many acres of corn, not to mention a host of other, interlocking variables such as herbicides, insecticides, multiple predators and severe winter weather.

"Habitat management is the key to the plan. If we want the pheasant to stay in Wisconsin, we're going to have to see land use changes. There's no other way."

For ringnecks, home is cropland interspersed with undisturbed grasslands, hedgerows and wetlands. Retired cropland, wetland borders, strip cover and hayfields are important nesting sites. In winter, the birds are especially drawn to shrub marsh, tamarack and conifer plantations.

Like many upland game birds, males establish breeding territory in spring, setting up a harem of as many as 10 hens. Each hen lays an average of 10 to 12 olive-brown eggs. If her first clutch is destroyed, she will often nest a second or third time until she incubates a clutch; each successive nesting produces fewer eggs in the clutch.

The counties where pheasants traditionally thrived still have birds, but since the '40s, those areas have declined about 84 percent.

Intensive farming makes many crop acres less suitable for wildlife. In 1987, nearly 10 million acres were commercially planted in Wisconsin, most of it as monoculture — one



Better habitat could bolster pheasants and the fall hunt. Wild nesting birds would add even more excitement to autumn days afield with dog and quarry. Photo by Mark S. Werner

crop, row crop farming. The less diverse habitat is less attractive to pheasants. Modern harvesting rigs run faster and let fewer hens escape than the machines used in the '40s. Today, farmers strive to cut hay as it begins to bloom: that's also when pheasants nest. In the '40s, hayfields were cut late, after most pheasant chicks had already hatched. Cleaner weed cultivation, more fall plowing, corn picking rather than shocking, harvesting that leaves less waste grain, the application of herbicides and the conversion of fencerows, hedges and other noncrop cover to cropland also reduce wildlife habitat.

"No doubt about it, intensive farming practices hastened the ring-neck's decline," Pils says, but there are other factors.

About 1.4 million farm acres in Wisconsin have been developed for residential, industrial, commercial or transportation use since 1968. This urbanization soaks up 70,000 acres annually. Hens that formerly nested in wetlands move on to less secure nesting sites when wet areas are

drained for farms or homes. Mowing and spraying highway rights-of-way further reduces habitat and destroys nests. And predators such as hawks, owls, foxes, skunks raccoons, free-roaming dogs and cats cut the pheasant count.

Increasing numbers of private shooting game farms are also cause for concern. The farms are stocked with pen-raised birds, but wild hens may wander onto the property and get shot during the longer game farm season, which is legal in Wisconsin. Pen-raised birds from the DNR's Poynette Game Farm and private game farms that were released into the wild may also breed with the wild birds, thus diluting the gene pool of local wild pheasants.

New farm programs can help rebuild pheasant populations.

The Department of Natural Resources plan aims to address these challenges in such a way that all inter-

ests — hunters, farmers, conservationists and the birds themselves — come out winners.

Some of the plan's most interesting facets concern the use of farmlands in "set-aside" programs.

"Today's farmer is under extreme economic pressure to earn a living from every farm acre," Pils says. Set-aside programs provide stable farm income and help wildlife managers plan habitat improvements on privately owned acres.

Under set-asides, state and federal agencies rent cropland from farmers, setting it aside for a year or more to let the land heal and to control critical erosion. In addition to paying rent, government agencies share the cost of improving wildlife habitat.

"We need to get at those vast, privately owned acres," Pils says. "Even if all our public wildlife lands provided optimum pheasant habitat, they'd be a drop in the bucket compared to the number of privately held acres that could provide good habitat."

"Land set-aside programs could be

just the ticket for pheasant habitat recovery in Wisconsin," Pils says. "That is, if the programs are patronized. If the price of corn stays low for long periods of time, more farmers may begin to see value in set-aside. That would greatly improve our chance for success. The longer the land remains idle, the better for pheasant nesting success and production."

Other plan concepts include: a proposal to remove weed control rules on federal set-aside lands; research to determine if common pesticides alter pheasant embryos; funding for pheasant research on hatching conditions, hen reproductive fitness, behavior and survival of juvenile and adult game birds; and a system for collecting and storing native grass seed grown on state wildlife areas so it can be reseeded on private lands enrolled in set-aside programs.

When properly managed, private lands could provide even more pheasant habitat than public hunting grounds. That's why the department would encourage requirements to maintain wildlife habitat incorporated into the state Farmland Preservation Program and impose land-use restrictions on land foreclosed by Farmer's Home Administration loan defaults. The state would also continue its Extensive Wildlife Habitat Program, which preserves important wildlife cover on private lands.

Taking stock of put-and-take pheasant hunting

Given the keen interest in pheasant hunting, Wisconsin will continue stocking pheasants to ensure a basic

supply of birds to hunt. Although pheasants were originally stocked to supplement wild cocks for hunting, now the situation is reversed: the majority of pheasants that hunters bag are stocked birds rather than wild birds. In 1987, the state game farm provided 57,000 roosters, which were planted on 95 public hunting areas in 37 counties. Statewide, at least 75 percent of roosters bagged on these public hunting areas were stocked pheasants.

An extremely popular DNR program provides about 95,000 day-old pheasant chicks and feed to 120 sports groups in 43 counties. The clubs raise the birds for eight weeks and stock them.

Proponents say stocking adds as many as 84,000 birds a year to the harvest. Indeed, stocking may supply more huntable roosters in areas with

Farm programs that help pheasants

Here are some habitat management programs the department is working with to improve wildlife conditions:

The Dodge County Project

— Dodge County is in the heart of Wisconsin's historic pheasant range. This project, started in 1984, aims to increase pheasant populations by changing how land is used in an intensively farmed area on the western side of the county. Land rental payments, cost-sharing, technical assistance and educational approaches encourage landowners to create secure nesting cover, winter cover and winter food plots for pheasants on parts of their land.

To date, 60 of 200 landowners in the project area have cooperated by planting 1,270 acres of nest cover, 11,000 shrubs for winter cover and 24 winter food plots. Participating landowners agree to maintain these habitat improvements through 1990 to allow researchers to measure how pheasant populations have responded to these changes.



Twenty-one counties where better farmland habitat could build bigger pheasant flocks.

The Conservation Reserve Program

— Farmers entering land into the Conservation Reserve agree not to farm it for 10 years. CRP lands must be planted with permanent vegetation to slow erosion and encourage wildlife. The federal government will share up to 50 percent of eligible costs to plant trees and

grass, and restore wetland acres on CRP acreage. During 1988, the government agreed to pay an average of \$67 per Wisconsin acre enrolled in CRP.

The Feed Grain Program

— Farmers agree to set aside some cropland in order to receive support payments on their remaining acreage. While the program primarily aims to reduce national production of corn, grain sorghum, barley and oats, there is ample chance to improve wildlife habitat on enrolled land.

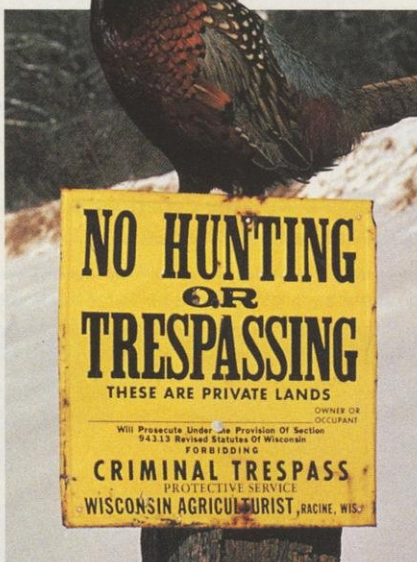
The Water Bank Program

— The program restores, preserves and improves wetlands for migratory waterfowl and other wildlife. Landowners with qualifying wetlands agree to plant at least two acres of nesting cover on cropland next to the wetland for 10 years. Annual payments vary by county. The Agricultural Stabilization and Conservation Service pays 75 percent of costs to convert and seed cropland into nest cover.

good habitat but no pheasants. Nevertheless, studies by many states show that game farm pheasants really don't hack it in the wild. Our studies estimate that fewer than five percent survive a year; Missouri and Illinois unsuccessfully stocked thousands of pheasants of various pure strains in the '60s.

Stocking can be expensive, too. During the 1980s, the average cost of roosters stocked on public hunting areas has ranged from \$6.72 to nearly \$8; the price is now about \$7.

Then, there's always the potential for disease outbreaks at game farms. Stocked pheasants can contract avian cholera and pass it to free-roaming wildlife. The chance of that happening at Poynette was minimized when the facility was revitalized in 1982 to provide a state of the art, sanitary growing environment.



