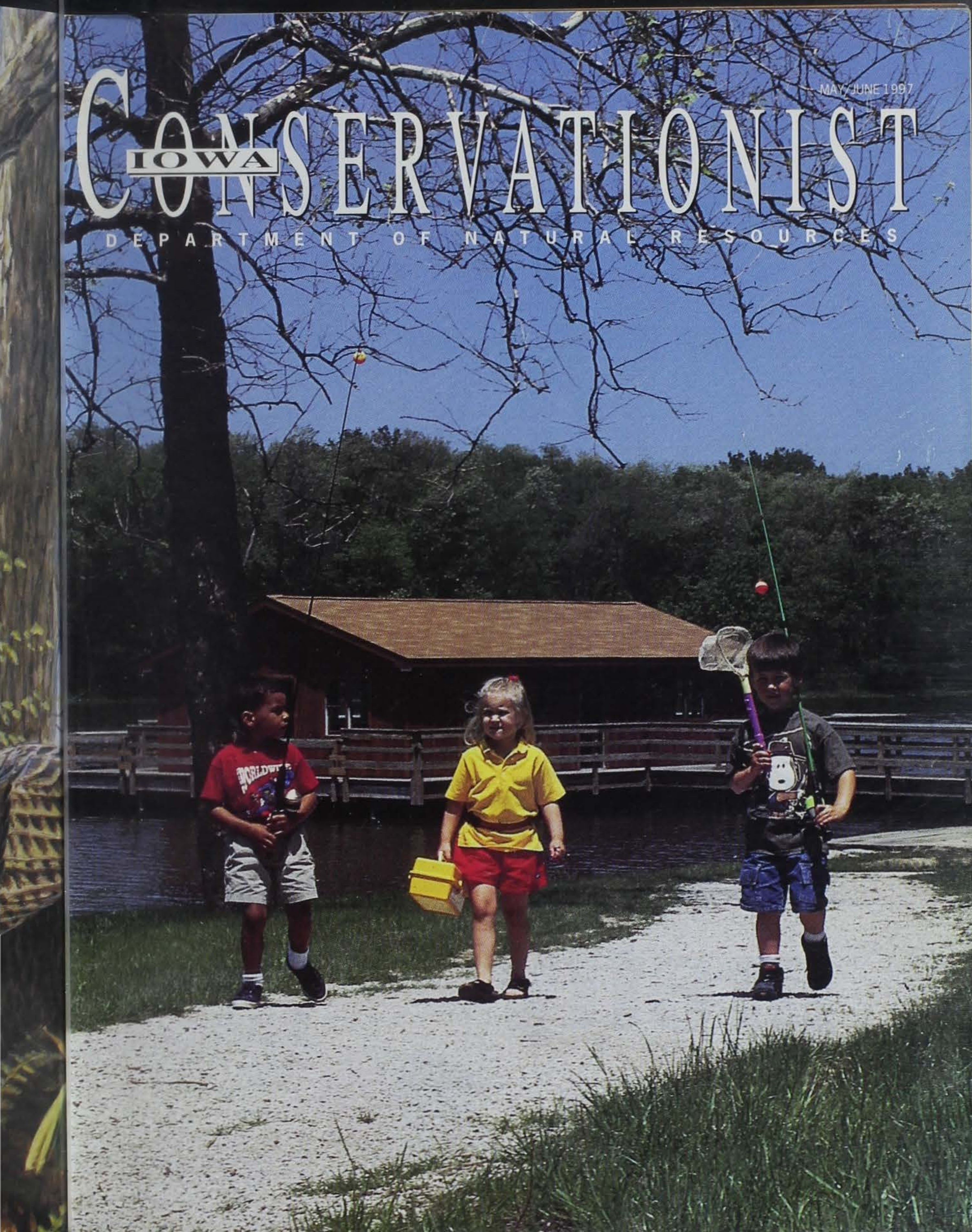


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Unexplained mutants,
unexplained extinctions,
unexplained global declines.
Around the world entire
populations of amphibians are
conducting a simultaneous and
mysterious vanishing act.
It's . . .

the CASE of the MISSING FROGS

Article and photos
by Lowell Washburn

Research Biologist Lisa Hemesath surveys an Iowa wetland (left). Iowa amphibians not only provide the state's residents with nocturnal symphonies, but they may also serve as important barometers regarding the health of our environment.



Most of the information regarding the abundance and distribution of Iowa amphibians such as the spring peeper (above) and bullfrog (right) has been gathered by a dedicated cadre of volunteers

Most populations of American toads are doing well (top). By contrast, leopard frogs (page 7) seem to be showing widespread declines.



Late last summer, a group of southern Minnesota school children collected a dozen frogs from a local wetland. Nothing really unusual about that. Most kids like to chase frogs. But what did make the event noteworthy were the frogs themselves.

Some of the creatures had no eyes. Some were missing legs. Others had

extra legs. It was clear that, at least on this pond, something had gone awry down at the frog assembly line.

It was no surprise this grotesque discovery would trigger an immediate media frenzy. One thing led to another and before long, a second, third, and finally a fourth site were reported -- each containing a high density of horribly deformed frogs. Public concern escalated, and the Minnesota Pollution Control Agency made

mutant frogs one of its top issues.

As scientists continue to seek answers to the cause of Minnesota's deformed frog populations, the case becomes just one more piece to what has become a very large, very mysterious, very scary puzzle.

Amphibians -- frogs, toads and salamanders -- are among the most



successful and widespread of the earth's inhabitants. But for the past 15 or 20 years, there has been a growing body of evidence suggesting that the world is becoming increasingly hostile to amphibian life forms. Today, that evidence has become a mountain.

Across the planet, amphibians appear to be in a simultaneous and dramatic state of retreat.

Large-scale amphibian declines have been reported in at least 16 countries, representing virtually every continent the animals call home. Locations include Australia, Brazil, Costa Rica and the United States.

The obvious question is, "Why?" The unfortunate answer is "no one knows."

There is, however, an occasional, seemingly simple, explanation. In South America, for example, the wholesale destruction of rainforest is eradicating entire races of amphibians as fast as, (or in some cases, faster), than they can be cataloged. In the U.S.,

scientists believe declines in certain populations of tiger salamanders is directly linked to a deadly phenomena known as "acid snow." The problem occurs when contaminated melt water rushes into breeding ponds just about the time cold-tolerant salamanders are busy laying their eggs. Some researchers speculate acid snow may also be the culprit responsible for drastic declines in boreal toad populations in Colorado and Wyoming.

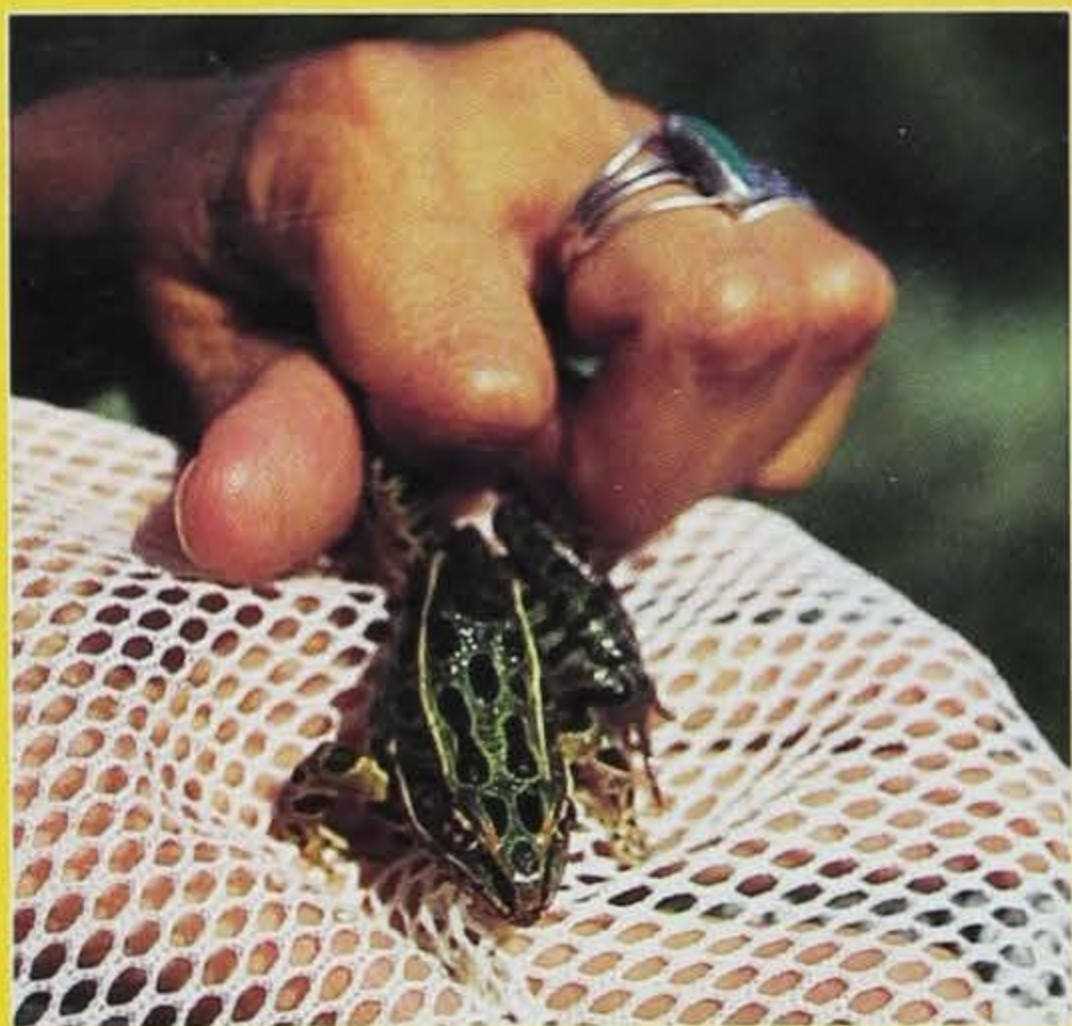
Although any wildlife decreases linked to habitat destruction or water pollution are alarming, they are at the same time understandable.

But certainly less understandable is why amphibian populations living within the assumed protection of vast, undeveloped, pollution-free nature preserves are going down the drain along with those frogs and toads forced to live in the real world. Equally perplexing is the seemingly random nature of the declines. For no explainable reason, some species have gone from profound abundance to extinction

-- all within a matter months. At the same time, other species appear to be maintaining the status quo.

One of greatest obstacles to evaluating significant changes in global amphibian populations is that there is precious little information regarding their historic abundance. The few records that do exist are largely anecdotal. Biologists contend without a reliable source of hard baseline data, it is nearly impossible to discern normal, cyclical changes in a given population from abnormal, long-term decreases.

Fortunately, there is a simple, yet highly effective, way to measure amphibian abundance. For a brief period during the annual breeding season, the males of most frog and toad species are highly vocal. Like birds, each species has a call uniquely different from those of its cousins. Chorus frogs, for example, make a sound akin to running a thumb nail along the teeth of a stiff plastic comb. Spring peepers have a penetrating, bell-



Preliminary information from the Iowa calling survey shows that while leopard frogs (above and right) have good distribution, they are consistently assigned low scores for relative abundance. Scientists speculate the toad's success may be related to the relatively brief periods they actually spend in the water. Tadpoles grow quickly and become terrestrial as breeding ponds dry up. Adults are highly terrestrial. By contrast, leopard frogs spend a far greater portion of their life cycle within aquatic environments.



like call; while courting leopard frogs vocalize in a way similar to the sound produced by rubbing your hand across an inflated balloon. My personal favorite is the mellow trill of the American toad -- especially at ponds where large numbers of males assemble. In contrast to other species, advertising males often blend their voices to create a harmony that could be the envy of any barber shop quartet.

Currently, scientists from around the world are traveling to amphibian breeding grounds and, through the use of ears and ink pens, are recording much-needed information on frog and toad populations. Taking the concept a step farther, biologists in the U.S. are currently working to establish a National Amphibian Calling Survey.

According to DNR Wildlife Research Biologist Lisa Hemesath, the

work has already begun in Iowa. "We initiated Iowa's frog and toad calling survey in 1991," says Hemesath. "When the survey began, we realized that no one really knew all that much about the status of our amphibian populations."

"However, because of the ongoing worldwide research and the reports of large declines, we decided that we needed to determine if any decreases were occurring in Iowa. An auditory survey seemed to be the most logical approach for establishing baseline information," Hemesath adds.

Most of the information regarding the abundance and distribution of Iowa amphibians has been gathered by a dedicated cadre of volunteers, who spend their evenings quietly listening and recording data along 158 wetland routes scattered across 73 counties.

Upon recruitment, each volunteer receives a survey packet containing a book on Iowa amphibians, survey information, and a training tape containing the recorded calls of 16 species of frogs and toads that could occur within the state.

Each participant selects five wetlands for survey. Since different species breed in different types of wetlands, volunteers are encouraged to monitor a variety of wetland types. Surveys begin at sundown and conclude at midnight. Volunteers spend ten minutes at each location recording weather conditions, water temperature, and species heard. Finally each species is assigned a score for relative abundance based on the frequency of calls. Abundance values range from individual, clearly spaced calls on up to what herpetologists term as "full chorus." Full chorus occurs when calling is loud, continuous, and overlapping. Because peak calling periods will vary among species, each route is visited three times between April 1 and July 10.

"There is no question that without the help of our volunteers, the Iowa survey would not exist," says Hemesath. "It does require work and dedication. Some of these people have been with us since the survey began seven years ago."

Because nearly all wildlife populations experience normal fluctuations in numbers, the DNR hopes to keep the statewide survey going for a period of at least ten years. Anything less would merely provide "snapshot" information of little value when it comes to document-

ing long-term changes in abundance or distribution.

"Weather can have a tremendous impact on annual [amphibian] populations," says Hemesath. "During dry years there's not much breeding activity and adults don't do as much calling. Disease, parasites or predators can be a big factor at individual sites, which is one of the reasons we need to look at as many wetlands as possible."

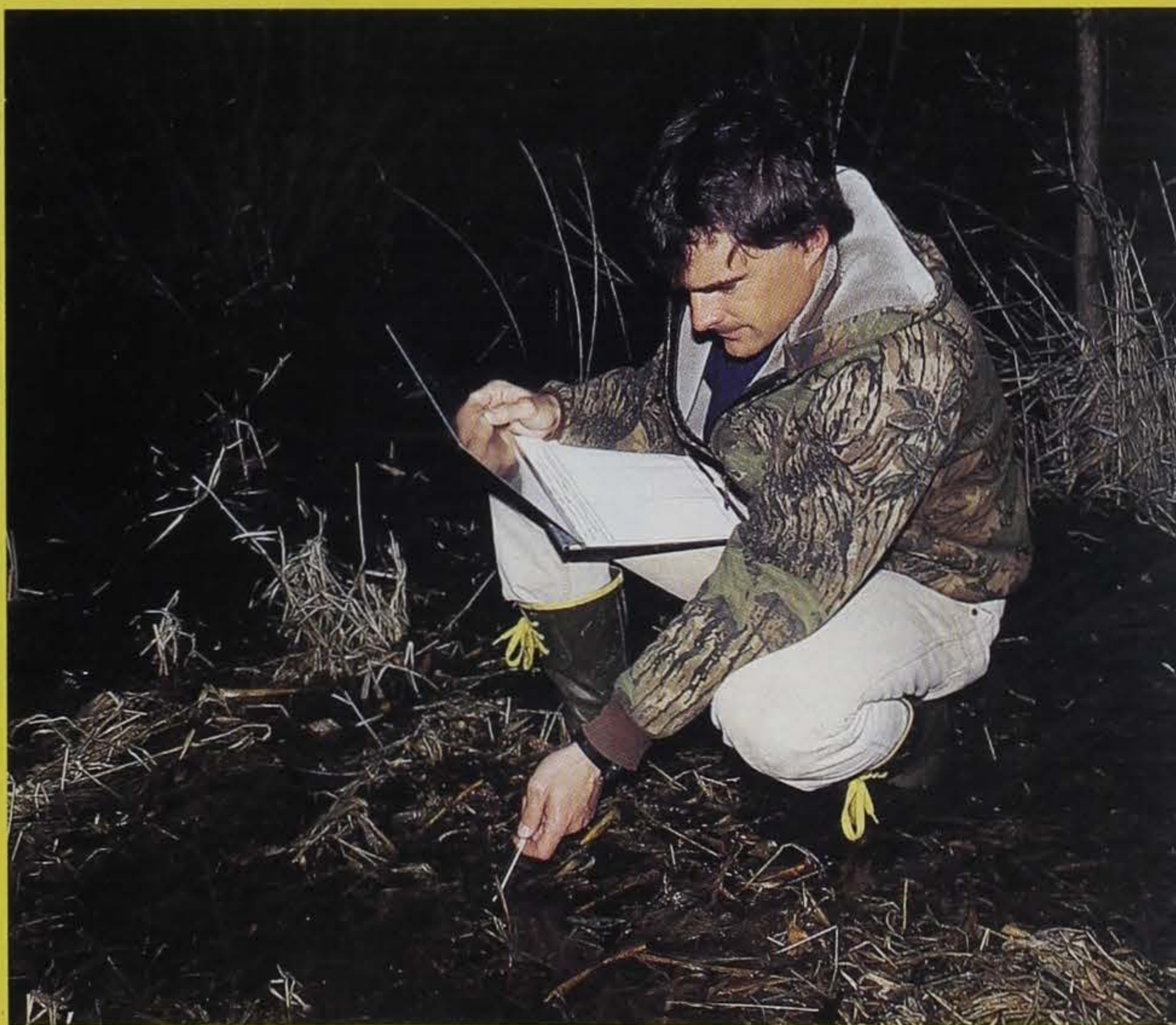
"Each wetland has its own population. If one wetland goes dry, there

may be no frogs there, but there might be good numbers at another area.

That's why we need to look at things statewide, instead of focusing on just one pond. We need to consider the big picture," she says.

"I think amphibians can be very strong environmental indicators; and in this case we're looking at the health of our wetlands," says Hemesath.

"Right now there seems to be a lot of public concern over water quality. But in many cases, it is very difficult to



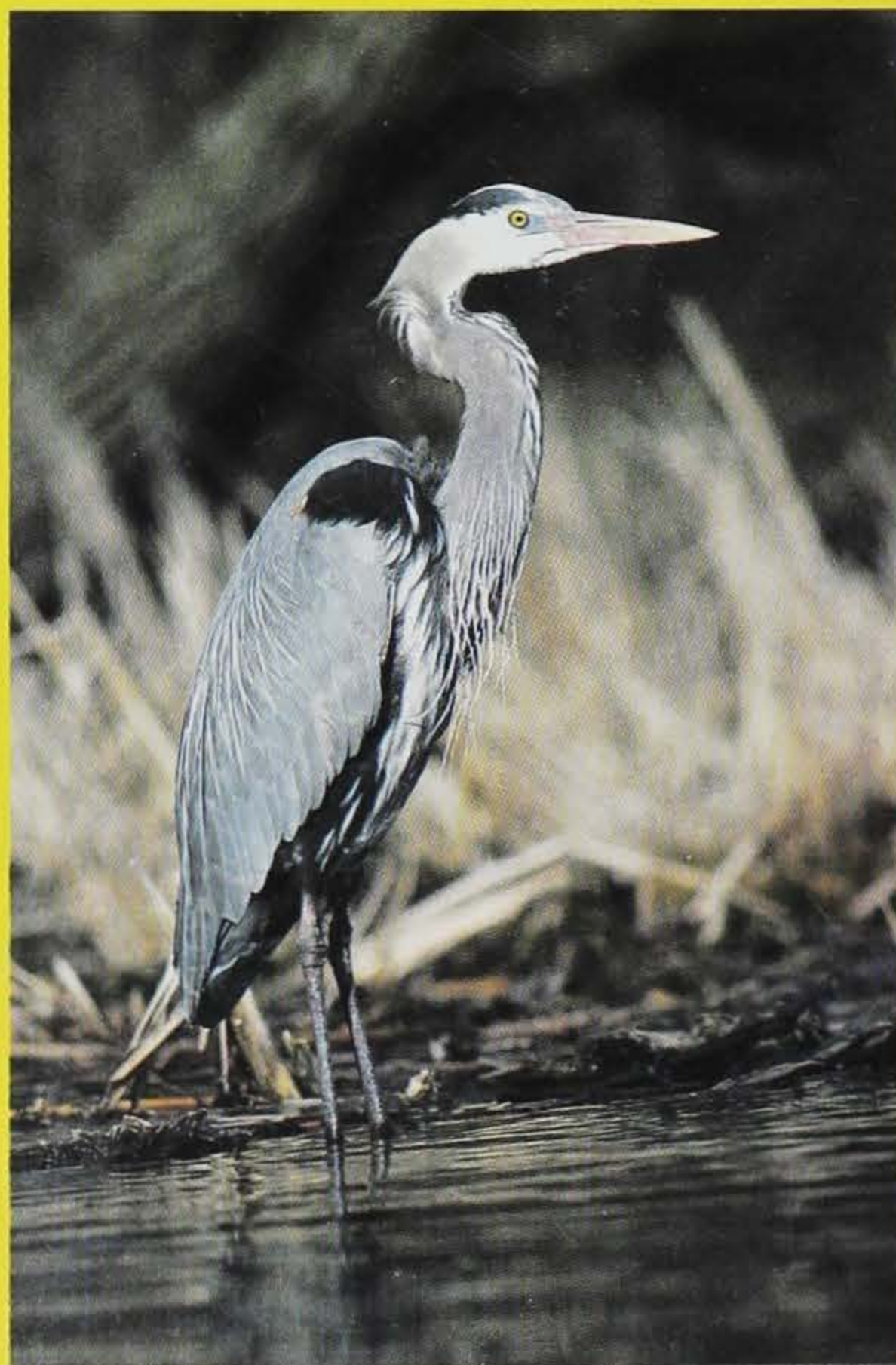
A frog survey volunteer (above) records water temperature at a seasonal wetland.



monitor the amount of chemicals that go into our state's wetlands. Even high doses may disappear before any assessment is made. But amphibians are there all the time, swimming in the water, and getting a dose of whatever comes in. Exposure to toxic chemicals can result in reproductive problems, reduced tadpole survival, and if it occurs at a critical stage of development, can even cause deformities in adults," she adds.

"Any chemicals entering a specific wetland will ultimately be absorbed through the skin of its amphibians," says Hemesath. "Amphibians are therefore less tolerant of a toxic environment and will be affected sooner than something like a muskrat or Canada goose."

"Right now we're still trying to establish a baseline of data. But if our surveys reveal that amphibians are declining in Iowa, then I think that we need to be concerned about that. We need to ask 'why.'"



Bullfrogs (above) and other amphibians are an important part of the food chain to other animals such as the great blue heron (left).

Tadpoles in Your Cornfield?

by Eugenia Farrar

Have you seen tadpoles in a flooded corn or soybean field? If you live in western Iowa they are probably plains spadefoot toad tadpoles. Spadefoot toads breed in temporary or ephemeral wetlands such as sheet water in flooded fields and roadside ditches -- even though these wetlands only last a few weeks, are shallow, can get very hot and have few aquatic plants.

You may never see an adult spadefoot toad unless you see one hopping across the road on a rainy summer night. These burrowing animals use hard, shield-shaped spades on their back feet to dig holes in the ground. They only come out of their burrows for a few days during and after heavy rains to breed and feed. Their small, round bodies are covered by smooth, cream- or tan-colored skin, with gray or green patterns and orange dots. Short upturned snouts give them a pug-nosed appearance. They are the only Iowa amphibian whose eyes have vertical pupils.

You may hear spadefoot males calling on rainy nights.

Their calls are snore-like growls which go up and down in pitch, similar to the sound of sawing wood. Plains spadefoot toads are found throughout the Great Plains from Canada to Mexico. In Iowa they have been found primarily in the western-most tier of counties but we suspect they may also be found farther east.

Spadefoot tadpoles may be easier to spot than adults. Tadpoles are often seen bobbing to the surface of the water to fill their lungs with air. A closer look shows they are dark colored, sometimes iridescent, and

about an inch and a half long. In bright sunshine you can see their vertical pupils. Few tadpoles are

so well-suited for life in such temporary wetlands. Spadefoot tadpoles escape from rapidly drying pools by metamorphosing into toadlets in three weeks, which is faster than other species.

Spadefoot tadpoles appear to thrive on the food found in temporary pools. You may be able to see the tadpoles grazing on algae on the bottom of the pools or munching on large invertebrates called fairy shrimp. These large, inch-long, shrimp-like crustaceans glide through the water on their backs. They can be white or brightly colored orange or brown. Females may have blue egg sacks hanging from their abdomens. Their life cycle is also adapted to life in temporary wetlands. Eggs drop into the bottom mud and can live for several years in dry soil. The baby shrimp hatch out when the pools again fill with water. Spadefoot tadpoles may be

seen feeding on each other and other smaller tadpoles. Cannibalistic or carnivorous tadpoles

may develop larger jaws, longer snouts, and become aggressive predators. These individuals grow and metamorphose faster, an advantage insuring some tadpoles survive even in the most rapidly drying pools.

Many amphibian populations are declining in the United States and around the world. Our concern about the status of the plains spadefoot led to



E. Farrar, ISU

our study of their distribution in Iowa beginning in 1994. The status of this species is difficult to assess because of the secretive behavior of the adults. However, tadpoles are easier to find and may be the key to determining the distribution and numbers of this amphibian. We are asking for your help in locating spadefoot tadpole sites throughout western and central Iowa. If you find spadefoot tadpoles in a flooded field or ditch, please write, call or email us. Be sure to provide your address and phone number, so we can contact you for more information.

Contact:

Jane Hey, Morningside College, 1501 Morningside Ave., Sioux City, IA, 51106; phone 712-274-5321; email jdh001@alpha.morningside.edu or Eugenia Farrar, Dept. of Zoology and Genetics, Iowa State University, Ames, IA, 50011; phone 515-294-2404; email esf@iastate.edu

Spadefoot tadpole (above) and adult (below). Fairy shrimp (left).



E. Farrar, ISU



E. Farrar, ISU



Casey Gradisch

Hey, has anyone see my pet toad lately?

The Exhalations and Confessions of an Amateur Herpetologist

I have always been fascinated with amphibians. During my grade school days, the sound of running snowmelt or the season's first clap of thunder provided a clear signal to begin searching for the year's first specimens. The season always kicked off with the diligent exploration of neighborhood window wells. Although these leaf-gathering, water-catching devices may have had their down side with local homeowners; to a budding herpetologist, like myself, these traps were time-honored in their ability to capture newly emerged salamanders.

Within a few days, northbound ducks would fill the skies which meant it was time to begin paying nocturnal visits to local wetlands. With flashlights in hand, my friends and I would spend hours cautiously tiptoeing through flooded willow thickets and along marsh fringes, lured ever onward by the elusive "creek" of singing chorus frogs. At times, the combined sounds became overpowering. But although the tiny chirpers were incredibly abundant, we

soon learned to have respect for the ventriloquistic properties of their voices. The frogs were at once seemingly everywhere, and at the same time "nowhere." All in all, it remained a humbling experience to consistently find oneself in the midst of a million calling frogs and yet not able to find one.

Eventually I noticed different frogs



Tiger salamander, among the first Iowa amphibians to emerge each spring.

appeared during different times of the season, and each species had a unique call. Most proved much easier to locate than the frustrating and invisible chorus frogs. One spring symphony led to the next and finally ended during early summer with a spectacular season finale -- the harmonious, trilling of American toads.

Early on, I became aware that amphibians represented an important part of the food chain. Consequently, many of the larger specimens we encountered were killed and eaten. However, contrary to what I had been told, frog legs *did not* taste "just like chicken." From my point of view they were much better.

In an effort to expand our culinary horizons to the limit, a couple of us went so far as to develop a rather crude technique to convert frog eggs into "caviar." The crackers proved to be the better part of that effort, and I won't bother to pass the recipe along.

