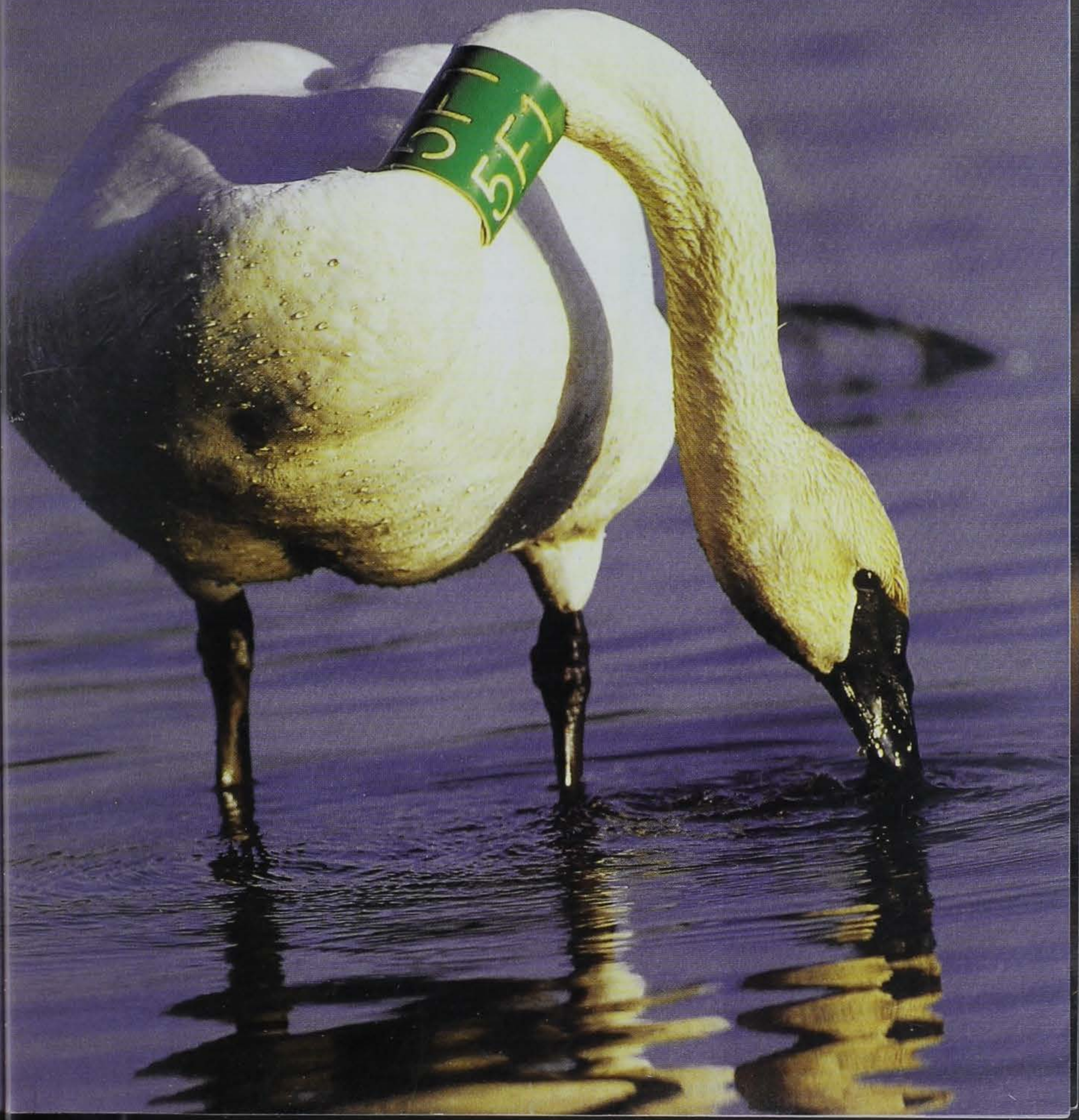
JANUARY/FEBRUARY 2002

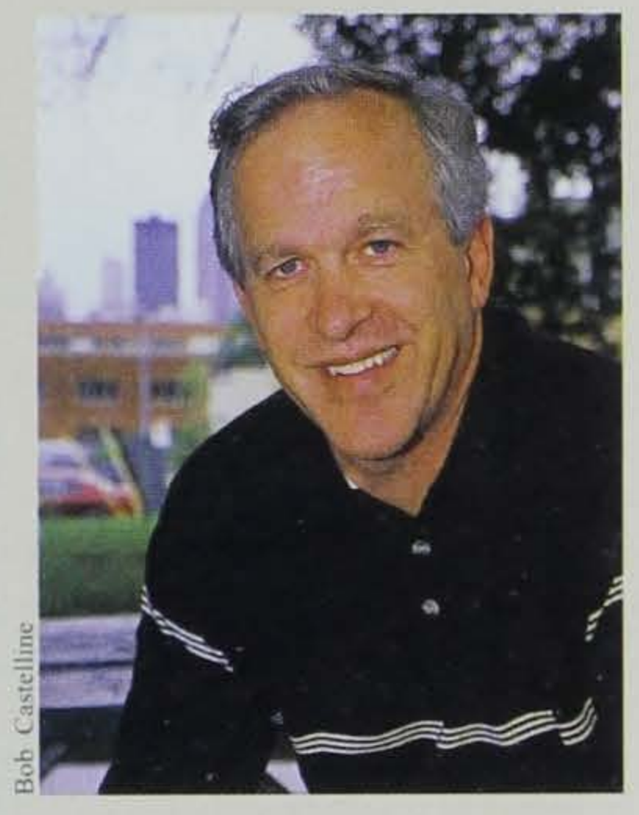
IOWA CONSERVATIONIST

DEPARTMENT OF NATURAL RESOURCES



From the Director

Department Reorganization



Bob Castelline

The strength of DNR is in working directly with Iowa's citizens who, like so many of us within this agency, have a genuine interest in improving the quality of Iowa's natural resources and environment. I believe we can better achieve our goals and serve this state by breaking down "bureaucratic walls" and increasing the opportunities for DNR staff to interact one-on-one with Iowans.

That belief is guiding a reorganization of the DNR to move as many people as possible out of government office buildings in Des Moines and closer to the businesses, the fields and, yes, sometimes even into the kitchens of the people we serve. This is Iowa, and its citizens know that more often than not, the best solutions to some of their problems can be found over a cup of coffee with people they know, rather than through letters and phone calls to officials in Des Moines.

Our reorganization will consolidate the current seven divisions to three new ones: Management Services, Living Resources & Recreation, and Environmental Services, with the latter two being the divisions most visible to the public. Management Services is the administrative arm of the department dealing with budget, finance, licensing, land acquisition and construction. Living Resources and Recreation will combine bureaus currently within our Fish & Wildlife, Forestry and Parks & Recreation divisions, which deal with closely related issues.

But the biggest internal change — and the division where about 130 positions will eventually be moved from Des Moines to the field — is in the Environmental Services Division. This division will be created by combining bureaus from within the existing Environmental Protection, Energy & Geology, and Waste Management & Land Quality divisions.

About 70 percent of the current Environmental Protection Division is headquartered in the DNR's central offices in Des Moines. Contrast that with our fisheries bureau, that has less than four percent of its staff in Des Moines. By shifting more environmental workers from Des Moines to the field, we can provide more hands-on environmental assistance. This shift will happen over several years.

Another component of reorganization is implementing better management principles, such as improving the ratio of supervisors to employees. In state parks, for example, the current ratio is one supervisor to three employees. This will change to a ratio of one to 13, with the following improvements: increased visibility of law enforcement in parks; more employee time at parks versus driving between them; and better overall customer service for an enjoyable and safe park experience.

Better service to Iowans is our goal, but we are also meeting the need to become more efficient, saving about $500,000 a year in annual salary costs by reducing the number of "upper management" positions within the department. No layoffs of "frontline" workers are anticipated at current funding levels.

Out of our challenges come opportunity. Given the quality of people we have in Iowa and the commitment within this department, this reorganization plan is a recipe for a better environment and a stronger Iowa. I look forward to an exciting future working with you to improve and enjoy Iowa's natural resources.

Jeffrey R. Vonk

IOWA CONSERVATIONIST

FRONT COVER: TRUMPETER SWAN BY LOWELL WASHBURN.

BACK COVER: SNOW COVERED BUR OAK AT SPRINGBROOK STATE PARK BY TOM ROSBURG.

Departments

Features

Foster a Forest Legacy

HAVE YOUR LEGACY PLANTED ON A STATE FOREST **1-800-865-2477**

For Land's Sake

START A LIVING LEGACY FOR FUTURE GENERATIONS . . .

NATIVE HARDWOOD FOREST
These 500 trees will consist of a variety of oaks, walnut and other hardwood species. This will plant an acre of native Iowa hardwood forest that will provide diverse benefits of clean air, clean water, and wildlife habitat.

TURKEY PACKET
This packet of 200 trees and shrubs will improve the area for wild turkey food and cover. Packet includes 50 each of Bur Oak, Red Oak, Hazelnut, and Gray Dogwood. Recommended by the Iowa Chapter of the *National Wild Turkey Federation.*

PHEASANT AND QUAIL PACKET
You can provide important winter cover with this packet of 200 trees and shrubs selected for pheasants and quail. Packet includes 50 each of Red Cedar, Wild Plum, Ninebark, and Common Lilac. Recommended by *Iowa Pheasants Forever* chapters.

Iowans today enjoy the trees left by the generations past. The Forests and Prairies Division will help you leave a legacy of trees and woodlands for the future.

One of the best parts about being a grandparent is spending time with grandchildren sharing the things I enjoy. As State Forester, I realize the forest and prairie legacy of Iowa will be something future generations will enjoy together if we invest time in the trees and prairies today. From backyards to acreages, stream buffers to living snow fences, you can make memories by planting trees and prairies. Invest in that legacy and make it healthy and vigorous – *for land's sake*. The best time to plant a tree is 10 years ago – the next best time is now.

Michael E. Brandrup, State Forester

If you need a place to plant a legacy of trees and woodlands, you may want to *Foster a Forest Legacy*. This program will allow you to start a living legacy in your name at one of the three state forests listed below. Just choose the forest, then decide on the size of your legacy planting. For only $200 we will plant an acre of native hardwoods, or for $65 we will plant the wildlife packet of your choice, listed at the left.

The Iowa DNR will honor your living legacy by placing your name on a plaque displayed in the forest headquarters of the forest planting. Your legacy planting will be mapped, enabling you to visit the planting site. We will also send you a certificate of appreciation for your dedication to the forest resources.

The state forests involved with the *Foster a Forest Legacy* are:

YELLOW RIVER STATE FOREST in the bluff country of northeast Iowa is a highlight of fall colors plus trout fishing, hunting, trails and camping.

STEPHENS STATE FOREST in south central Iowa features trails, camping and hunting opportunities.

LOESS HILLS STATE FOREST in western Iowa has examples of prairie, savanna, and woodland management using prescribed fire.

To participate in the FOSTER A FOREST LEGACY call the State Forest Nursery
1-800-865-2477

Letters

Writer blames predators for pheasant decline

After reading warden Doug Clayton's (east Pottawattamie County) annual roadside count (two pheasants in his regular 30-mile run), I wonder if proper habitat is the only problem huntable wildlife has. When he recorded his 19-year experienced count (99 pheasants in 30 miles), he stated Iowa has (sic) 2.2 million acres of CRP (great) and now 1.8 million (not that much less). Where have the birds gone? I really believe it is too many predators. This farmer has observed a big increase in raccoons, possums and skunks over just a short period of time. Okay, I read fur prices are very low and nobody takes the time to teach the next generation it's fun and all right to trap anymore. I believe one of the worst predators is the protected red-tailed hawk. This year I and many other farmers have observed three, four or five hawks hunting while working the fields for plantings (way more than past springs). If you think a hawk can't get a nesting pheasant or quail you haven't spent enough time in the outdoors. Instead of Pheasants Forever screaming for more habitat I wonder if their dollars would be better spent on predator control (bounty on coyotes, coons and such). I know they are protected but it certainly is tempting to start eliminating the precious red-tailed hawk. Enough of one old farmer's thoughts, but I sure hate to think that the only birds my grandchildren may hunt are ones that are preserve-raised and bought.

Ward Koos
Walnut

Thanks, but no thanks

Why publish a beautiful, timely, natural, attractive calendar with (daily) digits so tiny and faint, that older subscribers like me must be within four or five feet of the calendar, in order to be sure of the day of the month.

My local pet hospital's calendar has bold font digits about a quarter of an inch vertically. It wouldn't be space-wasting to number the days with bold-face digits 3/8ths (of an inch) high.

Sixty years ago our bank calendar displayed digits using most of the 1 1/2-inch by 1 1/2-inch daily square.

Your beautiful calendar for 2002 now lays stacked with similarly printed calendars, a dozen or more thus far this year, from various other promotional charities and/or institutions.

Respectfully,
E. F. Winter
Cedar Rapids

The *Iowa Conservationist* welcomes letters from readers. Printed letters reflect the opinions of the author. Letters may be edited for length and clarity.

January/February 2002
Volume 61, Number 1

Iowa Conservationist (ISSN 0021-0471) is published bimonthly by the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034. Periodicals postage paid in Des Moines, Iowa and additional mailing offices. **Subscription rates: $12 for one year, $18 for two years and $24 for three years. Prices subject to change without notice.** Include mailing label for renewals and address changes. POSTMASTER: Send changes to the *Iowa Conservationist*, Department of Natural Resources, Wallace State Office Building, 502 E. Ninth Ave., Des Moines, Iowa 50319-0034.

A Matter Of Quality

by Jack Riessen

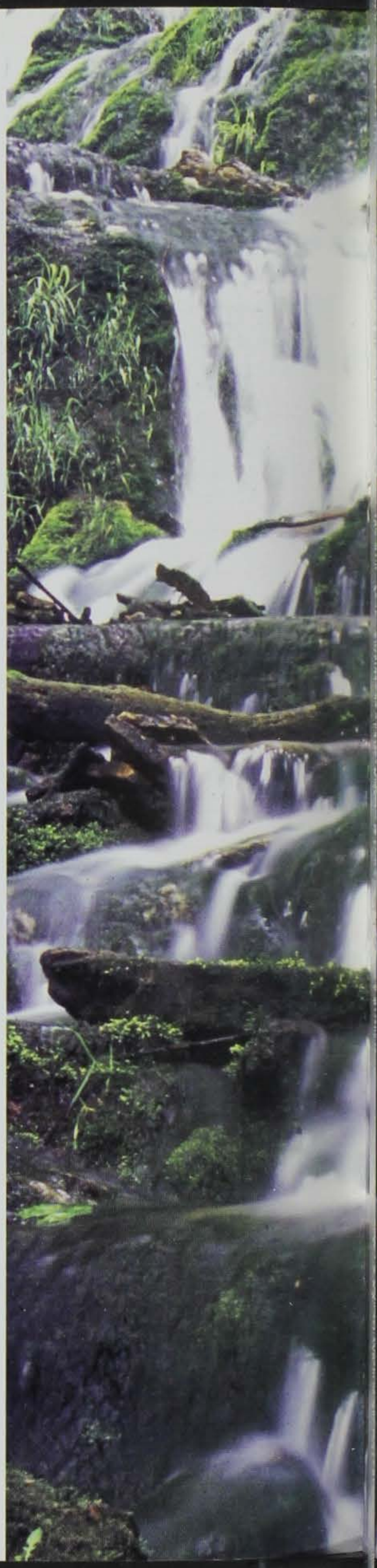
Like the "half full" or "half empty" glass, the quality of Iowa's water resources is a matter of perspective.