Building wilder bloodlines

To help beef up Wisconsin's bird herd, Wisconsin wildlife managers swapped ruffed grouse for 210 wild Iowa pheasants. These Iowa birds bred, laid eggs and hatched chicks at the game farm. The chicks were freed last April within a 40-square-mile area of Rock and Iowa counties. The pheasant season will be closed in these test areas for five years. These experimental stocking programs are glamorous, but wildlife managers caution that special stocking should

(left) The season will close for five years in portions of Rock and Iowa counties to build up wild pheasant stocks. Photo by Herb Lange

(below) News crews were interested when wilder Iowa pheasants were released in Wisconsin. More food and cover in these rich farmlands would sustain more pheasants. Photo by Chuck Pills



not overshadow the much more important task of creating better pheasant habitat throughout the bird's range in Wisconsin.

"On the one hand, the pheasant is bucking the wind here," Pils says. "Habitat loss, predation, pesticides, herbicides and a bad Wisconsin winter are always around the corner."

Still there's some good news. The department is likely to continue stocking about 57,000 roosters on public hunting grounds annually so

long as hunters agree to pay the way.

The day-old chick program will likely continue.

Thousands of acres of wetland habitat have been guarded by state ownership; much of that acreage is managed to maintain nesting, roosting and winter pheasant habitat.

Devoted conservation groups like Pheasants Forever, a nationwide outfit with Wisconsin chapters, aim to cooperate with the department to improve upland habitat.

Wings over Wisconsin provides thousands of trees and shrubs to enhance nesting cover and habitat. Its chapters hold fund raisers and have tried introducing game farm pheasants to the wild.

Given a good game plan, an enthused public and more quality habitat, the reign of this regal game bird could expand throughout its farmland kingdom. ■

Rebuilding abundant winter food and shelter would ultimately provide more birds for hunting than do stocking programs.

Photo by Herb Lange



Good news — Canada goose forecast better than 1987

**Dave Kunelius,
Public Information Officer**

Wisconsin will seek a 20 percent increase in its goose harvest quota from the U.S. Fish and Wildlife Service. If our bid is successful, this will mark the third straight year of increased quotas for state hunters, said Steve Miller, DNR director of wildlife management.

"If accepted, this increased bid would allow Wisconsin hunters to harvest 57,700 Canada geese compared to last

year's quota of 49,500," Miller said.

Midwinter counts of Mississippi Valley Population (MVP) geese exceeded population goal of 500,000 for the third year. MVP geese that migrate through Wisconsin nest along James Bay or Hudson Bay, not in the prairie pothole country of Canada. The prairie drought that hit duck populations hasn't affected this breeding goose population.

"Preliminary reports predict an average production year in Canada. Combined

with a midwinter count in excess of half a million birds, we can look for a fall flight of 800,000 to one million geese," Miller estimated. "Naturally, not all these geese will pass through Wisconsin."

Added to migrating geese flocks, Wisconsin also has a growing resident flock of local nesters. These "Giant" Canada geese were once thought to be extinct. This flock continues to grow and expand its range providing additional hunting opportunities.

New hunting rules

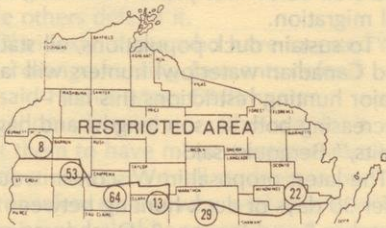
**Dave Gjeston,
Wildlife Staff Specialist**

New 1988 rules

Several new rules go into effect this year. The following is a summary — be sure to get a copy of the regulations pamphlet when you purchase your license. Knowing and obeying the regulations is in your best interest and the best interest of our natural resources!

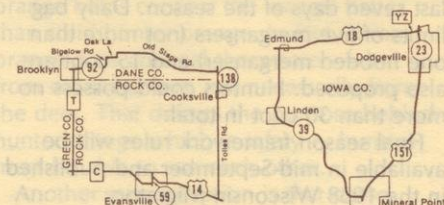
1. **Handguns** — Certain magnum handguns formerly restricted to rifle-only areas may now be used statewide for gun deer hunting. Such handguns may now be carried in addition to other firearms.

2. **Dog Use** — Dogs may not chase wildlife or be used for hunting from May 1 through June 30 in the following area.



This rule change is designed to prevent illegal bear-dog training and minimize wildlife disturbance.

3. **Pheasant hunting** — Pheasant hunting will be closed for up to five years in the following areas. The closed season protects new wilder stocks of Iowa pheasants released to revitalize state populations. Managers believe the Iowa bird populations will grow stronger and faster than currently stocked pheasants.



4. **Canada goose hunting** — A statewide permit is now required to hunt Canada geese and a permit/tag system is required in Collins, Horicon, Pine Island, and Theresa goose management zones. Important rule features are:

- You may only hunt in one area.
- You should apply for a permit to the DNR by September 9.
- Hunters wishing to hunt outside the Collins, Horicon, Pine Island or Theresa tag zones may apply after September 9 by mail or in person.
- The area outside the tag zones is called "Exterior Zone" and includes Brown County, New Auburn, Rock Prairie, and Mississippi sub-zones.
- Hunters receiving an Exterior Zone permit will also receive five report cards. A card needs to be mailed to DNR within 48 hours for each Canada goose killed. You may get up to 15 additional cards from DNR.
- Collins, Horicon, and Pine Island goose hunters must also file a report with DNR within 48 hours of shooting a Canada goose.
- Theresa zone applicants can still obtain tags in person during the season at the DNR check station adjoining the Village of Theresa station.

Talk to your local wildlife manager about new zone descriptions and Canada goose hunting details. Be sure you understand the rules before applying in September.

Approved 1989 rule changes

Public support obtained at hearings held April 25, 1988, will result in the following changes next year:

1. **Hunting hours** — Gun and bow bear hunting hours as well as bow deer hunting hours will be changed to a zone system similar to small game hunting hours to take advantage of better daylight conditions.

(continued on next page)

Drought bodes poorly for fall duck hunt



**Dave Kunelius,
Public Information Officer**

Early nesting and breeding reports indicate duck populations have decreased substantially in 1988, due primarily to an extended major drought across Wisconsin and the prairie pothole regions of the U.S. and Canada, Jon Bergquist, DNR waterfowl/wetland ecologist said.

"While snowfall in southern Wisconsin was about 50 percent above normal, a major spring and summer drought and above average temperatures significantly decreased young duck populations," Bergquist said.

"The numbers of temporary shallow ponds which provide ducks cover and food were down 50 percent from last year in southern Wisconsin while the northern May pond numbers were comparable to last year," Bergquist added.

Surveys show Wisconsin's breeding duck population of 274,900 ducks is eight percent below the long-term state average and down 26 percent from the 1987 total. Breeding mallard population declined the most in southern Wisconsin; numbers remained constant or increased somewhat in the northern regions.

Estimated blue-winged teal populations of 99,795 are 22 percent below the long-term average and 33 percent below last year's estimate.

Emergency hay cutting which provided needed feed for farm animals further stressed duck populations by destroying nests during the waterfowl breeding season. Hay harvests were authorized on set-aside lands, Conservation Reserve Program lands, wildlife areas and some other properties managed by the Department of Natural Resources.

(continued on next page)

Small game prospects good

**Ed Frank,
Wildlife Staff Specialist**

Wildlife specialists predict good supplies of most small game this fall, despite drought conditions. Ruffed grouse populations continue their climb back toward peak levels of abundance in their ten-year cycle. Woodcock are maintaining very good populations in the Midwest and Ontario. Squirrel populations also appear to be at very high levels.

Pheasants, Hungarian partridge and quail are as abundant as they were last year, but their population densities remain low by national standards. Good chick survival is expected to offset some of the losses this year caused when unhatched nests were crushed when harvesting hay from croplands set aside under the USDA Conservation Reserve Program (CRP), Water Bank Program (WBP), and Acreage Conservation Reserve (ACR) and Conservative Use (CU) acres. Because severe drought conditions depleted forage supplies, the Secretary of Agriculture allowed hay cutting on these set-aside acres between mid-June and

mid-July. Ten percent of CRP and WBP fields planted in hay were left standing for wildlife.

The cottontail rabbit harvest has been poor the last few years and DNR wildlife managers don't know exactly why. While cottontails are abundant in cities and villages, late fall and winter populations are below long-term averages in most rural areas. Hay cutting on USDA set-aside lands probably decreases cottontail rabbit populations.