But before you get the wrong idea, it should also be mentioned not all of the amphibians we discovered met with such a violent end. Trophy class individuals, such as plump, XXL-sized toads or perhaps an unusually marked salamander, were immediately seized and taken home. Here, they were provided with free room and board within the confines of a crudely fashioned home terrarium. Watching these creatures carefully stalk, catch, and finally devour their meals (insects and nightcrawlers) became an education in itself. If the temperature

and humidity was just right, some of my captives might even begin singing during the night.

My parents insisted that all pets receive good care, and although these assorted creatures rarely died on my watch, they did often escape. I can still remember the special expression my mother held in reserve for questions like, "Hey

Mom, you haven't seen that big toad anywhere around here have you?"

In every instance, an escaped salamander would eventually be found seeking moisture at the basement drain. Fugitive toads were less predictable, and would suddenly pop up just about anywhere my mother didn't expect them.

Somewhere along the line, I became as interested in the study of live amphibians as I was in the eating of dead ones. The more I learned, read about and observed them, the more intrigued I became. Since the mid-1960s, I've never consciously missed the opportunity to wade a bog, tip over a rock or rummage through a decaying log in search of a new specimen or a new species. Habitat types have ranged from Mississippi River backwaters, to Rocky Mountain foothills, East Coast marshlands, desert ponds, and the Mother of All Amphibian Incubators -- Old World tropical rainforests.

Regardless of genus, species, or in what part of the world they may happen to live, amphibians share some common traits. Unique among vertebrates, they lead a double life that is half in and half out of the water. In its larval or tadpole stage, an amphibian's highly porous skin readily absorbs whatever chemicals or gases may be present within its aquatic environment. This, says scientists, makes frogs and toads one of our most valuable first lines of defense when it comes to monitoring the health of local wetlands. Most species spend at least part of their adult life on land, where their sensitive, porous skin continue to absorb whatever is on that land or in the air. In short, amphibians are always out there receiving the best -- or the worst -- of what both worlds have to offer.

Unfortunately, there are strong indications our planet may currently be offering more bad than good. From Costa Rica to Colorado, native populations of frogs, toads and salamanders are in a serious state of decline. Species that occurred in abundance a decade ago have

now become scarce. Some have become extinct.

Many of these wholesale disappearances are without apparent explanation. There were no measurable changes in habitat, no development, no known invasion of toxins. Some authorities speculate global warming or perhaps a depletion in the ozone layer lies at the root of the declines. Others say the decreases are more likely linked to a wide variety of maladies that portray an overall decay of environmental health. Unfortunately, the only answer currently available is, "no one knows."

Regardless of whether or not each and every one of us has an interest in amphibian wildlife per se, we should



Casey Gradschnig

all be alarmed by their disappearance and the implications regarding the health of our environment.

It has not been all that many years ago an alarmed American public puzzled over the catastrophic decline of the peregrine falcon. The mystery was eventually solved -- eggshell thinning and other reproductive failures due to pesticide (DDT) contamination. The use of DDT was banned in 1972. And the peregrine, along with the bald eagle and osprey, began the long road to recovery.

But the story doesn't end there. Recent medical discoveries have suggested a strong connection between the post World War II use of DDT and certain human cancers. Were it not for the falcon's warning, the widespread

use of DDT may have continued indefinitely. It is sobering to speculate what additional human costs might have resulted from additional decades of chemical exposure.

Today, we are often fond of making reference as to how we "saved" this or that form of wildlife from an uncertain fate. However, in cases like the peregrine falcon, one really has to wonder exactly who saved whom from the then unknown consequences of a sick environment.



The American toad (above) ends the season's chorus with a trilling grand finale.

Ecologists love to remind us of the old phrase of how everything in the natural world is connected. It's all one giant web of life, they say, and whenever you tug at one thing you find that it's attached to everything else -- amphibians included. If our environment is indeed becoming fouled to the point it can no longer support some of our most abundant and successful life forms, then what happens next?

For me, there's another old phrase that suddenly comes to mind. Granted, it's not very scientific, but the message often rings true.

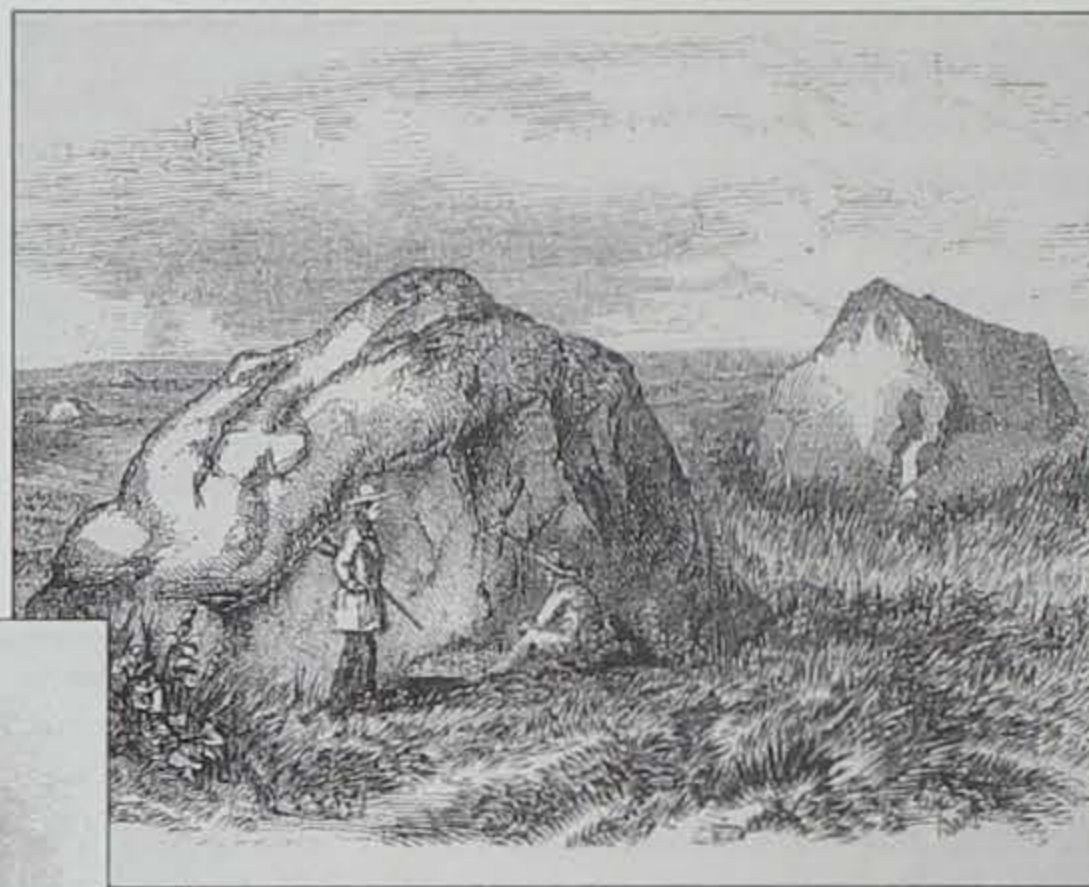
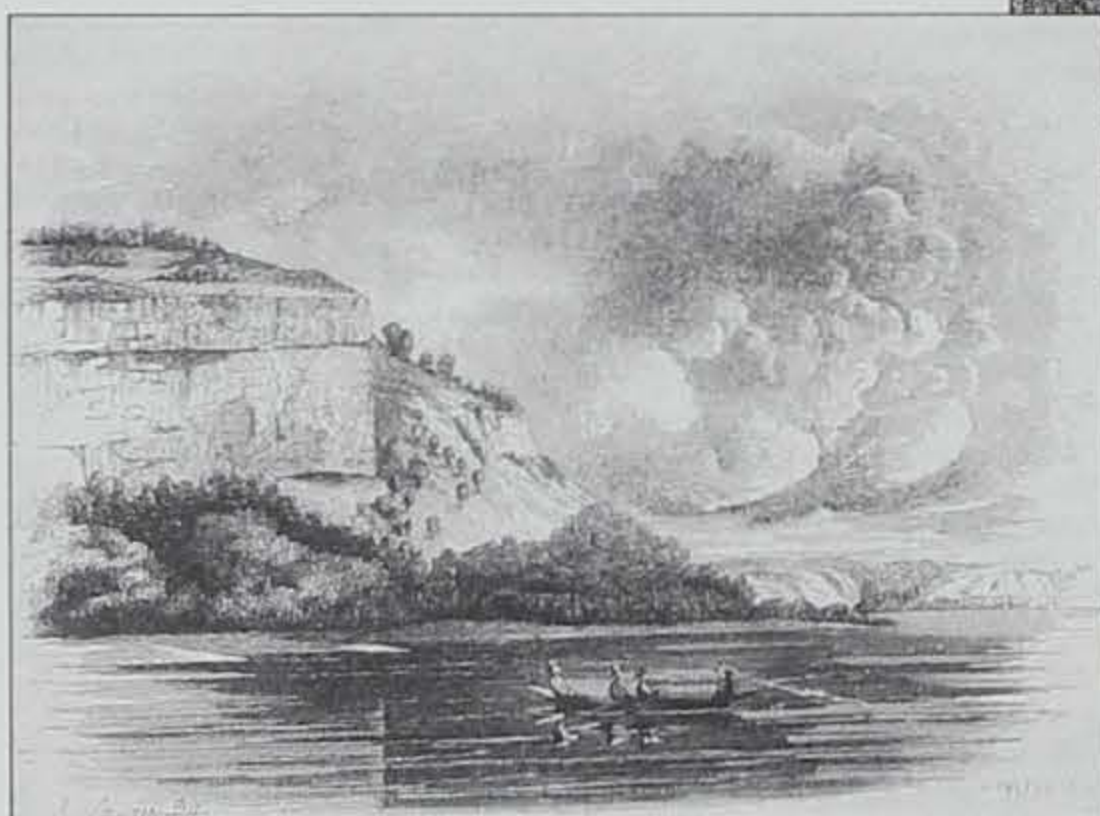
What goes around, comes around.

-- LW

David Dale Owen in Upper Mississippi Valley

Sketches drawn in the field by David Dale Owen and his brother Richard were used to illustrate Owen's 1852 *"Report of a Geological Survey of Wisconsin, Iowa and Minnesota."*

Their drawings of the Upper Mississippi River region document features of the terrain and significant bedrock outcroppings, as well as provide insights into their means of travel, lodging, and acquiring food.

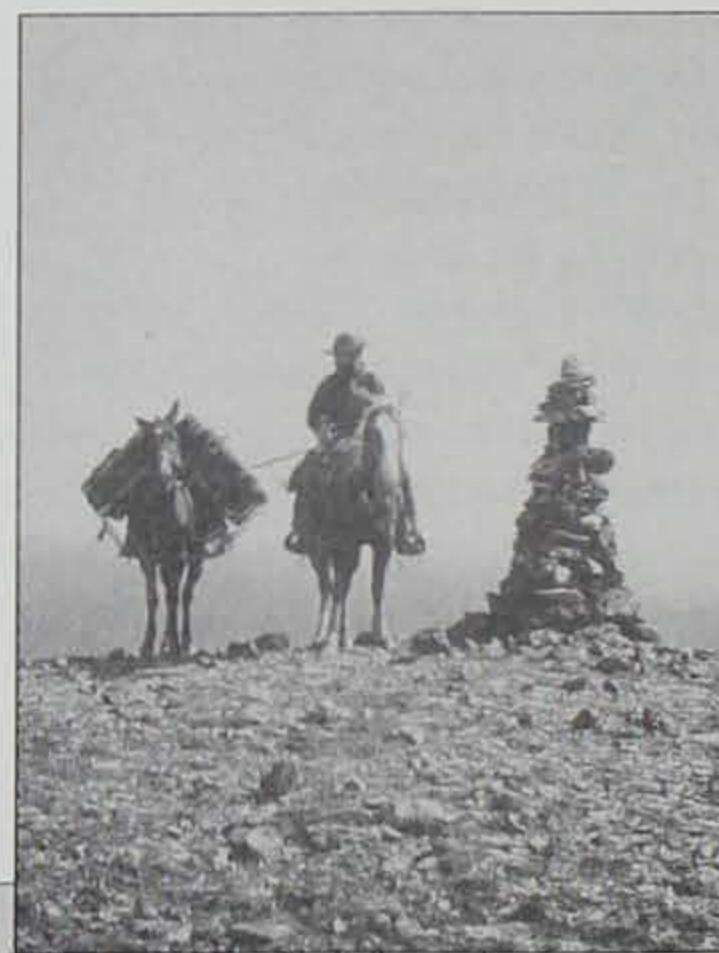


Orestes St. John with Hayden Surveys of American West



Photos from the National Archives

Field work was difficult, with few trails and maps; supplies were difficult to obtain; and hostile Indian bands were a threat. Hayden's field parties consisted of mining engineers, anthropologists, surveyors, zoologists and geologists in addition to cooks, packers, photographers and artists.



Field Travels of Early Iowa Geologists

Geology is not confined by state boundaries. Tracing the distribution of landscape features as well as soil, rock, and resources below the ground nearly always takes one beyond the political lines drawn on a map. To understand one's home ground, it is often necessary to examine the geology of adjoining states and regions, as well as the geology of distant places that today resemble what Iowa was like in the geologic past.

Assembling our current picture of Iowa's geologic history began with 19th Century geologists who were remarkable for the breadth of their travels and the historic significance of their journeys. There were few geologists, vast distances to cover and a slow pace of travel. Their perspectives on science were broad-based and encompassed various fields of natural history. Many early geologists who are identified with Iowa are also known for their work in other regions of the country. Wherever they traveled, they always displayed a strong obligation to their science – to observe, collect, and record. The story of their work and how they accomplished it is preserved in a fascinating array of early drawings, historic photographs, personal letters, and publications summarizing their investigations. These glimpses into the past, especially appropriate in this Sesquicentennial year, show us something about the times in which these early geologists lived and the historic frame of reference in which they worked.

One of the earliest exploring scientists to study the geologic record in Iowa was David Dale Owen. Beginning in the fall of 1839, Owen began the first official geologic investigation

in Iowa as part of a federally sponsored reconnaissance of 11,000 square miles of mineral lands in Wisconsin, Minnesota, and Iowa. Owen was known for his organizational and logistical skills. He gathered provisions, marshaled assistants whom he instructed in the principles of geology, organized field parties and mapped every quarter-section of land in the designated tri-state area. The results of this and later investigations were published in 1852 in a 639-page monograph that is richly illustrated with sketches of landscapes, drawings of fossils, and maps of river valley cross-sections. Rivers were the principal avenues of exploration into the country's interior, and travel was usually by canoe. Owen was a skilled artist, and most of the report's illustrations are from sketches he and his brother Richard drew in the field (sketches top page 14). Owen's pioneering work and remarkable personal energy were directed not only toward the Upper Mississippi Valley, but also to later careers as State Geologist of Indiana, Kentucky, and Arkansas.

Another early geologist to work in Iowa was Orestes St. John, Assistant State Geologist of Iowa between 1866 and 1869. His work focused on the coal deposits of south-central Iowa and the geology and mineral resources of the western half of the state, as well as on paleontology, especially fossil fish. By the mid-1870s, however, he was engaged in similar reconnaissance field work with the historic Hayden Surveys of what were then the "western territories," first in New Mexico and Idaho, then in Wyoming and Colorado. Travel

was by pack trains of Army-issue horses and sure-footed but cantankerous mules on whose backs cumbersome loads of photographic and engineering equipment were carried. These federally commissioned expeditions of exploration and resource evaluation were lead by such geological luminaries as Ferdinand V. Hayden, Clarence King, John Wesley Powell and George M. Wheeler. The documentary artists and photographers (especially William H. Jackson, photos bottom page 14) who accompanied these trips brought to the rest of the country some of the first views of the grandeur of the western mountains and thus laid the groundwork for the future establishment of such national parks as Yellowstone, the Grand Tetons, and the Grand Canyon.

In the 1870s, while in the Black Hills of South Dakota, the Hayden Surveys discovered fossil cycads, a prominent group of plants that flourished with the dinosaurs during the Mesozoic Era, about 60 to 250 million years ago. Like stunted palm trees, they had large frond-like leaves crowning a squat, barrel-shaped trunk, usually less than three feet in height. Their trunks were imprinted with the patterned scars of former leaf stalks, and they bore their seeds in cones (photo bottom page 16). Local ranchers collected the unusual rocks as curios in the early 1890s, referring to them as "petrified pineapples." However, one of the first scientists to actually collect and publish accounts of these cycads was Thomas H. Macbride, noted botanist, educator, and later President of the University of Iowa, as well as a valued scientist with the Iowa Geological Survey. During a visit to the southern Black Hills, he saw a petrified cycad displayed as a curio in a store in Minnekahta and was directed to the

by Jean Cutler Prior

Macbride and Calvin in Cycad Country, 1893. Black Hills of South Dakota

Right: Thomas Macbride, seated on a petrified log near the cycad fields of the Payne and Arnold ranch (below), made a substantial contribution to knowledge about ancient plant life in North America. He was one of the first to recognize that peculiar rocks collected by local ranchers were actually fossil plants called cycads.



Photos courtesy of the University of Iowa Calvin Collection

Above: Some family members at the Payne and Arnold ranch where Macbride collected and purchased cycad fossils.

Right: This petrified cycad, collected from the ranch, shows well-preserved cones and leaf scars. It became the "type specimen" for a new species of these fossil plants, which resembled short, chunky, palm trees.



Payne and Arnold ranch where he found 40 or 50 other specimens weathering out of a nearby hillside. He explored and collected, accumulating one of the finest collections of these fossils known at the time. His notebook of expenses for a November 1893 trip listed crackers, figs, coffee grounds, candles, lamp oil and chimney, hotel room (\$2.50), meals (\$.25 to \$.75), train tickets, "cycad" (\$10 paid to Arnold) and livery costs, presumably for a horse and buckboard to transport about 25 of the heavy fossils to Hot Springs to be crated and shipped by rail to Iowa City. On this trip, Macbride was accompanied by Iowa's State Geologist Samuel Calvin (also Chair of the University's Department of Geology), who went with him to settle the questions of stratigraphic position and geologic age of the cycad beds. Calvin determined that they were Cretaceous age (Late Mesozoic). Macbride and Calvin's work helped bring scientific attention to what became one of the world's prime localities for cycad fossils.

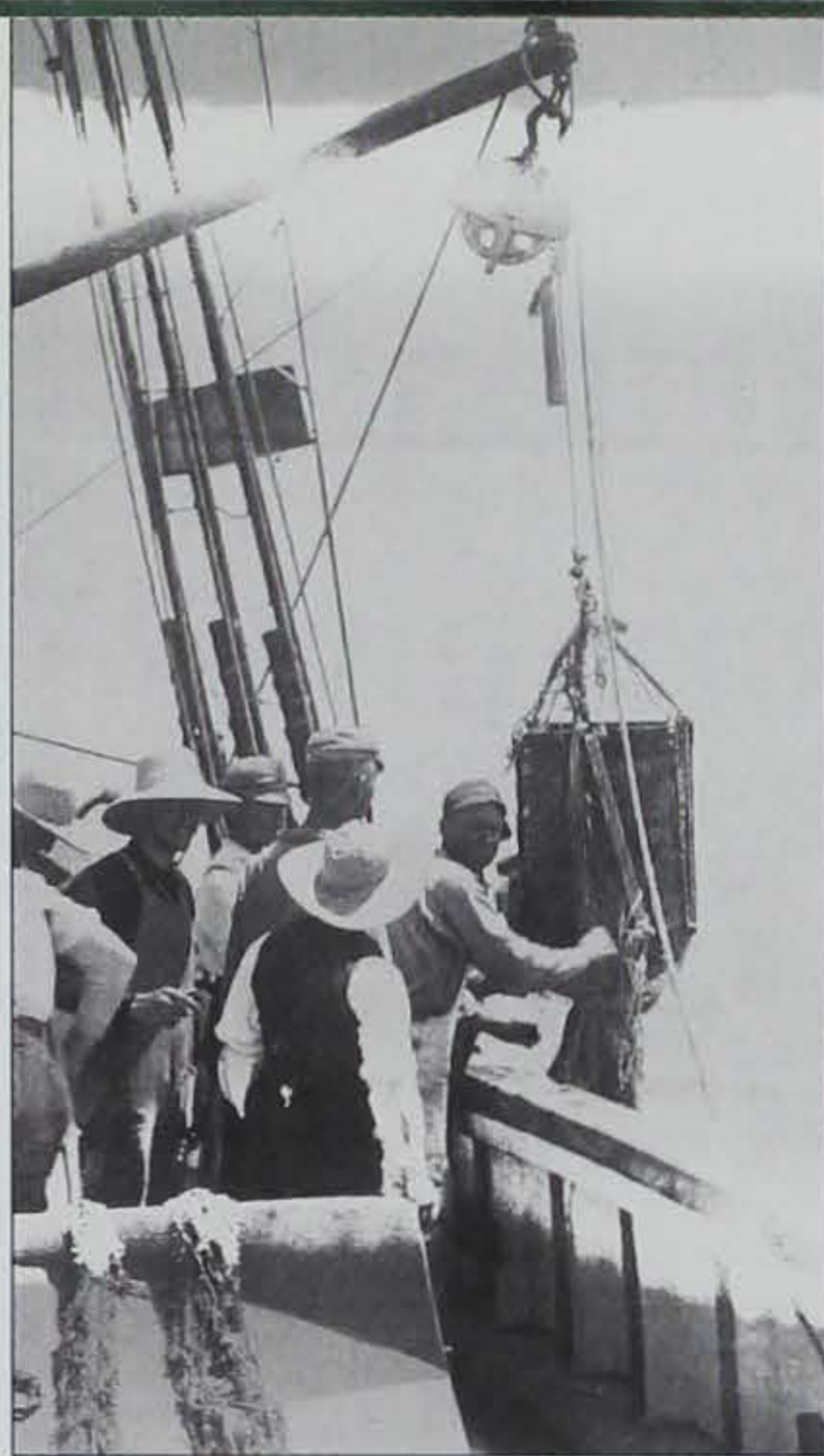
Samuel Calvin, Thomas Macbride, and Charles Nutting were eminent Iowa naturalists at the turn of the 20th century. They explored the full realm of natural science, including zoology, botany and geology. Obtaining specimens for study and museum displays was the purpose of expeditions that were organized by the University of Iowa. A particularly significant trip was to islands of the

Bahamas and Dry Tortugas in 1893. Calvin, unable to go along, was kept advised via colorfully written letters from Gilbert L. Houser, an instructor and assistant to the expedition leader Charles Nutting. Houser took numerous photographs of the voyage (photos right). Also on board was Melvin F. Arey, professor at what later became the University of Northern Iowa and who went on to author several county geologic reports for the Iowa Geological Survey. The group sailed from Baltimore on the *Emily E. Johnson*, a 95-foot, two-masted schooner (photos right). Among other tasks, the expedition examined modern coral reefs in the warm, clear tropical waters. Equipped with primitive, hand-operated dredging equipment, the expedition was noted for its success in accurately locating and collecting the graceful "sea lilies" *Pentacrinus* – the rare, stalked crinoids (photo bottom, right). Their investigations into the clarity and temperature of seawater, and the myriad of other forms of sea life inhabiting the warm Caribbean waters improved scientists' understanding of the marine environments that were required for crinoids to thrive in Iowa's geologic past.

Our present understanding of Iowa's geology as well as the broader national geologic picture is built on a body of knowledge first assembled by these and other early geologists with widely different experiences in diverse geographic areas. Today, we are able to import data from satellites, map on computers, and locate ourselves with Global Positioning Systems; yet it remains fundamentally important to travel, observe, collect and record – to examine the geology beyond Iowa's borders in order to better understand the geology within.

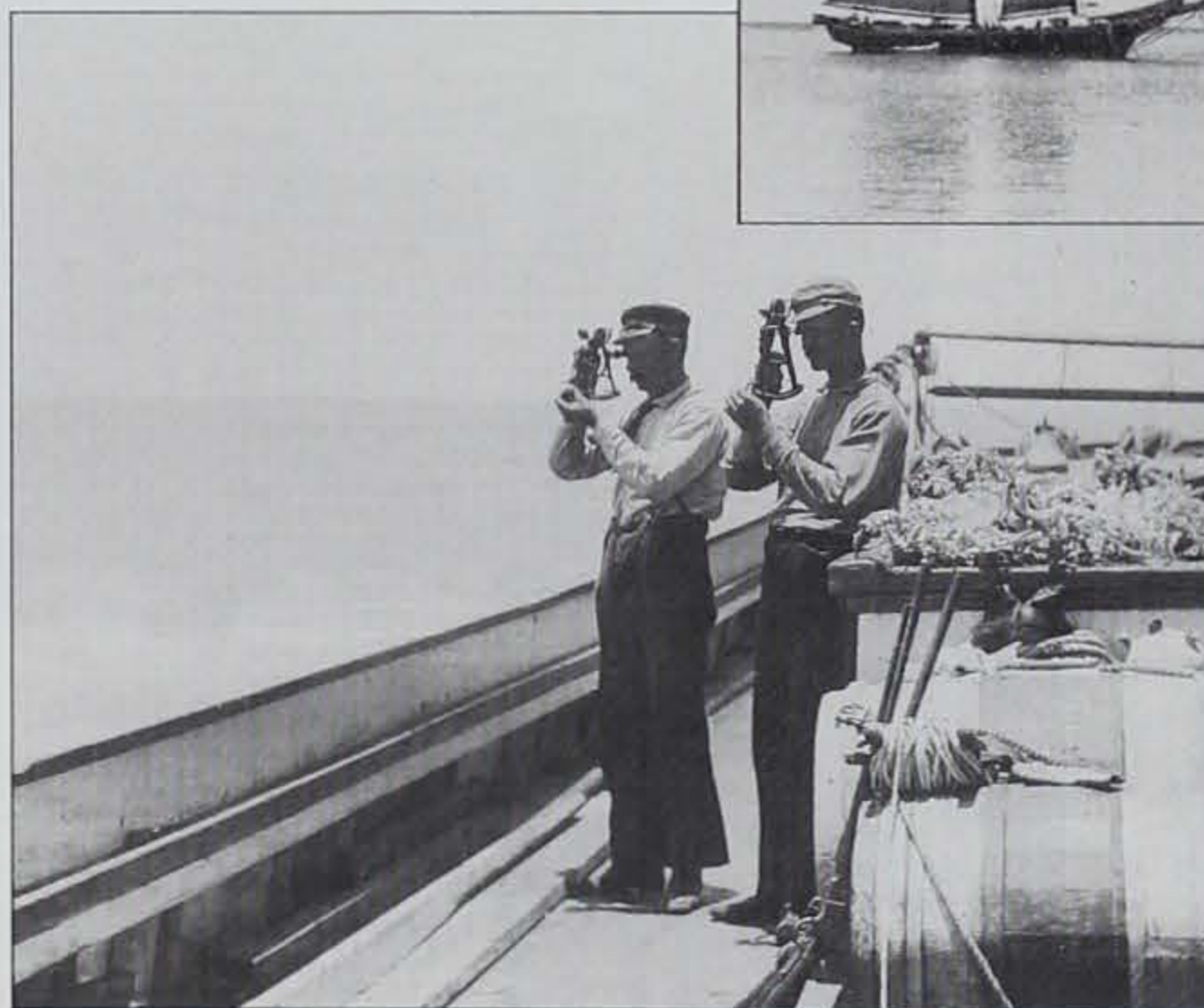
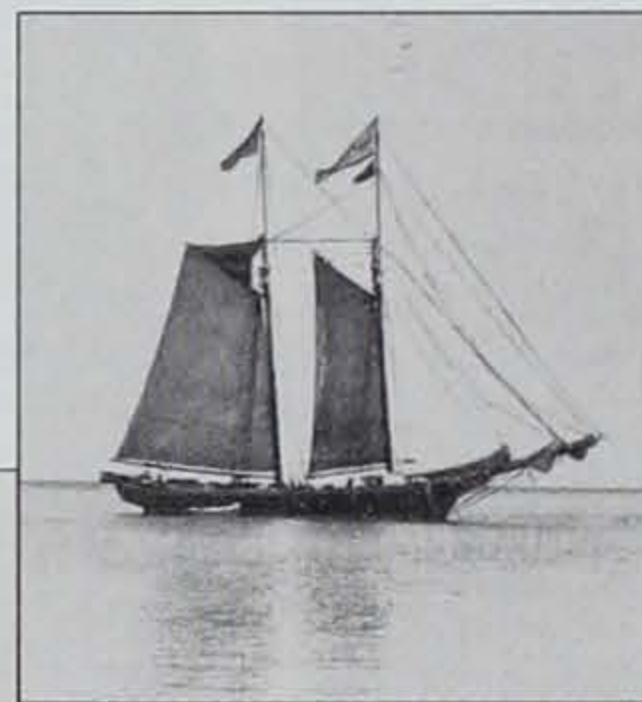
Jean Cutler Prior is a geologist for the department's geological survey bureau in Iowa City and editor of Iowa Geology.