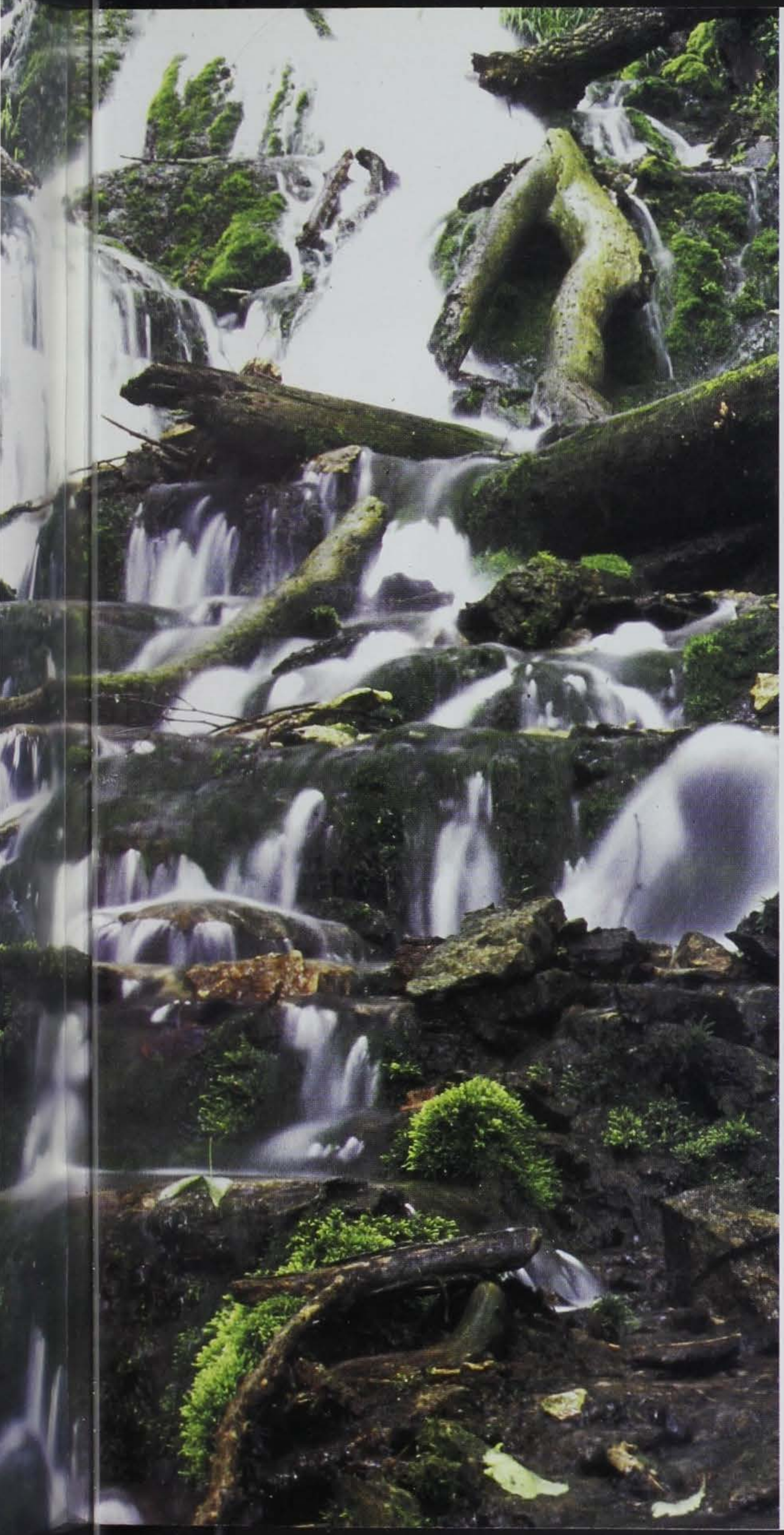
The half-empty view is that the quality of the resource is poor compared to a century or more ago. The diversity of fish and aquatic organisms has declined — some aquatic species have nearly disappeared while other, more pollution-tolerant, species have increased.

Invasive and exotic species like the common carp and purple loosestrife have also taken a toll. Iowa's mussel population, at one time one of the world's richest and most diverse, is declining rapidly and may be headed toward extinction. Submergent aquatic vegetation, once plentiful in many streams, has all but disappeared along with several dependent fish species. And no one in his or her right mind would drink untreated water from a lake, stream or river as a settler might have. These are the footprints of civilization and everyone from the farmer to the suburbanite to the city dweller has played a part.

On the other hand, the half-full view would hold that things are improving compared to 50 years ago. The gross and highly visible pollution caused by untreated sewage and packinghouse waste being dumped into rivers has been curbed. Persistent and dangerous chemicals like PCBs, DDT, chlordane and dieldrin are no longer used.

With a few exceptions, agricultural pesticides used today are less persistent and less toxic. Farmers have adopted tillage practices that minimize soil loss, are doing a better job of managing pesticides and fertilizer, and have created or restored thousands of acres of





wetlands. And more and more citizens have taken an interest in our water resources and are forming locally-led, watershed based, water quality improvement projects.

Our lakes, rivers and streams are a reflection of what happens on the land. In the process of creating the world's most productive agriculture system with abundant and cheap food, we tilled the prairie sod, drained wetlands, straightened streams, cleared bottomland forests and put in thousands and thousands of miles of tile drainage. All these activities reduced the quality and diversity of aquatic habitat, changed the hydrology of streams and rivers, increased pollutant loads, and sent our rich topsoil to the Gulf of Mexico.

With 60 percent of Iowa's land in intensive row crop production, even very small amounts of pollutants leaving a cropped field can have a cumulative, significant effect on water quality. Manure from livestock operations is carried off the land with rainfall. Most pesticides used on crops inevitably find their way into the water in some form and in some amount, albeit small, no matter how carefully they are applied. Nitrogen and phosphorus levels in our waters are some of the highest in the world – too much of a good thing. Aquifers, our underground lakes, are showing signs of overlying land use with increasing levels of nitrates and detectable levels of pesticides in the shallower, more vulnerable aquifers being reported. Urban areas only cover 1 percent of our land area, but urban sprawl continues and brings its own water quality problems.

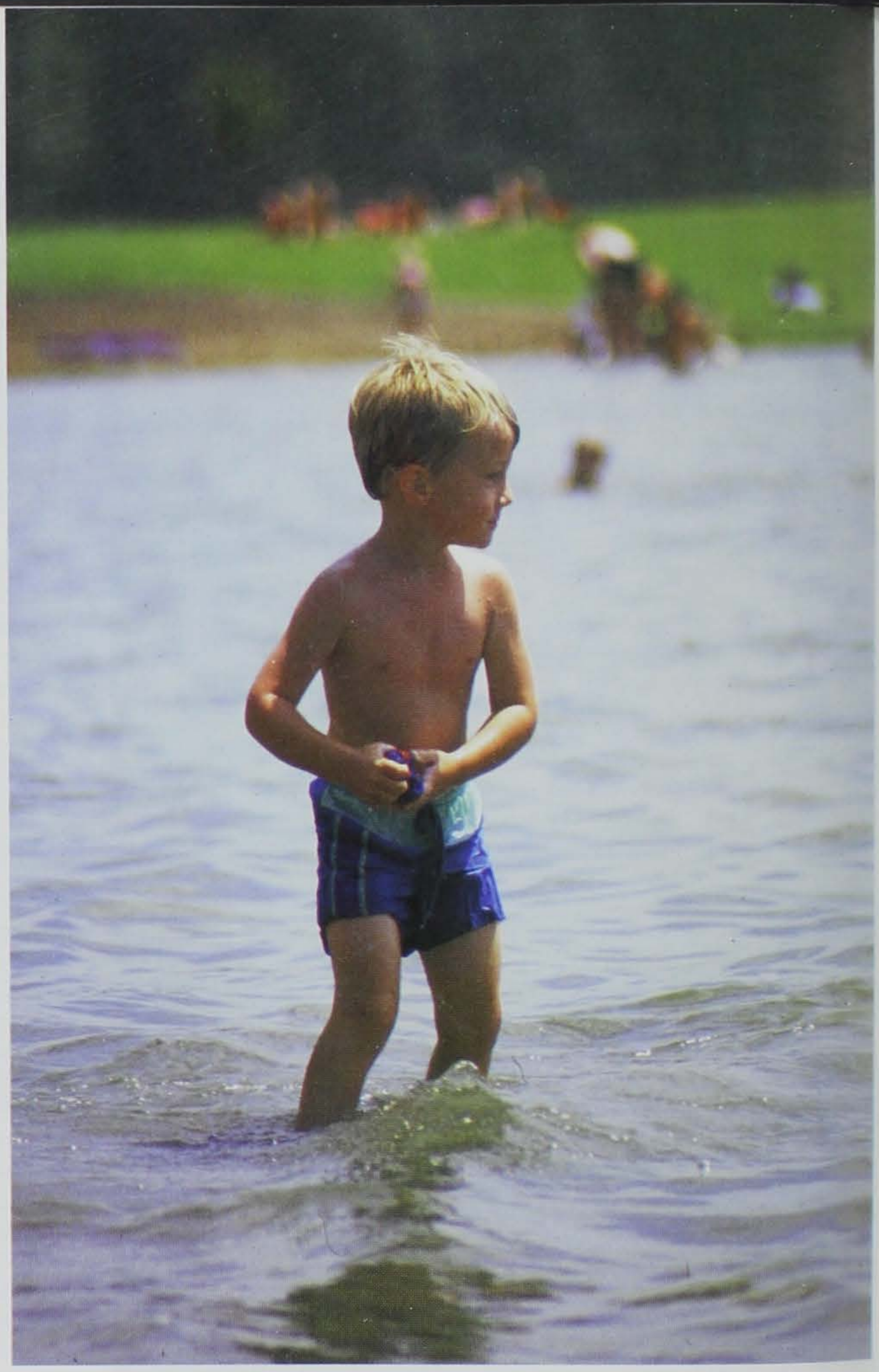
Many believe things are now improving, but documenting improvement or decline is difficult because of

the complex nature and natural variability of water quality. Iowa has just begun to develop a comprehensive water quality monitoring program, so many water quality questions cannot be answered with certainty.

In spite of the lack of long-term water quality data, some general observations can be made from what is available.

Iowa has never had a large industrial base and the persistent, toxic industrial pollutants that contaminate sediments in many states are not a significant problem in Iowa. A few localized problems exist, but these are being addressed.

Almost all surface waters and many shallow groundwaters have detectable levels of pesticides or their breakdown products, called metabolites. These levels, measured in parts per billion or trillion, rarely exceed or are even close to the levels of known health concerns. However, not a lot is known about the long term health effects of drinking water with low levels of these compounds or the combined effects of these chemicals. Newer generation pesticides break down faster and are less water soluble than the older ones, but their metabolites are longer lived and are often detected in water when their parent compounds are absent.



Fish tissue testing, conducted annually since 1980, shows almost all Iowa fish are safe to eat. Only three small areas have fish consumption advisories in effect all involving bottom feeding fish, due to contamination from chlordane and PCBs. Both chemicals that are no longer used, and levels of chlordane and PCBs in fish tissue are decreasing statewide.

The levels of mercury found in fish tissue are below the levels of concern, but may be slowly increas-

ıg. It is believed that air deposition 'om the burning of fossil fuels is the ıain contributor. Some of Iowa's eighbors have issued fish consump- on advisories due to mercury ontamination, but Iowa's soils seem) provide a buffer against high levels f mercury in water.

Iowa waters have some of the ighest levels of nitrogen and phos- horus, both essential nutrients for quatic life, in the world. Iowa's aturally rich soils and use of fertiliz- rs are the primary cause, although omestic wastewater discharges also ontribute to the problem. High evels of nutrients lead to excessive lgal blooms that increase turbidity, reate problems for drinking water eatment and lower oxygen levels hen the algae decompose. Iowa is major contributor of nutrients that ause the so-called dead zone in the ulf of Mexico.

In some Iowa river basins, the evels of nitrate have roughly tripled ı the last 50 to 60 years. It is elieved the increased use of syn- ıetic fertilizers and additional tile rainage is largely responsible for the ıcrease.

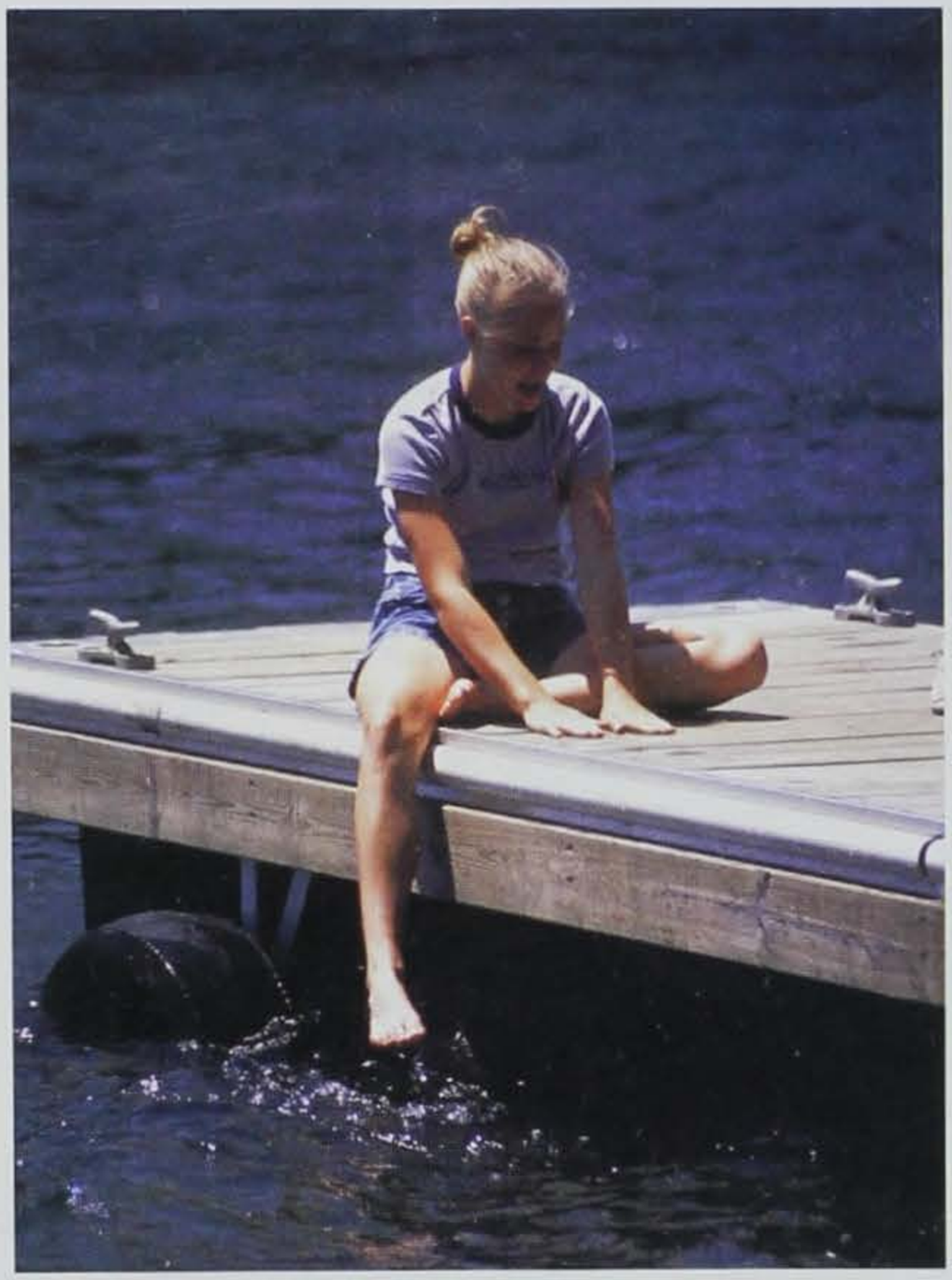
Biological surveys of fish and enthic macroinvertebrates, the insects nd other organisms that live on the ottom of the stream and are an mportant part of the aquatic ecosys- em, show most streams have relatively ealthy populations of aquatic organ- sms. Impaired aquatic communities re more often the result of habitat roblems than chemical water quality roblems. Channel changes, stream- de grazing and removal of native parian vegetation are some of the ıain culprits.