While good supplies of most small game are expected, locating game in the fall will be more difficult if drought conditions persist. Woodcock that feed on earthworms would be most affected, but food and cover patterns for other species will be altered as well. If the drought persists, hunters will have to adjust their hunting practices to find game. Hunters will also have to be extremely careful about fire hazards such as smoking or driving vehicles into dry grass.

Small game license holders should consult the 1988 Wisconsin Hunting Regulations pamphlet for season details.

turkey hunt. Fort McCoy information can be obtained by calling 608-388-3337 or writing Commander, Fort McCoy, ATTN: AFZR-DEH-N (Permit Sales), Sparta, WI 54656-5000.

Drought *continued*

Canadian surveys

Duck population estimates in Saskatchewan, a major contributor to Wisconsin's fall migrating flock, have reached an all-time low for 34 years of records. Breeding duck surveys in southern Saskatchewan show duck populations decreased 27 percent from last year, 40 percent from the 10-year average and 52 percent from the long-term average. Shallow spring ponds where ducks feed and breed have dried up — 26 percent fewer than last year and 50 percent fewer than in average years.

Whitewater Lake in southwestern Manitoba, a traditionally important lake for duck production, was only one quarter full this spring.

Other states

North Dakota breeding surveys show similar results. Total breeding duck populations were down 18 percent from last year and 22 percent from the 10-year average. May pond numbers in North Dakota were down 49 percent from last year and 52 percent from the 10-year mean. Survey trends for South Dakota show similar trends.

Duck hunt outlook

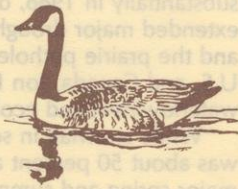
Federal officials estimate only 66 million ducks will migrate from Canada this fall — the second lowest migration on record and well below last year's 74 million duck fall migration.

"To sustain duck populations, all state and Canadian waterfowl hunters will face major hunting restrictions this fall — decreasing both season lengths and bag limits," Bergquist said.

The latest proposal in Wisconsin would offer 30 days of duck hunting between October 8 and January 8. Duck hunting would be allowed between sunrise and sunset. The point system for determining bag limits would be dropped for this year. Daily bag limits of three ducks could include no more than: two mallards (only one hen), one redhead, one black duck, two wood ducks, and (special restrictions on pintails) one pintail of either sex during the first seven days of the season, no pintails during the middle of the season and two male pintails during the last seven days of the season. Daily bag limits of five mergansers (not more than one hooded merganser) and 15 coot are also proposed. Hunters could possess no more than 30 coot in total.

Final season framework rules will be available in mid-September and published in the 1988 Wisconsin Migratory Waterfowl Regulations.

Waterfowl monitoring continues



**Sue Marcquenski,
Fish and Wildlife Disease Specialist**

Waterfowl monitoring for signs of polychlorinated biphenyls (PCBs) that can contaminate ducks and geese continued this year in parts of east central Wisconsin. Specialists from the DNR and the Department of Health and Social Services will review the most recent lab results and amend consumption advisories as needed. Up-to-date recommendations are included in the 1988 Migratory Waterfowl Regulations pamphlet.

Last year, for the first time, hunters were advised to avoid eating mallards, scaup and black ducks in some areas of Wisconsin. Tests showed that some duck species from these areas were contaminated with PCBs. The ducks contained more than three parts per million PCBs — a limit the Food and Drug Administration allows for commercially sold poultry.

Waterfowl affected by the advisory were primarily from the Sheboygan River and Harbor, Cedar Creek-Milwaukee River system, and Milwaukee Harbor. When eating mallards harvested from the lower Fox River, hunters were advised to remove skin and fat from the birds and discard drippings.

New hunting rules *continued*

2. Bow casing — Archery deer hunters will no longer be required to case their bows during the half-hour period before and after shooting hours. However, archers should note that evening hunting with bows for any animal, including unprotected species, is prohibited statewide during the entire bow deer season.

3. Fall turkey hunting — A fall turkey hunting season will be established for turkey zones 1, 1A, 2, 3, 4, 5, 9 and 10 from October 13-17, 20-24 and 27-31. Applications are due to DNR by August 11, 1989.

4. Spring turkey hunting — The number of spring turkey permits will be increased from 11,140 to 17,880 for the ten zones open to hunting. An additional 3,400 permits will be issued for five new hunting zones including two in Marinette County.

5. Turkey zone changes — The southern boundary of zones 2, 3 and 5 will be extended slightly to the south from Highway 60 to the south bank of the Wisconsin River. Most of former zones 7 and 8 are restructured into new zones 7, 8 and 13. The southern portion of Vernon County changes from zone 1 to zone 1A as an experimental area to test how increased hunting pressure changes turkey populations, landowner attitudes and turkey hunter satisfaction. Zones 31 and 32 are created in Marinette and Florence counties. Fort McCoy military reservation will also conduct a limited

Tips on handling and storing venison

**Scott Craven,
UW-Extension Wildlife Specialist**

Venison is one of the big dividends of a successful deer hunt. Venison, a naturally excellent, nutritious red meat, needs proper handling and processing to ensure the best quality.

The road to top quality venison begins with a well placed bullet or broadhead. Many factors influence the tenderness and flavor of a venison steak including the deer's age, diet, sex, condition, and stress. A hunter usually can't control deer stress, but a quick, clean kill leads to better venison.

Clean, quick field dressing and cooling is also important. In warm weather, cooling and rapid processing are necessary. Processing can wait in cold weather, but protect the carcass from repeated freezing and thawing cycles.

Many hunters debate the need to "age" the carcass. Meat scientists define proper aging as storing the carcass with the hide on for seven to nine days at 34° to 37° F, and 87 percent relative humidity. Since few hunters have such facilities and there's no consensus over the need for aging, I don't believe aging is necessary

and may in fact jeopardize the quality of your venison.

A professional meat cutter will return your venison in well-marked, well-packaged portions. If you choose to do your own butchering, remember these tips: take your time, avoid hairs and bone fragments, and package and freeze meal-sized portions. Remove as much fat as possible since it becomes rancid faster than beef fat. Don't store venison in plastic garbage bags. They are not intended to store food. Such bags are often manufactured from recycled plastics and may present a chemical hazard.

Once the meat is safely in the freezer, you can enjoy venison for as long as it lasts. Venison is higher in protein and lower in fat and calories than other red meats. Venison is higher in cholesterol than beef, but the extent of the difference is still open to debate.

Venison doesn't need to be marinated or cooked to well done to mask its natural flavor. There are many excellent game cookbooks filled with venison recipes. Try some. You'll enjoy your venison many ways for months after the hunt.

Seeing is not believing in camo orange clothes

**Dave Kunelius,
Public Information Officer**

Wisconsin deer hunters have mixed feelings about using camouflage orange hunting clothes during the gun deer hunting season — some want it banned while others defend it.

"Obviously, those who have invested in camo orange hunting garments defend it," said Homer Moe, DNR hunter education administrator, "but we don't want them to have misperceptions about its effectiveness. We tell students in our hunter safety classes why we believe solid blaze orange clothes are safer and more desirable."

One misperception is that camo orange is less visible to deer than solid hunter orange. Studies clearly show that deer can't see colors, so camo hunter orange appear as shades of gray, black and white to deer. That would make camo orange clothing more visible to deer when viewed against a white, snow-covered background.

A second misperception is that camo orange helps conceal the wearer better than solid hunter orange. In fact, camo orange does conceal the wearer — but from other hunters, not necessarily from the deer. That defeats the purpose behind hunter orange which is safety — hunters must be able to see each other.

Another misperception is that camo orange is just as visible to people as solid

hunter orange. The fact is that camo orange is *not* as easy to see in dim light or when viewed through any type of brush or other deer cover. In the field, most hunters see each other through small vertical slits in between brush and trees. It's difficult to distinguish camo-clad hunters through these small openings. Camouflage patterns defeat the high visibility safety factor of solid hunter orange clothing.

Finally, some hunters believe that camo is just as safe to wear as solid hunter orange, but the facts don't confirm that perception. In investigating two recent hunting fatalities in Wisconsin, the victims were wearing camo hunter orange clothing. Reenactments of both accidents demonstrated that had the victims worn solid hunter orange, they would have been more visible.

Current state hunting law requires that deer hunters using firearms must be clothed so that "at least 50 percent of the person's outer clothing above the waist is of a highly visible color commonly referred to as hunter orange, blaze orange, fluorescent orange, flame orange or fluorescent blaze orange." The law did not specifically address camouflage hunter orange clothes because these patterns didn't exist when the present law passed in 1979. Manufacturers had not yet developed the technology to cover the hunter orange dye with other dyes.