Reprinted from Iowa Geology, 1996.

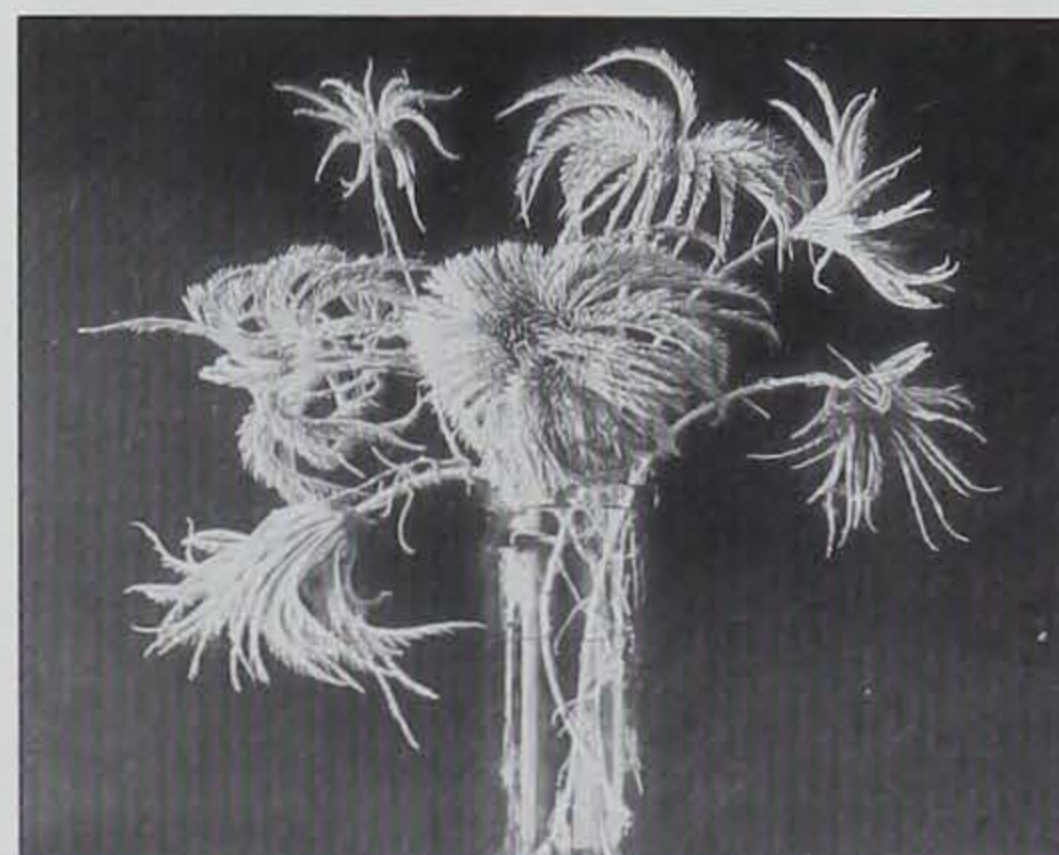


Houser writes from Havana, Cuba on May 28, 1893:

"We are much elated this morning over our success on the crinoid grounds; . . . the very first cast of the tangles brought up 25 beautiful specimens of Pentacrinus! What shouting! . . . At about the 200 fathoms line, crinoids are evidently as abundant as they were during the Sub-Carboniferous times [Mississippian] represented at Burlington [Iowa]; . . ."



Photos courtesy of The University of Iowa Calvin



**University of Iowa
Bahamas
Expedition.
Modern crinoids
collected for
research into
Iowa's past
populations.**

Restoring Wetlands, Building Community

Article and photos
by Amy Smith

The community of Akron and a local farming family have turned a marginal piece of rain-soaked cropland into an outdoor classroom, habitat for wildlife, recreation area and a flood prevention structure.

The flood of '93 was the catalyst for the wetland restoration project which the City of Akron and the Harold Higman, Sr. family have undertaken together. In the summer of 1993 heavy rains swelled the Big Sioux river, blowing out the levee that protected parts of the town and the Higman farm.

"This was nothing new for Akron," says Ellis Tucker, mayor. Heavy rains had repeatedly washed out the levee in previous years, each time causing a great deal of damage to crops and problems with power lines, the sewer plant and transportation.

The Higman family was also experiencing problems related to the flood waters. Harold Higman, Sr., his wife Pearle, and their sons Harold, Jr., and David own more than 1,100 acres in Iowa and South Dakota, some of which they farm, graze and mine for their sand and gravel business.

The rains caused substantial crop damage to their land that lies between town and the Big Sioux. "This was productive ag land that had been only marginal for the past few years. It was an abnormally wet period and we had experienced lots of flooding," says

Harold, Jr. The Higmans knew it wasn't profitable to raise a crop on those acres. As they set out to repair the damaged levee, they were also looking for an alternative on the wet soil.

In the fall of 1993, the City Council and Higman family both found themselves at the local office of the Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture which provides technical assistance to landowners to conserve and improve natural resources. NRCS had recently received funding for

two programs designed to help landowners and communities after a flood event, the Emergency Watershed Protection Program (EWP) and the Emergency Wetlands Reserve Program (EWRP).

Through the Emergency Watershed Protection Program, NRCS provides financial and technical assistance to city and

county governments working to restore waterways and public facilities damaged by natural disasters such as tornadoes, hurricanes and floods. In a flood situation, the purpose of the program is to remove hazards to public safety and property caused by flood waters and related soil erosion. NRCS pays the costs of repairing eligible sites after a community or other unit of government requests assistance. Local sponsors must match federal funds with a 20 percent local contribution, which



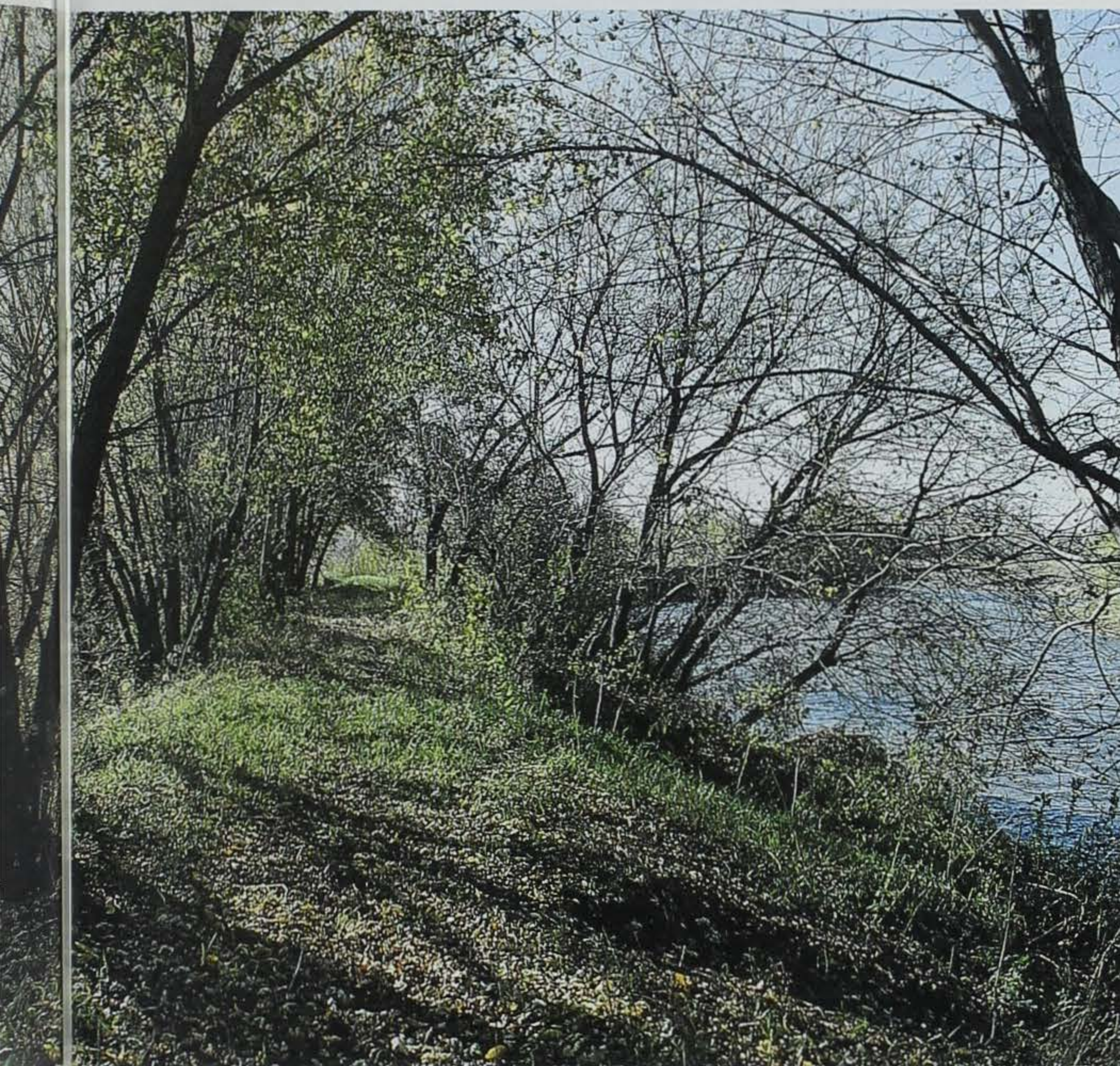
Roger A. Hill



may include cash and in-kind services. EWP funds are used for bank stabilization, levee repair, and debris removal.

The Emergency Wetlands Reserve Program is a voluntary program within EWP designed to help landowners convert flood damaged cropland to wetlands. Through EWRP, NRCS purchases a permanent easement for eligible acres entered into the program, and pays for wetland construction and restoration. Program participants are required to maintain the wetland area for the life of the easement.

When discussing EWP and EWRP options with the City and the Higmans, Bruce Trautman, NRCS district conservationist in Plymouth County at the time, saw how both groups' plans could fit together. "Harold was interested in repairing the levee on his flooded cropland. The City was interested in



Wetlands provide many benefits to the environment, including improving water quality, reducing soil erosion, contributing to groundwater recharge and enhancing wildlife habitat. The multipurpose wetlands restoration project near Akron, Iowa provided benefits to the environment and all of the local groups involved.



Roger A. Hill

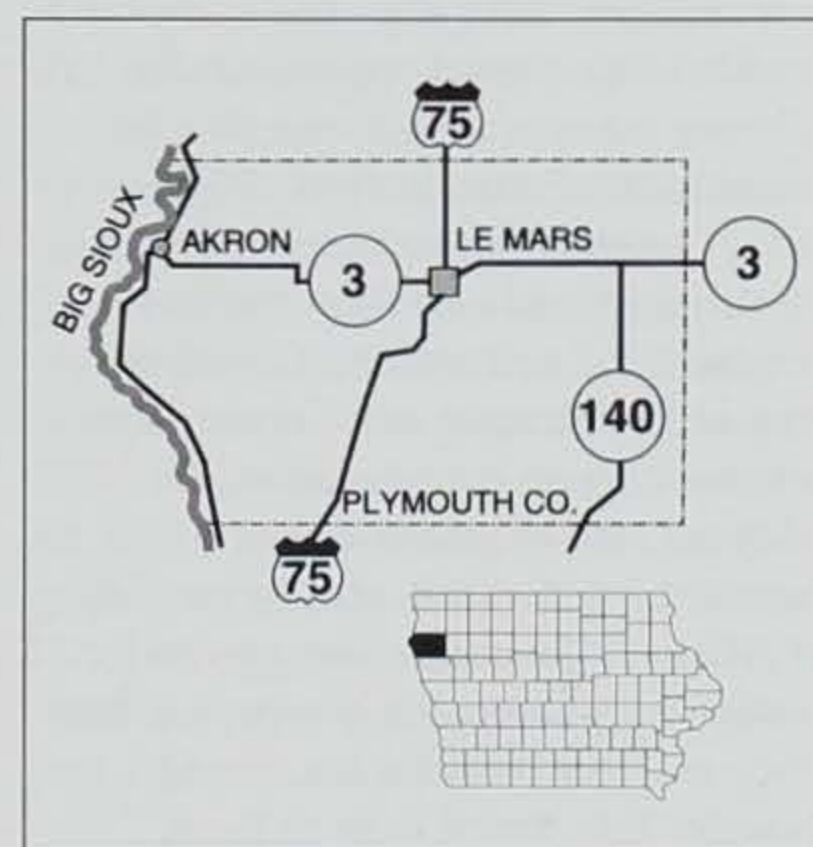
repairing the levee near the waste treatment plant and several other places close to town," says Trautman. "It seemed like a great opportunity to work together, so we began developing a plan that would meet both of their needs," says Trautman.

What followed was a classic example of turning lemons into lemonade agrees Jim Lahn, currently the district conservationist for NRCS in Plymouth County. "Both facing problems from the flood, Akron and the Higmans got together with NRCS and many other groups, including the Akron-Westfield School District, and came up with a win-win project to protect the city, help the landowner and provide wildlife habitat," says Lahn.

Instead of simply repairing the levee which had repeatedly failed in the past and would probably fail again in

the next flood event, the group started looking into other possibilities. "We began talking with NRCS about ways to protect Akron even further and not go with the status quo," says Councilman Groon.

The group decided to abandon the old levee, expand the floodplain through wetlands restoration and construct a new levee back from the river in a project designed by NRCS engineers. "This would relieve some of the pressure on the levee, allow the wetlands to absorb and store some of the flood waters, and provide better flood protection to Akron," says Lahn. "Wetlands also provide other benefits to the environment, including improving water quality, reducing soil erosion, contributing to groundwater recharge and enhancing wildlife habitat."



Freshmen Thad Finzen and Tyler Huls (right) help survey the wetlands restoration area, on which Akron-Westfield teachers and students are conducting a long-term study of plant and animal communities.

The wetlands restoration area lies between the Big Sioux River and Akron (below). The old levee will now become a trail between the river and wetlands for the community to enjoy. The new levee is located about 1/3 mile back from the river, closer to town.



The Higmans agreed to enter 79 acres of their flooded cropland along the river into the EWRP, and to install new wetland restoration practices. "It sounded like a good opportunity to enhance the area and do our part for conservation," says Harold, Jr. The family received an easement payment for the land, and cost-share funds to construct the new structure, seed the area and implement other restoration practices. Upon completion of the practices, the Higmans agreed to donate the restoration area to the City of Akron. "Akron has a unique park system with numerous groups involved. They are very progressive, and we thought 'let's turn it over to them,'" says Harold, Jr.

The City agreed to accept the land as part of its park system and to assume maintenance of the wetland area for the life of the permanent easement. "Our park board is very active, and will be the primary group maintaining the area



for the entire community to enjoy," says Gary Tucker. Through the EWP, the City was also able to repair the levee in other areas of town.

Other local groups also contributed time, money and services to the restoration project, including the Plymouth County Soil and Water Conservation District, Pheasants Forever, Wildlife Forever, Ducks Unlimited, U.S. Fish and Wildlife Service, Akron Sportsmen's Club, LeMars Sportsmen's Club and the Iowa Department of Transportation. LeMars Sportsmen's Club, Pheasants Forever, Wildlife Forever and Ducks Unlimited each contributed \$3,750 for activities not covered by the cost share programs.

"In addition to helping make the Akron wetlands project a success, these contributions also helped kick off the Big Sioux River Corridor Project by showing other landowners up and down the river that wetlands restoration projects like this really can work," says Lahn. "By sparking interest in the Corridor Project, the Akron wetlands project will positively impact natural resources far beyond the city limits."

The Higmans worked with NRCS last summer and fall to complete the restoration work, and deeded the land to the City around the first of this year. This city's plans include seeding, working on trails with the park board and continuing development of a nesting island for birds.



The Higmans and the City of Akron have developed a nesting island for waterfowl (left) with a surrounding moat to keep predators away.

The wetland restoration project has provided an outdoor classroom for Akron-Westfield biology teacher, Ron Wilmot, and his students (above).

The city council believes the multipurpose project has been positive for the entire community. "One of the biggest assets for the city from the economic standpoint, is the new levee will be a definite improvement in flood control for many years to come," says Gary Tucker. In fact, just this spring, the project had a chance to prove its effectiveness when waters rose again, and passed the test with flying colors.

Tucker adds that the project has also expanded recreational opportunities and enhanced wildlife habitat. "We are excited about the creation of the wetlands and the opportunity to link the area with our existing park system. We plan to build trails through the area, a new park near the wetland, and an observation blind for wildlife enthusiasts." Other steps to enhance wildlife habitat include constructing bat houses and finishing work on the waterfowl nesting island. "Much of the work will be done in cooperation with

the Higmans and other partners, who have already donated time and equipment," says Tucker.

Last, but certainly not least, the local school is getting a lot out of the restoration project. Four teachers and nearly 60 students at Akron-Westfield High School are involved in a cross curriculum project which integrates math, physics, chemistry, earth science and biology. The teachers received a grant which provided almost \$5,000 for equipment and development of a long-term study on the wetlands area. "The unique learning experience is appealing to students of all ability levels," says biology teacher Ron Wilmot. Mike Baker, math teacher involved in the project adds, "The students love the technology and have taken a great deal of pride in the project." Enthusiasm is evidenced by the large number of students who come on Saturday mornings to survey and map the area, monitor soil and

water properties, and study plant and animal communities.

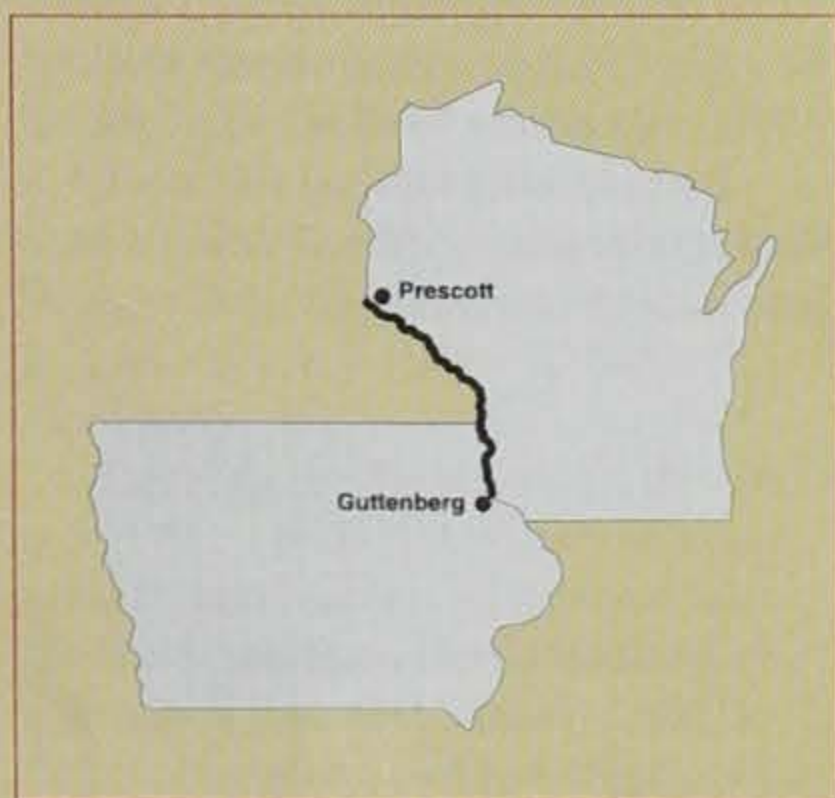
The people in the community of Akron will be reaping the benefits of this unique project for a long time to come, as homes and businesses are protected from flood waters, students learn about conservation and the environment, recreationalists enjoy walking trails and watching wildlife, and the natural resources thrive. Mayor Ellis Tucker summed it up well when he says, "This is a nice project the entire community can feel good about."

Perhaps next time it rains really hard, the people of Akron, Iowa will just sit back and smile.

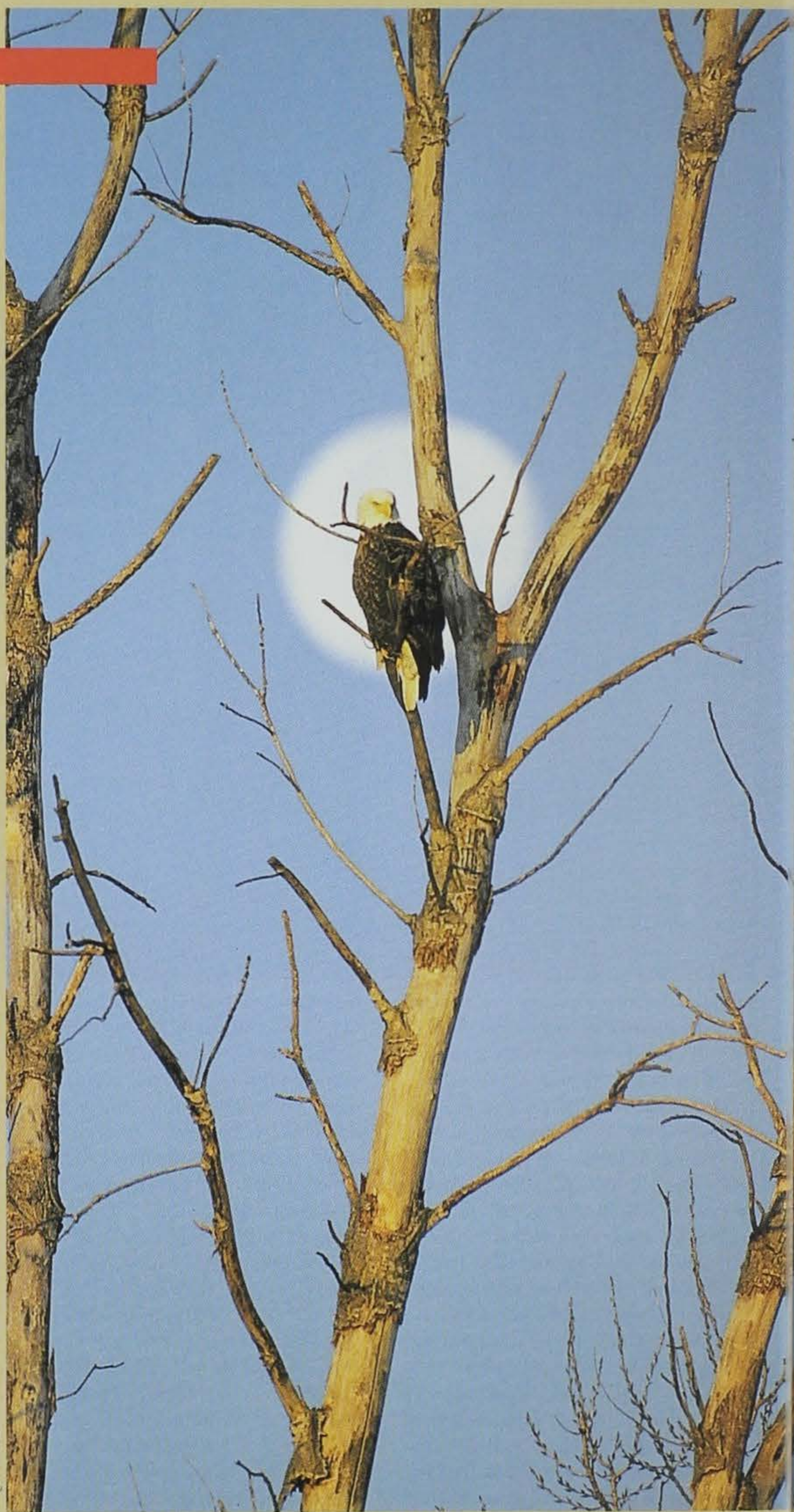
Amy Smith is a public affairs specialist for USDA's Natural Resources Conservation Service in Des Moines.

Great Lady Down

by Ed M. Lawrence



Roger A. Hill



It was New Year's Eve, 1980, when I received a call from a local farmer located a few miles south of Guttenberg. He told me he had found a bald eagle in his field three days earlier, and it couldn't get off the ground. He had left it alone most of the first day, but it became more apparent to him that it couldn't fly, and it would have a tough time surviving.

He made a decision to move the eagle to an out-of-use milkhouse on the farm. He put water and two small newborn pigs that had died in with the bird. Checking the next day, he found the pigs were gone, and the eagle looking much better, however, it did favor one wing. Two more dead pigs were left with the eagle, and the next morning he called my office.

I drove directly to the farm and met with the farmer. I could see the eagle did have an injured wing. I explained to the farmer my biggest concern when dealing with injured birds of prey was dehydration, and the bird would be shipped to the Raptor Research and Rehabilitation Center in Minnesota. I cut a hole in the bottom of a gunny sack for the eagle's head and pulled the sack down over the bird — this would keep the wings from being injured further. Next, I tied the feet together, without getting a talon in my hand. (I've had that happen in the past, and it's not a good feeling, and infection is very probable.) I then slid a sweatsock over the head of the bird covering its eyes. This would keep it more calm while riding in the car.

I stopped in Guttenberg at Butch's Gas Station to fill up and make a phone call. My call was to John Lyons, U.S. Fish and Wildlife Refuge Manager stationed in McGregor. I told John I realized it was close to a holiday, but if we would get the ball rolling, we could get the eagle on its way to the rehab center in the next day or so. I gave him my location and phone number. He said he would call back in a few minutes.

I walked out to my vehicle where Butch was gassing it up. He pointed to the gunny sack in my rear window, and asked, "What ya got there?"

"An injured eagle," I explained.

Butch looked at me with a big grin and said, "Watch this." He then walked back and forth next to my rear window. As he moved, the sweatsock moved to follow him. Butch moved and then the sweatsock . . . back and forth.

Stands to reason, if you have eyes that could read a newspaper from a mile away, an old sweatsock wouldn't be a problem.

About that time the phone rang. It was John. He told me, "You aren't going to believe this. 'You have a very important passenger! Holiday or not, a pilot is being called out, and will be landing his plane at the Prairie du Chien airstrip in a few hours.'"

I was to chauffeur my guest to Prairie du Chien and meet with Wisconsin DNR Officer Dennis Kirschbaum at his residence. Dennis had a large bird transport cage, and he would deliver the eagle to the airstrip when the airplane arrived.

Weeks went by and then months. I was working on a trapping case on the Mississippi River with Dennis Kroush, a U.S. Fish and Wildlife Officer. I told him I had turned in several eagles over the years, but didn't know if they made it or not. I told the story of the New Year's Eve eagle. He said we would check it out and get back to me.