Rough fish such as common carp eed on the bottom of streams and shallow lakes, re-suspending accumulated sediment and nutrients that then become available for plant growth. Elimination of rough fish is often more important to improving the quality of shallow lakes than reducing the level of nutrients and sediment coming into the lake.

Fifteen years ago, only 6 percent of the 118 stream sites examined for mussels had no living mussels. A recent survey showed 47 percent of those same sites had no living mussels, an alarming decline. Mussels are long-lived and have a complex life cycle, so the cause of the decline could be due to many factors, including habitat, changes in stream hydrology, sediment, pesticides and the level of nutrients. Several sites are bucking this negative trend for as yet unknown reasons.

Iowa's surface waters contain minute amounts of antibiotics and synthetic compounds of various forms, such as birth control products and manufacturing chemicals. Some antibiotics may be from animal confinement operations but others are from human use, being passed through domestic wastewater treatment plants largely intact. Studies have suggested that low levels of antibiotics may result in antibiotic resistant bacteria and that some synthetic compounds affect the human endocrine system, but proof is lacking.

Soil loss is still one of the major causes of water quality problems in Iowa. Losses from fields (sheet and rill erosion), gullying and streambank erosion all contribute to the relatively high sediment loads in streams and rivers. Several western Iowa rivers have some of the highest sediment loads in the world and sediment accumulation is a main cause of lake problems. Anecdotal evidence indicates better tillage practices are improving the situation, but there is no long term monitoring data to prove this. Phosphorus typically attaches to sediment, so controlling soil loss



helps control the level of phosphorus, a key nutrient, in our streams and lakes.

Zebra mussels, a non-native species introduced though Great Lakes shipping, are found virtually everywhere along the Iowa portion of the Mississippi River and are having a significant impact on native species. They attach themselves to native mussels as well as water intakes and any other hard object that is available. Zebra mussels have not been detected on the interior streams or lakes but could spread.

All of our streams and lakes are contaminated with varying amounts of fecal matter. The sources include us (inadequate septic systems and wastewater treatment plants), wildlife, pets, and livestock. Indicator bacteria, which typically do not cause disease in humans, are used to detect the presence of fecal matter that may include pathogenic bacteria, viruses and protozoa. The levels of indicator bacteria in lakes, streams, and rivers typically climb sharply after rainfall, as it washes fecal material off of the adjoining land. Although it is not uncommon for the levels to exceed current standards for swimming, there is no documentation to-date that water-borne diseases are a problem in Iowa.

Iowa's water quality glass is, in fact, both half empty and half full. The quality of Iowa's water resources is not as dire as some would have you believe, but there certainly is room for improvement. Overall, sediment and nutrient levels are still the most commonly identified water quality problems – significant reductions in the amount of those pollutants is needed to improve our waters.

Habitat improvement, such as establishing riparian vegetation and restoring additional wetlands, is also a key to improving aquatic life. The risk of small amounts of pathogens, pesticides and their metabolites, endocrine-disrupting compounds, and antibiotics also need a closer look, including continued monitoring and additional research.

What is water quality and how do we measure it?

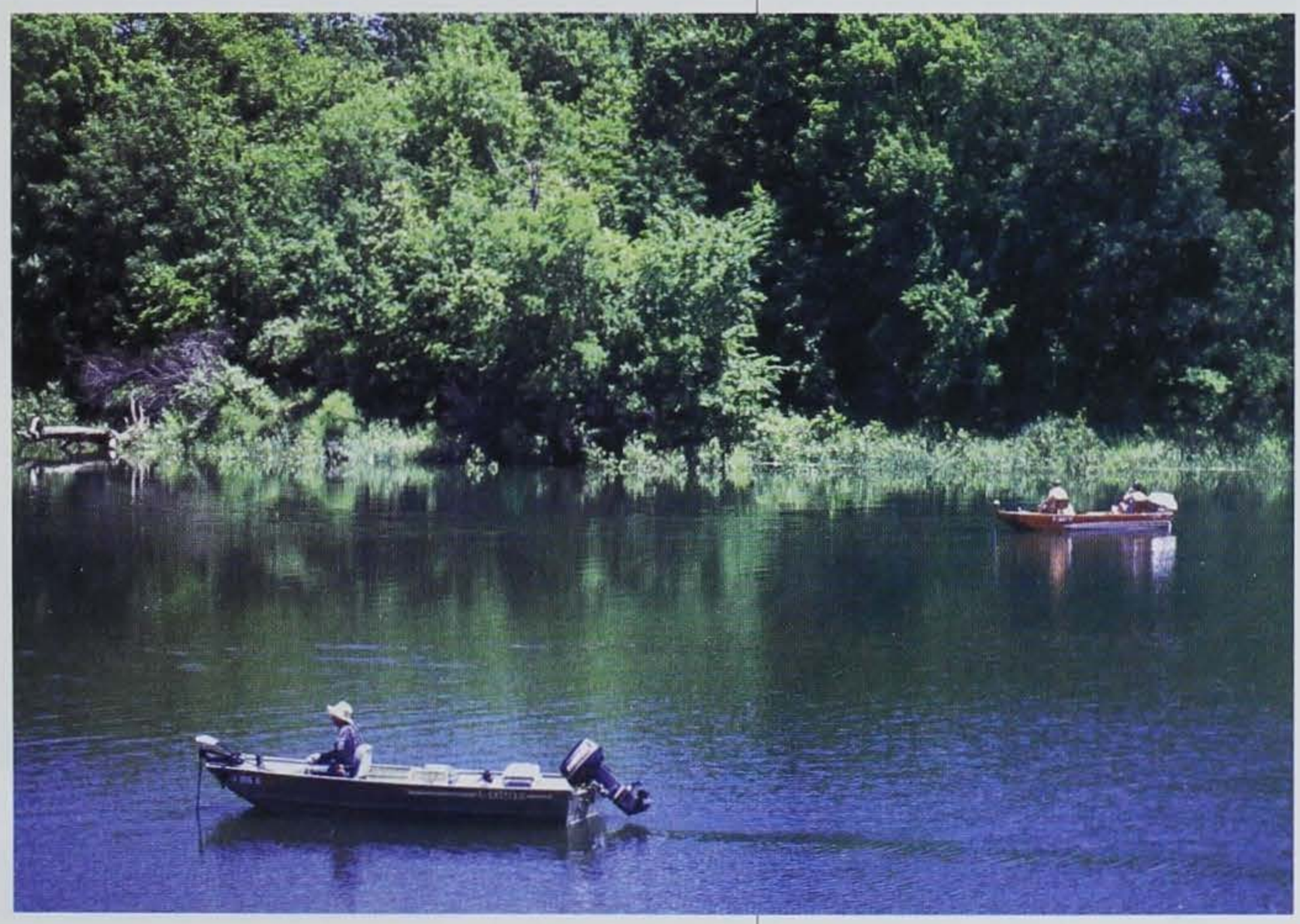
Many have their own idea of what good water quality is. An outdoors enthusiast may picture a clear mountain stream as ideal. To a water treatment plant superintendent, clean water is water that can meet drinking water standards without extensive, and expensive treatment. A swimmer wants clear water with minimal risk of sickness if he or she swallows the water. A fisherman wants a diverse and plentiful supply of game fish. All are right in some sense. But that clear mountain stream may have little aquatic life due to high levels of dissolved metals and cyanide, a legacy of mining. Or, it may have high levels of pathogenic protozoa such as giardia from wildlife in the watershed. On the other hand, a "muddy" midwestern river might have a healthy and diverse aquatic population and be safe for swimming, if a little dirty. Perceptions and anecdotal evidence are important, but more objective measurements are needed to develop pollution control programs and to determine if they are working.

Given the many, and sometimes contradictory, aspects of water quality, developing a single, common "good versus bad" water quality indicator is a virtual impossibility. Instead, the federal Clean Water Act, and most states, measure water quality in terms of a water's existing or potential uses. States classify waters by these uses – with recreation, aquatic life, and drinking water being the three primary use classifications. States also adopt water quality standards to protect those uses. For instance, Iowa has adopted

meric limits for ammonia, which is toxic to fish. If monitoring data show the levels of ammonia routinely exceed the established limits, the stream would not fully support its aquatic use classification and would be considered "impaired." Numeric limits have been adopted for over 80 chemicals or compounds. The standards account for different types of uses (for instance, the ammonia limits for coldwater trout streams are more stringent than for warm water streams), acute versus chronic toxicity effects, and physical parameters like temperature and pH that can affect the toxicity. The standards also include narrative provisions, such as "...free from floating debris, oil, scum, and other aesthetically objectionable conditions."

Water quality standards provide the current best "yardstick" for measuring water quality. Every two years, the DNR publishes a report, known as the 305b report, that assesses whether waterbodies support their uses, based on monitoring data as well as best professional judgement. Many states, including Iowa, are constantly reevaluating their standards and trying to improve them. But even with good standards and ample monitoring data, quantifying water quality with scientific certainty remains an elusive task. Many states recognize this limitation and the issue has caught the attention of Congress and other policy makers, as programs increasingly call for better and more objective measurements of water quality.

— *JR*



Jack Riessen is the water quality bureau chief for the department in Des Moines.

Background Information

Collecting baseline information on Iowa's water resources helps identify problems and find solutions

by Stefanie Forret

Iowans rely on water every day, whether it be for drinking, bathing and washing, or for recreating such as boating, swimming and fishing. Water is an important part of our daily lives, and it is difficult to imagine life without it.

With all those uses, surely someone is keeping tabs on the quality of our water resources? Someone who knows what our water *should* look like?

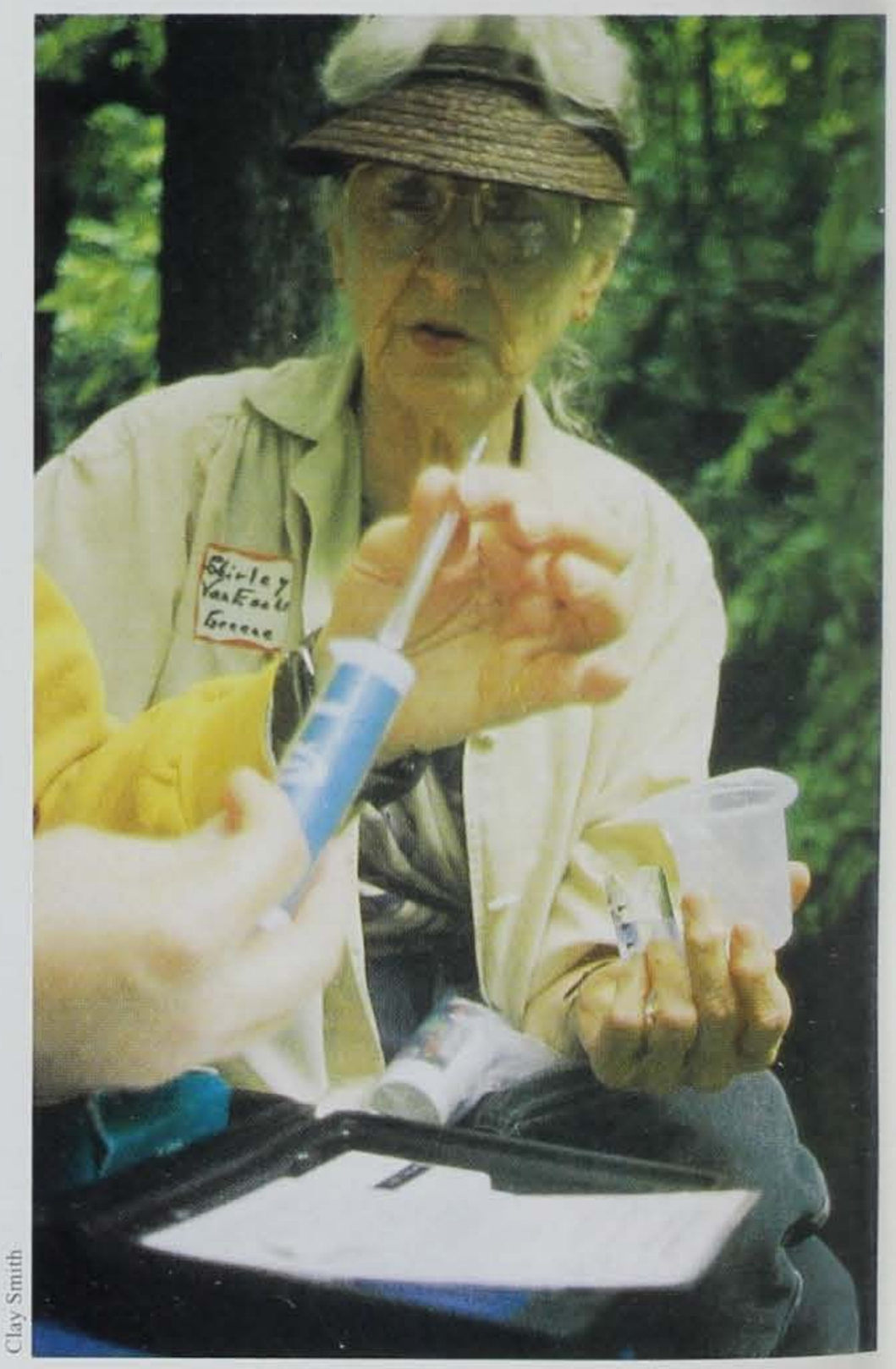
That's the focus of Iowa's Ambient Water Monitoring Program. The mission of the program is to collect baseline, or background ("ambient") data on the condition of Iowa's surface and groundwater resources, so their health can be tracked over time. It also ensures appropriate information is available to guide resource management policies and decisions. The process must be ongoing and continual, because it is difficult – if not impossible – to draw conclusions regarding the health of our waters based on a single year's data.

Ambient water monitoring can be compared to an annual physical examination. If your family physician knows what your health has been in the past, it will be easier to notice any changes, and then fix any ailments that arise. Similarly, when the DNR knows what the quality of a given water body should be, it is easier to identify impairments and develop solutions for existing water quality issues.

The mission of the ambient program is sometimes difficult to understand. "Oftentimes, people don't understand that our program is meant to gather information," said DNR research geologist Mary Skopec. "They understand what they see in the news – there are high bacteria levels at this beach or there was a fish kill in this river. The immediate response is, 'Why aren't you cleaning this up?'"