Lyme disease update



**Sue Marcquenski,
Fish and Wildlife Disease Specialist**

Lyme disease continues to concern people who work outside or enjoy outdoor recreation. In 1987, 273 confirmed cases and an additional 1,200 unconfirmed cases of Lyme disease were reported in Wisconsin. This bacterial disease is transmitted through the biting deer or bear tick, *Ixodes dammini*. Most people acquire Lyme disease between May and July, but hunters should be aware that they and their dogs can also contract the disease in the fall. To avoid becoming a victim of Lyme disease, follow these prevention tips when you're outside.

1. Thoroughly check yourself and your pets for ticks periodically during the day and especially before going to bed. Research shows that if ticks carrying Lyme disease bacteria are removed within 24 hours, a person is less likely to get Lyme disease. Apparently, it takes about a day for infective bacteria to invade the bite site.

2. Use a tick or insect repellent on your clothing. Repellents containing "DEET," such as Cutter's, Off!, Muskol, and others, are very effective tick repellents. A new product called Permanone is now available in Wisconsin. It contains permethrin, a very potent chemical that actually kills ticks. The manufacturer cautions that Permanone should only be sprayed on clothing, *not* skin or pet fur.

3. Give your dog a tick dip after hunting in especially thick brush. Consult your veterinarian about the most effective dip treatments.

4. Fogging a campsite or spraying an area with repellents aren't effective methods of deterring ticks. The best way to prevent Lyme disease is to be aware that deer ticks are the key transmitters and to remove them promptly.

If you develop symptoms of Lyme disease (nausea, fever, general flu-like symptoms, aching joints, and a spreading red rash), consult your doctor promptly and suggest that you be tested for Lyme disease. Some doctors, especially in other states, aren't familiar with the disease. Since Lyme disease symptoms are very similar to those caused by other diseases, it's important to give your doctor a complete history of your activities and symptoms so he/she can rule out these other diseases and begin treatment as soon as possible. Antibiotics administered in the early stages of Lyme disease are usually very effective at preventing relapses. If not treated promptly, Lyme disease can cause recurrent arthritis, nerve damage, and heart problems.

Common mistakes in permit applications

Doug Poole,
Chief, Licensing Section

If you haven't received a Hunter's Choice or Goose permit for a couple of years and are wondering why, you might have made a mistake filling out your application. Here are common mistakes we've noted that applicants make.

1. Applications are most often denied because they're late. Thousands of applications arrive in DNR's licensing section after the deadline. The earliest application we receive and the last ones received by the deadline have equal chances of being chosen in the drawing, but a late application won't even be considered.

2. Applicants often forget to specify the management unit or zone in which they wish to hunt. That's the second biggest reason permits are denied. Rather than writing in the number of a management unit or zone, some applicants list cities, highways, or other landmarks. A city may be at a junction point for three or four units. Highways are boundary lines that may run past eight or 10 units. Highway 51 touches 24 deer management units! Other applicants list the county where they wish to hunt. That's fine for one-unit counties like Sheboygan or Kewaunee counties, but Lincoln County contains parts of eight deer management units. Most counties have three or four units within their boundaries. So look at the unit and zone maps and mark your choice on your application.

3. Applicants provide improper or illegible addresses. Sometimes the city or street is left off or a hunting partner's address is listed. Some applicants used their summer cottage addresses, but they don't have mail forwarded to their fall and winter address.

We cannot search for proper addresses on the more than half a million applications for special permits we receive each year. Since the Licensing Section can't complete or change incorrectly filed applications, please take an extra minute or two to check your applications.

Applicants may forget to enclose the "Goose Hunt Application Stub" that was attached to their small game or sport license when it was purchased. If this happens to you, just obtain a new application to hunt Canada geese and submit it with your license stub so we receive it prior to the deadline.

If you're wondering what your chances are for receiving a permit, here are some estimates. Hunters who apply for goose permits every year should receive a

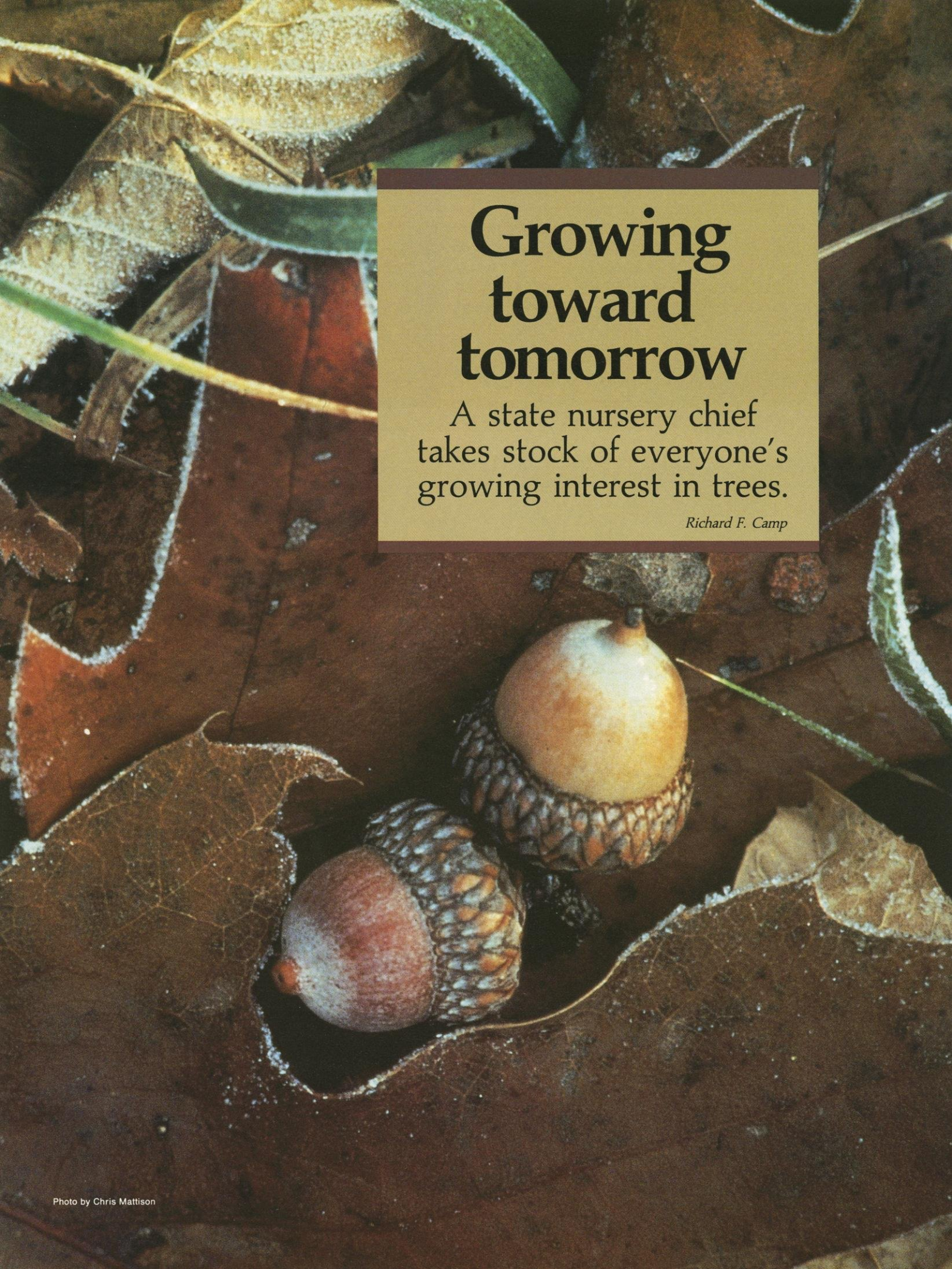
permit at least every other year. Hunter's Choice Permits for deer hunting vary from unit to unit depending on the number of permits available and the number of applicants. Hunters will receive a permit almost every year in some units while other more popular units are over-requested by 600-700%. In those units, applicants may have to wait six to seven

years or longer before receiving a permit. Turkey and bear permits are fairly new and the quotas keep changing. Overall, most applicants should receive a permit within four seasons.

Permits are usually mailed three or four weeks after the deadline, so please be patient and keep your hopes up. Your permit just may be in the mail!