The next time I met this officer, he said, "Sit down, Ed, this is some story." He then told me that the veterinarians called in to work on the eagle on New Year's Eve discovered that the bird was a mature female and that she had been shot. The Raptor Center's chief surgeon repaired the fracture in her wing, and she came through it just fine. She was the most impressive specimen of a bald eagle that had ever gone through the center to that date. The majestic eagle was given the name, Freedom, and she was chosen to be part of the ceremony in Washington D.C. to honor the returned Iranian hostages.

I learned later from the Raptor Center that the eagle tipped the scales at 13-1/2 pounds, and it was judged to be four or five years old. For Freedom's trip to Washington D.C., a private Lear jet was donated to transport her and her escorts — staff from the Raptor Center, several press

personalities and a photographer. The bird was carried in her own specially designed crate topped with a huge yellow ribbon.

In Washington D.C. the group was met by television cameras, press photographers, political representatives and American ex-prisoners of war. During her four-day visit, Freedom was housed at the Washington National Zoo, and her health monitored closely. The day of the ceremony, with more than 3,000 in attendance in Constitution Hall, Freedom stood tall and proud on the arm of her caretaker.

Freedom was returned to Minnesota and later released along the Mississippi River bluffs near Prescott, Wisconsin. A television special was made from the footage taken at the Washington D.C. ceremony and during her release. Nationally recognized artist Ed Bierly painted the eagle's portrait, entitled "Flight of Freedom," celebrating 1982 as the Year of the Eagle.

Freedom was released far from the Guttenberg farm where I first met her. Since then, I've made a few calls and talked to a few people expressing my concern that if eagles mate for life, we should make every effort to get rehabled birds back to the location they were found. This has been done, at least by the ones I have since sent in.

As you can see, Freedom's story was a joint effort, and it began with a call from a farmer. Lately I have been reading newspaper articles of how a few farmers are concerned about the population increase of our national bird, and their concerns about losing livestock. Well, I'm here to tell you, I've worked and lived around both eagles and farmers all my life, and the farmers I know are as proud of Freedom and her family as you and I. Maybe there are those that aren't. But then again, maybe they haven't taken time to look into her eyes. That will change you, believe me, take it from one who knows, that will change you.

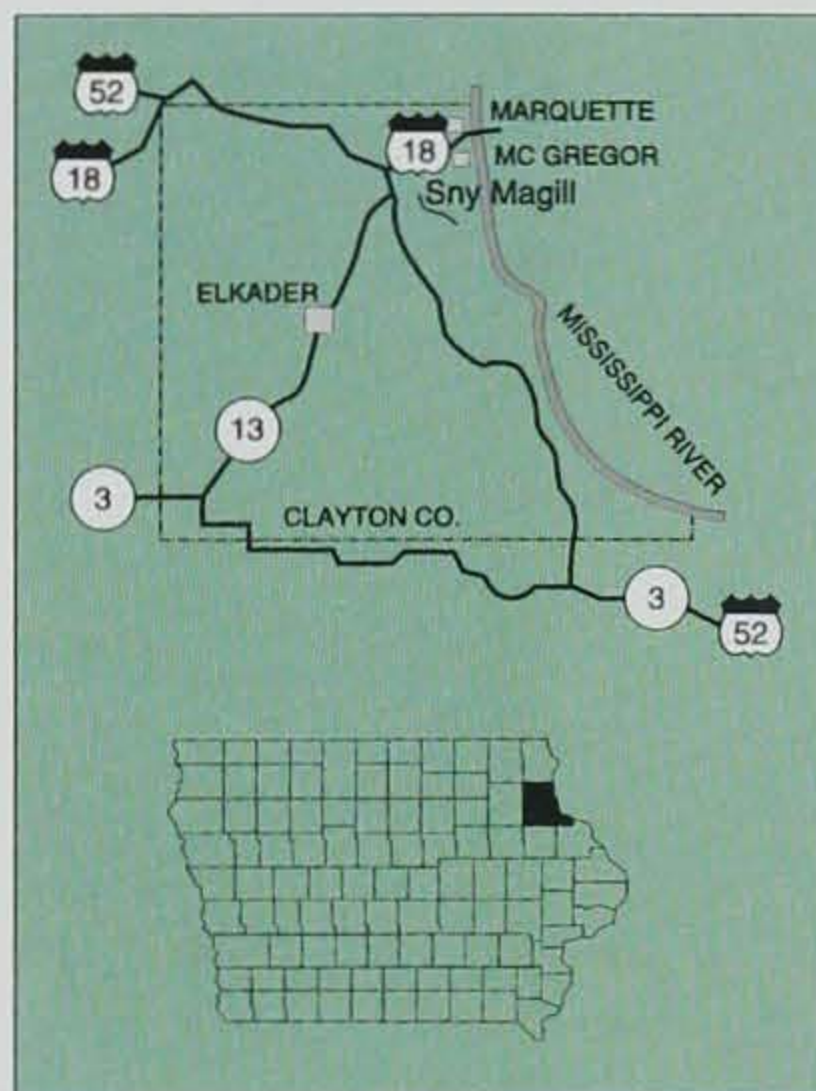
Ed M. Lawrence is a conservation officer for the department serving Allamakee County.



On Solid Ground

A handicapped-accessible fishing area is constructed out of a soil erosion control structure on the banks of the Sny Magill trout stream.

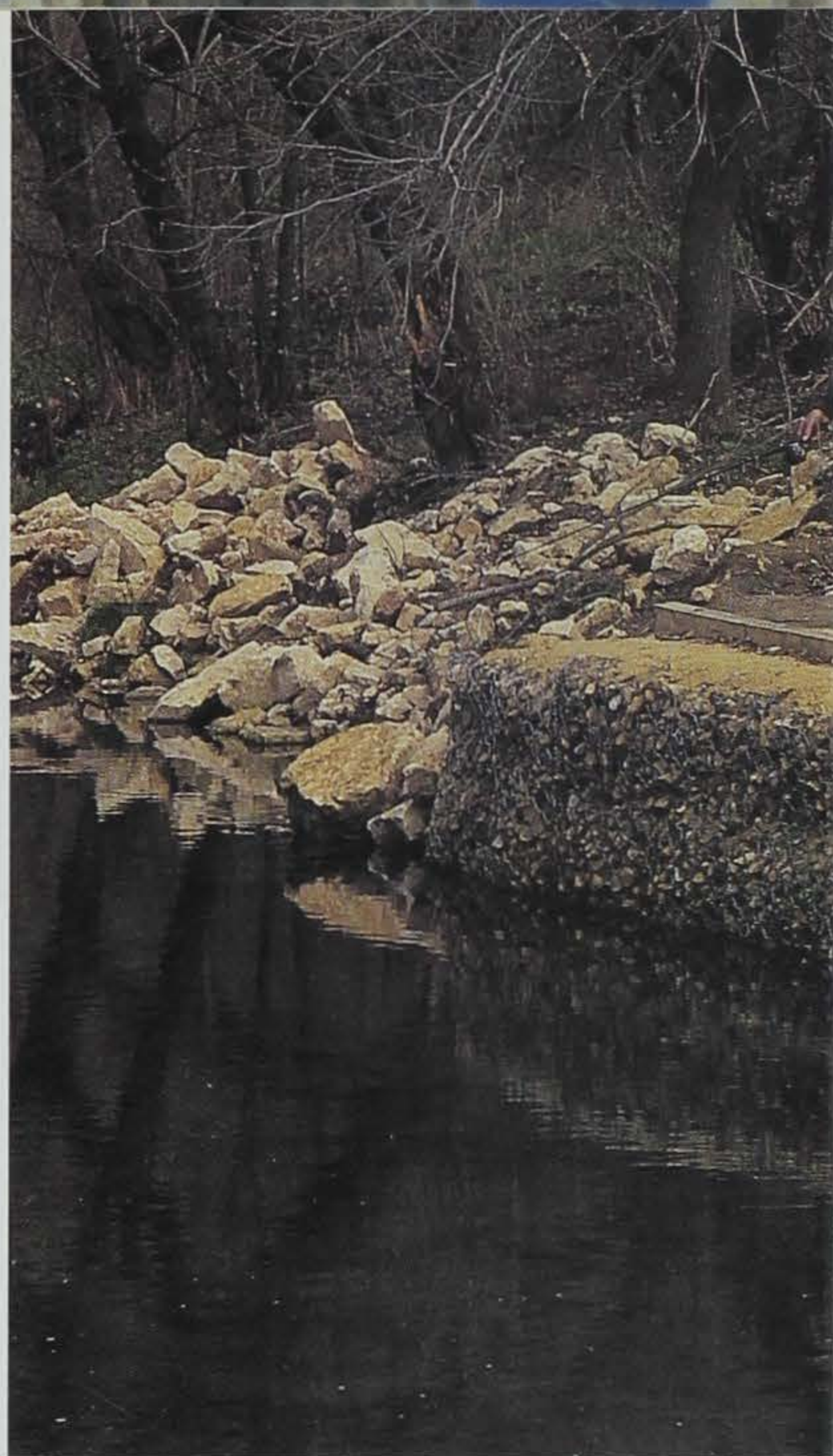
Article by
Karen Meinders
Photos by
Charles Wittman



"In the summer of 1956, I was 13 years old. I remember that year because it was the summer that I caught my biggest trout ever," he says reclining with a hot water bottle under his leg, his wheelchair directly across from him.

"My dad and I had found this special place where we'd go to get crawdads to use as bait. We were baiting our hooks with them when I leaned over the boat and saw two black eyes in the water. I quickly threw in my lure. I caught it and pulled her out of the stream -- a 14-inch rainbow trout. She was a good one -- one that had lived in the stream forever and had really good pink meat. Oh gosh, was that a great day!"

He is Charlie Osmondson. Charlie was born, raised and has lived all of his 53 years near Decorah, Iowa. Charlie's memories of this area in northeast Iowa





Residents from the Oneota Riverview Care Facility in Decorah (far left) after "catching a few" on the Sny Magill handicapped-accessible fishing area.

Riprap and wire gabion baskets provide the foundation for the fishing area (left) and prevent soil from eroding off the streambank.

reflect many good times and great fishing in the area's plentiful cold-water trout streams. Some of the best ones in the Midwest are here. Specific environmental and topographical conditions required to maintain a cold-water trout stream exist only in this part of the Hawkeye state. Iowa is the only state in the Midwest with a trout fishing season open all year long on its cold-water streams.

Charlie is a good man who enjoys the simple pleasures in life, including angling for trout in this scenic area of Iowa. After two disabling strokes at a very young age, Charlie now views life from a new angle -- his wheelchair. Because of his disability, he has had to give up many of his favorite hobbies and interests. Trout fishing, however, is one he'll never give up. And since several handicapped-accessible fishing areas have been constructed along cold-

water trout streams in northeast Iowa, he doesn't have to.

One of those areas is the handicapped-accessible fishing area along the Sny Magill trout stream in Clayton County near the Mississippi. This special area was constructed not only to allow access to anglers of all abilities, but also to incorporate soil erosion control measures that prevent sediment and other contaminants from moving into the stream.

The fishing area is easily accessible for those using wheelchairs, canes or walkers, or who have difficulty walking. It is close to the main road and parking lot. An eight-foot wide path of crushed limestone set at a five percent grade takes anglers from the parking lot directly to the stream bank. From there, an interpretive trail wanders approximately 100 feet into the woods to

arrive at a spot with a scenic view of the fishing area.

"I don't even care if I catch a fish," says Norm Noecker, who lives in Oneota Riverview Care Facility with Charlie and uses a wheelchair. "It is just like heaven being out there in the wilderness with the trees and nature surrounding you."

The Sny Magill trout stream was targeted by local residents for improvement in response to declining water quality and trout habitat. A publicly owned cold-water trout stream, Sny Magill has seen its banks change from eroding bare soil to plant-, tree- and rock-covered areas with gradual slopes. In a very short period of time, this change has held the soil on the stream bank in place and prevented the soil (and all it might carry with it) from moving from the land into the water. The Sny Magill Watershed Project is an organized effort funded through private organizations and government agencies to decrease soil erosion and pollution in the Sny Magill trout stream. The project encourages landowners in the watershed to change their land use practices to avoid polluting the stream.

Preventing this type of pollution is crucial to preserving the water

Before (top) and after the streambank stabilization structure/handicap-accessible fishing area was constructed.



quality and trout habitat in the stream. Soil and the pollutants it carries cripple trout habitat by:

- Covering gravel beds and rocky areas used by aquatic life that trout feed on.
- Filling deep holes used by trout as cool, resting and escape areas.
- Causing physical damage to trout gills.
- Clouding the water, making it difficult for trout to find food.

Sediment not only eliminates trout habitat, but also alters the overall characteristics of the stream. As streams become wider and shallower, they warm, making conditions hard for trout survival.

"This area was chosen specifically for protection because it is one of the more heavily used areas along Sny Magill," says Jeff Tisl, project coordinator for the Sny Magill Watershed Project. "Over the years, anglers walking along the bank loosened the soil, slowly allowing it to erode into the stream. This caused a water quality problem in the stream and a problem



with the integrity of the fish habitat."

Traditionally, stream banks are stabilized with large rocks called rip rap set against the side of the bank. However, these rocks must be set back from the edge of the stream, keeping anglers ten feet or more away from their potential catch.

"The original plans were to use traditional rip rap on the bank," says Tisl. "However, when we were out to survey the site, we noticed a few handicapped and elderly people trying use the site. So, we changed our plans

to meet the needs of the people who were going to use it."

The handicap-accessible fishing bank along Sny Magill was constructed with two flat stretches (or pads) of crushed limestone each 30 feet long, separated by a short section of rip rap. Underneath each pad are three-foot-square gabion baskets which are wire mesh frames rolled up like a rug with large rocks inside. Set at the water level, the baskets give the stream a near vertical bank from which to fish. Anglers are protected from the drop off

at the edge of the bank with four-by-four-inch wood curbs that line the edge. These curbs also facilitate water drainage after heavy rains. All of the materials used to construct the area are natural and nontoxic to avoid damage to the stream in case of floods or breakage.

In essence, the Sny Magill fishing area provides the best of both worlds -- an area that everyone can use to fish trout and one that improves water quality and fish habitat. Although there are several other handicapped-accessible fishing areas on trout streams in northeastern Iowa, this site is the first to include soil erosion control measures.

"Before these areas were built, we had to go all the way to the Mississippi River to fish," says Jennifer Mendt, activities coordinator for the Oneota Riverview Care Facility. "We were thrilled to learn of these areas. Now we

go twice a month all summer long."

Anglers will not be disappointed with their catch when visiting this stream as it is stocked regularly with brown and rainbow trout by the DNR's Decorah Fish Hatchery.

The handicapped-accessible fishing bank was built through a nonpoint source pollution control grant program funded by the U.S. Environmental Protection Agency and administered by the DNR. Nonpoint source pollution refers to the large number of undeterminable sources that can contribute to water pollution, not just one source that you can "point" to. Financial and technical assistance was also provided by the Natural Resources Conservation Service and Iowa State University Extension.

Karen Meinders is the nonpoint source information specialist for the department in Des Moines.

Another favorite fishing spot for the Oneota Riverview Care Facility residents is at the DNR's Decorah Fish Hatchery.

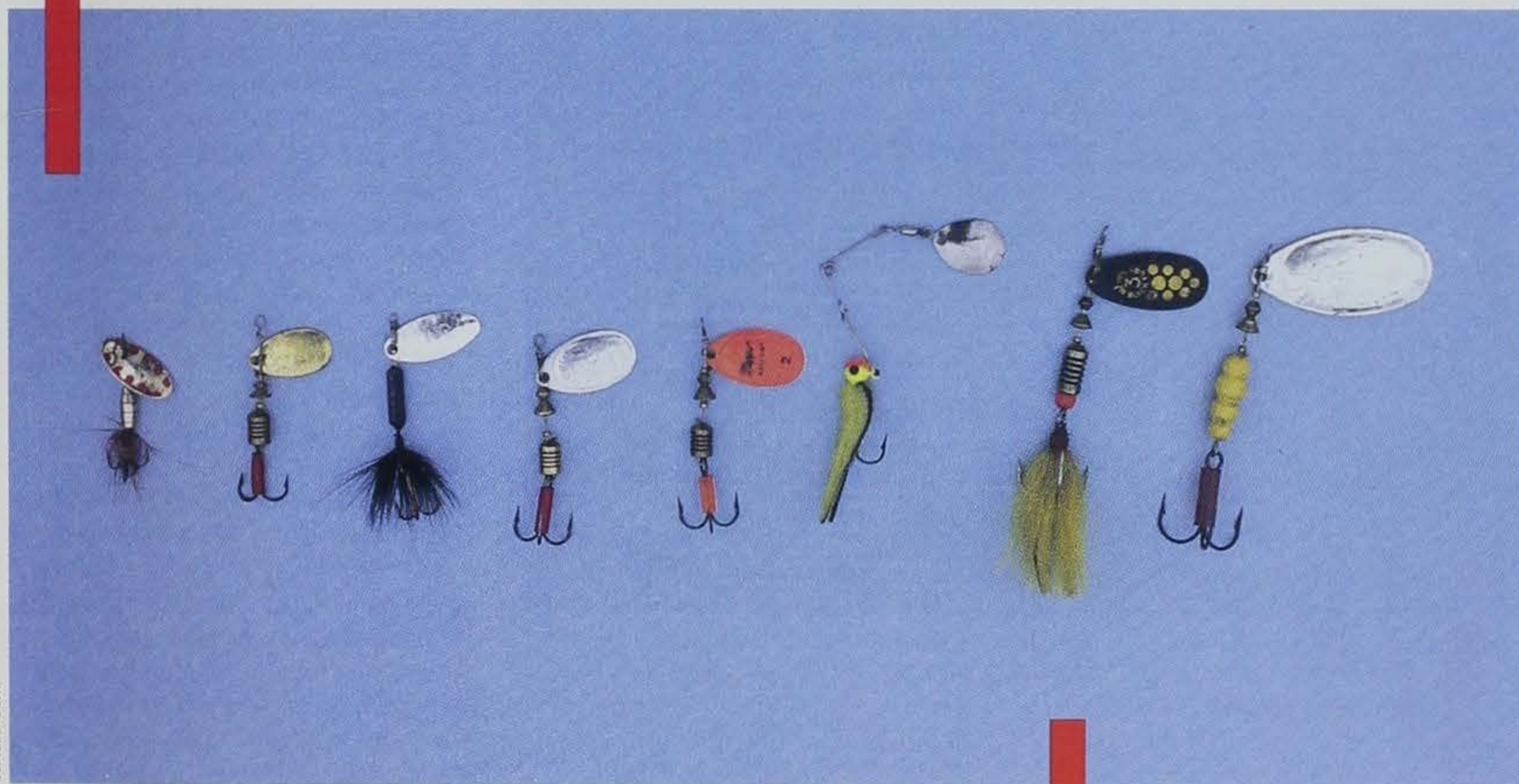




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Take These Babies For A Spin

by Scott Gritters



KRuss Gent

In-line spinners appear to be a cheap, flashy lure consisting of twisted metal with a hook attached, something like a gaudy earring, but don't let this image deceive you, spinners can put you in touch with a lot of fish this coming season. However, there are some tricks to fishing them correctly.

Iowa has more than 10,000 miles of streams perfect for spinners. These waters produce a variety of game fish, such as smallmouth bass, northern pike, walleye, rock bass and white bass. Also, the trout in northeast Iowa streams can easily fall victim to the spinner.

The reasons why these fish bite on a chunk of twirling metal is a mystery. At times, spinners *imitate minnows* or

other small bait fish. Spinners can also cause a *reactionary bite* from the fish who has only little time to make a feeding decision. At other times, fish simply seem to be *mesmerized* by the rotating blades, following the lure long distances and grabbing it, not out of a want but some inner need to know what it is. Imitating minnows and causing the reactionary bite are things anglers can control. The mesmerized bite is totally up to the fish.

Imitating Minnows

We've all seen minnows skip at the surface when predatory fish are nearby. Basically, the small fish are fleeing for their lives. The minnow-scattering flurries are especially prevalent when

Iowa's more than 10,000 miles of streams provide anglers plenty of opportunity to give spinners a try.



Smallmouth bass find spinners hard to resist.

white bass are on the prowl, however, smallmouth bass, largemouth bass and trout can also send fear through a school of bait fish. When wading, keep looking well ahead to spot this feeding activity. Watch for the bait fish to start skidding on the surface and cast the spinner beyond the activity, keeping your rod tip high. You should reel quickly, running your spinner immediately below the water surface. Allow the spinner to occasionally break the water surface, just like the scattering minnows, and hold on for some impressive strikes.

During the late fall and winter months, feeding frenzies are not as noticeable, because most minnows have already been eaten. The remaining baitfish use the shallower, faster riffle areas to feed and hide. Work the spinner in the area where the riffle meets with deeper water. You can even

try standing above the riffle, casting downstream while holding the spinner in the current, imitating a minnow who has lost its way and ventured out into deeper water.

Reaction Strikes

Stream fish attempt to hide in eddies that form near logs, rocks, submergent vegetation or at steep undercut banks. Generally, these areas offer the fish overhead cover (to avoid predators) and current breaks (to minimize energy loss). Picture the stream as a house and the game fish are all hiding in the "closets." These fish can never really view the whole house but only see out the "closet door." The deeper into the "closet," the more limited the fish's vision. As the lure passes the "closet," the fish needs to make a spontaneous decision to "go into the kitchen." The closer you can pass your spinner to the front of the "door," the more likely you will entice the fish to feed.

To trigger reaction strikes, you need to identify all the "closets" available in the stream. Rocks, tree stumps and logs all have the potential to hold game fish. Many successful stream fishing trips are dictated solely by your ability to accurately cast into these locations. Long casts, pitching, sidearm casts, over-brush casts and under-brush casts all need to be mastered. The key to triggering reaction strikes is to get a shiny metal object deep into cover and then back out. You must also make sure the presentation of the lure is visible to the fish. You may need to adjust the lure depth by letting it fall closer to the stream bed. This will allow fish hiding under logs and rocks to see your offering.

Mesmerizing Strikes

Sometimes fish aimlessly follow the lure, trying to decide if the spinner is animal, vegetable or mineral. These fish are seldom caught, but once in a while curiosity overtakes them.

To catch these mesmerized wonderers, avoid moving while reeling in the lure. Since these fish are

Ken Formanek

swimming directly at you, they are easily spooked. When you spot a fish lurking behind the spinner, let the lure flutter down to the bottom of the stream. Let it set for a second and pick the spinner back up off the bottom. This may trigger the fish to take action instead of just following it.

The Equipment

Use the spinning rod and reel you are most comfortable with. Fishing spinners in streams requires accuracy whether it is pitching or casting -- so use a pole that can do both. Short rods (5 to 5-1/2 feet) are good because they allow the angler to pitch around overhangs and the like. Medium-light action rods should allow you some ability to pull the fish out of the snags. The reel should have a high gear ratio (like 5:1) to allow for fast retrieves in shallower water. Also, fast retrieves help when skidding your spinner near the surface.

On the negative side, spinners are notorious for tangling your fishing line. These "rat's nests" develop when the entire lure rotates, instead of just the blades. Each rotation of the lure puts another twist in your line. To reduce this problem, start with low memory line or line designed for spin fishing. Twists can be taken out of your line by removing the spinner and feeding your fishing line into an area of strong current (such as a riffle). Feed out 30 feet or so of line and reel the line back slowly. The line spins in the current and removes the twists off your reel. Inspect your line before your fishing trip, it is frustrating being on a great fishing trip and using poor quality line. Be sure to check your spinner to make sure the blades are rotating correctly. Finally, twist-resistant reels are now appearing at your favorite tackle shop, and you may want to check them out.

If you haven't explored stream fishing with an in-line spinner, consider trying it this year. Concentrate your efforts when the streams are low and clear.

Scott Gritters is a fisheries biologist for the department at Bellevue.

10 Additional Spin-fishing Tips

1 Wade upstream. Fish are accustomed to food floating down to them. This also allows you to sneak behind fish without being spotted.

2 Move at a slow, steady pace upstream. Try stalking the fish just like you would stalk a deer when hunting. Spooked fish are impossible to catch. When casting, avoid moving at all on the retrieve. Mesmerized fish will follow your lure to your feet if you remain motionless.

3 Fish clear or lightly stained water. Because you are fishing sight predators, spinners work the best in clear water. Clear water generally occurs during low-flow periods, such as late winter and the summer months. If fishing in heavily stained water, you may need to switch to other tactics, such as bait fishing or using lures that make noise such as rattletaps.

4 Wear dull-colored clothing. If fishing in relatively clear water, always avoid white and other bright colors. This will keep you from spooking fish that you could be catching.

5 Don't dally. Most fish are caught on the first few casts in prime spots. Make several accurate casts into the prime spots and move on.

6 Avoid deep pools. Spinners generally work best in water one to four feet deep. In the deep holes, switch to bait, jigs or plastic worms.

7 Be patient. If a large fish swirls near your lure try waiting awhile before casting back at it. Repeated casts will make large fish wary of your lure. Leave the fish alone for a half-hour and then go back.

8 Wear polarized glasses. Being able to cut the water's glare adds a whole new dimension to the fishing experience. Glasses can also help you avoid eye injury from the sun's rays or from a stray treble hook.

9 Long accurate casts. The further you can get the spinner away from your body, the better chance you will have of catching fish. A long cast into prime habitat is the goal. This will take some practice.

10 Stay low. Cast while standing in the water or along low banks. Never cast at fish by moving along high cut-banks. Fish have plenty of overhead predators (such as herons) and they will easily spot you climbing on a high bank.

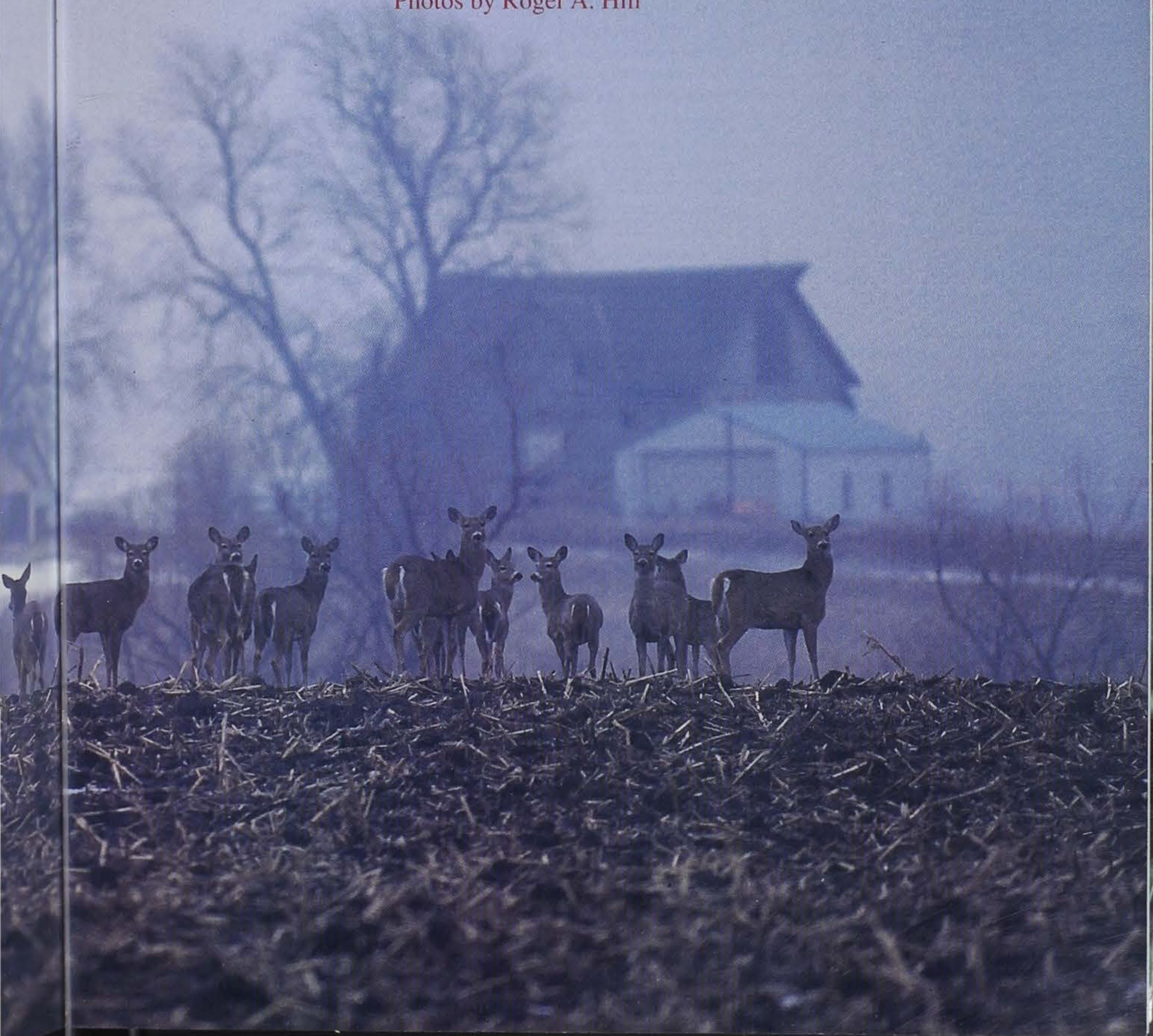
Ken Formanek

Too Many Deer? What Do Farmers F



rs Really Think?