The program does in fact share information with regulatory areas of the DNR, for instance, often with administrators of the Total Maximum Daily Load (TMDL) program – whose job *is* cleaning up impaired waters in Iowa. The TMDL approach can be compared to the tests a physician would perform if you were to come to him or her and complain of a specific problem. If you complained of "stomach pains," the doctor would ask pointed questions and run targeted tests to diagnose the cause of your pain. TMDL administrators determine the cause of water problems in the same manner; a general problem is recognized, and intensive, focused measures are used to identify its source.

The job of ambient monitors,



Clay Smith

Clay Smith

owever, is not to regulate nor clean p contaminated water sources. "If 've find a problem that needs attention, of course we inform the appropriate people," Skopec added, "but hat is not our primary purpose." The mbient program allows the state to est not only those waters identified s impaired but also those not known have any problems. This way, an ccurate picture of the total water uality across Iowa can be achieved.

DNR water quality monitoring in he past has been minimal, due rimarily to lack of funding. Surface vater monitoring began in the early 970s on a handful of sites clustered nainly around the state's larger urban reas. Several sites were added in 986, when the program was revamped in an effort to improve monitoring efforts in non-urban areas, but even with these improvements the state's monitoring was inadequate. (These new sites were measured on a rotational basis so only 11 were checked yearly, in addition to the 16 original sites tested monthly.)

The DNR received about $123,000 annually in federal funding from the U.S. Environmental Protection Agency (EPA) to complete the early surface monitoring. EPA also footed the bill (approximately $50,000 annually) for biological monitoring from 1994 to 1999. That changed in 1999. Thanks to support from Gov. Thomas Vilsack and the Iowa Legislature, the ambient program was awarded its first state funding in the

More than 1,000 Iowans are certified as IOWATER monitors. In 2001, IOWATER introduced Level 2 workshops and modules, such as the workshop at Nahant Marsh (above) and the benthic macroinvertibrate module at Decorah (left).

2000 fiscal year. The Legislature has since appropriated additional funds, to significantly expand the state's ambient monitoring program. In fiscal year 2002, $2.5 million was devoted to that end.

The program is now running full-steam ahead. Working in cooperation with the University of Iowa Hygienic Laboratory (UHL), the DNR now monitors 79 ambient stream sites and 10 city sites (located upstream and downstream of 10 larger cities in Iowa) on a monthly basis, and has expanded its biological monitoring. Biological testing involves DNR and UHL scientists sampling fish and small aquatic insects and organisms. The presence or absence of these creatures, and the numbers found, can indicate how healthy a stream actually is.

The DNR has also contracted with Iowa State University to conduct a five-year study of the condition of Iowa's lakes – 132 total. Each lake is sampled three times per year and already, old beliefs have been dispelled. Professionals have long assumed Iowa's shallow lakes were mixed by wind and, therefore, uniform in temperature. Results from the first year of study in 2000 show many lakes are in fact thermally stratified, meaning their temperatures can vary by several degrees from top to bottom. The 2001 Lakes Report, with second-year results, should be released soon.

Like the new lake findings, much is being learned about bacterial levels at Iowa's state park beaches. Beach monitoring has been conducted for only two years and already it has been the subject of many editorials, and no doubt numerous coffe-shop conversations. Bacteria the DNR tests for – *E. coli*, enterococci and fecal coliform – are *indicator* bacteria, or bacteria that will not necessarily make you sick, but can indicate the possible presence of other disease-causing organisms. "If our bacteria levels are high, there might be other unsafe organisms in the water, and there might not. But, to err on the side of caution, we sometimes must caution swimmers of the possible risk from exposure, and in some instances, the DNR has decided to close a beach," said Rick Langel, a research geologist with the ambient program. DNR Parks staff sample 35 state park beaches every week for bacteria from May through September. "The bacteria levels in the vast majority of samples collected during 2001 were safe," said Langel.

Individuals concerned about water quality may be interested in the DNR's IOWATER, the citizen water-monitoring program, an important component of the ambient program. Established in 1998, IOWATER receives 10 percent of the ambient waters budget, which as helped train more than 1,000 citizen volunteer monitors. The program is extremely flexible: monitors decide when, where and how often they monitor. "The DNR cannotbe everywhere, all the time. Citizen data helps to fill in the gaps (of professional data)," noted Rich Leopold, IOWATER coordinator.

Thanks to the expanded ambient monitoring program the DNR and another of its many partners, the United States Geological Survey (USGS), can now sample more places than in the past. The current groundwater quality network includes 90 municipal wells monitored on a rotating basis. During 2001, samples from all 90 wells are being analyzed for various nutrients, herbicides, metals, volatile organic compounds and radionuclides. The water is also

Stefanie Forret

Rick Langel of the Iowa DNR, sampling the water at USGS stream-gaging site in Clayton County in September 2001.

eing age-dated. Determining a ater's age shows its vulnerability.

Plans also call for the drilling of dditional well nest sites (a group of vo or more wells at one location, rilled at different depths) to create n ambient groundwater monitoring etwork. Between two and five ell nest sites will be developed on n annual basis. Each well will be nalyzed for mineral content and ommon parameters assessed nnually. Pump tests and geophysial tests will assess aquifer charaeristics. Development of monitoring ells will provide important informaon for the overall management of roundwater in Iowa and aid omeowners and municipalities in earch of water sources.

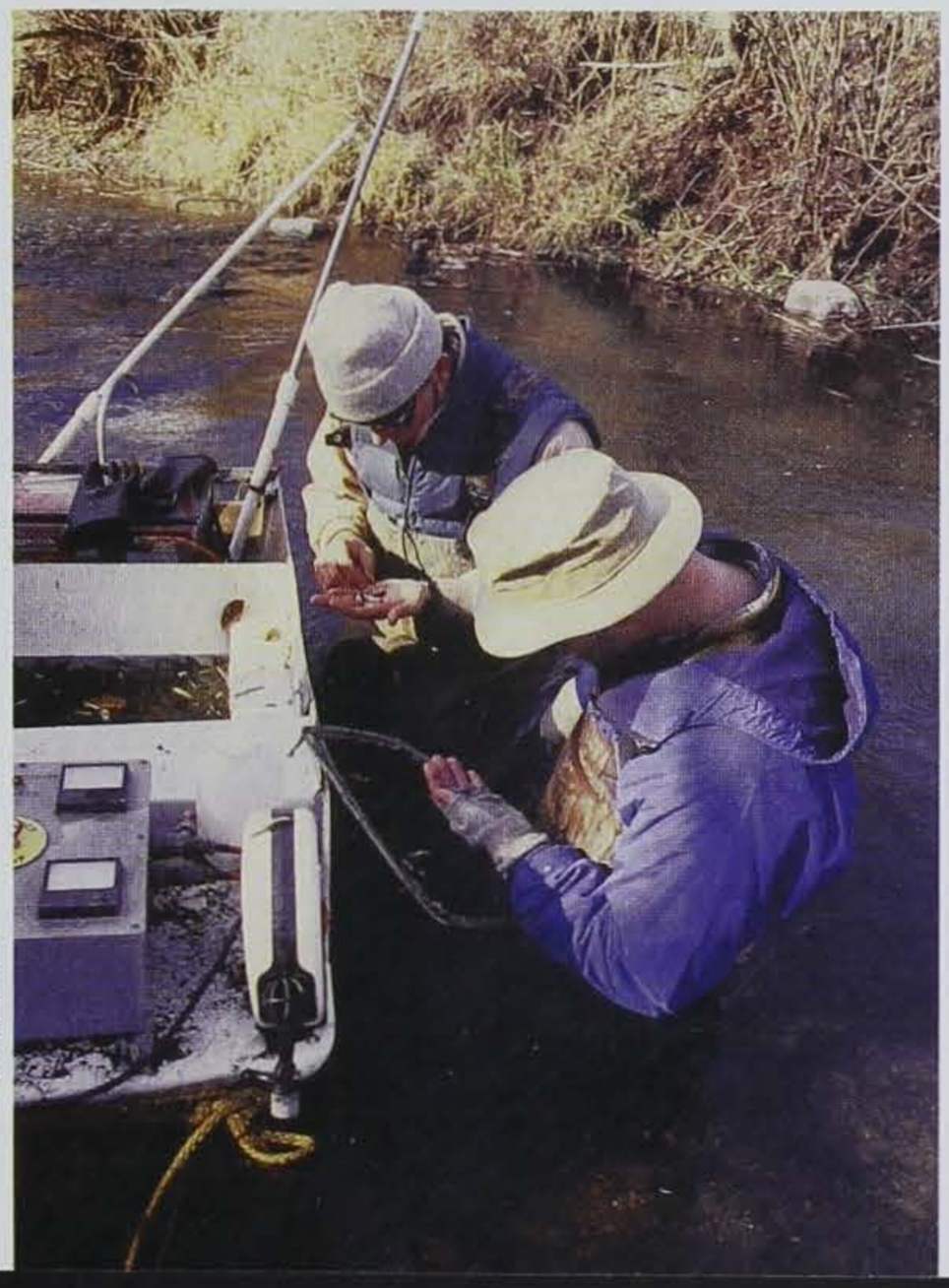
Although monitoring itself is very mportant, it is perhaps even more so o properly manage the data colected through monitoring. Data nakes it possible for the DNR to neasure changes and identify trends n Iowa's water resources. Once ollected, data is uploaded into TORET, an EPA database, impleented and managed locally by the NR. The public can obtain the ata on-line from various monitoring ctivities through a special Web nterface. Upgrades to this interface re underway, including interactive raphic and charting capabilities, nteractive mapping applications and mmediate access to the latest data. he database will also serve as a clearinghouse" so other public data such as from other state agencies, rganizations or municipalities) can e uploaded, and accessed by the ublic through the system.

"We're really just getting started with the ambient monitoring proram)," saidDNR research geologist Lynette Seigley. "We have so many projects that can be done – that need to be done. This is just the tip of the iceberg."

Iowa's ambient water monitoring will be the focus of the Second Annual Water Monitoring Conference. The conference, set for March 28 at Cedar Rapids Prairie High School, is open to the public. For information about conference registracion, contact Stefanie Forret at (515) 281-3150 or stefanie.forret@dnr.state.ia.us. For more information about Iowa's Abient Water Monitoring Program, go to www.igsb.uiowa.edu/water.

Clay Smith

Stefanie Forret is an information specialist for the department's water monitoring programs.



Ken Formanek

Above: Drilling well nest site at Briggs Woods Park in Hamilton County, June 2001, to create a new ambient groundwater monitoring network.

Left: DNR and University Hygienic Lab scientists sample fish to determine the health of a stream.

Learning the Hard Way

Article and photos by Lowell Washburn

Northern Iowa pheasant hunters have been forced to relearn the lesson of how private lands habitat programs make or break gamebird populations

We don't see many traffic jams in rural northern Iowa. But I was looking at one now. Actually, a traffic snarl might have been a better description. It was occurring, of all places, in Ventura — population 600.

It was 6 a.m. — opening day of the 1995 Iowa pheasant hunting season. I had just pulled in at one of the community's main focal points — a combination convenience store/gas station. Along the main store front, vehicles were parked two- and three-deep. Those who had parked closest to the building patiently chatted and sipped hot coffee while waiting for other customers to move their trucks.

The real snag was at the gas pump. Those getting fuel had been hopelessly blocked from both directions by new arrivals. An assortment of 13 trucks and SUVs surrounded the station's single, four-pump island. By the looks of things, it would be awhile before those guys got things straightened out.

In this neck of the woods, you didn't have to be a hunter to know that day marked the annual pheasant opener. No matter which direction you looked, you saw people wearing brush pants, orange vests and necklaces of dog whistles. Most vehicles sported a plastic kennel or two. Judging by the amount of whining and barking, someone could have held a pretty good impromptu dog show right on the parking lot.

Deciding my purchase could wait, I headed for the next point of interest — the Ventura elementary school. Volunteer firefighters take over the school's kitchen on each pheasant opener and put out an all you can eat hunter's breakfast. This is where I meet my hunting buddies. As usual, the gymnasium was crowded and noisy. There were only two topics of conversation — pheasants and pheasant hunting.

Ventura officially bills itself as a "sportsman's paradise." On this opening day it was certainly living up to its reputation. But Ventura wasn't the only town benefiting from Iowa's pheasant hunting bonanza. For two straight years, Mason City's Channel-3 television had aired stories on how burgeoning pheasant numbers were boosting regional economies as a flood of local and out of state hunters jammed restaurants, motels and gas stations. In several communities, motel rooms were sold out for the first two full weeks of the season. For rural Iowa, pheasant hunting had become an important industry.

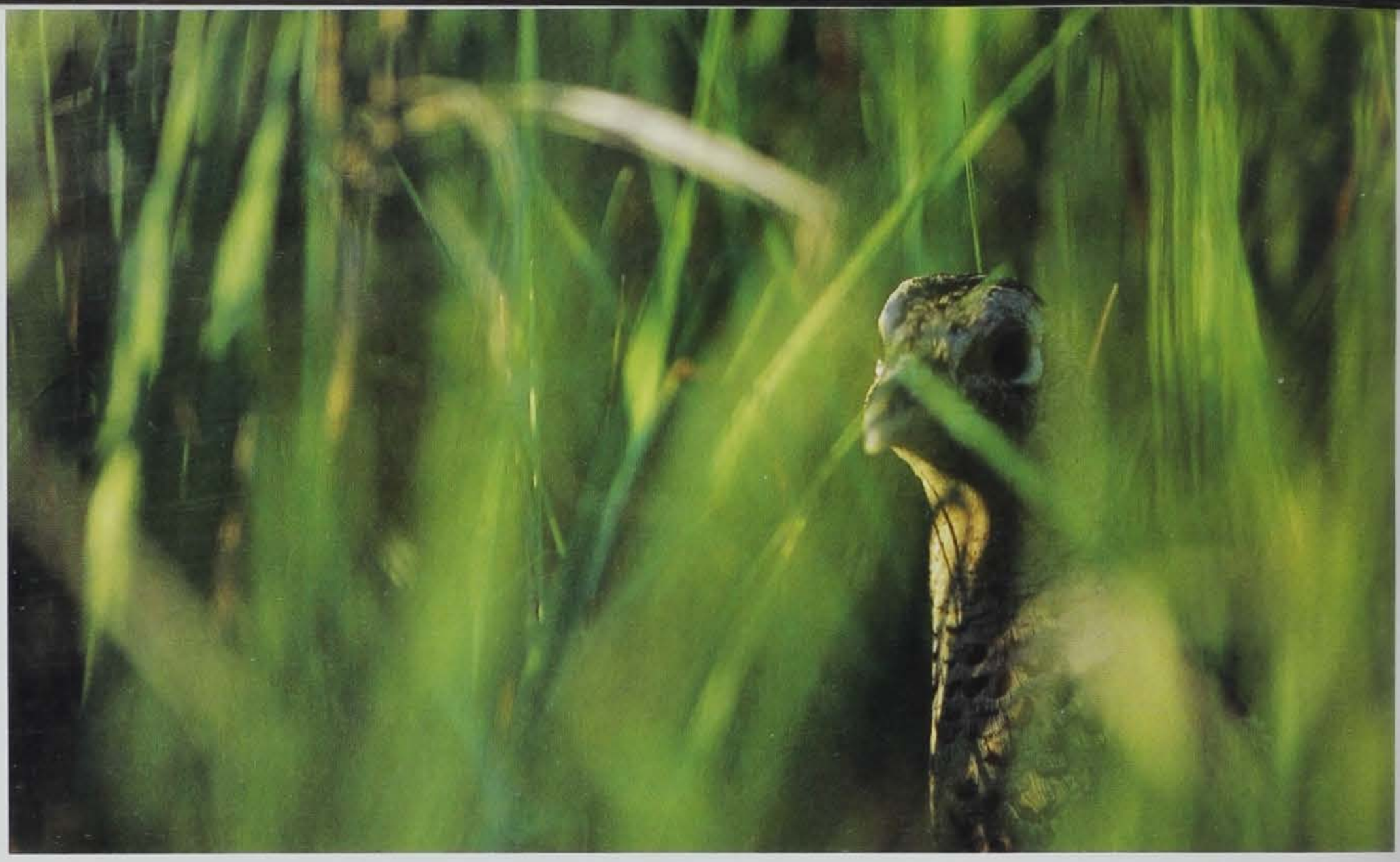
Everyone knew the reason for these high times. It could, in fact, be summed up in just three simple words — Conservation Reserve Program (CRP). Authorized by Congress in 1985, CRP paid farmers to idle erodible croplands for 10 years. In Iowa, CRP created a near immediate increase of around 2 million acres of prime, upland nesting cover.