Season dates and outlook

Species	1988 Locations and Dates	Game supply compared to 1987	Hunting prospects compared to last 5 years
Bear	Statewide with bait (bow and gun): Sept. 10-30. North zone only with dogs (bow and gun): Sept. 17—Oct. 7. Other methods: Sept. 10—Oct. 7.	Better	Very good. Best in northern counties.
Bobwhite Quail	Statewide, noon Oct. 15—Dec. 7	Improving	Poor to Fair. Best north of Wisconsin R. in southwest Wisconsin.
Canada Goose	Statewide; dates published about Sept. 15	Better	Very good. Best in east central portion of the state.
Cottontail Rabbit	North: Sept. 17—Feb. 28 South: Noon Oct. 15—Feb. 28	No change	Fair to Good. Best in southern 2/3 of state.
Coyote	Statewide, all year except north gun deer season closure	No change	Fair to good. Best in north.
Deer	Gun: General Nov. 19—Nov. 27 Bow: Statewide Sept. 17—Nov. 13 Dec. 3—Dec. 31	Better	Excellent in most areas. Trophy opportunities are best in north.
Ducks	Statewide; dates published about Sept. 15	Worse	Poor to fair. Best along Mississippi R. and in eastern counties.
Gray and Fox Squirrel	Statewide, Sept. 17—Jan. 31	Better	Very good. Best in southern 2/3 of state.
Hungarian Partridge	Statewide, noon Oct. 15—Dec. 7	Improving	Fair. Best in counties near Lake Winnebago and Lake Michigan.
Pheasant	Statewide, noon Oct. 15—Dec. 7	Improving	Poor to fair. Best in southeast 1/4 of state.
Raccoon	Residents statewide, Oct. 15—Jan. 31 Nonresidents statewide, Oct. 29—Jan. 31	Improving	Very Good. Best in southwest and west central Wisconsin.
Red and Gray Fox	North of Hwy. 64: Oct. 15—Jan. 31 South of Hwy. 64: Oct. 29—Jan. 31	Improving	Good. Best in west-central and southern Wisconsin.
Ruffed Grouse	North: Sept. 17—Dec. 31 South: Sept. 17—Jan. 31	Improving	Very good. Best in central and western Wisconsin.
Snowshoe Hare	Statewide, all year	Improving	Fair to good. Best in north.
Turkey	15 units — 4 hunting periods between Apr. 19 and May 14, 1989	Better	Very good. Best in southwest.
Woodcock	Statewide, Sept. 17—Nov. 20	No change	Very good. Best in northern 1/3 of state.



Growing toward tomorrow

A state nursery chief
takes stock of everyone's
growing interest in trees.

Richard F. Camp



(top) In rank and file at the F.G. Wilson Nursery in Boscobel, Norway spruce and white pine are nurtured as precious crops for future shelterbreaks, wildlife habitat, paper products and erosion control.

(lower) This tough machinery gently jostles and lifts young seedlings so they can be packed and shipped without damaging fine, delicate root hairs.

Both photos courtesy of the DNR nursery

Call to mind that large stand of pine I-94 passes through in Trempealeau County. Picture a long, winding windbreak along a back road in Central Sands country, tall spruce shading that beautiful campground in Washburn County or acres of worn-out cropland rejuvenated by trees. Wherever you drive in Wisconsin, you're bound to see thousands of acres of trees planted for conservation.

It's hard to appreciate that most of these trees started in our state nurseries, which have produced steady supplies of sturdy stock since 1911.

Wisconsin's early foresters, E.M. Griffith and Fred Wilson, knew that a stable, dependable forest products industry hinged on producing large amounts of planting stock to provide future fiber. In 1911, they opened the first state nursery at Trout Lake in Vilas County. Since that time, 1 1/4 billion seedlings have been raised at the state nurseries and distributed to people in every township statewide.

The F.G. Wilson State Nursery in Boscobel distributes 90 percent of its seedlings to private landowners to reforest woodlots and establish plantations. Stock from the Hayward nursery in northwestern Wisconsin is primarily used to reforest county, state and industrial forests. The Griffith State Nursery in Wisconsin Rapids serves a mixed clientele of public forests and private woodland owners.

This diverse mix of customers contributes to our proud tradition of tree planting. In fact, Wisconsin boasts more acres of tree plantations than any other state in the northeastern United States.

How have the nurseries adapted to meet this demand? It hasn't been easy. To keep tree prices affordable for all customers while raising quality stock, we have to do some of our

This 20-year-old walnut plantation in Brooklyn, WI will get a lifetime of care, and it's worth the investment. Walnut is a preferred hardwood for fine furniture and veneers.

Photo by Paul Pingrey

Richard F. Camp is the superintendent of the F.G. Wilson State Nursery in Boscobel.





A healthy planting of four-year-old pines is inspected for insect damage. Providing quality stock to private nurseries like this one is an efficient way to raise trees to feed growing demand for wood products.

Photo by Paul Pingrey

tender loving care with a little machinery.

Fifty years ago, most work at the state nurseries was done by hand by lots of people. Today, hardwoods are mechanically seeded; an unknown practice even 10 years ago. The careful and judicious use of herbicides has eliminated thousands of hours of hand weeding. Better fumigation and fertilization techniques produce bigger, better seedlings that can be shipped at a younger age. New lifters agitate seedling beds. When stock is pulled from the ground virtually no root hairs are lost. New methods help us pack seedlings faster and offer more protection for seedlings en route to final destinations.

Many state-raised seedlings are planted by industry and government, but more than 60 percent of the young trees are eased into their permanent homes on private land by pri-

vate citizens. These tree-planters are of all ages, vocations and income brackets. As long as production costs are covered, we can keep the price low to encourage as many people as possible to plant trees for the future, and they do it. This public-private partnership benefits the planter, our citizens and eventually our posterity.

Trees build a better environment many ways.

Since most people won't be around to reap financial fortunes from the trees they've planted in their lifetimes, you might wonder why they bother with seedlings in the first place?

It's my experience that environmental concerns and aesthetics motivate people today as much or more

than potential profits. Many want to create or improve wildlife habitat. Some want to grow a stand of beautiful trees for descendants. Some are protecting their farms and homesteads from wind, snow and rain, but most plant for altruistic reasons.

Millions of trees have been planted to block drying winds and stop soil erosion. Dust bowl conditions, prevalent 40 years ago along the lower Wisconsin River, are now non-existent — thanks to trees. In times of stifling heat and drought, trees provide a buffer that takes the edge off brutal weather. Other benefits of tree plantations are less obvious: How do you measure the value of wildlife that live in thousands of plantation acres, the joy of shaded campsites near home; the lessons kids learn in school forests; the chance to forage for wild mushrooms, herbs and ginseng; the inviting snowmobile and

ski trails cutting through green glades or the pleasure of viewing shelterbelt plantings that border lakes, streams and highways in the Midwest?

Trees can serve several uses on the same tract of land — not only fiber production, but wildlife habitat, soil and water conservation and scenic beauty as well. I think that's why tree planting plays such an important part in government actions like the Rural Forestry Assistance program, Tree City programs, agricultural/soil erosion programs and the Conservation Reserve Program (CRP). More than seven million trees from our nurseries were planted this year on CRP lands.

Improving the product

Tree improvement is the watchword. Presently, much of the seed used in state nurseries is purchased from people who collect acorns, cones and other tree seeds. The genetic characteristics of this seed varies widely.

Like hybrid corn or pedigreed animals, trees can be selected for characteristics foresters find desirable like fast growth, straight trunks, disease and drought resistance. A tree improvement program has been under way for almost two decades. Our efforts have accelerated in the last three years since a forest geneticist has been on the payroll.

I doubt that even "super seedlings" would have survived the scorching heat this summer without water, but breeding trees that can withstand our demanding environment is an important goal for our nursery program. Trees with desirable qualities are being planted in seed orchards the Department of Natural Resources is developing in north central and southern Wisconsin. Our red pine seed orchard is already producing superior stock. Ultimately, most seedlings grown in state nurseries will be raised from these improved seed stocks. We have a long way to go before that happens, but the payoff is great. A seedling se-



Trent Marty, DNR forest geneticist, takes stock of young walnut scions at the Wilson Nursery. Photo by Paul Pingrey

Nursery seedlings grow jobs too

The state and its citizens have a tremendous investment in fiber, paper and jobs. How do 550,000 acres of forest plantation bolster Wisconsin's economy?