Article by Terry Little
Photos by Roger A. Hill



The problem. Too many deer . . . If your interests are attuned to Iowa's outdoors and you watch television or read the newspaper, you can't have missed at least one story like these in the past year or so . . .

"There are just too many deer (a farmer). They've eaten \$1,000 of my corn, broken our fences and trampled hay bales. That's just not right. This is farm country, not a wilderness! We shouldn't have to put up with this."

"There are too many @#%!* deer (a nursery owner)! They just destroy my valuable landscaping trees. They nip off the buds and change the shape of the tree so it's not salable. And if a tree does get big enough, a buck will come by in September and rub his antlers on it until its completely barked, and dies."

"It's impossible to raise trees in Iowa (a tree farmer)! I'm trying to improve my timber and raise some valuable walnuts for my grandchildren to harvest, but the deer are wiping me out. Every oak and walnut seedling I

plant gets nipped. And there is no use planting pines, the deer eat them like candy. There are just too many deer!"

Too many deer? We in the DNR hear that frequently, but we also hear another side of the story that you most likely won't see in the news (because it's not controversial enough). Stories like these . . .

"There aren't too many deer on my farm. My friends and I like to hunt and we've never seen more nice bucks than the past two years. Sure the deer eat some corn, but not as much as the raccoons and squirrels. At least we can keep the deer in check by shooting a few does. The guy down the road that's complaining so much only lets his family hunt and they only shoot bucks!"

"Deer numbers are definitely down in my area (a hunter). My party used to be able to fill our tags with bucks, and mostly nice ones. Now we can find only fork horns and some does. The farmers whose land we hunt on complain about deer, but it's obvious they have less crop damage now than a few

years ago. I think you need to cut back on deer licenses and build up the herd."

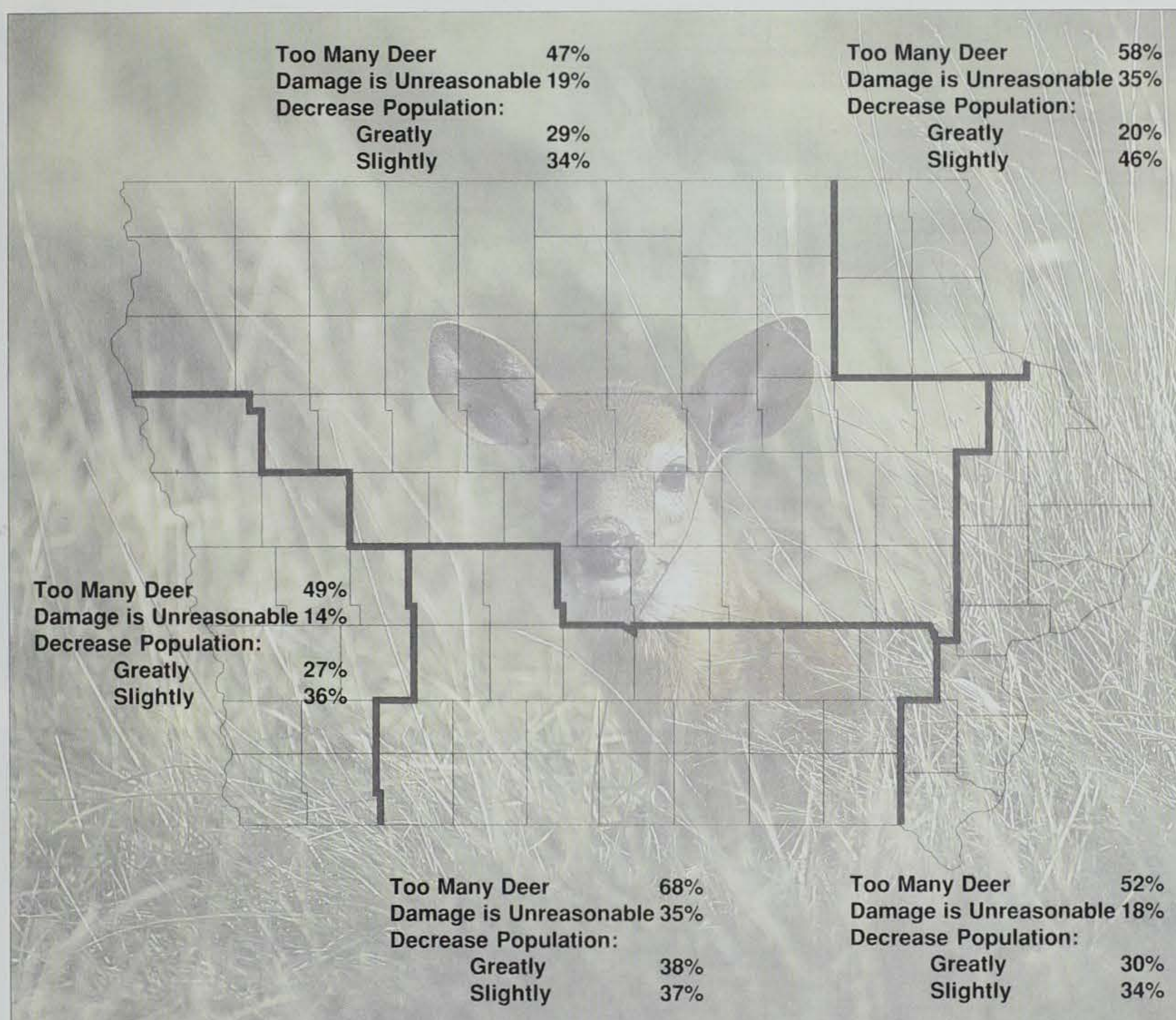
Hmmm . . . could it be that, in spite of what you may read or hear, not everyone agrees about deer? Based on what we see and hear, we in the DNR believe there is a divided opinion among Iowans about whether Iowa's deer herd has reached or exceed an appropriate number. Other groups -- farm organizations, horticultural groups, some tree farmers -- are outspoken in their opposition, claiming that everyone wants the deer herd reduced.

Of all Iowans, farmers have a greater interest in deer numbers, financially and personally, than any other group. Many like to hunt deer, but unacceptable crop and equipment damage are constant possibilities if deer numbers get too large. While the DNR has historically managed the deer herd to provide recreation for hunters, our perception of farmer tolerance to the size of the deer herd always has been a major consideration in setting hunting regulations.

Determining what farmers, as a group, really think about deer is not easy. Calls and letters to the DNR are not a good barometer, because only unhappy folks call our offices or contact our field personnel. Farm organizations tend to respond to their most outspoken members, not to the needs of everyone. Nor are visits with hunters necessarily enlightening, since they typically would like to have more deer. Are there too many deer? Or not enough? What do farmers really think?

The survey. To get a better handle on this multifaceted and controversial issue, the DNR's wildlife bureau contracted with Iowa Agricultural Statistics (a joint service of the USDA and the Iowa Department of Agriculture and Land Stewardship) to determine farmers' attitudes about deer and other wildlife. The Iowa Farm Bureau Federation helped fund the survey.





In November and December of 1996, Ag Statistics' professional survey unit called a random selection of 1,036 typical farm operators, plus another 209 specialty crop farmers (tree farms, orchards, nurseries, etc.), and asked them various questions about the number of deer on their land, the amount of damage deer caused to their crops and their opinions on what should be done with the deer herd. They were also asked about populations and damage to crops caused by coyotes, wild turkey, rabbits, beaver, geese and pheasants.

Approximately 200 farmers were contacted in each of five regions of Iowa (see map). Regions were chosen so that

each had similar topography, similar farming practices and similar deer numbers. Specialty crop farmers were randomly selected regardless of where their farm operation was located.

Farmers who responded to the survey were similar to the average farmer identified in the 1990 census -- 86 percent were men; their average age was 57 years old; 87 percent were owners and operators of the land they farmed, 8 percent were tenants, and 4 percent owned farm land but did not operate it.

The typical farm operation was 384 acres in size and most raised corn (96 percent of farms), soybeans (71 percent) and hay (66 percent). Thirty percent or

less of the farms raised wheat or oats or had pasture or acres in the Conservation Reserve Program. About half had at least some timber on their farm.

Specialty farms were quite different -- they averaged 136 acres, 79 percent were tree farms or plantations, 15 percent were nurseries, and 4 percent were orchards. Less than one-third raised some acres of corn, soybeans or other more traditional crops. Because their operations were so different, responses from typical and specialty farmers were handled separately.

Farmers were not asked to estimate the value of their crop damage. Other research has shown many have diffi-

Deer habitat and deer problems are not evenly distributed across Iowa. About one in five typical farmers and one-third of specialty farmers believe they have unreasonable damage to crops and want their concerns addressed . . . Working together, the problems, where they exist, can be solved.



culty accurately identifying the animals damaging their crops, or the dollar value of the damage. And from a practical standpoint, their attitudes are more important than the actual damage in causing them to seek action from the DNR. One farmer may become extremely angry about a level of damage that another would gladly accept just to have more deer on their farm. But an angry landowner is an angry landowner and will likely demand attention to the problem, regardless of how serious it really is. Perception, as usual, is more important than reality.

The answers. What did farmers actually say? Typical farmers and specialty crop farmers responded similarly to many questions.

- ◆ 95 percent of each group reported they had deer on the land they farmed.
- ◆ About 70 percent said they had sustained some deer damage to crops.
- ◆ Half (52 to 54 percent) said deer numbers were too high (38 to 40 percent said they were about right).
- ◆ Three-fourths said deer numbers had increased in the past five years.
- ◆ Nearly half (46 to 47 percent) thought deer damage had increased also,

but a similar percentage said it had not changed over the past five years.

Typical farmers were not terribly concerned about deer damage to their crops. When asked how they felt about that damage . . .

- ◆ one percent had no opinion.
- ◆ 34 percent reported no damage.
- ◆ 16 percent said it was insignificant.
- ◆ 28 percent said it was reasonable in exchange for having deer on their farm.
- ◆ Only 21 percent said that deer damage was unreasonable.

If only farmers that suffered damage are considered, one in three thought it was unreasonable. Typical farmers were most concerned about damage to corn -- 25 percent said corn damage was unreasonable, but no more than 14 percent thought damage to any other crop was unreasonable.

Specialty crop farmers were somewhat more concerned.

- ◆ Three percent had no opinion.
- ◆ 24 percent reported no damage.
- ◆ 18 percent said it was insignificant.
- ◆ 23 percent said it was reasonable.
- ◆ 32 percent thought damage caused by deer was unreasonable.





Specialty farmers were most concerned about damage to trees and tree plantations - about 45 percent of farmers with damage thought it was unreasonable.

Both types of farmers were divided in their opinions about what should happen to deer populations.

- ◆ Less than 10 percent of either group wanted to see more deer.
- ◆ About 28 percent wanted deer numbers to stay the same.
- ◆ 35 percent wanted to see a slight decrease.
- ◆ About 30 percent wanted a substantial decrease.

On a regional basis (see map on page 35), typical farmers in northeast and southern Iowa were more likely to think deer numbers were too high, but still just one in three thought deer damage was unreasonable. Farmers in the rest of Iowa were much less concerned.

Compared to a similar survey conducted in 1988, typical farmers were more likely to:



- ♦ think deer numbers were too high (31 percent in 1988 vs. 52 percent in 1996)
- ♦ report deer damage to crops (39 percent vs. 67 percent)
- ♦ Think damage was unreasonable (12 percent vs. 21 percent)
- ♦ think deer numbers should decrease slightly (28 percent vs. 35 percent) or greatly (10 percent vs. 30 percent)

reduction in the deer herd? The appropriate answer to these questions seems to be "Not really."

Concern for deer numbers and deer damage to crops has increased since 1988, but there is clearly no widespread demand among farm operators for a large reduction in Iowa's deer herd. A solid majority of 79 percent of typical farmers and 68 percent of specialty

level of serious damage reported by farmers may be overstated. In sampling 4,000 corn fields in the 10 most important corn-growing states in 1993, Federal researchers found only 3/10 of one percent of Iowa's corn crop was damaged by wildlife, and only one-third of that damage (1/10 of 1 percent) was caused by deer. Fields in Iowa had the least damage (averaging one-quarter bushel per acre) of any state.

But the survey should not be interpreted to mean that everything is rosy. Deer habitat and deer problems are not evenly distributed across Iowa. About one in five typical farmers and one-third of specialty farmers believe they have unreasonable damage to crops and want their concerns addressed. Most problems are occurring in portions of northeast and southern Iowa, or to operators of tree farms. But even some farmers in the open, agricultural land of central and northern Iowa can have problems if their land lies along one of the river systems that meander through that part of the state. Rivers mean rough land, with some areas left in timber, pasture or other deer habitat, and in some places too many deer.

We believe the appropriate response is to reduce deer numbers where they are too high or where farmers would like to see fewer, and leave populations as they are where no problems or concerns exist. The only practical tool to accomplish this is to provide additional hunting opportunities where more deer need to be taken. That will require cooperation between farmers and the DNR. The DNR can provide extra seasons and more permits to shoot does, but that will work only if landowners provide access to hunters. Working together, the problems, where they exist, can be solved. In the majority of Iowa where problems do not exist, farmers and deer should be allowed to continue coexisting peacefully.

Terry Little is the wildlife research supervisor for the department in Des Moines.



Specialty crop farmers were not surveyed in 1988.

There was less concern for populations and damage caused by other wildlife. Typical farmers were most concerned about coyotes -- 40 percent said populations were too high and 16 percent said coyote damage was unreasonable. Specialty farmers were most concerned about rabbits -- 42 percent said populations were too high and 27 percent said damage was unreasonable (similar to their concern about deer). Less than 10 percent of farmers in either group were concerned about damage caused by wild turkeys, geese, pheasants or beaver.

What needs to be done? Are a majority of Iowa's 100,000 or so farmers really upset about deer? Are they suffering devastating crop losses? Are they demanding a wholesale

farmers said the amount of damage to their crops from deer is acceptable at this time. Remarkable, considering the recent coverage in the press! Two-thirds of farmers in all regions would like to see some reduction in deer numbers, but only 30 percent thought a great reduction was required.

The concern about deer numbers also seems out of proportion to the actual crop damages farmers receive. Two-thirds of farmers want the deer herd reduced at least somewhat, but just 21 percent to 32 percent said crop damage was unreasonable. Those responses seem inconsistent and suggest that all the publicity deer have received may have influenced farmer's opinions more than their experiences on their own farms.

A recent study conducted by the USDA suggests even the rather low

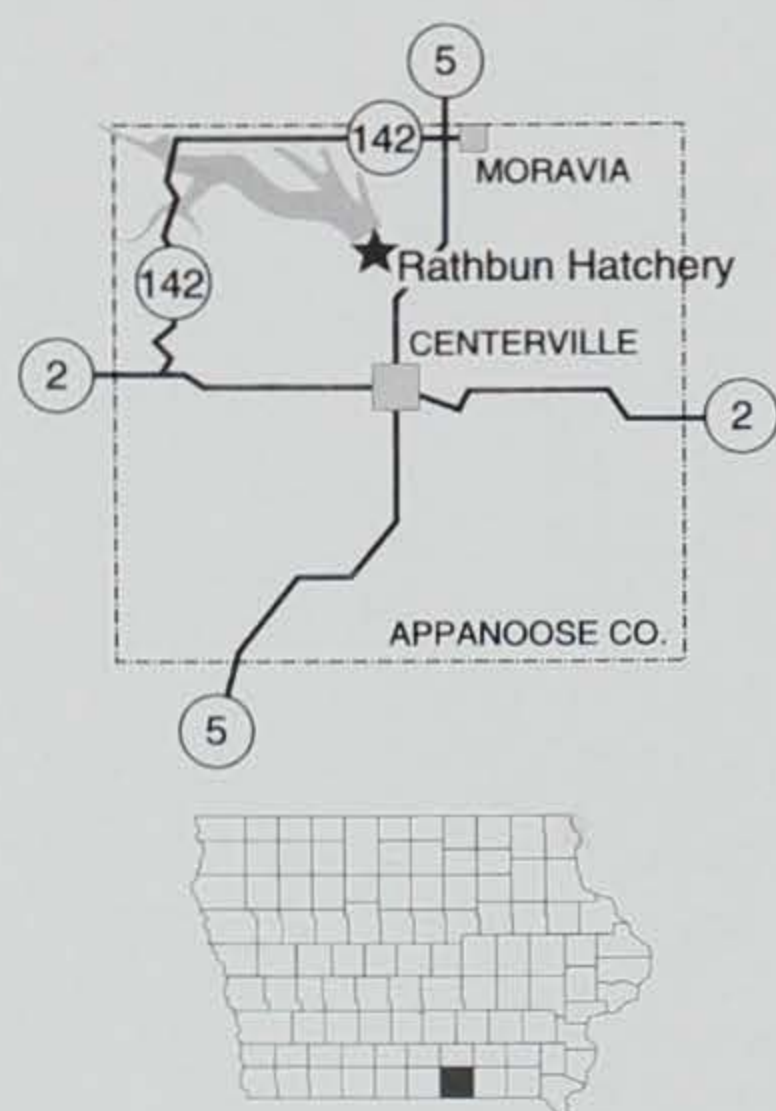
It's only
NATURAL
We would
BE THERE



Ty Smedes

www.state.ia.us/dnr

The Rathbun Fish Culture Research facility was funded solely by anglers through the Wallop-Breaux Fund. Twelve outside, concrete raceways (below) will be used to conduct disease and feeding experiments with fish larger than four inches.



NEW Research Facility at Rathbun Hatchery

Article by Alan Moore
Photos by Ken Formanek

Iowa DNR fish hatcheries annually produce ten species of fish for stocking. Trout, walleye, northern pike, channel catfish and muskellunge are the most numerous fish produced. Trout production takes place at three cold-water hatcheries, while the other species mentioned are cultured at three warm-water hatcheries and two pond rearing stations.

From these hatcheries fish are stocked in 19,000 miles of interior streams, two border rivers, natural lakes, artificial lakes and four flood control reservoirs. The cost of producing and stocking fish accounts for 40 percent of Iowa's fish management efforts.

Because of the importance of hatcheries to fish and fishing in Iowa, the DNR initiated a new research program in 1981, designed to increase the quality, quantity and size of fish stocked. The specific objectives of the program were to solve hatchery production problems,



Portable tanks inside the research building (left) will be used for fish less than four inches and will allow many fish rearing experiments to be conducted at one time.

Water that enters the pump station, first passes through the rotary drum screen (below left) to filter out large debris and wild fish. After the rotary drum screen, water then passes through an ultraviolet light unit (below) that disinfects the water and reduces disease problems.



develop new fish production techniques and reduce fish disease problems. Since that time, trout research has involved improvement of spawning techniques and trout strain performance at Manchester Hatchery. Research conducted at Rathbun and Spirit Lake hatcheries has focused on improved water quality, new treatment of diseases in channel catfish and walleye, improved feeds and rearing techniques for walleye and muskellunge, and improvements in spawning techniques for channel catfish, walleye and muskellunge.

Prior to 1982, little effort was made to improve methods to hatch and rear fish, especially those common to Iowa. Techniques had changed very little over the previous 50 years and, consequently, the quality and quantity of fish available for stocking did not keep up with demand. Iowa is now a leader in research and development projects designed to increase production of high-quality fish

in the hatchery environment. This work got an additional boost in 1996, when an addition was completed to the Rathbun Fish Hatchery. The facility was designed to accommodate the research needed to make Iowa's fish hatcheries a very efficient and productive element in our efforts to improve fish and fishing in Iowa.

Planning for the research addition to the Rathbun Fish Hatchery began in 1987, and construction of the facility was funded through the Sport Fish Restoration Program. These funds are obtained through an excise tax on fishing equipment and boats and must be spent to improve fishing. The tax is collected from the manufacturer and returned to the states. The amount of money each state receives is based on the fishing license sales and, annually, Iowa receives approximately \$2.5 million. This money is spent in cooperation with the U.S. Fish and

Wildlife Service and is used to benefit Iowa anglers through access development, lake construction, lake improvement, education and research.

Facility Features

Research Building

The research building consists of four areas; 1) the equipment room which houses the water filtering equipment, air blower, electrical panels and an emergency generator which provides electrical power to the entire facility during an electricity failure; 2) the laboratory/office area to be used for data analysis, disease diagnosis and water analysis; 3) research tank room, which contains 15 rectangular and 9 round tanks, an egg incubator and fish feeders. This room will allow multiple fish rearing experiments to be conducted at one time. Each tank can receive filtered or unfiltered water and



Don Bonneau



The aeration/degassing head tank is used to add oxygen to water flowing to the outside raceways and tanks located inside the building.

oxygenated or unoxygenated water; and 4) the climatized feed storage room where feed for the Rathbun Hatchery and research facility is stored in a cool, dry climate to help preserve feed quality.

Raceways

Located outside and immediately adjacent to the research building are 12 concrete raceways. Each raceway is supplied with oxygen, filtered or unfiltered water, fish feeders and low-pressure air which is used during disease treatments and for experimental purposes. Each raceway is 20 feet long by three feet wide by three feet deep and can receive up to 200 gallons per minute water flow.

Aeration/Degassing Head Tank

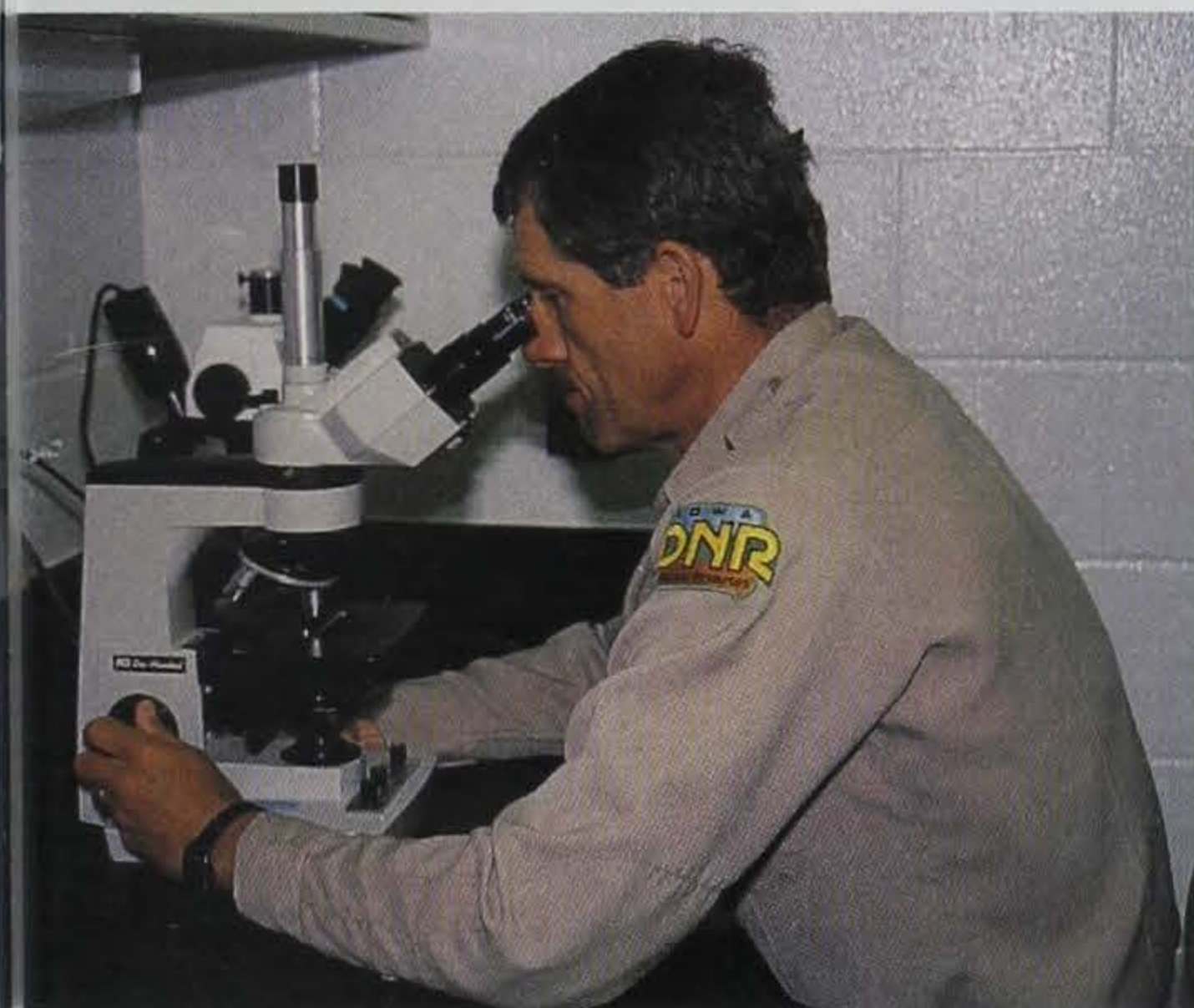
All water to the research building and the raceways passes through an aeration/degassing head tank which can remove excess harmful gasses, such as nitrogen, or can add oxygen. When the water

passes through the columns located atop the head tank, air or pure oxygen can be added to improve water quality. Both the raceways and research building can receive either aerated or oxygenated water.

Water Supply and Pump Station

Water supply for the research building and raceways can come from Rathbun Reservoir or from the Rathbun Hatchery discharge after this water passes through the hatchery's pollution control ponds. Water entering the pump station first passes through a rotating drum screen to filter out large debris, then through an ultraviolet unit to help reduce fish disease problems, then into a pumping sump where the water is then pumped to the research building or the raceways. An alternate feature also allows water to gravity flow to the raceways. Pumps located in the pump station are variable speed, which allows personnel to pump

This and many other improvements in fish hatchery production will ultimately benefit the angler. Limited budgets mean our management must be more efficient and of course, the ultimate goal is to shorten the time between bites.



Disease diagnosis is routinely performed in the combination laboratory/office located inside the research building (left). The computerized "smartscreen" located inside the laboratory/office, monitors the condition of the equipment and water quality and alerts personnel to alarm situations.

only as much water as needed; thereby, saving electricity.

Smartscreen

Located inside both the lab/office area and the pump station is the "smartscreen." This computerized system allows personnel to monitor all aspects of equipment operation, water flows, temperature, water turbidity and water oxygen content from either control location. Personnel can set alarms for equipment operation, water flows, temperature levels and water oxygen content. When problems arise, an alarm is activated to alert personnel at the facility. At night, alarms activate a dialer to call personnel or a remote pager.