From the minute the acceptance of CRP was announced, Iowa pheasant hunters were pumped.

Following years of habitat decline, the 1970s and early 1980s had, at best, offered mediocre hunting opportunities — especially in the northern, cash grain regions of the state. But as hundreds of thousands of acres of cropland were slated to soon became grasslands, hunters reasoned pheasants would surely show an eventual rebound.

In reality, most pheasant populations did not enjoy the slow, but steady buildup hunters had anticipated. Instead, they exploded!

By the time new CRP grasslands had entered their second autumn, the covers were already bursting with birds. Within a few short years, Iowa had once again become the undisputed Pheasant Capitol — leading the nation in pheasant harvest. For younger hunters who had only pursued Iowa ringnecks during the previous 10 or 15 years, the new pheasant bonanza was without precedent. For more than a few hunters, the seemingly far fetched



Iowa lost nearly 800,000 acres of grassland habitat following modifications to the federal farm programs in 1995. Consequently, pheasants, particularly in northern Iowa, were left "out in the cold," with little area for nesting or winter cover.

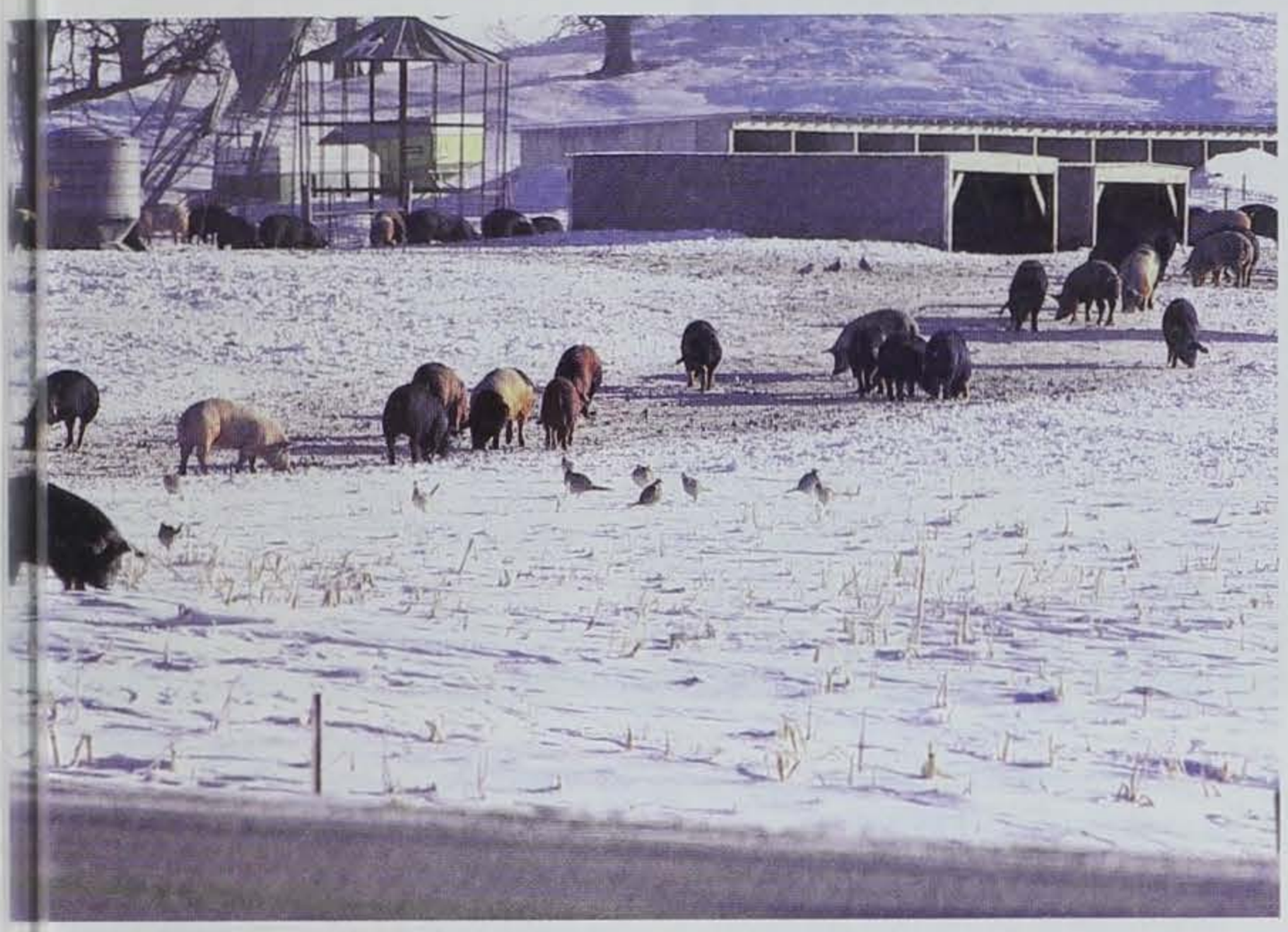
pheasant tales related by old timers had suddenly become believable.

In the years following the implementation of CRP, the 1985 farm bill became one of the most popular federal programs ever initiated. In addition to reducing commodity surpluses, providing financial aid to strapped farmers and conserving erodible soil. CRP was also paying huge dividends to Iowans living in urban settings.

Reduced erosion meant increased clarity in local streams and rivers. Although not as easily documented, reductions in tillage and chemical application could only result in less contamination of precious ground water supplies. Farmers were also restoring hundreds of prairie wetlands on CRP acres. In addition to positive soil and groundwater considerations, marshes also offered increased breeding and feeding areas for countless wildlife species. From mink, to meadowlarks, to mallards, CRP had become a panacea for Iowa wildlife.

Beyond the benefits to natural resources, CRP also provided a backdrop for unprecedented opportunities for tourism. Pheasants become the number reason for nonresident to visit Iowa. From the first day of the season to the last, parties of hunters from across the nation (as well as from several foreign countries) traveled to enjoy the thrill and beauty of an Iowa pheasant hunt. During the 1990s, pheasant hunters annually pumped around $90 million into Iowa's retail economy.

Most Iowans assumed (or at least dared to hope) that they would continue to enjoy the benefits of the "perfect program" indefinitely. But



such was not to be. All good things come to an end, and CRP was no exception.

In 1995, federal farm programs were modified. Although Iowa farmlands consistently outscored ag lands from other states on the government's Environmental Benefits Index (EBI), a higher cost of enrollment made Iowa farmers less competitive with other regions. For example land accepted into the program in Kansas received an average EBI score of 160 while the average EBI score for the acreage accepted in Iowa was 197. In North Dakota the two million-plus acres accepted under new CRP guidelines proved three times less erodible than land not accepted in Iowa. Although Iowa landowners continued to lead the nation in new CRP sign-ups, comparatively few applications were accepted. As existing, 10-year contracts began to expire, Iowa grasslands were once again converted to row crop.

By 1997, Iowa had lost around 800,000 acres of grassland habitats. To put the loss into perspective, it is the equivalent of a continuous, unbroken, four-mile-wide strip of grassland nesting habitat stretching from Council Bluffs to Davenport.

Although southern Iowa managed to retain significant CRP acreage, the 1995 modifications delivered the ultimate knock out punch to the northern half of the state. Unfortunately, the intensively farmed cash grain region was where wildlife most needed the program. In Cerro Gordo County, CRP grasslands were reduced from 17,729 acres to 403. In Worth County, the acreage was reduced from 12,636 acres to 182. Hancock County went from 11,963 acres to 659. In Winnebago County, CRP acres dropped from 19,381 to 1,821. Grassland acreage in Wright County declined from 9,447 acres to just 51.

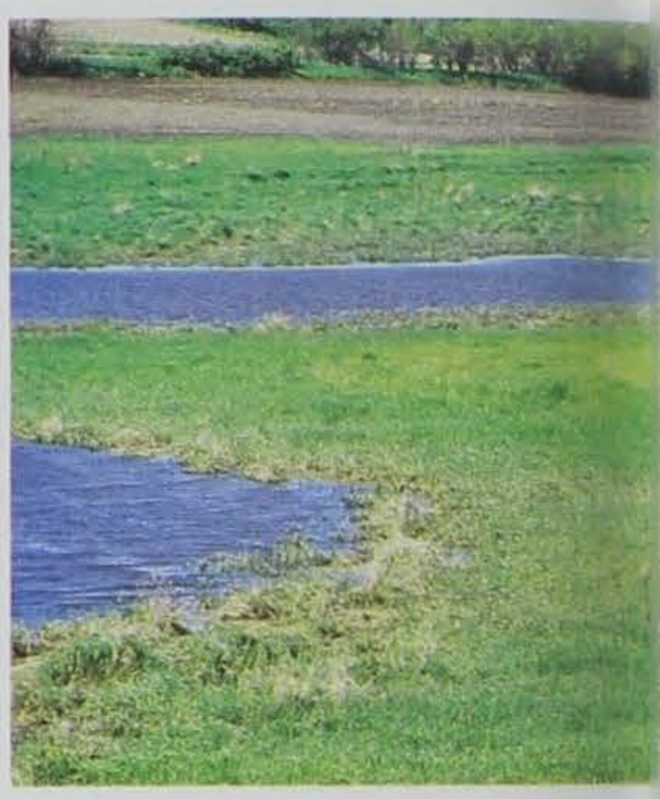
By now the message was clear. The good times were over, and Iowa pheasant populations were teetering on the brink of disaster.

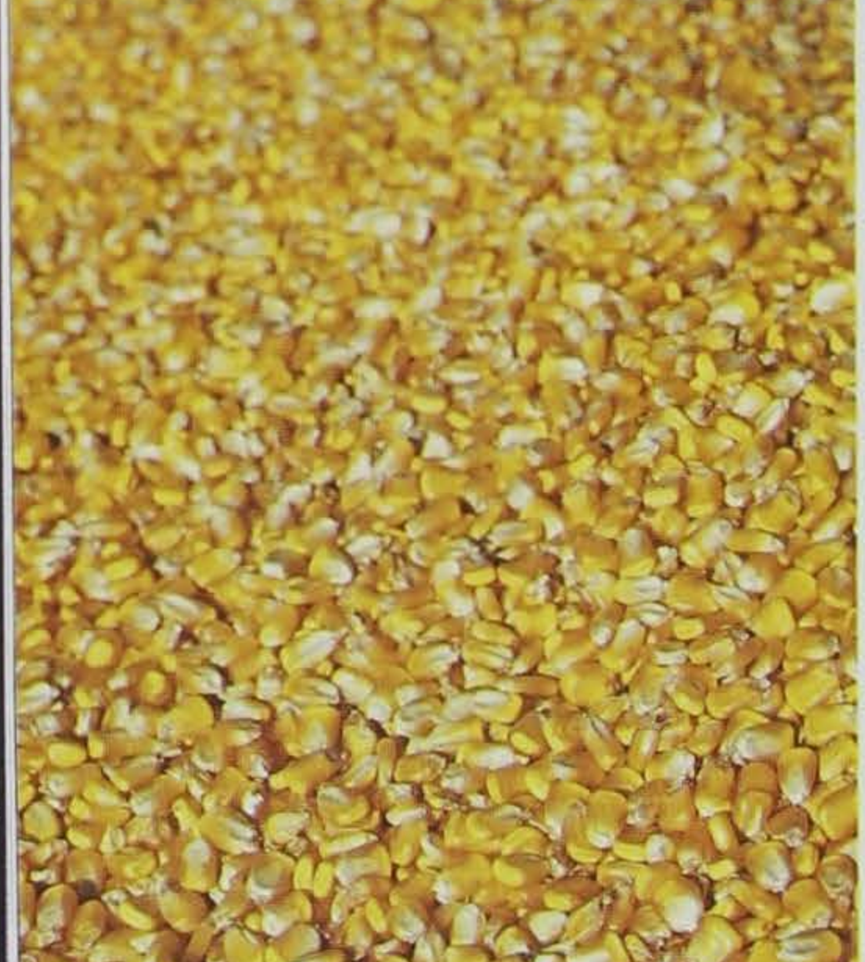
One of the advantages of spending a long time in one place is that it gives you a pretty good sense of perspective. I've lived in northern Iowa for most of my life. I began pheasant hunting, and bagged my first Cerro Gordo County rooster, in 1959. Local bird numbers were phenomenal — largely the result of another federal farm program called Soil Bank.

The Soil Bank program reached its zenith from 1959 to 1964, when around 500,000 acres were idled statewide. That program also changed. By 1965, Soil Bank (federal conservation) acreage had been reduced by 90 percent. A new era in agriculture had begun, and farmers were being encouraged to farm fencerow to fencerow in order to "feed a hungry world." The end result was disaster for both farmers and pheasants.

During the early to mid-1950s, winter pheasant counts [on a study area] in northern Iowa's Winnebago County averaged around 100 birds per section. During peak Soil Bank years (late 1950s and early 1960s), populations jumped to about 235 pheasants per section. Then, as conservation acreages were plowed under, bird numbers began a dramatic decline. By the winter of 1976, direct winter counts on the same Winnebago County tracts recorded an average of zero pheasants per section.

Of course, there were still some pheasants to be found in Winnebago County. But bird numbers had become so low that many hunters had quit pursuing pheasants altogether, even during the opening weekend. Pheasant hunting remained very poor across northern Iowa until the arrival of the new 1985 Farm Bill. Within





Although Iowa landowners continued to lead the nation in new CRP sign-ups, comparatively few applications were accepted under the new program because of Iowa's higher cost of enrollment. As existing, 10-year contracts began to expire, Iowa grasslands were once again converted to row crop.

two years, tremendous hunting opportunities again existed in the state's northern counties.

When the news hit that our latest round of CRP acreage was about to go under, I lamented to a younger hunting friend how I feared a return to the depressing gamebird numbers of the 1970s and early 1980s. Although he agreed that CRP reductions were certain to have a negative effect on wildlife, he ardently disagreed that things could ever get quite as bad as the stories I'd related. He did, in fact, go so far as to laugh at the suggestion.

"I realize that this isn't good," he conceded. "But no matter how bad it gets, we'll always have at least a couple weeks of good pheasant hunting."