Most of the plantation wood cut today is used by the pulp and paper industry, and half of all wood cut in Wisconsin goes into papermaking. Thirty years ago, the paper industry imported 65 percent of its wood supply. Today, one of the biggest pulp and paper mills in Wisconsin gets 90 percent of its pine pulp within state borders. By the year 2000, most of our pulp and paper mills will get their pine stocks from Wisconsin plantations, which should mean even more income and jobs will stay here in the state.

Our biggest return on investment may be in providing steady

jobs. Today, 283,000 people work in forest products-related jobs; this figure is expected to rise by the year 2000. Forestry-related businesses are our largest or second largest employers in more than half of Wisconsin's counties.

People will use more and more paper as the nation's population and living standards increase and new products are developed. Wisconsin's forest industry will grow right along with this demand.

The original dream of Griffith and Wilson for a self-sustained forest resource and a stable forest-based industry is coming to fruition. Not too bad for a state that had its original "inexhaustible" forest resource nearly obliterated by uncontrolled logging and wildfires at the turn of the century.

lected for its fast growth (as little as three percent increase) can be expected to produce an 11 percent gain in volume. Multiply this by several million trees, and the effects on wood production are tremendous!

These product improvements add to the gratifying experience for tree

growers who are celebrating more than 75 years of a progressive reforestation in Wisconsin. They know that tree planting is not just good sense, but vital to a healthy and productive society. ■

A WEALTH OF WISCONSIN

Butterflies

There's a lot of flitting and fluttering in Wisconsin's back lots, fields and forests.

Ann Swengel

Some people call them wildflowers that fly. Others consider them the warblers of the insect world. Whatever the comparison, the meaning is the same — butterflies are beautiful and varied. Wisconsin is blessed with about 150 kinds, and a remarkable and diverse lot they are. Some are smaller than a thumbnail while others are large and plucky enough to argue over a perch with a songbird! The majority of butterflies are easy to overlook, but this delightful, if tiny, world of color and activity opens up to the aware and persistent observer.

Butterflies turn up in every type of habitat in the state, not just in the flowery meadows that teem with insect activity. Monarchs migrate along Lake Michigan's sand dunes, and boreal species lurk in the northern bogs. Some butterflies are forest recluses,

Ann Swengel, from Baraboo, has been interested in butterflies since childhood. She's a member of The Lepidopterists' Society and The Xerces Society. In addition to butterfly research, she conducts annual butterfly counts around the Fourth of July.

from the drab brown satyrs to the colorful anglewings, also known as commas for the tiny markings on the hind wing.

Among our smallest butterflies is the Eastern Tailed Blue, a lovely deep blue insect with a tiny 3/4-inch wingspan. It is common in grasslands. Its cousin the Spring Azure, sky blue in color and slightly larger, favors the forest edge. The coppers, also in the same family, are quite different in color. For example, the tiny American Copper and the slightly larger Bronze Copper are patterned in orange, silvery white and black. Other relatives including the hairstreaks are generally small, nondescript creatures, save a few members like the Coral Hairstreak which has bright red spots on the underside of its wings. If you should be lucky enough to spot the well camouflaged Olive Hairstreak amongst the vegetation, you will find a green and mahogany beauty.

At the other end of the size scale is the black and yellow Giant Swallowtail, Wisconsin's largest butterfly, whose massive wingspan exceeds five inches. It's native to the southern

third of the state, but its similarly colored but smaller cousin, the Tiger Swallowtail, can be found in all parts of Wisconsin near woodlands. Other swallowtails found here, such as the Black Swallowtail, are much darker.

A number of butterflies fall in between the two size extremes. The best known butterfly in the state is the Monarch, which is orange with bold black stripes. It is famous for its migratory habits — all the more remarkable because the fall migrants have never seen their destination before! The Monarchs that arrive in our state in the spring reproduce and then die during the summer. A subsequent generation must find its own way south to Mexico when cool weather arrives.

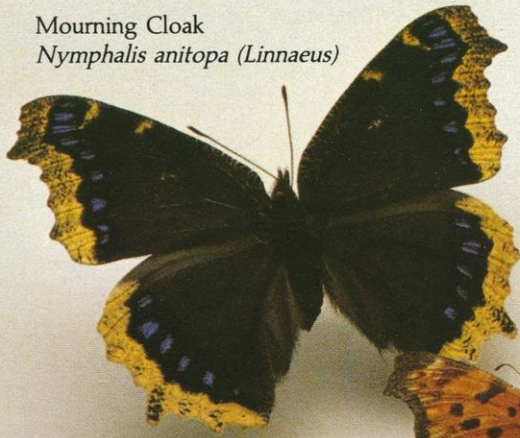
Monarchs are also called milkweed butterflies because their caterpillars eat these plants. Alkaloid substances retained from the milkweeds in the Monarch's body tissues have a bitter taste that birds dislike. This protects

Continued page 28

Butterfly blues — the Bronze Copper (*inset*) and the Karner Blue wear magnificent one-of-a-kind pastels. Photos by the author



Mourning Cloak
Nymphalis anitopa (Linnaeus)



Edwards' Hairstreak
Satyrium edwardsii (Saunders)



Question Mark
Polygonia satyrus (Edwards)



Spring Azure
Celastrina argiolus pseudargiolus (Boisduval and La Conte)



Northern Blue
Lycaenides argyrognomon scudderii (Edwards)



Orange Sulfurs or Alfalfa Butterflies
Colias eurytheme (Boisduval)



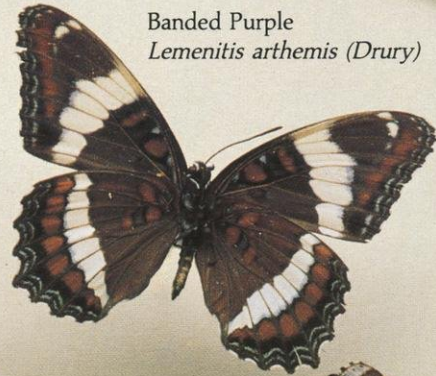


Baltimore
Euphydryas phaeton (Drury)

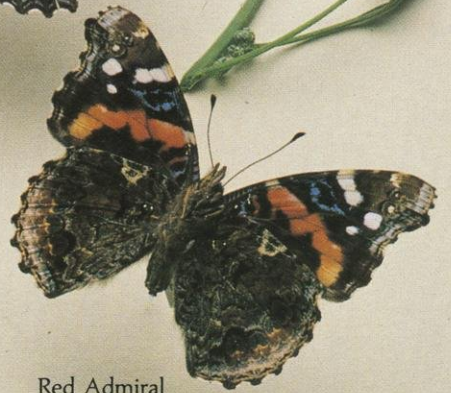
Ruddy Silverspot
Speyeria aphrodite alcestis
(Edwards)



Banded Purple
Limenitis arthemis (Drury)



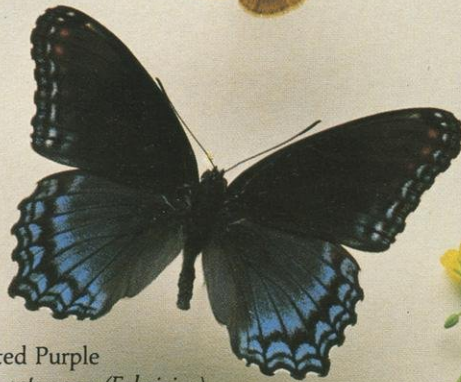
Long Dash
Polites mystic
(Edwards)



Red Admiral
Vanessa atalanta (Linnaeus)



Bronze Copper
Lycaena thoe (Guerin-Meneville)



Red-spotted Purple
Limenitis astyanex (Fabricius)