Future Construction

Beginning in approximately July 1998, ten one-acre and six one-tenth-acre ponds will be constructed just south of the hatchery building. These ponds will greatly assist our efforts to meet the states

fish stocking needs. The ponds will be lined with plastic to prevent water leakage and to make pond management more efficient and predictable. Each pond will have a fish catch basin located at one end to allow for better harvest when the ponds are drained.

Current Research Studies

Fish culture studies currently being conducted are as follows:

- evaluation of methods to improve water quality for fish
- training of two-inch walleye on formulated feed
- winter spawning of walleye
- production of walleye from fry to fingerling on formulated feed
- investigation of drugs in treatment of fish disease
- investigation into methods to reduce hauling stress on fish at time of stocking

- methods to increase production of fish in earthen ponds
- production of muskellunge from fry to fingerling on formulated feed

Iowa anglers have already benefited from recent improvement in fish production brought about by a very concerted research effort. Hatchery production of walleye has increased both in quantity and quality. These fish are now being reared on commercially produced dry diets. This and many other improvements in fish hatchery production will ultimately benefit the angler. Limited budgets mean our management must be more efficient and of course, the ultimate goal is to shorten the time between bites.

Alan Moore is a fisheries research biologist for the department at Rathbun Fish Hatchery.

CATFISH ON OLD MAN RIVER

They're Back!

Catfish. The most popular fish sought by Iowa anglers. In surveys, telephone calls, and in the field, Iowa anglers most often ask questions related to catfish. How to catch them . . . where they are the most numerous . . . secret baits, recipes, and techniques . . . how to clean and cook them . . . and what the outlook is for catfish on a favorite stream, lake or pond. This is not a "how to" article, but a success story on the management of catfish in the Mississippi River.

Today there are a lot of catfish in the Mississippi River, however, as recent as the early 1980s, catfish populations were at an all-time low. Some of the best records we have on catfish populations come from the reports commercial fishers are required to file annually with the DNR. The graph on page 47 shows the record harvest of catfish in 1958. This was the same year use of highly effective soybean bait became widespread by commercial fishers on the Mississippi. The record harvest in 1958 was followed by a long-term decline in pounds harvested. Because of complaints by commercial and sport fishers about fewer and fewer catfish numbers, biologists began studying the catfish populations in the mid-1960s and

continued into the 1970s. Results from these studies concluded catfish were being overharvested -- that is, too many fish were being removed from the population. This conclusion was based on the following facts:

(1) Although there were some fluctuations, generally fewer and fewer pounds of catfish were being harvested (see graph on page 47).

(2) Channel catfish were growing

faster during the 1960-80 period compared to the 1950s.

(3) The size of the channel catfish being caught by commercial fishers were getting smaller and smaller. In 1947, 20 percent of the harvested catfish were less than 15 inches. By the 1960s and 70s, this number had increased to 65-70 percent. In some individual pools, nearly 90 percent of the commercial harvest were fish less than 15 inches long.

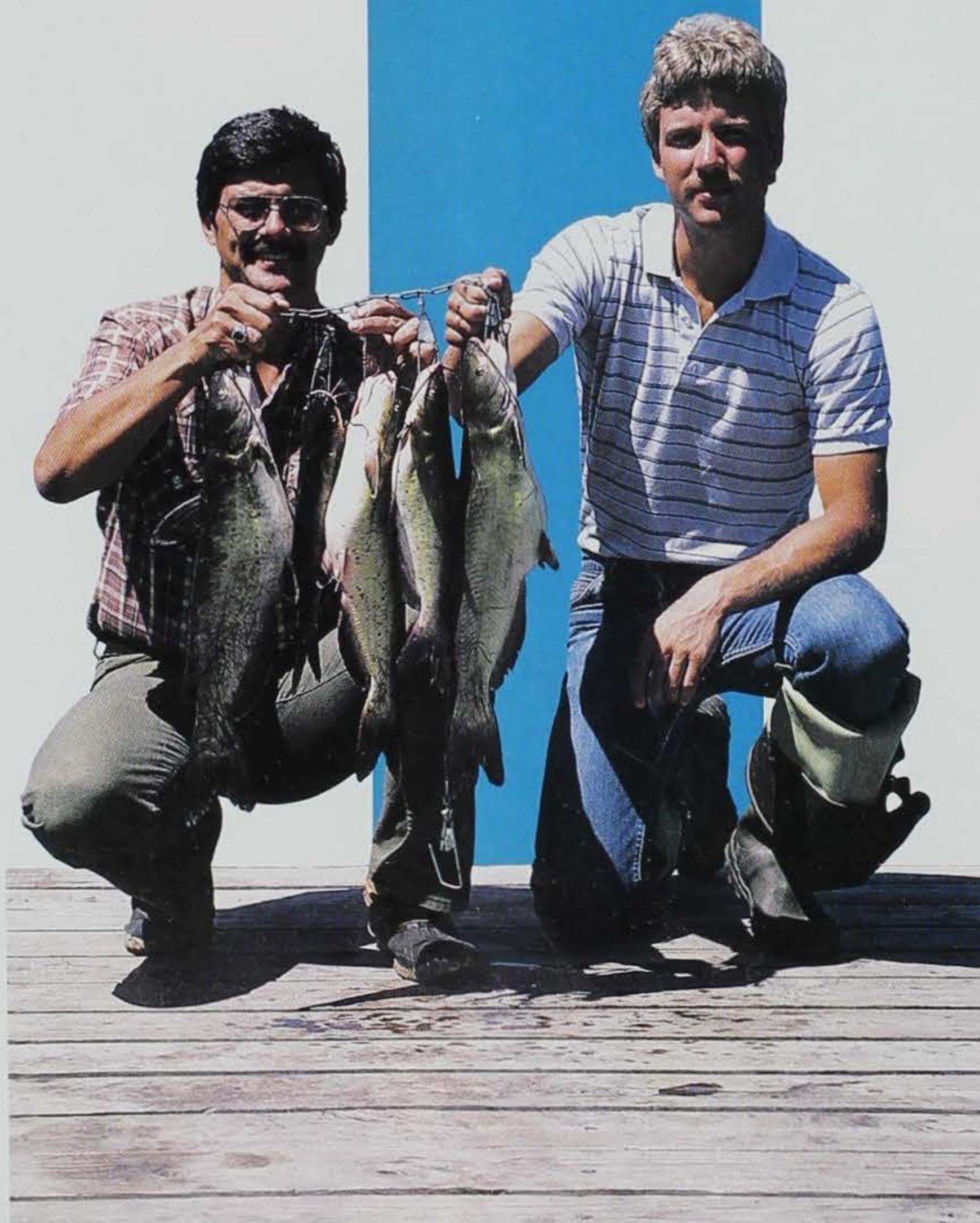
(4) The catfish being harvested used to have a broad range of ages (fish from 3 to 10 years old) but more recent harvest consisted of younger and fewer ages (fish 3 to 4 years old). In addition, the peaks in the commercial harvest never reached the highs recorded in previous years, and the valleys were always lower than the lows in previous years. This caused a serious recruitment (reproduction) problem -- not enough small fish were being reproduced to replace the fish being harvested.

The solution was to set a biologically sound length limit, one which would reverse the problem of overharvest. A minimum length limit change from 13 inches to 15 inches was recommended which would have the following effects:



Article by John Pitlo
Photos by Ron Johnson





Rank	1962	1967	1973	1994
1	Crappie species	Bluegill	Crappie species	Freshwater Drum
2	Bluegill	White Crappie	Bluegill	Channel Catfish
3	Freshwater Drum	Freshwater Drum	Freshwater Drum	Crappie species
4	Bullhead species	White Bass	Sauger	Bluegill
5	White Bass	Black Bullhead	Channel Catfish	Sauger
6	Channel Catfish	Channel Catfish	White Bass	Walleye

Rank of channel catfish in angler surveys on Pool 13.

(1) There would be an increase in the numbers of young fish hatched every year because at 13 inches, only 10 percent of the female channel catfish have eggs, compared to 50 percent at 15 inches. This amounts to a 10 fold increase in egg production and hence, reproductive potential (see figure page 47),

(2) There would be a slight decrease in the numbers of fish harvested, but there would be a significant increase in the weight of harvested fish, increasing the value of the harvest for commercial fishers by nearly 30 percent.

(3) More fish would be available to the sport angler.

Illinois passed the 15-inch minimum length limit in 1975, however, some problems developed in Iowa. The 13-inch minimum length limit was a part of the Iowa Code, requiring legislative action to change the regulation. Several commercial fishers were opposed to the regulation change and successfully lobbied State Representatives and Senators to table the bill each year it was introduced into the Natural Resources Committee.

In 1983, the entire commercial fishing code was rewritten, with the fisheries bureau regulating the commercial fish resources, including listing the commercial fish species, setting seasons

if they were needed, and setting length limits if required. Iowa was able to enact a 15-inch minimum length limit for commercially harvested catfish in Pools 9-17 in 1984 and in Pools 18 and 19 in 1985. Wisconsin passed similar legislation in 1984. Finally, in 1985, nearly 15 years after the length limit change was first proposed, all the waters of the Mississippi River bordering Iowa, Illinois, and Wisconsin were uniform with respect to length limit regulations for commercially harvested catfish.

So, how has the catfish population responded to the change in length limits? Since 1986, the pounds of catfish harvested by commercial fishers has increased tremendously and the 1994 harvest was near an all-time record (see graph below). Growth rates have slowed down and are now the same as in the 1950s. Since 1986, the numbers of young catfish caught by trawling has increased, and is four to five times higher than the numbers caught in the 1970s and 1980s. Each year, fisheries biologists make about 180 trawl hauls in four pools of the Mississippi River. A trawl is like a big seine pulled behind a boat and it is a good way to catch young catfish (1-1/2 to 4 inches). These small catfish are called young-of-the-year (YOY) because they were hatched in the current year. When trawl hauls are made at the same location and same time, year after year, the number of YOY catfish caught is a good measure of spawning and hatching season success. And, more catfish are being harvested by sport anglers. In Pool 13 during 1994, there were more catfish harvested than any other fish with the exception of freshwater drum (see table page 46).

Catfish populations have responded very well to the length limit change and there are more catfish in the Mississippi River today than at any time since the late 1960s. Good reproduction in 1992 and 1994 means good populations into the near future. If you like to fish for catfish, it has never been better on Old Man River.

John Pitlo is a fisheries research biologist for the department on the Mississippi.

13 Inches



1 of 10 females mature
4,500 eggs/female
Total eggs -- 4,500

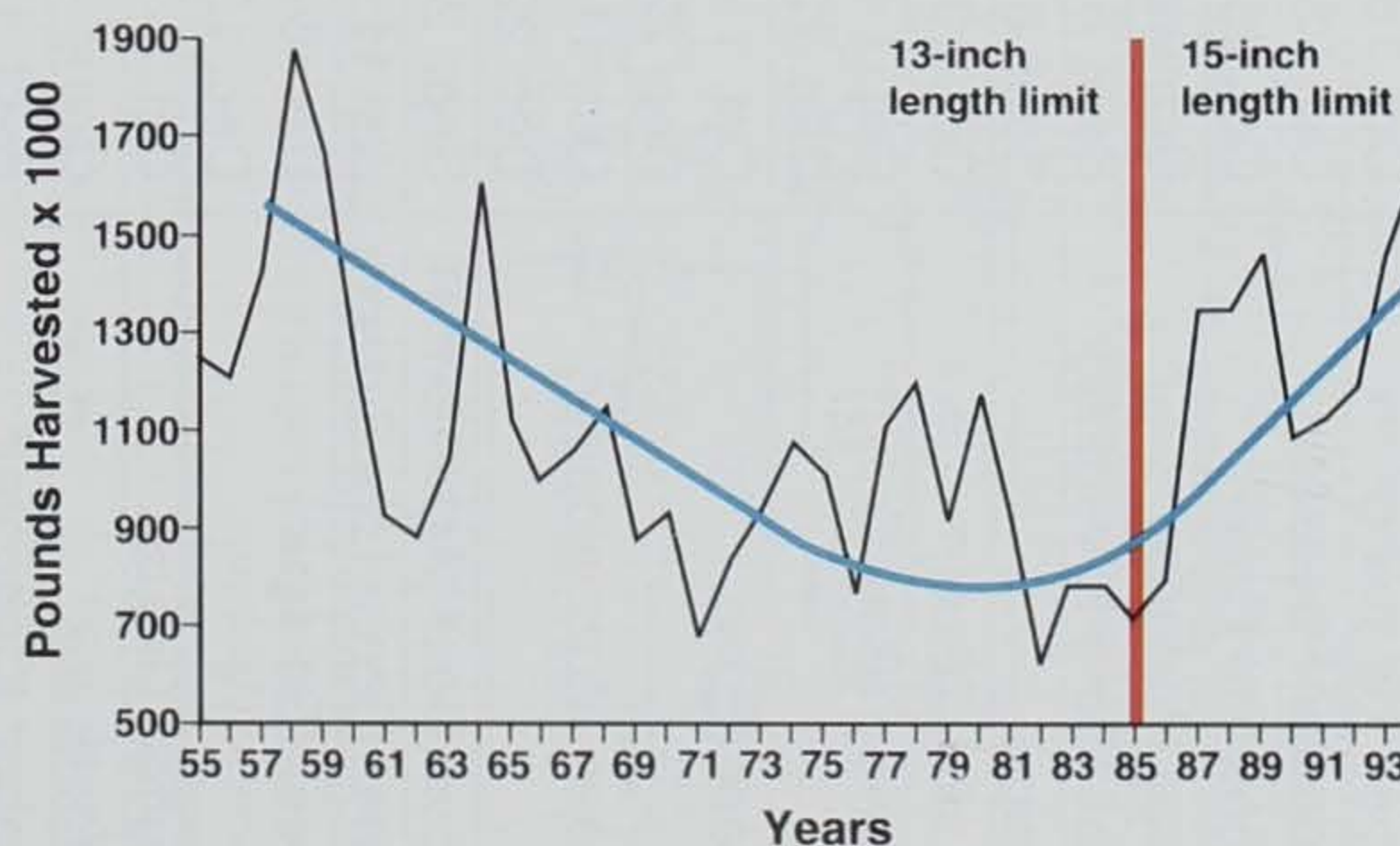
15 Inches



5 of 10 females mature
8,300 eggs/female
Total eggs -- 41,500

Channel Catfish Reproductive Potential

Total harvest of catfish reported by all commercial fishers operating in Pools 9 through 19 of the Upper Mississippi River.



PROPOSED IOWA 1997-98 HUNTING SEASONS AND BAG LIMITS

SPECIES	SEASON (DATES INCLUSIVE)	SHOOTING HOURS	BAG LIMITS	
			DAILY	POSSESSION
Youth Rooster Pheasant (age 15 or younger)*+	Oct. 18 -19	8:00 a.m. to 4:30 p.m.	1	2
Rooster Pheasant	Oct. 25 - Jan. 10, 1998		3	12
Bobwhite Quail	Oct. 25 - Jan. 31, 1998		8	16
Gray Partridge	Oct. 11 - Jan. 31, 1998		8	16
Rail (Sora & Virginia)	Sept. 6 - Nov. 14	1/2 Hour Before Sunrise to Sunset	12	24
Snipe	Sept. 6 - Nov. 30		8	16
Turkey (Gun)*	Oct. 13 - Nov. 30		One turkey per license	One turkey per license
Turkey (Bow Only)*	Oct. 1 - Dec. 5 and Dec. 22 -Jan 10, 1998	1/2 Hour Before Sunrise to 1/2 Hour After Sunset	One deer per license	One deer per license
Deer (Bow)	Oct. 1 - Dec. 5 and Dec. 22 - Jan. 10, 1998			
Deer (Muzzleloader)	Oct. 11- Oct. 19* (Early) or Dec. 22 - Jan. 10, 1998 (Late)			
Youth Deer (Age 12-15)+	Sept. 20 - Oct. 5			
Deer (Bonus Late Season)	Jan 11 - 18, 1998			
Deer (Shotgun)	Dec. 6 - Dec. 10 or Dec. 13 - Dec. 21	Sunrise to Sunset	3 3 10 2 6	6 6 20 4 12
Ruffed Grouse	Oct. 4- Jan. 31, 1998			
Woodcock	Oct. 4 - Nov. 22			
Rabbit (Cottontail)	Sept. 1 - Feb. 28, 1998			
Rabbit (Jack)	Oct. 25 - Dec. 1			
Squirrel (Fox & Gray)	Sept. 1 - Jan. 31, 1998	None		
Groundhog	June 15 - Oct. 31			
Crow	Oct. 15 - Nov. 30 and Jan. 14 - March 31, 1998			
Pigeon **	Oct. 1 - March 31, 1998			
Raccoon and Opossum	Nov. 1 - Jan. 31, 1998	None Open 8:00 a.m. First Day Only		None
Fox (Red & Gray)	Nov. 1 - Jan. 31, 1998			
Coyote	Continuous Open Season			

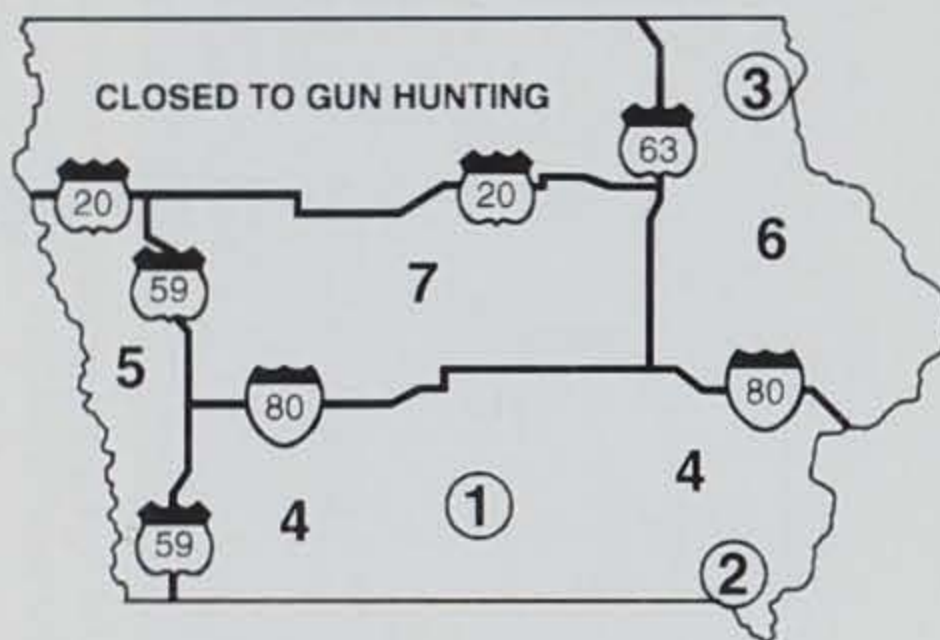
*Residents only **However, within 100 yards of buildings and bridges pigeons may be taken year round. + See regulations for all requirements.

PROPOSED 1997-98 TRAPPING

SPECIES	OPENING	CLOSING
Mink, Muskrat,* Raccoon, Weasel, Striped Skunk, Badger, Opossum, Fox (red & gray), Coyote	Nov. 1 **	Jan. 31, 1998 **
Beaver	Nov. 1	April 15, 1998
Civet Cat (spotted skunk), Bobcat and Otter	Continuous Closed Season	
Groundhog	June 15	Oct. 31

*Selected areas may be established in February, for muskrat trapping only.

**All furbearer seasons open at 8 a.m. on the opening date. There are no daily bag or possession limits.

Fall Turkey Zones

Zone 1 is all units of Stephens State Forest west of U. S. 65 in Lucas and Clarke counties

Zone 2 is all units of Shimek State Forest in Lee and Van Buren counties

Zone 3 is units of Yellow River Forest in Allamakee County

Bow-only fall turkey licenses are valid statewide.

Fall turkey season is **closed** to nonresidents in 1997.

Fall Turkey License Quotas

Zone 1	50
Zone 2	50
Zone 3	50
Zone 4	1,000
Zone 5	300
Zone 6	3,000
Zone 7	100

PROPOSED 1997 WATERFOWL HUNTING SEASONS AND BAG LIMITS

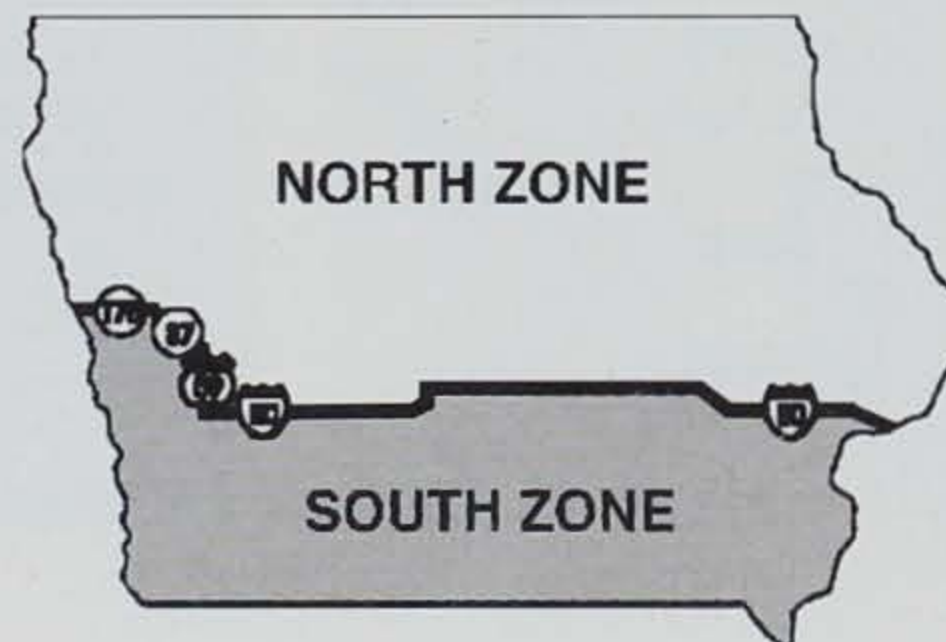
Final waterfowl seasons and bag limits are published in September.
Nontoxic shot is required statewide for waterfowl hunting.

SPECIES	SEASON (dates inclusive)	AREA	SHOOTING HOURS	BAG LIMITS DAILY	POSSESSION
Ducks	Sept. 20-24	N. Zone	1/2 Hour Before Sunrise to Sunset	5 (see below)	10 (see below)
Early season	Sept. 20-22	S. Zone			
Youth Duck Day	Oct. 11	Statewide		5 (see below)	5 (see below)
Ducks	Oct. 18 - Dec. 1	N. Zone		5 (see below)	10 (see below)
Late season	Oct. 18 - Dec. 3	S. Zone			
Canada Geese Only	Sept 13 - 14	N. Zone Only		2	4
Geese	Sept. 27 - Dec. 5	N. Zone		2 Canadas, 2 White-fronts, 2 Brant	4 Canadas, 4 White-fronts, 4 Brant
Canada/ White-fronted/ Brant	Sept. 27 - Oct. 5 Oct. 18- Dec. 17	S. Zone			
Geese - Snow Early season	Oct. 11 -Jan 7, 1998	Statewide		10 snow geese	30 snow geese
Geese - Snow Late season	Feb, 21-March 10, 1998	Statewide		10 snow geese	30 snow geese
Coots	Same as Ducks		15	30	

Ducks: The daily bag limit is five (5) ducks and may include no more than four (4) mallards (no more than one (1) of which may be a female), one (1) black duck, two (2) wood ducks, two (2) redheads, one (1) canvasback and one (1) pintail.

The possession limit for ducks is ten (10) ducks and shall not include more than eight (8) mallards (no more than two (2) of which may be female), two (2) black ducks, four (4) wood ducks, four (4) redheads, two (2) canvasbacks, and two (2) pintails.

Mergansers: Daily bag limit is five (5) (no more than one (1) of which may be a hooded merganser); possession limit is ten (10) (no more than two (2) of which may be hooded mergansers).



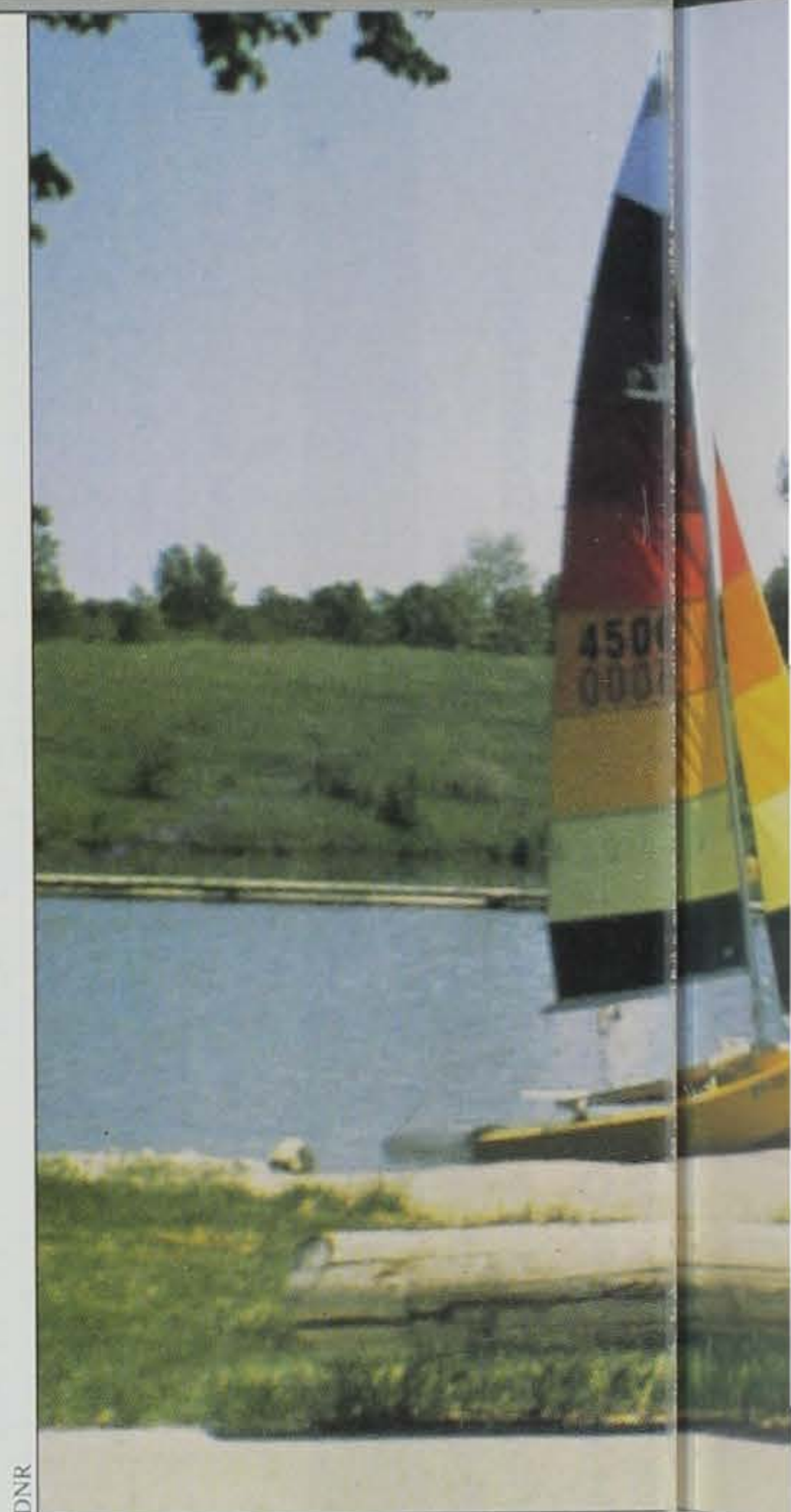
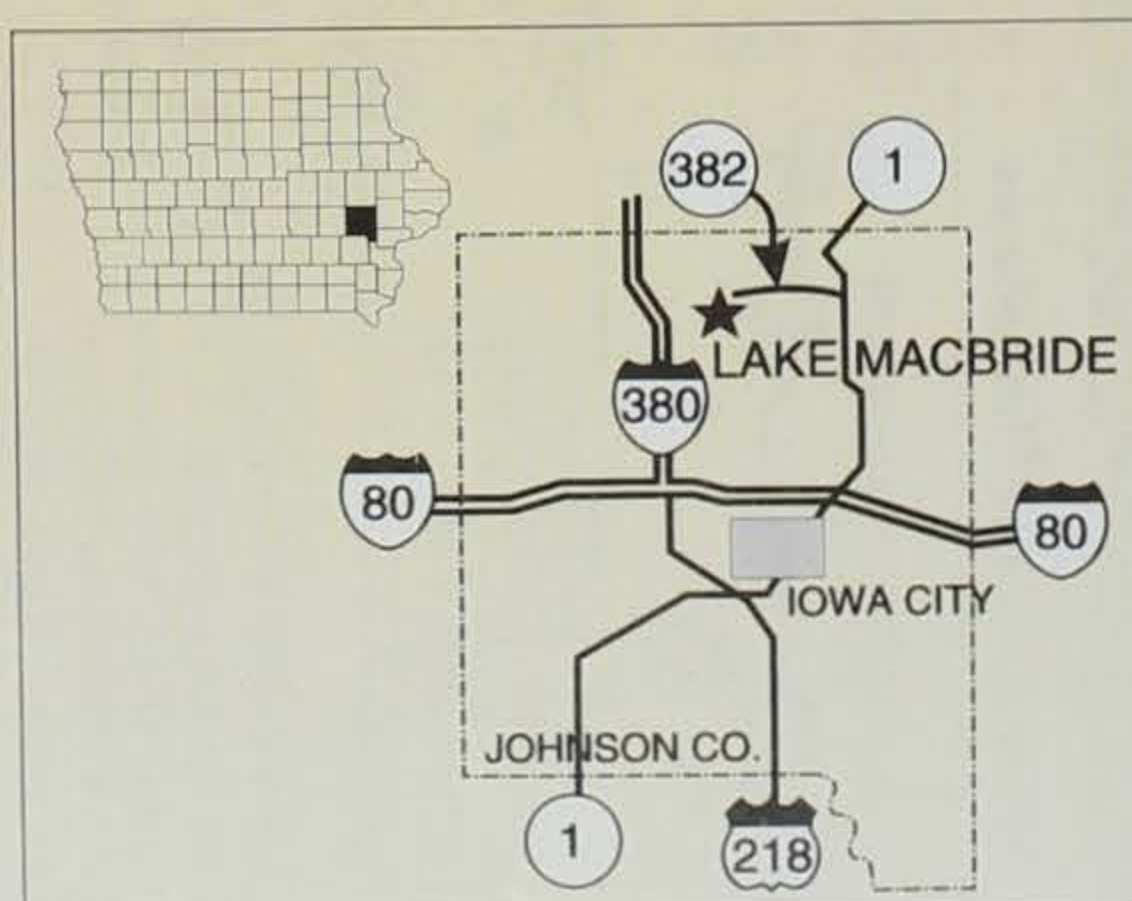
Season dates and bag limits are all subject to change and will be determined after Federal guidelines are released in August. Final season dates and bag limits will be published in September.