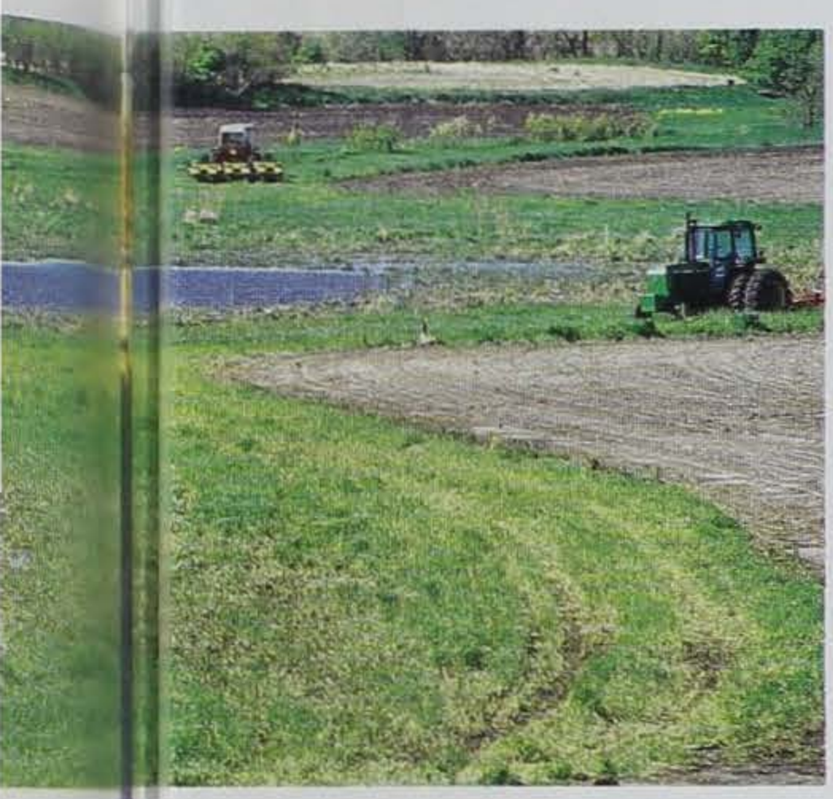
It later occurred to me that my younger hunting friend had never witnessed a pre-CRP landscape. Given the type of Iowa pheasant hunting he had enjoyed his entire life, it was really no wonder that stories of the 1980s were viewed, at least partially, as fiction. It was probably similar to how my generation could never really get a grip on what it was like to live through the Great Depression.

As northern Iowa's CRP acres began to vanish during the late 1990s, local pheasant populations failed to suffer an immediate crash. Instead, they received a two year reprieve as mild winters and adequate weather during spring nesting cycles postponed the inevitable.

Then came the winter of 2000-2001. Statewide it was the third snowiest on record, and pheasant losses were high. Spring was late and wet, meaning reduced production for those hens who had survived the winter. August 2001 roadside surveys revealed a 59 percent decline in statewide pheasant numbers from the previous summer. The counts were, in fact, the lowest ever recorded in the 40-year history of standardized gamebird surveys.

The DNR's Joe Wilkinson and I provide weekly outdoor columns to a number of newspapers across the state. During early November, reports on pheasant hunting is always at the top of the media request list. As predicted, last season's hunters did more walking, encountered dramatically fewer birds, and bagged far less pheasants than at any time during the previous 15 years.

During the first week of the 2001



season, I checked with area conservation officers to find out what they were seeing so that I could pass the information on to the public. Here's what they said.

"This year's opener was definitely toned down from what we've seen in the past," said Hancock County conservation officer Ken Lonneman. "Although I did see five hunters that had bagged their three-bird limit, I also checked 50 other guys that had no pheasants. Out of 80 license checks, I only found a total of 60 bagged roosters."

Here's a different one. While assisting with the DNR's opening day enforcement effort, state waterfowl biologist Guy Zenner reported seeing more bagged ducks after checking five duck hunters than he saw pheasants after checking 60 pheasant hunters.

Many conservation officers reported that anywhere from 60 to 75 percent of hunters checked during last season's opener were nonresidents.

"The word is out on our [poor] bird numbers, and I think that it's probably just a case of where a lot of local hunters have given up before they got started," said Mitchell County conservation officer Eric Johnston.

"I don't think we're ever going to be able to draw the kind of crowds that we've seen in the past," speculated Cerro Gordo County conservation officer Randy Schnoebelen. "Instead I think we're likely to see Iowa hunters and nonresidents on day trips, but not the large groups coming in for three- or four-day hunts. There's no question that will have an impact on local economies."

During a typical year, DNR officers encounter large numbers of pheasant hunters for at least the first three to four weeks of the season. However, during the 2001 season hunters had become virtually nonexistent by the season's third morning. And in spite of ideal weather, hunter numbers remained at rock bottom for the remainder of the week.

Here's an example of how scarce northern Iowa pheasants have become. On the season's fourth morning, Cerro Gordo County conservation officer Steve Schutte observed what appeared to be a party of hunters "placing live pheasants" into a strip of grassy cover. Curiosity piqued, Schutte approached the group to see what was going on.

Turns out the group had promised an Iowa pheasant hunt to a group of business associates. The hunt had been a total bust. In a last ditch effort to remedy the situation, the men had obtained some pen-reared birds from a licensed game farm and were releasing them into the grass strip. This, they assumed, was sure to guarantee their clients of at least seeing and bagging some pheasants.

"Now there's one that I've never seen before," said Schutte. "Five years ago, when we still had our CRP grasslands in tact, no one could have ever even dreamed of such a thing. That's how bad it's gotten."

My younger hunting buddy isn't laughing anymore. For better or worse, he's now had a firsthand opportunity to see how federal conservation programs can affect Iowa wildlife populations.

It's funny how staying in one place can change your perspective.

Where Have All The Pheasants Gone?

. . . And What Can Be Done To Bring Them Back?

Article by Todd Bogenschutz
Photos by Lowell Washburn

This year's DNR roadside survey indicates Iowa's pheasant population to be the lowest ever recorded in 40 years of standardized surveys. The survey showed we have less than half the pheasants of a year ago. Similarly, Minnesota reports 50 percent fewer birds, South Dakota, 19 percent, Nebraska, 17 percent and Kansas, 26 percent fewer pheasants.

So what has happened to cause these all time lows? As the state's upland wildlife biologist, it is a question I've been asked many times this fall. In a nutshell, the answer is weather and habitat. Weather conditions and grassland habitats are the two factors determining how many pheasants Iowa has in any given year. A review of how these factors influence pheasant numbers will shed some light on why Iowa's numbers are so low this year.

Weather

Iowa research shows winter and spring are seemingly the key periods to have the greatest influence on pheasant numbers. Winters with deep and persistent snow leave birds vulnerable to predation and exposure. They limit the places pheasants can hide, and their dark coloration on a white background makes them highly visible. Simply put, long snowy winters make it easy for predators to find pheasants, whereas short, open winters make the same task hard. That is exactly what happened last winter. What does this have to do with current low numbers you ask?

The winter (December-March) of 2000-01 was the third snowiest in 129 years of state records, with a cumulative snowfall of almost 4 feet statewide. In addition, many regions of Iowa set new records with more than four months of continuous snow cover. The winter of 2000-01 was the longest and snowiest Iowa has had in the 40 years the DNR has conducted pheasant surveys.

Pheasant survival this past winter was very poor because deep snows buried winter pheasant habitat. The prolonged white conditions, combined

Weather conditions and grassland habitats are the two factors determining how many pheasants Iowa has in any given year.

with limited habitat, made the birds highly visible for a very long period of time. Losses to hypothermia and predation were very high.

Iowa has not experienced a prolonged winter like last year since 1981-82, when populations also declined by half. Thus the severe winter of 2000-01 partly explains why Iowa's pheasant numbers are so low. But there is more.

Spring weather (April-June), during the pheasant-nesting season, also has a profound effect on Iowa's pheasant population. More than 40 years of data on spring weather and pheasant populations in Iowa shows pheasants reproduce very well during warm, dry springs and very poorly in cool, wet springs.

Temperatures were about normal in April and May of 2001, but it was very wet. Statewide, cumulative rainfall was 5.1 inches during that period, or 38 percent wetter than normal. According to Iowa Agricultural Statistics, the first six months of 2001 were the 7th wettest in 129 years of state records. So besides losing a lot of pheasants during the winter, the ones that survived did not reproduce very well. Simply put, very poor winter survival followed by a poor spring nesting conditions significantly reduced Iowa's pheasant numbers. But there's still more to the story.

Habitat

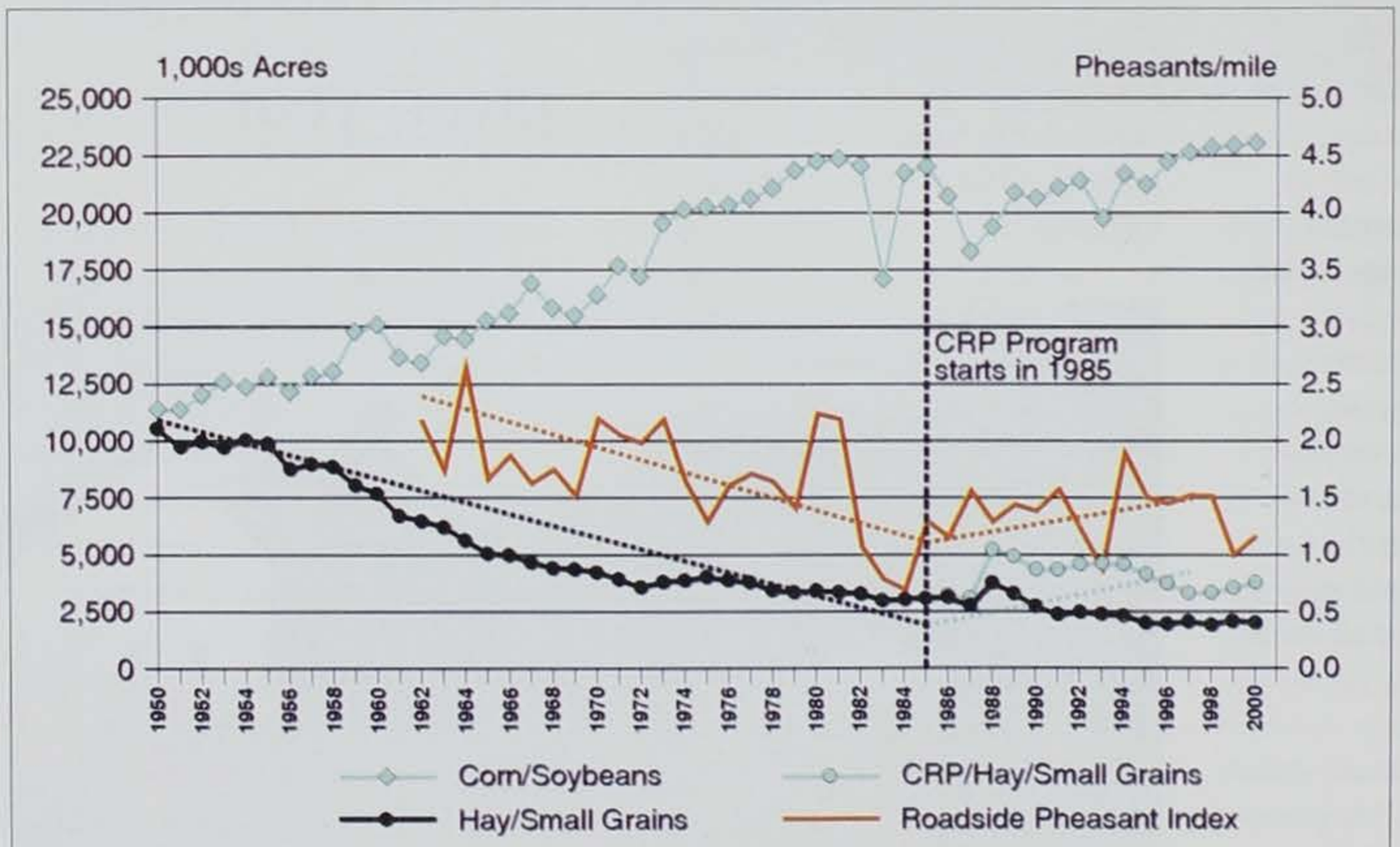
The remainder of the equation is habitat. Pheasants need a good mixture of row crops (corn and soybeans) and relatively undisturbed grasslands to produce abundant numbers. Grasslands include idle areas, moderately grassed pastures, CRP, hayfields and small grains like wheat and oats.

Grassland habitats are essential to abundant pheasant numbers because that is where they spend most of their life and where they nest and raise their young. Unfortunately Iowa has seen grassland habitats disappear continuously since the 1960s (see graph). The graph shows Iowa's trends in agricultural crops (left side) and pheasant numbers (right side) from 1950 through last year. From 1900 through 1950, Iowa had about 11 million acres each of row crops and grasslands (hay/small grains). This 1:1 ratio of row crops and relatively undisturbed grassland habitats produced abundant pheasant populations.

However, since 1950 Iowa has seen a dramatic conversion of grassland habitats to row crops. The solid black line shows the trend in hay/small grains from 1950 through 1985. Notice the pheasant trend (solid red line) shows an identical declining trend from 1950-85. Given pheasants raise their young and spend most of their lives in grassland habitats, it should be no surprise that the loss of grassland habitats has led to a constant decline in Iowa's pheasant population.

In 1985, Congress authorized the Conservation Reserve Program (CRP) which paid farmers to idle highly erodible row crop ground for 10 years. Most CRP ground was planted to grasses, perfect pheasant habitat. The graph shows the trend in hay/small grains (black circles) continues to decline after 1985, but with the addition of CRP to hay/small grains (blue circles), the trend in grassland habitats increases after 1985. It should also be no surprise that Iowa's pheasant population showed a similar increasing trend after 1985.

The CRP was a 10-year program, and Congress modified the program in 1995-96. The changes made Iowa farmers less competitive in the application process, thus Iowa lost about 800,000 acres of CRP by 1997. The CRP was also changed to promote more narrow grass strips or "buffers," rather than idling whole fields. This loss of acres and new focus on narrower strips of grass has lead to a declining pheasant trend since 1997. The CRP line shows an increasing trend in CRP since 1997, but most of this acreage is in buffers. Narrow strips of grass do not benefit pheasants as much as blocks of grassland habitats.



Iowa crop, CRP and pheasant trends from 1950 to 2000. Dashed lines show trends in nesting habitats and pheasant populations before and after the CRP implementation. Vertical black dashed line is when the CRP started.
Data Source: National Agricultural Statistics Service/Iowa DNR

What Can Be Done?

The two most common suggestions I hear from the general public to improve pheasant numbers are to close the pheasant season and stock birds. Closing the season,

hortening the season and/or reducing bag limits has no effect on future populations. Why? Because roosters don't lay eggs.

Roosters are promiscuous birds that breed every hen they come into contact with. Because of this fact, one rooster per 10 hens is all that is needed to maintain the population. Since most roosters are "surplus" to what is needed for reproduction, there is no need to "protect" them. Since roosters don't lay eggs or help with nesting, not hunting them accomplishes nothing, except lost hunting opportunities.

Research has shown repeatedly that stocking game farm birds into the wild produces few benefits. The most recent study on the matter looked at released game farm birds in South Dakota. In 1994, South Dakota released 160 hens on a public wildlife area in April to augment reproduction, but only 13 survived the summer. Of the 160 hens, only three hatched nests. Researchers also followed 44 wild hens on the same area, and they hatched 34 nests.