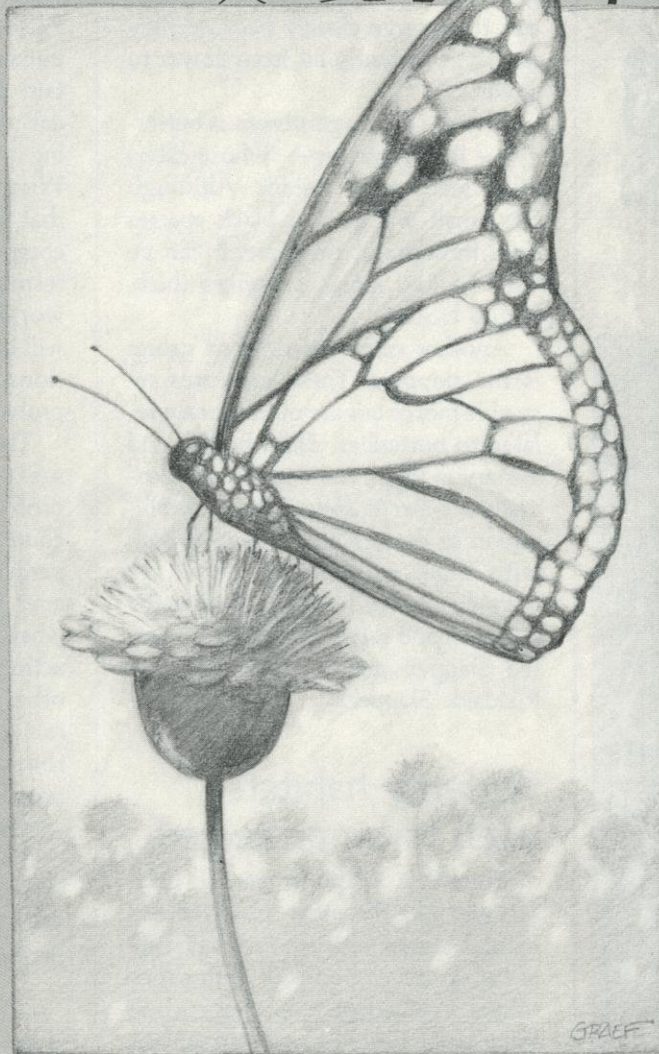
ATTRACTING *Butterflies*

A butterfly garden consists of several things: flowers with nectar, sunshine to keep the butterflies warm and active, some trees and shrubs for cover, appropriate food plants — and tolerance from gardeners when the caterpillars munch on them!

Some garden flowers that attract hungry adult butterflies include marigold, cornflower (bachelor's buttons), cosmos, zinnia and phlox. Lilacs and butterfly bush are popular flowering shrubs. Parsley, dill and carrots are favorite food plants for Black Swallowtail larvae — the brightly striped caterpillars don't eat so much that the gardener should be concerned about damage. Apples and cherries can serve as both larval food and adult nectar sources for a number of butterflies.

The best way, however, to attract native butterflies is with native plants. Beebalm (*Monarda*), butterfly weed (*Asclepias tuberosa*), gayfeather (*Liatris*) and ox-eye daisies (*Chrysanthemum leucanthemum*) are excellent for nectaring while violets, willows, oaks, poplars and asters serve as food plants for caterpillars. Plant them in sunny spots that are protected from strong winds.

Sometimes gardeners need to



Thistles are a favorite food, the roses of the butterfly world.

Illustration by Renée Graef

change their attitudes to tolerate plants that butterflies prefer. The common milkweed, for example, is considered a weed, but its flowers are actually quite lovely and attractive to many feeding butterflies. Watch the leaves and stems for Monarch caterpillars. Thistles are

the roses of the butterfly world — attractive flowers on a prickly plant. The butterflies favor them, but your neighbors and community weed ordinances may not. Other flowers that the butterfly gardener might not weed out include clover, dandelion and goldenrod.

Another principle of butterfly gardening is to work with what you have — leave the native plants in place as much as possible. For example, nettles are an important caterpillar food plant. If you're lucky enough to have a patch in an unobtrusive location, leave it alone and be grateful! An unmanicured back corner of the yard also provides locations for butterflies to spend the night and the winter in suitable cover such as bushes and leaf litter.

Many otherwise suitable gardens are poor in "flying flowers" because insecticides and other chemicals were applied on and near them. Once I began to view my yard as a home for animals big and small, I became more tolerant of those considered "pests" since exterminating them kills the "good" ones too. For me, the creatures provide more beauty than a perfect but poisoned garden.

(left) The Question Mark is one of the larger angewing butterflies with a brawny 2.5 inch wingspan. This woodland species can be found along sunny forest trails and by roadside openings searching for sap, water or droppings. Unmanicured clumps of shrubs, evergreens, milkweed, nettles and goldenrod complement flowers you can plant to provide cover and nectar to a variety of butterflies.

Photo by the author

Continued from page 22

more than just the Monarch from predators. The Viceroy mimics the Monarch, and although it is not foul tasting, the Viceroy is passed over by predators that have had a bad experience with the Monarch.

The fritillaries have similar colors to Monarchs, but are highly pat-



Butterfly hot spots

Delightful spots to watch butterflies abound in the state.

Point Beach State Forest on Lake Michigan's shoreline south of Door County is such a place. It combines woodlands, wetlands and grassy sand barrens.

Nelson Dewey State Park in extreme southwestern Wisconsin provides a very different set of habitats. There you will find rich hardwood forests and dry prairie on the bluffs overlooking the Mississippi River Valley.

The MacKenzie Center at Poynette features a variety of good butterfly habitats too.

An excellent place to look for the northern species is in Nicolet National Forest in northeastern Wisconsin where thick northern forests and bogs abound.

Chances are you won't need to travel far to find some of Wisconsin's butterflies. City parks, and sometimes backyards, harbor a remarkable number of species that tolerate development, and if you go just a little further afield and look carefully you're sure to find these "wildflowers" and "warblers" in action.

terned with black spots and patches. The largest of these is the Great Spangled Fritillary, named for the silver spots on its underside. Others, such as the Silver-bordered Fritillary, have very similar patterns but are only half the size of the Great Spangled. These common species are difficult to observe closely because they rapidly, constantly flit from flower to flower.

There is even a carnivorous butterfly — the Harvester — whose caterpillar feeds upon aphids. Although this small orange and black species lives throughout the state, it can be hard to find since it prefers thick, buggy woods.

Another often overlooked group is the skippers. These creatures resemble moths but are more closely related to butterflies. Thick bodied and fluttery in flight, the skippers are generally somber in color, often a combination of orange and brown or dark with small white spots. Some are quite distinctive, however, such as the common and rather large Silver-spotted Skipper and the tiny and dark Roadside Skipper.

Butterfly habitats need to be protected.

Butterflies adapt to specific habitats and, like the other inhabitants of natural communities, some have adjusted to developed land better than others. Well adapted species, such as the Alfalfa Butterfly, depend on the weeds that grow when stable plant communities are disturbed, or are butterflies that are not particularly finicky about larval food plants and adult nectar sources. On the other hand, prairie denizens like the Regal Fritillary and Powesheik Skipper are in serious decline.

The Department of Natural Resources has several programs at work in the Bureau of Endangered Resources to ensure that our many butterflies continue to thrive. The Natural Areas Program seeks to recognize and protect excellent examples of each of Wisconsin's diverse natural

communities. This in turn conserves habitat for butterflies. Butterflies and the effects management practices have on them are among the factors that the Natural Areas team watches closely.

Another important project is the Natural Heritage Inventory System. Wisconsin is one of many states utilizing this computer system to retain detailed information on individual plant and animal species, including butterflies. The abundance of each Wisconsin species is determined and that information is fed into a larger computer program that tracks natural resource abundance nationwide and worldwide. Ultimately, the system will help conservationists assess locations that should be conserved to protect rare and endangered species.

This information makes it easy to see where the greatest conservation problems and opportunities are. Of course, those species considered imperiled in the state need help. However, if they are also endangered elsewhere, then the need for protective action is clearly more urgent. On the other hand, if a species is currently faring well in the state but is threatened elsewhere, Wisconsin populations could be critical to the survival of the species overall.

These programs depend for funding on the nongame checkoff on the state tax form, so be sure to remember butterflies at tax time.

Tips for stalking butterflies

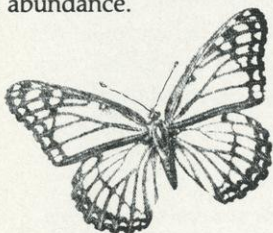
At first glance, butterflies seem quite elusive, but by following a few simple tips you will be able to watch as these beautiful creatures calmly remain on a nearby flower or even alight on you! Remember that butterflies remain wary to avoid predators. Approach a butterfly from behind, that is, from where it can't see you. Stay low and move slowly — avoid casting a shadow on the butterfly. Try not to be silhouetted against the sky in its line of view nor startle it with sudden movement.

What the butterfly is doing will also affect how successful your approach will be. Butterflies are cold-blooded creatures and must be heated by the environment in order to have enough energy to move about. They start the day by basking — seeking a perch in the sunshine where they can soak up the sun's heat. If they're not warm enough yet, these butterflies are easy to approach. Likewise, if a butterfly is intently feeding, it may not be as alert to the creatures around it, including you. However, if the butterfly is flying around in search of a mate or in contest with competing suitors, be prepared for disappointment. You may not spook it, but you won't divert it from its pursuit.