Call 515/281-HNTR(4687)
for season information 24-hrs a day
internet address -- www.state.ia.us/dnr

Parks Profile

Eastern Iowa's Lake Macbride Offers Tranquility Near an Urban Center

by Gwen Prentice



DNR

Situated 15 minutes from both Iowa City and Cedar Rapids near the town of Solon is Lake Macbride State Park. Driving down Highway 382 west out of Solon, you will encounter, farmland and housing developments. As you continue down the road and drive past the Lake Macbride entrance portals you will notice a change, to lush woodlands, rugged landscape, stately oak trees and a beautiful 800-acre lake. The beauty provides a serene and relaxing atmosphere encouraging you to come back and visit again.

Lake Macbride was named after Thomas H. Macbride, a professor and botanist at the University of Iowa in the early 1900s. He is considered one the pioneers of the Iowa conservation movement. One of his dreams was to see a rural park in Johnson County and it became a reality in 1932 when the Iowa City Chamber of Commerce initiated the project. The purchase of 727 acres and the development of buildings, sewer, water, roads and trails were estimated at

\$90,000. through sites in t and 178- emergen Civilian Solon, p ment. T and open 1955, w Coralvill expanded raised 28 separate Reservoir Today M parks in people e different ties. The to be rel It was di reconstr facility w accom

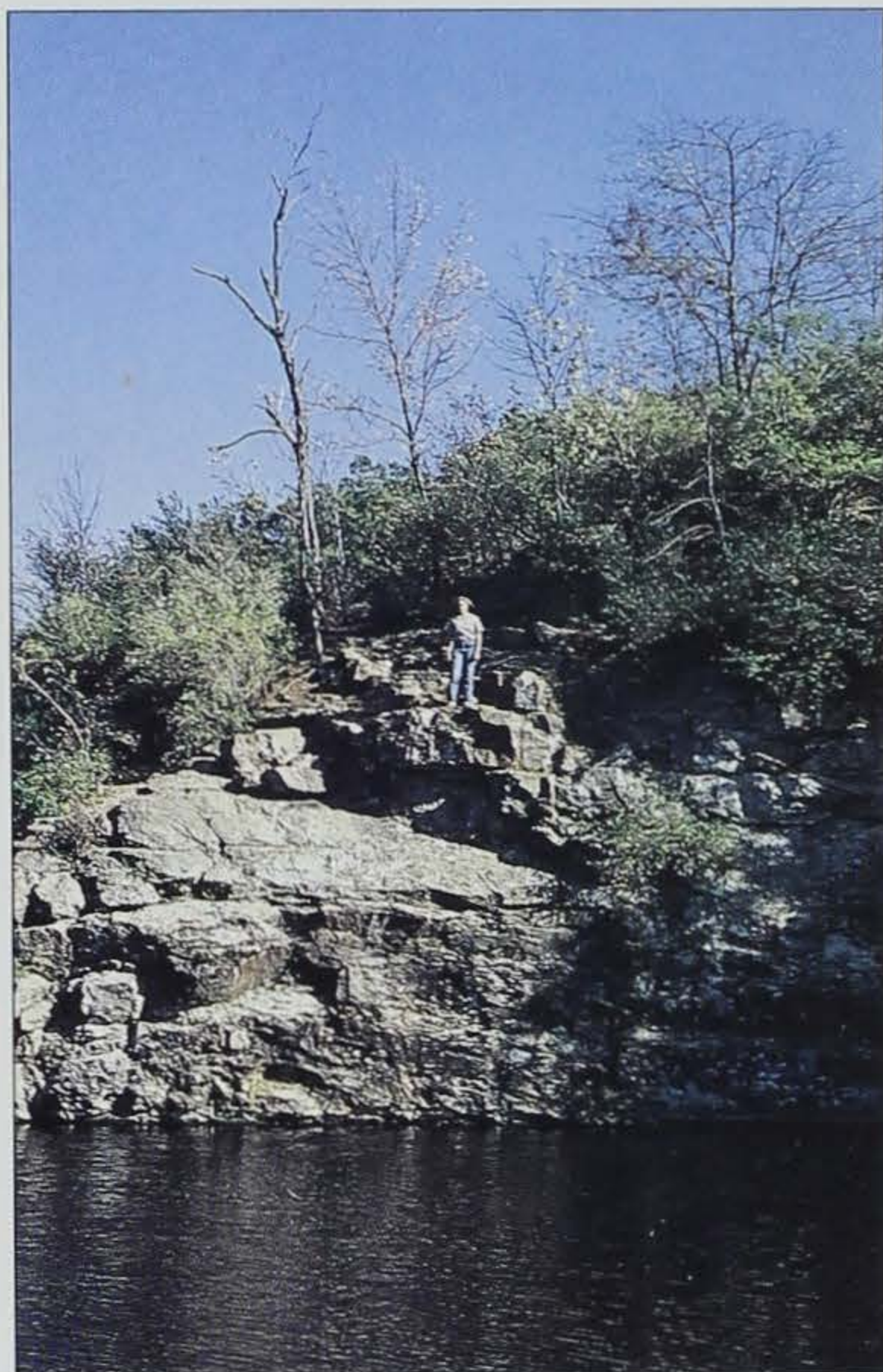


\$90,000. The development was funded through the sale of 132 private cottage sites in the park. Construction of the dam and 178-acre lake was done with a federal emergency funding program. The Civilian Conservation Corps, based out of Solon, provided the labor for the development. The park was dedicated in 1933 and opened to the public in 1937. In 1955, with the development of the Coralville Reservoir, Lake Macbride was expanded to 2,180 acres. The dam was raised 28 feet to keep Lake Macbride a separate entity from the Coralville Reservoir and the lake grew to 812 acres. Today Macbride is one of the largest state parks in Iowa. It is visited by thousands of people each year who enjoy its many different outdoor recreational opportunities.

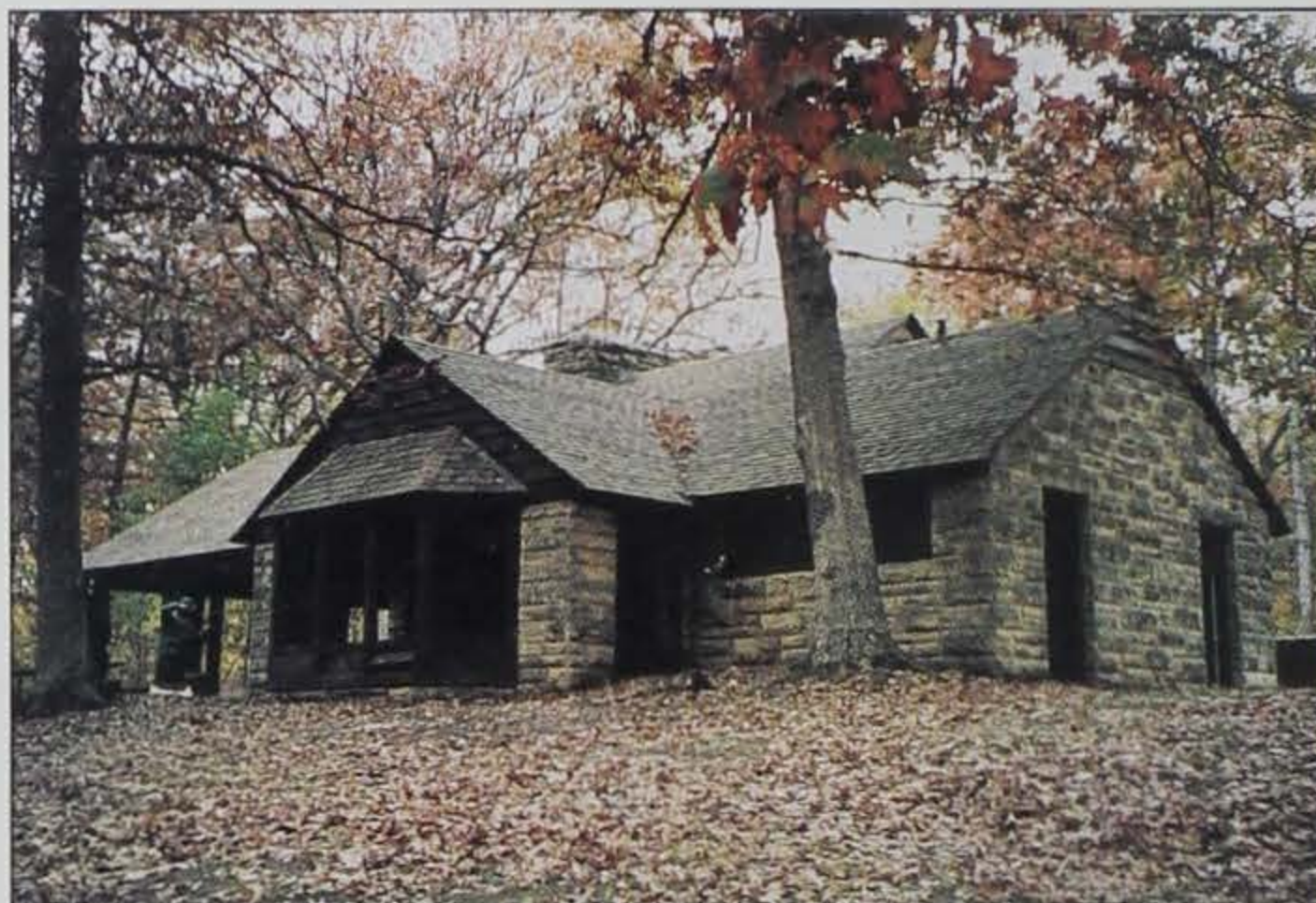
The original concession building had to be relocated when the dam was raised. It was dismantled stone by stone and reconstructed in its new location. The facility was renovated in 1989 to better accommodate current needs and now



Lake Macbride (above) has been considered the quiet lake. There is no buzz of jet skis and large boats associated with most summer lake activities. The lake provides premium fishing conditions for walleye, crappie, bass and catfish.



DNR



DNR



DNR

Lake Macbride offers diverse natural settings as shown by the rock outcroppings (left), lodge (top) and prairie (above).

provides a supervised beach and cafe. Adjacent to the beach is the boat rental area with pontoons, motor boats, paddleboats and canoes.

With the expansion of the park, the water depth increased to 47 feet, providing premium fishing conditions for walleye, crappie, bass and catfish. Over the years, several fishing jetties have been constructed and make the lakeshore easily accessible. A fish cleaning station was built near the south campground in 1990 to help anglers process their catch. The Lake Macbride Fisheries Management Station, responsible for Johnson and nine other eastern Iowa counties, promotes good fishing through fish stocking, habitat rehabilitation and aquatic education.

Seven boat ramps offer boaters easy access. From May 21 to Sept. 7 a 10-horsepower motor limit is enforced for all boats. At other times, any size motor may be used at a "no wake" speed. Because of the motor restrictions, Lake Macbride

has been considered the quiet lake. There is no buzz of jet skis and large boats associated with most summer lake activities. On a typical day you will see dozens of sailboats, canoes and fishing boats all using the lake peacefully. For those with larger boats, Macbride provides a boat ramp on to the Coralville Reservoir.

Lake Macbride's natural diversities might best be experienced by taking a hike. There are more than 15 miles of trails meandering through woodlands, along the shorelines and around the prairie. A self-guided interpretive trail is near the entrance of the park. A five-mile multiuse trail from the park's entrance to Solon, completed in 1989, provides a crushed limestone surface. It was resurfaced again in 1996 with a \$20,000 grant from Federal Emergency Management Administration (FEMA), and hikers, bikers and snowmobilers use it year-round.

There are 120 camping sites located in two separate campgrounds. A modern campground on the north side of the lake

provides shower facilities and electricity. On weekends during the summer, interpretive nature programs are offered to the campers and park visitors. On the south side of the park is a primitive campground for those who want to "rough it." Playground equipment is within walking distance of both campgrounds.

Seven open shelters may be reserved for special events. The popular stone lodge near the beach is scheduled for renovation late this year. Plans include enclosing one room and installing kitchen facilities and modern rest rooms. Picnic areas are scattered across the 2,000-acre park so picnickers can relax and enjoy abundant wildlife and wildflowers.

If you are in eastern Iowa, take some time this year and visit Lake Macbride State Park. You will enjoy the beauty and tranquility of the park.

Gwen Prentice is a park ranger at Lake Macbride State Park.

Wing Bone Turkey Call *by A. Jay Winter*

Have you ever felt the thrill of listening to a male wild turkey proclaim his dominance in the spring? This thrill can be increased by calling to the turkey with a homemade turkey call made from a turkey wing. Whether you are calling simply to see the birds in the wild or using the call in a hunt, just follow the directions below and start practicing. You can be a "pro" by next spring and have your own one-of-a-kind piece of wildlife art.

Directions

Obtain a turkey wing either by being successful during one of the Iowa turkey hunting seasons, or going to the grocery store and buying turkey wings. Each wing can make one call and you may wish to have several.

The first step is to separate the three bones on each wing. The bones can then be used immediately or frozen to be worked on later. The call can be completed in steps and does not have to be finished in one sitting. While several calls may be worked on at one time, each "set" of bones should be kept together.

Using a hacksaw, remove the very tips of the bones. Removing these ends entails six separate cuts for each set of bones. Make sure to leave the bones as long as possible at this point. The longer the bones the deeper sound of the completed call. This will improve the sound of the call. Remember, the bones can always be shortened but it is very hard to add any material to lengthen them.

Using a stiff wire, remove the marrow and bone fragments from within the bone. The bones are naturally hollow.

With a dull knife, remove the tissue from the outside of the bone by using a scraping motion. Most of the tissue can be removed with just a little patience and careful scraping. Do not use a sharp knife as it is easy to cut through the bone or into your fingers.



Ken Formanek

■ An attractive *and* functional turkey call can be made from turkey bones. The call is camouflaged after it is constructed and hung from a cord to be within easy reach when hunting.



Ken Formanek

■ The wing bones are shown after they have been boiled. Each "set" of bones may vary in length. Note the beige/white color. The bones have not been bleached. The bones are inserted (in the sequence shown) into one another.

Practical Conservationist

Boil the bones to remove any remaining tissue and oils. Boiling disinfects the bones so they can be stored for future use. Drain the water from the bones and allow them to cool. Spread them on a flat surface to air dry. The bones can now be stored in plastic bags until you are ready to complete the call.

The bones are now an off-white or soft beige color and ready to use. Do not bleach the bones. Bleaching makes the bones more brittle and subject to breaking. It also makes them whiter and more difficult to camouflage. No one needs any item that makes it easier for a sharp-eyed turkey to spot them!

Carefully slide one bone into the other in succession and see how well they fit together. Separate them again and gently file or sand the bones so that they fit together smoothly. Any grade of sandpaper can be used. Be very careful during this process. Filing or sanding with gentle pressure makes it easier to shape the bone without filing through the bone's surface.

Glue the bones together by applying white nontoxic glue to one end of each of the two smaller bones. Insert each bone into the next larger bone. Check the fit. If the bones do not fit snugly push cotton into the gaps and add more glue. A toothpick or fine wire can be used to push the cotton into the gaps. Go slowly and continue to check for gaps as you move from one step to the next.

Set the newly assembled call on a flat surface and allow the glue to dry completely.

The call can be decorated or camouflaged with markings. (See the picture below.) A small-point, permanent marker or a fine-lined brush and paint can be used to customize the call. Fasten a cord around the call so it is within easy reach when hunting.

Once the call's assembly is finished and dry, practice, practice, practice.

To operate the call, suck on the small end of the call. This is much like the motion of sucking on a straw. Keep your lips tight around the tip of the call and suck.



Ken Formanek

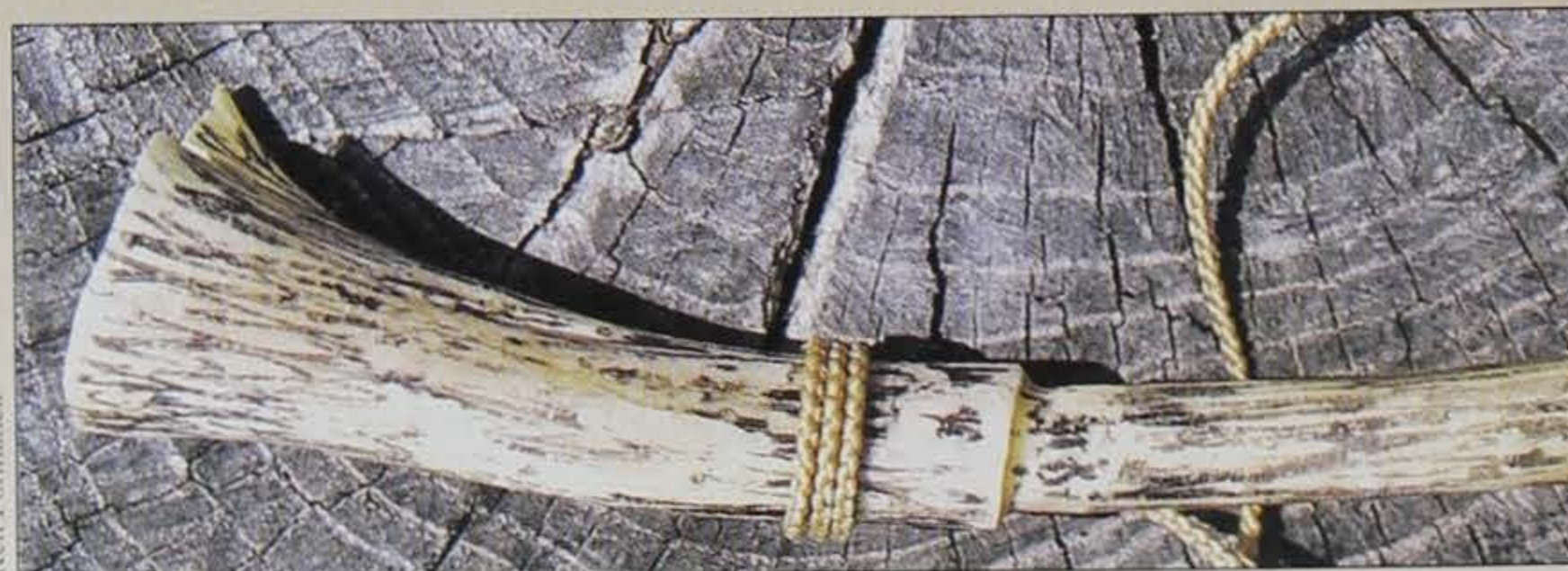
A piece of rubber tubing placed on the tip of the call can act as a stop. (See the picture above.) The tubing is a reference point and helps callers know where to place their lips each time they use the call. Practice is important as well as consistency. Placing the lips in the same place on the call each time helps consistency.

The more the call is used, the more familiar it will become. If you have created several calls, each will produce a slightly different sound. One or more will likely become favorites.

Finally, don't forget to sign your work of art before you head into the woods and good luck on your hunt.

A. Jay Winter is a training officer at the department's Springbrook Conservation Education Center in Guthrie Center

- Obtain turkey wings through your hunt or the grocery store.
- Separate the three wing bones.
- Remove the ends of the bones with a hacksaw.
- Use a stiff wire to remove the marrow and bone fragments.
- Scrape the tissue from the outside of the bone.
- Boil the bones to remove any remaining tissue.
- Allow the bones to dry.
- Gently sand/file them to fit.
- Use white nontoxic glue to join the bones.
- Allow the entire call to dry.
- Camouflage the call.
- To operate — suck on the small end of the call, much like sucking on a straw.
- Practice, practice, practice.



Ken Formanek

Whooo's For Dinner? by A. Jay Winter

This activity was adapted from *A Teacher's Activity Booklet About... Iowa Birds* by Linda Zaletel, Rick Hollis and Beth Brown. The food chain chart was adapted from the activity booklet and the skeletal illustrations from *Owl Pellet Study Kit Instructions*, by Lab-Aids® Inc.

By studying the dry, odorless owl pellet it is possible to tell what an owl has eaten. Owl pellets are made up of bones, teeth, scales, hair or insect skeletons -- the hard parts of an animal the owl cannot digest.

Background:

Owls are very large and interesting birds. The great horned owl is Iowa's earliest breeding bird, with one to three eggs being laid in mid-February. These eggs will be laid in a tree cavity or a nest previously used by a hawk, crow or squirrel. The eggs are incubated mainly by the female for 28 days before hatching. Can you imagine sitting on a nest on the top of a tree in a mid-February snowstorm?

Owls, along with some other birds of prey, produce pellets. These pellets are produced when the owl eats a small bird, insect or mammal and is unable to digest the hair and bones. This mass of bones and fur is then regurgitated out of the mouth 18 to 20 hours later. The size of the pellet depends on the size of the prey and the size of the owl, but usually averages about one to three inches in length.

Owls roost during the day and hunt during the night. During their daily roosting sessions they are commonly harassed by crows, bluejays and other small birds. During the night they start to hunt by sitting on a tree branch and observing the ground around them. They watch with their large eyes and listen with their ears. After locating a small mammal they use their soft wing feathers to quietly swoop down to grab the animal with their talons. After flying back up into a tree they will eat the small mammal whole. Great horned owls have even been known to capture and eat small skunks.

Skulls/Bones



Shrew - *Sorex*



House Mouse - *Mus*

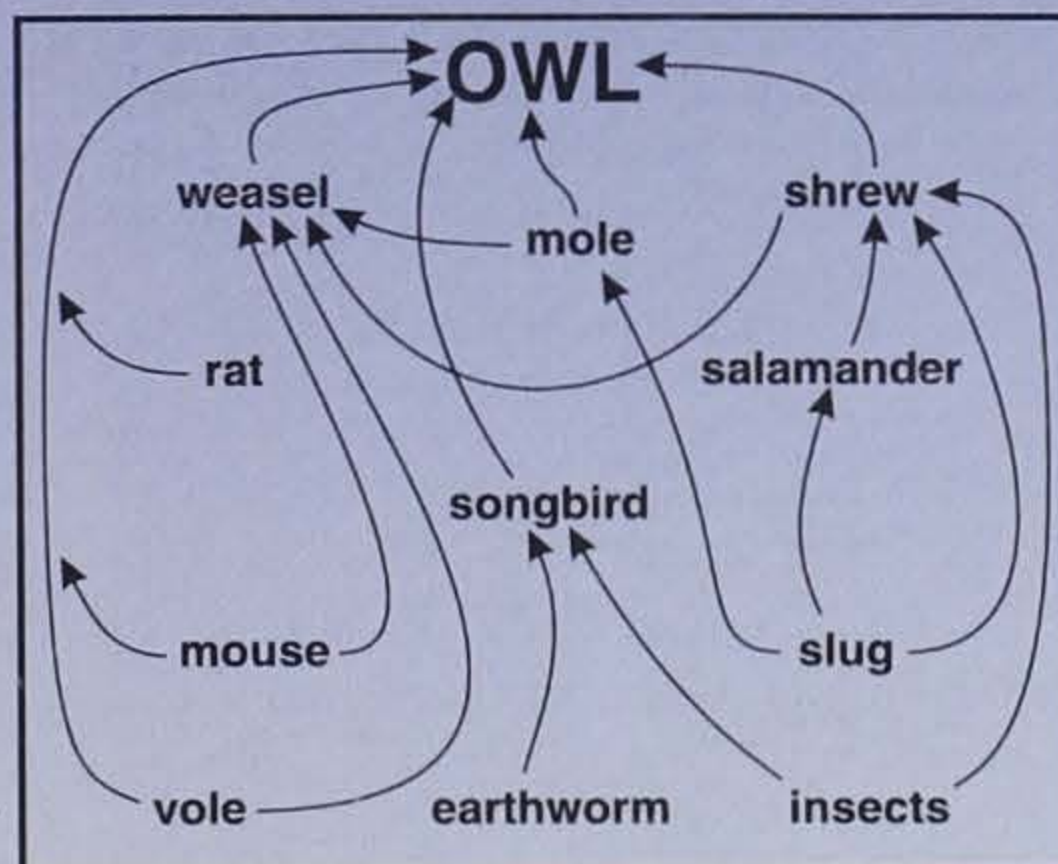


Mole - *Scapanus*



Vole - *Microtus*

Food Chain Example



Vole - *Microtus*

Age:

Grade 3+

Subjects:

science, math

Objectives:

The students will be able to:

1. identify skulls and bones found in the pellet;
2. construct a food chain with the owl at the highest level; and
3. compare and contrast the different bones that make up a small mammal.

Materials:

owl pellets, tweezers, probe, study guide, hand-held magnifier, paper dust mask (optional)

Vocabulary:

regurgitate, food chain, ecosystem, talons

Sources of Materials:

Owl pellets can be ordered from educational supply catalogs, and owl calls and tapes can be obtained from sporting good supply stores.