If stocking game farm birds worked, the DNR would have done so decades ago. Game farm birds simply do not know what to eat or how to escape predators. Regardless of where you go, some states claim exceptions to these facts. But ultimately, if these states are as successful as they claim, why then do they need to annually stock birds?

So what can really be done to help Iowa's pheasant population? As I stated earlier, weather and habitat are the key to pheasant numbers in Iowa. We can't do anything about the weather, but we can influence habitat. USDA farm programs like the Conservation Reserve Program (CRP), Wetland Reserve Program (WRP) and the Wildlife Habitat Incentives Program (WHIP) play a huge role in providing pheasant habitat in Iowa. Iowans need to let our nation's leaders know how important these programs are to Iowa, and that they need to be continued.

This past winter was very hard on pheasants. If Iowa had more good winter habitat (multi-row shelterbelts and cattail wetlands) next to good food plots more birds would have survived the winter. Both the DNR and the USDA have programs to assist landowners with shelterbelts, wetlands and food plots. USDA programs in many cases provide rental payments and cost-share, whereas DNR provides additional cost-share to establish habitat.

The DNR has also initiated a new Private Lands Program with 26 staff statewide to work one on one with landowners to improve habitat on their lands. Program staff recently completed a landowner's wildlife guide to help private landowners determine habitat needs on their properties and where they can go to get help and funding.

The DNR has much of this material available on the DNR web site at www.state.ia.us/wildlife. For more information on what you can do to help wildlife on your property, contact Ken Herring at (515)281-5529 or Todd Bogenschutz at (515)432-2823.

Todd Bogenschutz is the upland wildlife biologist for the department in Boone.

What's Killing Our Pine Trees?

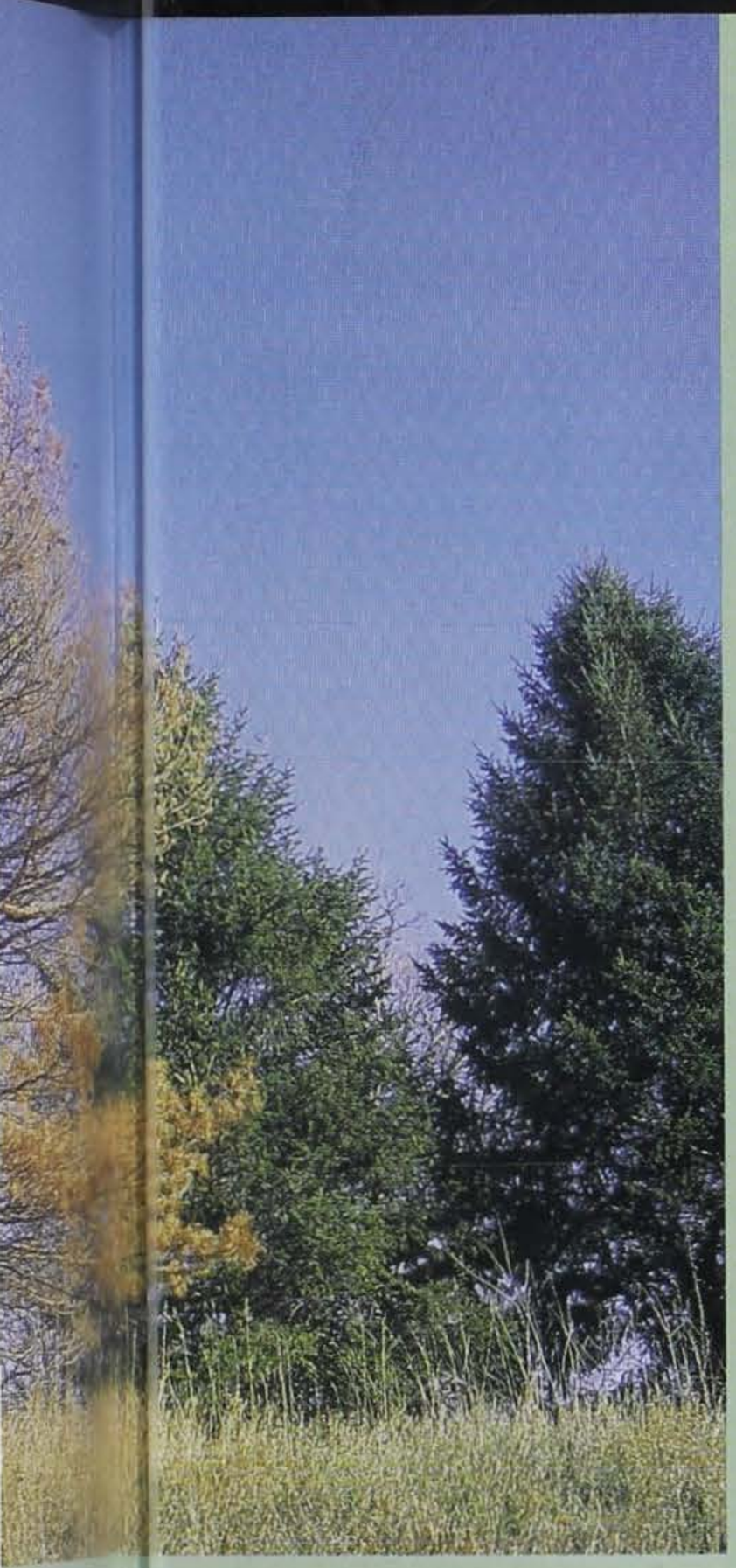
Article by John Walkowiak
Photos by Clay Smith

A couple of pests are teaming up and taking a toll on Iowa's Scotch pines.

To young and old alike, pine trees are probably the most recognized trees in Iowa. Their distinctive shape, green needles and falling pinecones provide not only year round color, but also important food and cover for wildlife to nest in and survive our severe winters.

They serve as windbreaks to block strong winds and blowing snow. They represent what most Iowans consider the "real" Christmas tree, with as many as 50,000 grown annually in Iowa on more than 300 Christmas tree farms. They are used as privacy screens and for landscaping.

But over the past couple of years, many of the larger pine trees seem to be suddenly turning brown and dying. Many Iowans are wondering why, and



Scotch pine can survive in Iowa, but most plant and forestry experts consider it a "short-term" tree that will not live beyond 20 to 30 years. Scotch pine has its place as a great Christmas tree and as a trainer for native hardwood trees. Iowans who want to plant a conifer should check with their local forester or nursery and landscape center to determine if their site is good for conifers. Conifers that tolerate Iowa and its weather include:

white pine	*Pinus strobus*
Black Hills spruce	*Picea glauca var. densata*
Norway spruce	*Picea abies*
white spruce	*Picea glauca*
concolor fir	*Abies concolor*
European larch	*Larix decidua*
arborvitae	*Thuja occidentalis* cultivars: Brandon, Holmstrup, Nigra and Techny
eastern redcedar	*Juniperus virginiana*
Serbian spruce	*Picea omorika*
baldcypress	*Taxodium distichum* (southern 1/2 of Iowa only)

if there is anything they can do to save them.

Professional foresters with the DNR, along with forestry researchers and educators from Iowa State University, first noticed the pine decline during the early 1990s. They discovered the species most affected by the sudden mortality was a nonnative, but normally very hardy, conifer (cone-bearing tree) called a Scotch or Scots pine. They found Scotch pines were dying in 73 of 99 Iowa counties. They also determined trees older than 25 to 30 years, growing in stagnate and dense plantings, often on heavy clay soils, seemed to be most susceptible.

What is causing the death of our Scotch pine trees?

Part of the problem can be traced to weather. Iowa has had a number of significant weather extremes since the 1980s, from drought, to floods to bitter cold and snowy winters. These weather extremes can cause root loss or dieback to nonnative trees, like the Scotch pine, to the point where they are more susceptible to insect and disease problems.

Researchers also found a small bark beetle and a microscopic worm, called a pinewood nematode, were working in concert to kill stressed pines. Bark beetles are typically secondary pests usually found, in limited numbers, around all conifers. But when the number of stressed and weakened trees increases, so does the number of bark beetles, and their behavior can become more aggressive, attacking trees that appear to be healthy.

Signs of bark beetle attacks are often difficult to see, but infested trees will usually produce masses of pitch or sap around small holes in the bark. A closer look will often reveal small piles of sawdust on the ground.

Pinewood nematodes are often introduced into pine trees through the feeding action of bark beetles. The nematodes reproduce and plug the water conducting tissues of the trees. As the tree begins to lose its ability to move water, the needles on the branches first turn yellow then brown just before dying.

Dense plantings of Scotch pines magnify the problem. Thicker stands of pines allow the bark beetles to fly and the nematodes to spread through connected root systems. The unhindered movement maintains the chain, thereby spreading the problem. Older pines growing on poorly drained soils

Pinewood nematodes are introduced into Scotch pines through damage done by bark beetles. The nematodes obstruct the tree's water conducting tissue, and as the tree looses its ability to take up water, needles begin to die.

have little vigor to fight off this dynamic duo, and fall victim to what many people call "pine wilt."

What can you do?

There are no magic sprays or injections to stop the bark beetles or the nematodes. There are, however, ways to minimize your losses.

Dying pines are breeding grounds for bark beetles to further spread the problems. Dying trees should be removed from your property, and dead trees should be chipped or burned. However, do not leave the wood lying around to use as firewood, and avoid using the wood chips as mulch around other pine trees.

Additional stress to the pines should be avoided by protecting the root systems from construction damage and soil compaction. Install fences around tree plantings to keep livestock and other hoofed animals away. Avoid saturated soil conditions by watering lawns, trees and other plants on a heavy yet infrequent (every seven days) basis.

Open wounds in the tree attract bark beetles, so be very careful when mowing and trimming grass. Use wood chip mulch around new trees to maintain good soil moisture and avoid weedy growth. Mulch should be applied in a 2- to 3-foot circle, approximately 4 to 6 inches deep, around the base of the tree.

Many problems can be avoided by planting the right tree in the right spot. Choose trees that grow best in your area and soil conditions. Pines grow best on well-drained sandy soils (see a list of Scotch pine alternatives on page 49). If you have heavy clay soils, consider planting native trees and shrubs rather than conifers. Native trees to consider planting in poorly drained soils include:

- Freeman maples — Autumn Blaze, Autumn Fantasy, Celebration and Marmo
- river birch — Heritage
- green ash — Bergeson, Centerpoint, Dakota Centennial, Patmore, Prairie Spire
- bur oak
- swamp white oak

For a listing of native trees and shrubs, their site needs and characteristics, go to www.forestry.iastate.edu/ext/native.html

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John Walkowiak is the chief of the forestry services bureau for the department in Des Moines.

Victory Dance at Mallard Marsh

Article and photos by Lowell Washburn

An historic event is currently occurring across Iowa. For the first time in more than a century, wild, free-flying, trumpeter swans are successfully nesting and raising their young on the state's prairie wetlands.

I first noticed the trumpeters during mid-March. The snow pack was beginning to melt and, in northern Iowa, the spring waterfowl invasion was gathering momentum. The swan pair, along with a host of other northbound migrants, had crowded into the only open water available — a tiny airhole in the extreme western end of Cerro Gordo County's Mallard Marsh near Fertile.

The trumpeters frequent interaction and boisterous vocalizations indicated the birds had developed a strong pair bond. The male was marked with a green neck collar (number 5F1), while the female carried no neck band.

A quick review of the DNR's bird banding records revealed the male had had an interesting history. Hatched in Washington State during 1997, the swan had been brought to Iowa and released as a subadult at the Union Hills Waterfowl Production Area near Thornton. Records showed the male had spent most of the summer of 1999 on Zirbel Slough. During 2000, he was reported on Clear Lake and at numerous other wetlands across northern Iowa.

During his third year, 5F1 found a mate. Tragically, the adult female was killed during migration after colliding with a powerline near Boone.

The male spent most of the winter of 2000 feeding in Arkansas rice fields, where he formed a pair bond with his current mate.

As news of the swan pair spread, area waterfowl enthusiasts became increasingly hopeful the birds would "stick around" to become the first modern-day, wild trumpeters to nest in northern Iowa.

However, the unmarked female remained a cause for concern. Like other waterfowl species, female trumpeter swans have a strong urge to return to the place of their birth. If the mystery female was hatched in Minnesota, Wisconsin or Ontario, then that is where the pair would likely end up nesting.

The concern was somewhat diminished when 5F1 and his mate were still at Mallard Marsh on April 1. A few days later, the concern all but

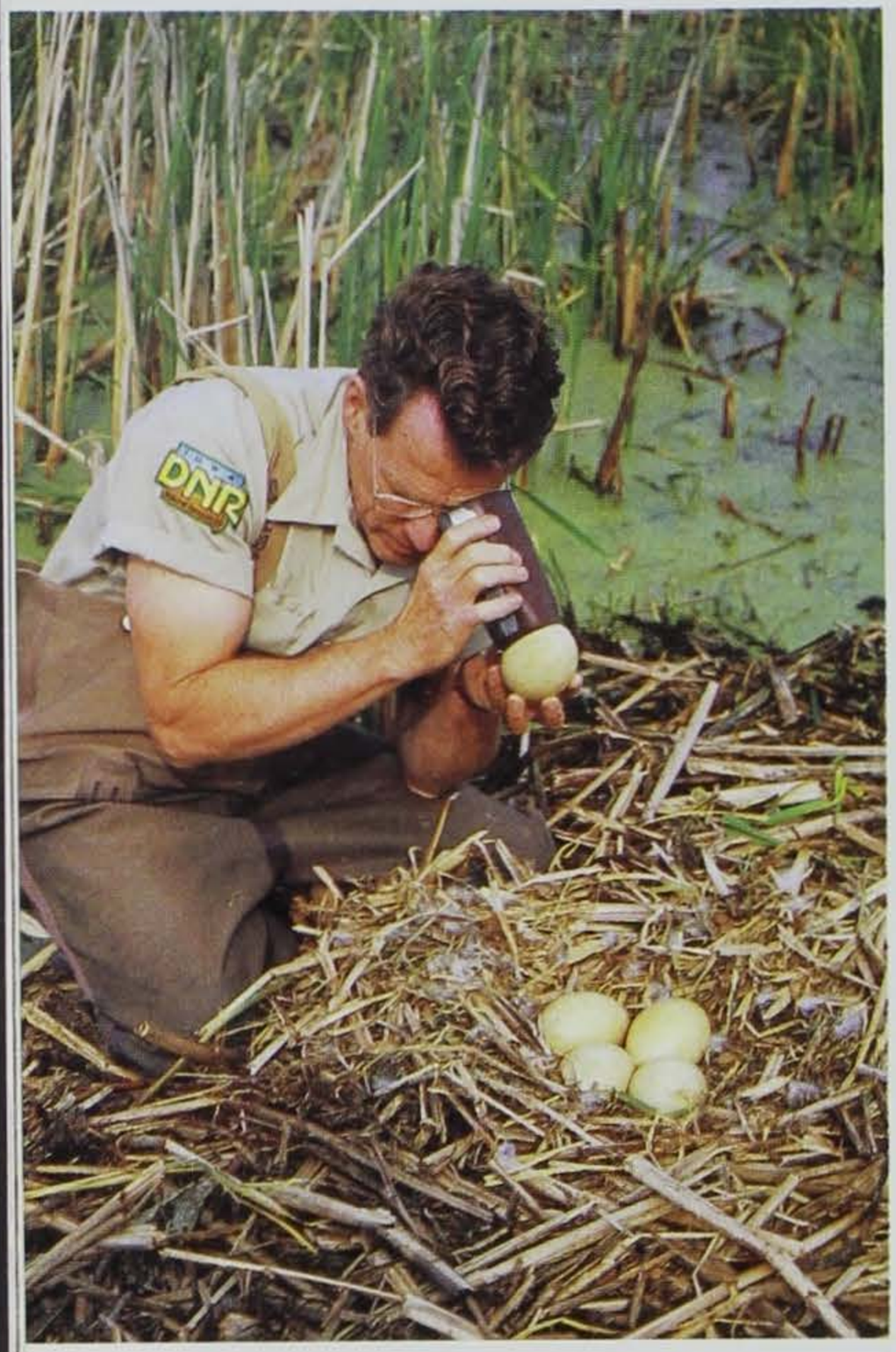
anished completely when the female tepped onto a mud bar to feed with er mate. She wore a leg band. With atience and a long lens, I was able to ead her number — 5F8. As a juve- ile, the swan had been released at Mallard Marsh four years earlier. She ad returned to the exact spot where he had learned to fly.