The secret to finding butterflies is to look for places where they find food and cover. Some species are looking for woodlands while others may prefer wetlands, meadows, dry prairies or scrub. The greater the variety of plant communities there are in an area, the more kinds of butterflies will be present.

Butterflies often feed at flowers, but some species eat other things as well. Swallowtails and sulphurs appreciate a good mud puddle, where they sip the water rich in minerals and other nutrients. Question Marks and Mourning Cloaks disdain flowers in favor of such items as pine sap and animal droppings. Thus, areas where puddles collect in gravelly roads moistened by a rainstorm can be as productive butterfly turf as flowery meadows.

As for cover, butterflies spend the night and cool periods hidden in bushes, trees, leaf litter and cracks in tree bark. That is one reason why a meadow-forest edge can hold many butterflies — there is food and cover in abundance. ■



Continued from inside front cover

But one thing's certain — the fish like the neighborhood. This spring, the Wisconsin and Minnesota natural resources departments, joined by the U.S. Fish and Wildlife Service, captured 1,500 ruffe. The fish's range now extends from the St. Louis River, to the Wisconsin part of the Lake Superior shoreline, through the Wisconsin/Minnesota boundary waters. Recently, one fish was captured in the western Apostle Islands about 60 miles from the Duluth/Superior harbor.

The ruffe (silent "e") looks harmless enough, with those big pop eyes, but in its native range, *Gymnocephalus cernua* is not known as a friendly fish. From central and northern Europe into Asia, the ruffe has an appetite for fish eggs and the potential to prey on native fish populations.

"You have to be very concerned about this fish," says Dennis Pratt, west Lake Superior fish manager for the department. "It has a bad reputation in European waters, and we don't know how the ruffe may change our native fisheries. Its presence in Lake Superior is a first-time event for North America: no records. History in the making."

The ruffe is a unique member of the perch and walleye family. It's easily distinguished from perch by a lack of head scales and two, thick spines in its anal fin. Typically, the ruffe's body shape is a bit more elongated than a perch. Ruffe are bottom feeders, dining on invertebrates, preferably midges.

The ruffe's back and flanks are colored grey-green to brown-green to olive-green, with irregular dark specks. The fish can grow 12 inches long and can live a dozen years.

The ruffe was probably imported when a ship taking on ballast water sucked the critter into its hold. The ship was likely anchored at the lower end of a large river, where less salty water is found. At Duluth/Superior, the fish was released into similar habitat in the lower end of the St. Louis River.

"We couldn't clean up the ruffe here with today's technology; the fish is too well established," Pratt says. "But we'll try to control its numbers."

Natural resources officials from Wisconsin and Minnesota have met twice to discuss the ruffe and cook up ways to stop its spread to other waters.

"At this point, we'll try to control ruffe populations by increasing populations of native fish that eat them," Pratt says. "We're considering stocking juvenile walleyes to beef up their numbers — hoping these fish grow into ruffe predators."

The department is also weighing whether to ban bait minnow netting from the St. Louis River and the Wisconsin part of the Lake Superior shoreline, as another way of stemming the spread of ruffe. The department will work with Minnesota and the U.S. Fish and Wildlife Service over several years to investigate ruffe biology. Meantime, the department is looking for weak links in the fish's life cycle, educating the public about the ruffe and investigating its impact on the native fishery.

"We want to study how the ruffe might change commercial fishing here," Pratt says.

Ruffe will bite a hook and line, but they're not prized as a great fighting fish. The little fish is considered a pesty bait-snatcher. Some European anglers eat ruffe, which tastes a little like perch.

Stay tuned. Minnesota and Wisconsin are also concerned about the arrival of eastern white perch, which may also have been brought to the Duluth/Superior area by ships. The perch are less troublesome than the ruffe, but they also threaten to upset the natural ecology of the area's yellow perch and lake trout.

— *Richard C. Mulhern* ■

Readers Write

Your September/October 1978 issue had an article by Noel J. Cutright on purple loosestrife. His closing words were that "this plant bears watching."

Since then, 10 years have passed and there have been no follow-ups about this plant. However, it has spread considerably and seems to have taken over large areas. It has also made the noxious weed list.

Is it possible to have another article soon informing us about purple loosestrife's spread and possible ways to eradicate this weed?

*Merlin J. Mayer
Iola, WI*

Actually, Noel Cutright wrote an update about purple loosestrife for our July/August 1985 issue. In July, 1987, our research newsletter, "findings" carried an article by Richard Henderson about this invasive exotic plant. Ask for "STATUS AND CONTROL OF PURPLE LOOSESTRIFE IN WISCONSIN" from the DNR Bureau of Research, Box 7921, Madison, WI 53707.

I verily enjoyed your article on naturalist Enoch Reindahl. We need more people who take pride in the natural resources of our great state.

Switching from *Sports Illustrated* to *Wisconsin Natural Resources* was the best move I could make in reading. Keep up the good work.

*Rocky J. Marth
Sturgeon Bay, WI*

We're trying to cut down on expenses and decided we could get along without your magazine, but after we read the July/August issue, we realized we just couldn't get along without it. The issue was packed with so many interesting articles. Please continue our subscription for another two years!

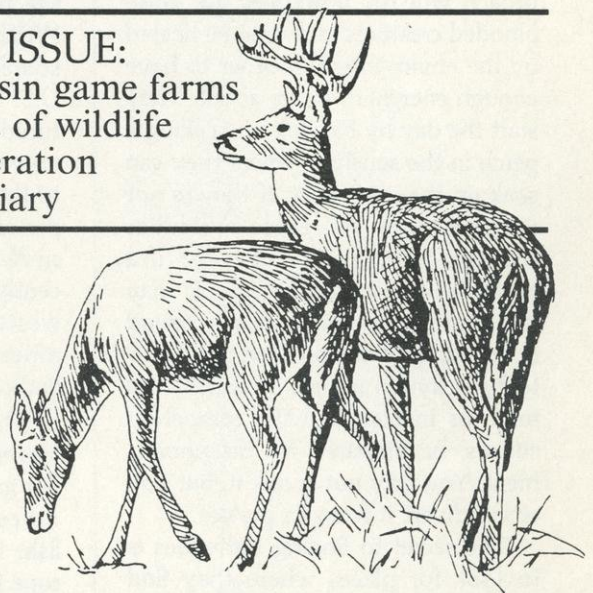
*Mr. & Mrs. John Kloss
Two Rivers, WI*

I enjoyed your issue highlighting aquatic weeds. How about a feature on shoreline property stewardship? Most of our river and lake shoreline is developed by urban transplants. Possibly a pamphlet similar to the fishing regulations could cover shoreline property development regulations.

*Bob E. Mitchell
Trevor, WI*

Well over 100 publications on lake management issues are available from the Department of Natural Resources. Write the Bureau of Water Resources Management (Box 7921, Madison, WI 53707) and ask for the Lake Management Publications List. Sample titles include: "Becoming a Lake-Front Property Owner: Tips on Buying Lake-Front Property," "Home and Garden Practices for Lake Protection," "Saving Your Shoreline," "Shoreland Zoning: What Property Owners Need to Know," "Protecting Shoreland-Wetlands in Urban Areas," "Aquatic Plant Guide," and "What is a Shoreland Buffer Zone?"

NEXT ISSUE:
Wisconsin game farms
A spirit of wildlife
cooperation
Deer Diary



We enjoy hearing from you . . .

Please address your cards, letters, manuscripts, art and photos to: *Wisconsin Natural Resources, Box 7921, Madison, WI 53707*

Door Ways to Remembrance

Wisconsin's Door County leaves strong impressions — just ask visitors to the area's state parks. Now, some of the Door's magic is captured on 18x24-inch, full-color posters of Whitefish Dunes and Peninsula state parks — which will remind you of a place or time worth remembering.

Suitable for framing, these beautiful photographic scenes are available through the mail — rolled, not folded — from DNR's Lake Michigan District Headquarters, 1125 N. Military Ave., Box 10448, Green Bay, WI 54307. Checks or money orders for \$3.50 per poster (payable to the Wisconsin Department of Natural Resources) cover all costs, including postage and handling.

Or save some expense by picking up your posters in person — for only \$3.00 each — at any Door County state park, at DNR's Lake Michigan District headquarters or at the department's central office information desk, 101 S. Webster St. in Madison.

Proceeds will help preserve and improve Door County state parks.

Door County moods captured in new posters: sunset in the harbor, crashing waves at Cave Point and a sprightly wild rose in the sand dunes. ▶

Photos by David Crehore