Resources:

A Teacher's Activity Booklet About... Iowa Birds; Linda Zaletel, Rick Hollis and Beth Brown; 1992; 82 pages

Owl Pellet Study Kit, Cat. No. 37, Lab-Aids® Inc., 17 Colt Court, Ronkonkoma, NY 11779, (516)737-1133

The Iowa Breeding Bird Atlas; Laura S. Jackson, Carol A. Thompson, and James J. Dinsmore., 1996. University of Iowa Press, Iowa City. 484 pages. Available for \$24.95 by calling (800)235-2665

Classroom Corner

Extensions:

1. Determine the number of prey species an owl consumes during one month or one year, assuming that an owl produces one pellet per night. Count the number of skulls found in the pellets and divide by the total number of pellets the class dissected. This is the average number of prey consumed per night. Multiply this number by 31 to determine the number of prey consumed during one month or by 365 for a yearly figure.

2. Encourage students to study Iowa owls and find out more about their habits. The common Iowa owls are the great horned owl, barred owl and the screech owl. Some owls, such as the snowy owl, also visit Iowa during the winter, and in the winter of 1996 Iowa had a rare visit by a great gray owl.



Ken Formanek



Ken Formanek

■ Owl pellets (above) contain bits of bone and fur. These bones can be separated and identified.

A. Jay Winter is a training officer at the department's Springbrook Conservation Education Center in Guthrie Center.

Procedure:

1. Pellets are most easily obtained by ordering through an educational supply company, but can be observed laying on the ground around owl roosts. A roost is where owls spend their days perching in a tree and digesting their food. Owl pellets are fun to find but the use of wild pellets is discouraged due to the possibility of insects or disease. Commercially purchased pellets are heat-treated and disinfected.

2. The students should be introduced to basic owl facts and the definition of an owl pellet (a regurgitated mass of bones and fur an owl is unable to digest).

3. Give each group of two to four students an owl pellet, tweezers, probe, dust mask and a sheet of paper. Using a hand-held magnifier may make identification easier.

4. Instruct the students to *carefully* separate the fur from the bones in the owl pellet and put the bones on a blank sheet of paper. (Hint: many of the bones are very small and time is needed to separate the small bones from the fur)

5. Identify the type of animal and what part of the body these bones represent.

6. Glue the bones to a blank sheet of paper and answer the question in the study guide below.

7. Construct a food chain similar to the one in the diagram (page 55) based on background reading the class has done and on the results recorded on the study guide.

Study Guide:

Tips to Identify Prey Animals

house mouse -- rounded teeth in skull, rear teeth have three rows of cusps (ridges)

deer mouse/white-footed mouse -- rear teeth have two rows of cusps, one on the outside and one on the inside

meadow vole -- looking down on the teeth, they form a zigzag pattern

short-tailed shrew -- longer skull; red-stained teeth

birds -- look for their feet and beak in the pellet

insect parts -- the hard backs of beetles and insect parts are often found in pellets

rabbit -- the larger bones are often broken

Record the size of the pellet length _____ width _____

Record the number of prey species found in your pellet _____
(count the number of skulls to determine the number of prey)

Determine what kind of small mammal or other animal is in your owl pellet by looking at the bones.

List the animals _____

Total number of pellets examined by the class _____

Total number of prey species found in the pellets by the class _____



■ Two "warning" billboards about Eurasian watermilfoil will be on display throughout 1997. The billboards, on Hwy 71 near Spirit Lake and on Hwy 18 near Clear Lake, were prepared by Pioneer Outdoor Advertising of Fort Dodge. Additional signs may be added if funding is available.

1997 Water Safety Poster Contest Winners

Gaila Iverson, a sixth-grade student at Charter Oak-Ute Community School in Ute is the first-place winner in the 1997 Water Safety Poster Contest -- "Personal Watercraft Safety." Gaila will meet Gov. Terry Branstad and witness the signing of Iowa's Safe Boating Proclamation in May.

Second- and third-place winners are Jeff Woodside, sixth grade, James Madison Middle School, Burlington; and Jenna Skophammer, fifth grade, St. Paul's Lutheran School in Fort Dodge. Each winner will receive a cash award and a certificate of appreciation.

"Personal watercrafts (PWCs) such as jet skis and waverunners are becoming more popular and more numerous on Iowa's waters where larger horsepower motors are permitted, and currently PWCs account for about 50 percent of Iowa's boating accidents," DNR recreational safety coordinator Sonny Satre says. "The objective of this contest is to develop water safety awareness among young Iowans, who in-turn influence their family and friends."

Each year the DNR, in cooperation with the U.S. Coast Guard Auxiliary, Des

Moines Power Squadron, Safe Kids Coalition and the Midwest Water Safety Council, conducts the Boating and Water Safety Contest in conjunction with Iowa Safe Boating Week. Prizes for the contest were provided by IMT Insurance, cosponsor of the event.



Iowa Pheasants Forever chapters are working with farmers and landowners to establish wildlife habitat.

The goal of **Pheasants Forever** is to restore pheasant populations through quality habitat. PF is paying landowners to plant food plots, nesting cover, shelterbelts and other habitat for game and nongame wildlife.

Iowa currently has 98 chapters throughout the state looking to work with local farmers and landowners for the benefit of all upland and wetland wildlife.

For help planting wildlife habitat or more information about **Pheasants Forever**, contact Jim Wooley (S. Iowa) at 515/774-2238 or Matt O'Connor (N. Iowa) at 319/352-0318, or write PF at 1205 Ilion Ave, Chariton, Iowa 50049.

Think Habitat!

Conservation Update

Youth Camps Teach Outdoor Skills

Three outdoor skills camps designed for youth will be held this summer at the DNR's Springbrook Conservation Education Center, north of Guthrie Center. The camps cover a variety of outdoor skills, training and experiences. There are a limited number of openings for each camp, and early registration is encouraged. Registration fees include all meals and air-conditioned lodging at the center.

Each of the *Outdoor Journey for Girls* and *Hunting and Conservation Camp for Boys* workshops is limited to 84 participants per session. Many Pheasants Forever chapters across the state will sponsor a number of participants and cover the \$60 registration fee. Those interested should contact their local chapter for information. Any openings available after the registration deadline will be filled on a first-come-first-served basis.

The *Outdoor Journey for Girls* (June 11-13; July 30 to Aug. 1) is a three-day program for girls ages 12 to 15, covering outdoor skills training in camping, canoeing, orienteering, fishing and certification in the Iowa hunter education program.

The *Hunting and Conservation Camp for Boys* (June 25-27; Aug. 11-13) is a new program for boys ages 12 to 15, offering training in shotgun shooting, muzzleloading, hunting dog training, furharvesting, turkey hunting, duck hunting, game calling and natural resource conservation.

This is the first year of the *Ted Nugent Kamp for Kids* (July 18-20) hosted by the Iowa Bowhunters Association and the DNR. The camp provides boys and girls ages 12 to 15 an opportunity to learn skills that enhance and encourage participation in bowhunting and other outdoor recreation. Nugent is scheduled to speak at the camp and shoot with the kids July 20. The camp is limited to 75 participants and costs \$75.

For more information on any of these camps, and for registration materials for the *Ted Nugent Kamp for Kids*, contact: Gloria Baker, Springbrook Conservation Education Center, 2473 160th Rd., Guthrie Center, IA 50115, (515)747-8383.

1997 Spring/Summer Fishing Events

The following list covers several fishing events including clinics, tournaments, camps and special events being held around Iowa this spring and summer. Contact the number listed for additional information.

County	Location	Date	Contact
Appanoose	Lehah Bradley Park, Centerville	6/7	515/856-8404
Audubon	Littlefield Rec. Area, Exira	6/7	712/563-4690
Black Hawk	Black Hawk Park, Cedar Falls	6/7	319/266-6813
Black Hawk	Lake Manatt - Hartman Reserve, Cedar Falls	6/16-17, 6/19, 6/24, 6/25, 7/8	319/277-2187
Buchanan	Fontana Park Reservoir, Hazleton	6/7, 6/12	319/636-2617
Carroll	Swan Lake State Park, Carroll	6/7, 7/19	712/792-4614
Cass	Cold Spring Park, Lewis	6/7	712/243-3542
Cerro Gordo	Sea wall - Downtown, Clear Lake	5/17-18	515/829-4418
Cerro Gordo	McIntosh Woods State Park, Clear Lake	6/7	515/357-3517
Cerro Gordo	Clear Lake, Ventura	6/9	515/357-7010
Chickasaw	Split Rock Park, Fredericksburg	6/6	515/394-4714
Chickasaw	Airport Lake Park, New Hampton	6/7	515/394-4714
Chickasaw	Cedar Lake Park, Nashua	6/8	515/394-4714
Clay	Stolley's Park, Spencer	5/23	712/993-5532
Clayton	Osborne Conservation Center, Elkader	6/7	319/245-1516
Crawford	Nelsen Park, Dow City	5/26	712/263-3740
Crawford	Yellow Smoke Park, Denison	6/7, 7/4	712/263-3409
Davis	McGowen Rec. & Wildlife Area, Bloomfield	6/7	515/664-2572
Des Moines	Kevin Gahn Wildlife Refuge, Burlington	6/7	319/753-5808
Dickinson	Spirit Lake Fish Hatchery	TBA	712/262-2469
Dubuque	Massey Marina, Dubuque	TBA	319/556-4219
Dubuque	Dubuque Miller Park	7/12	319/582-9395
Fayette	Volga Lake, Fayette	5/17	319/422-3883
Floyd	Elks Lodge Pond, Charles City	6/28	515/257-6214
Franklin	Beed Lake State Park, Hampton	6/7	515/456-3630
Franklin	Beeds Lake Park, Hampton	6/14	515/456-4903
Greene	Spring Lake Park, Jefferson	6/8	515/386-4629
Guthrie	Springbrook Education Center, Guthrie Center	6/11, 7/30, 9/12	515/747-8383
Hamilton	Briggs-Woods Lake, Webster City	5/18	515/832-4504
Hardin	Riverbend Park, Iowa Falls	7/4	515/648-9686
Henry	East Lake Park, Mt. Pleasant	6/7	319/986-5067
Humboldt	Chantland Park, Humboldt	6/7	515/332-5447
Jackson	Mills Creek Park, Bellevue	6/7	319/652-3783
Jackson	Horseshoe Pond, Maquoketa	8/16	319/652-3783
Jasper	Izaak Walton League, Co. RD F36 W., Newton	6/7	515/792-5135
Jefferson	Waterworks Park, Fairfield	6/1	515/472-3044
Johnson	Lake Macbride, N. Shore Ramp, Solon	6/8	319/644-3615
Jones	Wapsipinicon State Park, Anamosa	6/7	319/462-2761
Kossuth	Smith Lake, Algona	6/7	515/295-7275
Lee	Chatfield Park, Keokuk	6/28	319/463-7673
Lee	Pollmiller Park, West Point	7/26	319/463-7673
Lee	Wilson Lake Park, Donnellson	8/2	319/463-7673
Marion	Marion Co. Park, Knoxville	6/7	515/627-5935

Conservation Update

County	Location	Date	Contact
Montgomery	Pilot Grove Park, Grant	6/7	712/623-4753
Muscatine	Saulsbury Bridge Rec. Area, Muscatine	5/31	319/264-5922
Page	Pioneer Park, Clarinda	6/7	712/542-4587
Palo Alto	Lost Island Lake, Ruthven	6/8	712/837-4866
Polk	Easter Lake, Des Moines	6/7	515/999-2557
Polk	Lakeview, Urbandale	6/7	515/396-2611
Polk	Big Creek, Polk City	6/14	515/396-2611
Poweshiek	Lake Nyanza, Grinnell	6/7	515/236-7008
Scott	West Lake Park, Davenport	6/7	319/328-3281
Scott	Buffalo City Park, Buffalo	6/15	319/381-5017
Scott	MS River Visitor Center, Rock Island	6/28	309/794-4301
Shelby	Manteno Park, Harlan	5/25	712/755-2628
Shelby	Prairie Rose State Park, Harlan	6/7	712/773-2701
Story	Izaak Walton League Park, Ames	5/17	515/232-2516
Story	Hickory Grove Lake, Colo	6/7	515/232-2516
Tama	Hickory Hills Co. Park, LaPorte City	6/28, 7/26, 8/16	319/277-2187
Taylor	Lake of Three Fires St. Park, Bedford	6/8	712/523-2700
Wapello	Pioneer Ridge Nature Area, Ottumwa	4/23	515/682-3091
Wapello	Ottumwa Park Lagoon, Ottumwa	6/7	515/682-3091
Warren	Lester Park, Indianola	6/7	515/961-6169
Wayne	Bob White State Park, Allerton	9/13	515/873-4242
Woodbury	Browns Lake, Salix	6/1	712/233-1513
Woodbury	Browns Lake, Salix	6/7	712/255-8970

FREE FISHING DAYS

During the week of **June 2** the DNR will join with other agencies and organizations to celebrate **National Fishing Week**. The theme is "Hooked on Fishing -- Not On Drugs."

The DNR has also set aside **June 6, 7 and 8** as **Free Fishing Days** and **fishing license requirements will be waived for Iowa residents during these three days**. All other regulations apply.

Teaming With Wildlife Proposal Gains Endorsements

Eight prominent U.S. companies have recently joined the more than 350 other businesses supporting the proposed *Teaming With Wildlife* legislation, according to a news release from the International Association of Fish and Wildlife Agencies. The companies include Browning, Inc.; Crazy Creek Products, Inc.; Ellett Brothers; Madden Mountaineering; National Camera Exchange; Our Own Hardware; Suunto USA; and Wildwood Farms.

"These diverse industries share a common interest in America's lands, waters and wildlife," says Mark Van Putten, president of the National Wildlife Federation. "They have shown remarkable leadership in joining with conservationists to meet challenges we can't ignore. The National Wildlife Federa-

tion believes this is an ideal way to contribute to the wildlife and outdoor opportunities we all care about."

To date, more than 1,800 groups, including outdoor businesses and the nation's most prominent conservation and outdoor groups, have endorsed the legislation. It is anticipated the proposal will be considered by Congress this session.

Teaming With Wildlife would place an excise tax on certain products to fund state conservation, outdoor recreation and conservation-based education programs. The legislation is modeled after the Pittman-Robertson and Wallop-Breaux acts which created trust funds for state fish and game programs, through user fees on hunting and fishing equipment. Supporters believe *Teaming With Wildlife* can provide similar results for the 2,000 species not pursued by hunters and anglers.

The tax would be capped at no more than five percent of the manufacturers' price, and would apply to items such as

bird food, camping gear, binoculars, field identification guides, canoes, mountain bikes and other products. According to a study conducted by the U.S. Fish and Wildlife Service, more than 76 million Americans participated in observing, photographing or feeding wildlife in 1991, from watching birds at backyard feeders to hiking through state parks and other public lands. These people generated more than \$18 billion in related expenditures.

Annual revenue from the tax is projected to be \$350 million, and would enable states to address declines of such wildlife as songbirds, wading birds, reptiles and amphibians, and to respond to an increasing public demand for trails and other recreation opportunities on state lands.

For more information on the *Teaming With Wildlife* initiative, contact: DNR Wildlife Diversity Program, Wildlife Research Station, 2039 205th St., Boone, IA 50036 (515) 432-2823.

Conservation Update

Turn-In-Poachers (TIP) 1996 Activity Report

The Turn-In-Poachers (TIP) Program is jointly administered by the DNR's law enforcement bureau and TIP of Iowa, Inc. (a private organization). The department receives and records reports of fish or game violations through a toll-free telephone number -- (800)532-2020 -- and routes the confidential information to DNR officers for investigation. More than \$85,875 in rewards have been approved by the TIP Reward Committee since the program began in August 1985.

1996 was another busy year for TIP. Activities included:

- 336 TIP calls were processed and investigated. Those calls were subsequently assigned to local state conservation officers for investigation. 353 TIP calls were processed and investigated in 1995.
- 33 TIP calls resulted in successfully investigated cases in which 49 citations were written. This 9.8 percent success rate is comparable to past years' success rates which have varied slightly, from approximately 9 to 12 percent.
- State radio dispatchers/operators received and recorded 29 percent of the TIP calls on weekends, holidays and after-hours, while DNR

law enforcement and administrative support staff received and recorded 71 percent of the TIP calls (41 percent and 30 percent respectively).

- In 1996, the DNR law enforcement bureau, working cooperatively with Hy-Vee Food Stores, Inc., produced and circulated approximately two million plastic grocery sacks displaying the TIP logo, 800 number and message.
- DNR law enforcement also established a "home page" on the World Wide Web with TIP information, including history and a description of the private TIP of Iowa organization.
- \$4,825 was approved by the TIP reward committee for payment to informants on successful cases in 1996.
- 6,243 total TIP calls have been processed and investigated with a total of 1,428 citations issued since August 1985.

For more information contact Steve Derrand, Law Enforcement Bureau, Wallace State Office Building, Des Moines, IA 50319-0034; (515)281-4515 or view the website at www.state.ia.us/dnr.



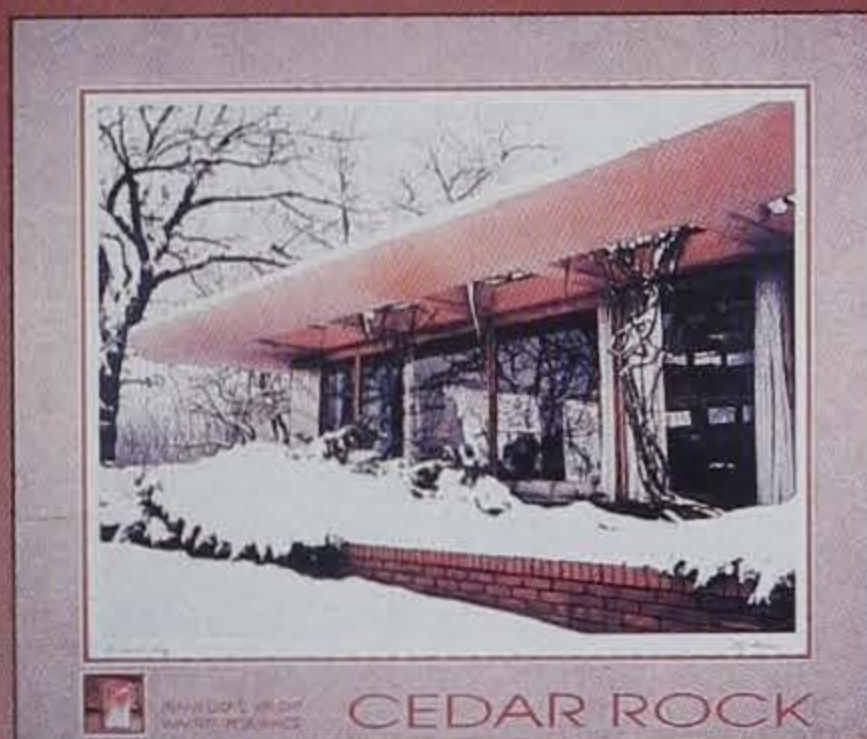
Barb Gigar, training officer 3 in the DNR's Information and Education Bureau, received Governor Branstad's Star Award for 1996, the highest honor the Governor issues to a state employee. Only six awards were given in 1996, three to individuals, like Gigar, and three to employee teams. Up to ten can be given in a year, but only six were chosen from the 47 nominations, indeed an honor for those few. Governor Branstad and Lt. Governor Joy Corning presented the award at the Star Awards luncheon in Des Moines.

Gigar, stationed at the Springbrook Conservation Education Center, is in charge of the DNR's Aquatic Education Program, and her exceptional performance in that capacity is the reason she was chosen. Among her responsibilities is the coordination of the following programs: *Fish Iowa!*, *Project WILD*, *Project WILD Aquatic*, *Project Learning Tree*, and *Hooked on Fishing - Not on Drugs*. She has developed support materials for each of these, and continues to reach hundreds of teachers and thousands of students each year with the programs.

New, Updated *Outdoor Adventure Guide Available*

The Iowa Association of County Conservation Boards has an updated version of their *Outdoor Adventure Guide* covering 1,464 areas. The IACCB guide contains a map of each county and the location of all county parks. County-by-county charts list boat accesses, trails, camping, sports fields, hunting areas, nature centers, wildlife exhibits, swimming areas and other attractions.

The guide is available for \$7, including shipping, from the IACCB, Box 79, Elkhart IA 50073, (515)367-4000.



Iowa photographer Tim Florer of Cummings has created a limited-edition, numbered print of Cedar Rock the Frank Lloyd Wright designed house in Quasqueton. The prints (1 to 1000) and signed artist's proofs (1 to 100) sell for \$20 and \$35 respectively, including tax. All prints can be purchased directly through Cedar Rock, Box 175 Quasqueton, IA 52326, (319)934-3572. Orders must be accompanied by check or money order. Cedar Rock is open 11 a.m. to 5 p.m. Tuesday through Sunday from May 1 to Oct. 31.

How Fast Can Peregrines Really Fly?

People have long been fascinated with the flight speed of birds, especially the "fast" ones, and popular literature has often put the peregrine falcon at the top of the heap, according to Lowell Washburn, DNR information specialist.

"Estimates have placed the speed of a diving falcon as fast as 180 to 200 mph," says Washburn. "The response by the general public has been 'Wow! That's really fast!' The response from scientists, however, has been 'Oh yeah - prove it!' Well, after decades of speculation and on-going debate, there is at last proof of the falcon's speed, information so good it would stand up in court."

Scott Wright, a volunteer who works with peregrines in Ohio, used a calibrated radar gun to run a "speed check" on a diving falcon. Wright clocked a tiercel peregrine as it executed an unsuccessful, closed-winged dive on a pigeon flying

under the falcon's nest at the Terminal Tower in Cleveland. The falcon was clocked at an amazing 261 mph. The pigeon was less fortunate on the peregrine's second attempt.

Washburn says Wright also measured the speed of several peregrine prey species. The fastest chimney swifts flew at 86 mph, barn swallows were clocked at 75mph, and pigeons as fast as 36 mph.

Iowa's peregrine recovery program began in 1989 when nine peregrines were "hacked" atop the 12-story Telecom/USA building in downtown Cedar Rapids. From 1989 to 1992, 49 falcons were released at three urban sites across the state. Iowa currently has two active nest sites, one each in Cedar Rapids and Des Moines. The goal is to establish 10 nesting pairs in Iowa by the year 2000.

For more information contact Pat Schlarbaum at the Boone Wildlife Research Station, 2039 205th St., Boone, IA 50036 (515)432-2823.

Upcoming NRC, EPC and Preserves Board Meetings

The dates and locations have been set for the following meetings of the Natural Resource Commission, Environmental Protection Commission and the Preserves Advisory Board of the Iowa Department of Natural Resources.

Agendas for these meetings are set approximately 10 days prior to the scheduled date of the meeting.

For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, IA 50319-0034.

Natural Resource Commission:

- May 8, Muscatine
- June 19, Decorah
- July, no meeting
- August 14, Storm Lake

Environmental Protection Commission:

- May 19, Des Moines
- June 16, Des Moines
- July 21, Des Moines
- August 18, Des Moines

State Preserves Advisory Board:

- June 10, Hardin County



Life Jackets

THEY FLOAT. YOU DON'T.

A Public Safety Message from the National Safe Boating Campaign





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Metropolitan Property and Casualty Insurance Company
and Affiliates, Warwick, RI

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Warden's Diary

"Real Southern Fishing"

While doing this job, I've been able to work on a lot of different waters, and I've been able to see a lot of different fishing. Rivers, streams, lakes and even some spots that didn't look like much more than large puddles — I've worked them all, fished most of them and enjoyed some great fishing.

But nothing, *absolutely nothing*, that I've seen or done compares with the farm pond fishing I did while I was growing up in southern Iowa. Besides being the most beautiful part of Iowa (in my very unbiased opinion), it has, hidden away, some of the state's finest fishing — if you know where to look for it.

I learned to fish down there. Best of all, I learned how to stalk bluegill and crappie with a fly rod. There were several old railroad ponds on the edge of town, all within bicycle range, just full of these fish.

Many times in those early years I'd head out on my bike and spend hours with friends or my dad throwing small flies on the water, letting them sit a while and giving them a little shake. All of a sudden, "wham," a bluegill would hit it like a shark, and the fight was on. We didn't care how big they were — a lot of them even ended up back in the water. We just had fun. "Just having fun," isn't that still the point, one we sometimes forget?

Anyway, I soon graduated to bigger game and a bigger league. Yes, that's right — largemouth bass fishing, farm pond style. This was, and still is, the *ultimate*.

The tackle I used was very simple. All it took was a stiff rod from the local hardware store and a Zebco reel. Terminal tackle was a Johnson weedless silver spoon, which my dad was an expert at sweetening with some pork rind, a nightcrawler, a beetle-spin, and for those still, evening hours as the sun set, a hula popper or a jitterbug.

Although varying in size, almost all the ponds were similar. The technique, especially as the sun was setting, was to approach slowly and quietly past the canary grass, and look for the tell-tale "rises" indicating bass were available and hungry.

A lot of the ponds were small enough I could cast a jitterbug almost to the far shore. I'd drag it completely across the surface, very, very slowly, as the lure left its ever-widening wake. Suddenly, without warning, the bass would literally jump on the lure trying to devour it. Some of these bass were, well... how to describe them? BIG!!! Man, oh man, what could be more fun than to fight a big one across the pond, watching it jump, clearing the surface?

Sometimes the pond would yield a bonus. One time I was standing at the edge of one of my favorite ponds hauling a beetle-spin through the water, when I heard a rustling in the grass beside me. I looked over and a badger, no not the groundhog everyone calls a badger but a *real* badger, stuck its face out and looked at me. I dropped everything and ran for the

car. Why, you ask? If you ask, then you've *never* encountered badgers up-close-and-personal before.

Still, the most fun for me was going back out with a fly rod — especially one tipped with a small popper. A quick jerk of the popper on the quiet water produced the splash and the "thwoop, thwoop," sounds tantalizing to even the laziest of largemouths. To fight and land a bass on fly tackle is... well... you'd have to be there to know because it's beyond mere words.

For a bit of diversion, my brother and I would take out a canoe in search of bullfrogs. For those of you in other parts of the state who have never sat back listening to the deep croak of a bullfrog, it's also hard to put into words. You just have to hear it for yourself to know. It's another of nature's indescribables. We would arm ourselves with a cane pole, short line and a treble hook with a piece of red cloth.

Quietly paddling the Herter's canoe, which has to be the world's heaviest canoe, we would search the shoreline looking for that telltale "green slab" with maybe just the two eyes sticking out of the water. The "lure" would be dropped in front of the bullfrog. Again, I applied a little twitch -- just too much for the frog to resist. With a speed much too fast to be believed for something so clumsy looking, the bullfrog sprang with those giant legs onto the lure. A quick jerk backwards (often almost tipping over the canoe), landed the croaker into the boat. Later, mom would have those frog legs literally hopping again only this time in the skillet. They were a delicacy rivaling the finest dish found anywhere. One of the saddest days of my life was when my brother left for the Air Force, and somehow I knew our frog hunts might not come again for a long time.

I too, grew older. Other priorities got in my way. I've not been back to fish my old haunts for quite a while (obviously I need to rearrange my priorities)! Funny how work can interfere with your personal life. No matter where I go those places will forever be "home."

Where are those places, and can you go with me?

Well, to answer that, I would have to quote my neighbor. He's someone who lives just down the street from where I grew up, someone I still consider the greatest and most knowledgeable angler of all times. Whenever he returned with a stringer of bass or catfish he'd just smile and say, "caught them in a pond." That's the best answer I can give you. "Real southern fishing, caught 'em in a pond," I say as I smile. Get out there yourself and you'll soon be smiling and saying it too.

by Chuck Humeston

Parting Glance



Roger A. Hill

**“They always say two heads
are better than one.”**