From then on, things continued to et even better. On April 20, as I was hotographing the pair at a distance, F1 suddenly launched an impressive ttempt to drive me from his territory. With a seven foot wingspan backed by 30-plus pounds of pure attitude, an attacking trumpeter swan has a way of commanding your attention. I immediately withdrew, allowing the swan to make a triumphant return to his mate. As soon as the pair was reunited, they initiated a noisy display of trumpeting and mutual wing quiverings known as the victory dance. There remained little question this pair would lay eggs at Mallard Marsh.

Nest construction began shortly thereafter. Swan nests can become massive affairs. In this instance the completed structure measured nearly 2 feet high and 4 feet wide. (Ironically, the swan nest was located just thirty yards from where, in 1976, I photographed the first known modern-day giant Canada goose nest in Cerro Gordo County.)

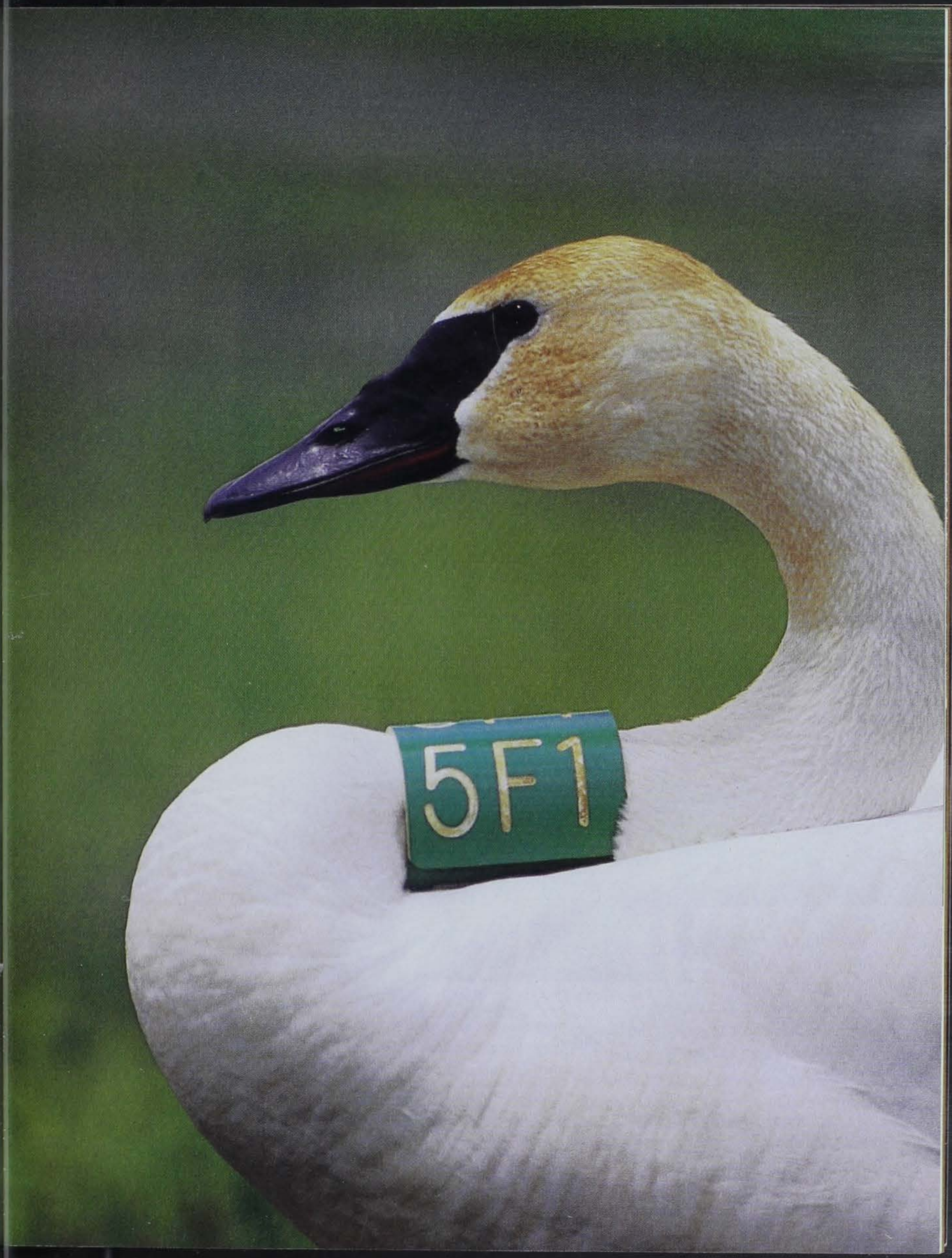
The first swan egg was laid on April 30 or May 1. After the swans were well into incubation, DNR swan restoration coordinator Ron Andrews and I boated to the nest site. It contained five fertile eggs which were due to hatch on June 10.

As incubation progressed, I began



DNR swan restoration coordinator candles a Mallard Marsh swan egg to predict its date of hatch.

Iowa's swan restoration began in 1995 with the release of eight immature swans at the Kettleson Waterfowl Production Area in Dickinson County. In 2001, nine nesting attempts were documented by wild, free-flying swans. Six of those nests, the Mallard Marsh nest among them, successfully produced a total of 19 young.


5F1

photographing the nest sight from within a portable blind. Fashioned to resemble a floating muskrat house, the photo blind allowed me to approach within 20 feet of the nest without disturbing the swans.

The female, of course, spent most of her time sitting on the eggs. While on the nest, she spent most of her time sleeping or preening. About every hour or so she would stand and carefully turn or rotate each of the five eggs. Meanwhile, 5F1 was ever near, ever vigilant — always on the lookout for danger.

On June 10, the eggs began to hatch. For the first eight days, the parents kept their newly hatched cygnets in the immediate vicinity of the nest site. One of the youngsters vanished during the time, perhaps the victim of an underwater attack by a snapping turtle.

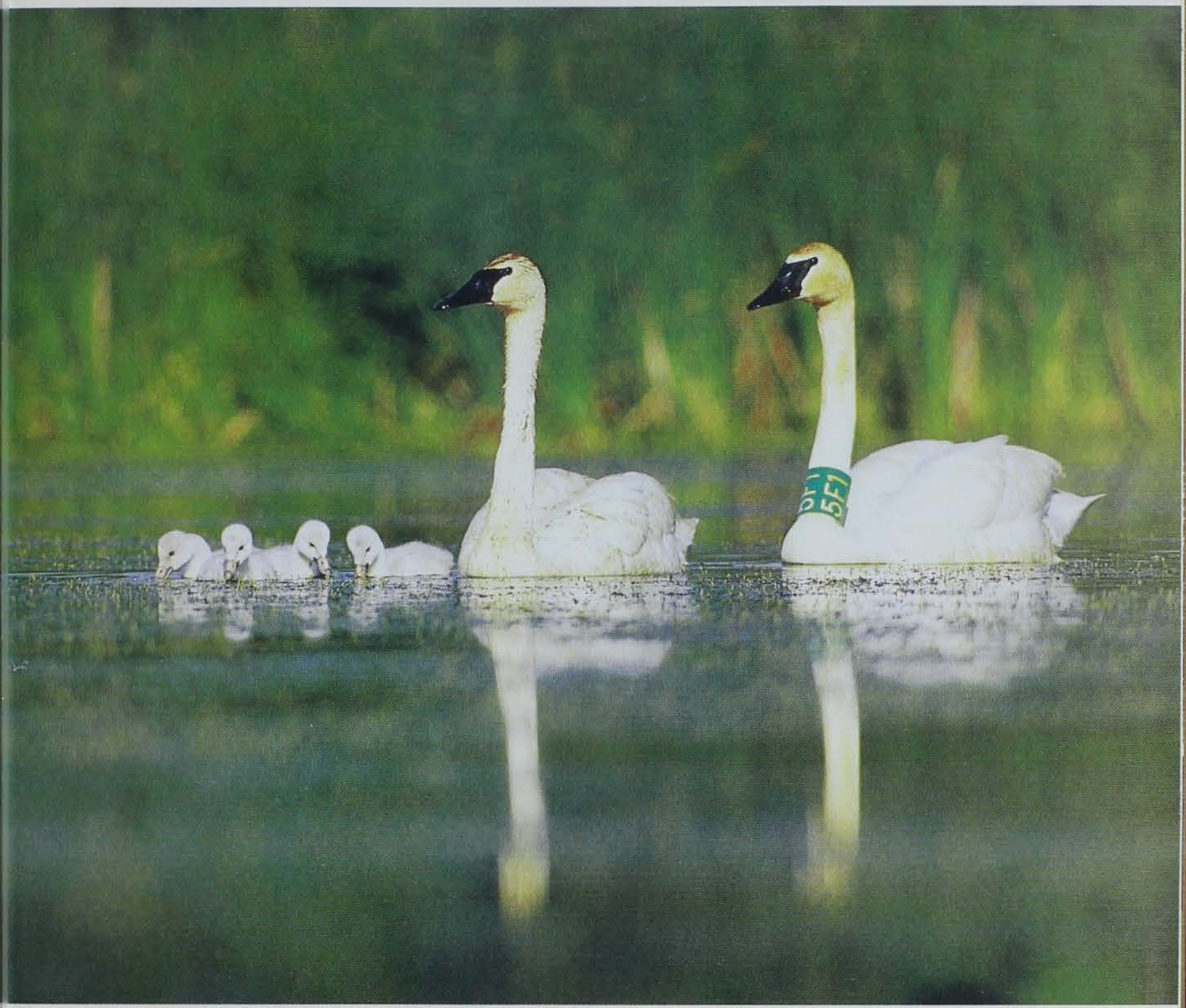
An even greater danger arrived near the end of the brood's second week. It was a cloudless morning, and I was shooting photos from inside the 'rat house. The four remaining cygnets were only a dozen feet away, eagerly chowing on aquatic insects. Suddenly, the female became alert and agitated.

Two river otters had appeared at the edge of the cattails, and were now effortlessly gliding across the pool toward the babies. Otters are among the world's most adept swimmers. Any animal that can outmaneuver and catch a healthy trout would have no trouble snagging a baby swan.

There was no time for deliberation. In an instant, the female swan had made her move. Meeting the otters head-on, she attacked with unbridled fury. The sound was incredible. For several seconds there was so much water and mud in the air that I couldn't tell for sure who was winning. Both otters suddenly burst from the melee and passed within scant feet of my blind. The pair was in full retreat and going — well — they were going just about as fast as an otter can travel. Satisfied the intruders had been put to route, the female returned to her young.

The male had been less than 20 yards away when the incident began. Although he immediately moved to assist the female, the otters were already fleeing the area by the time he arrived. A loud and jubilant victory dance ensued. Catching the mood, the babies began a peeping rendition of their own.

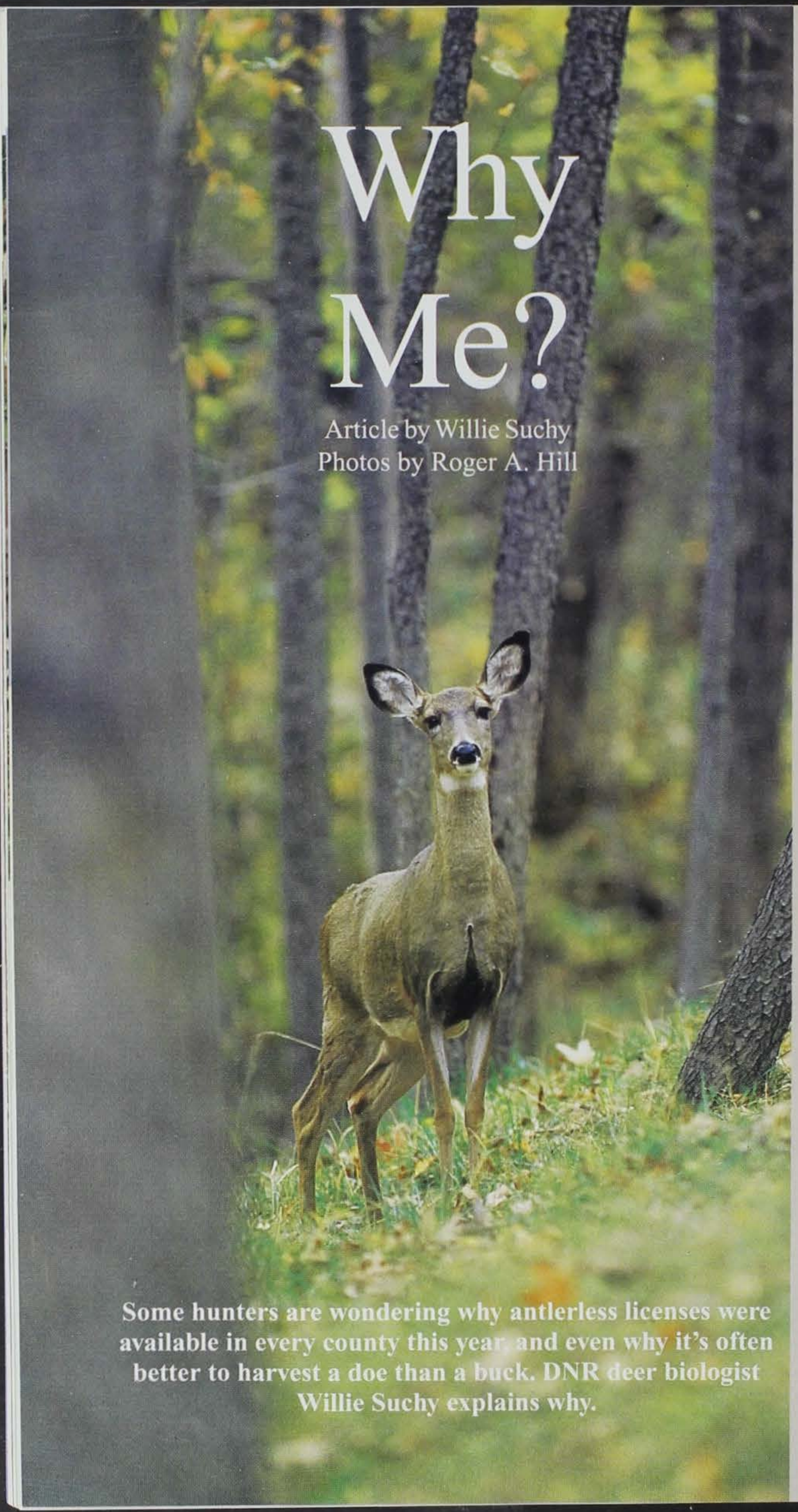
Within minutes, the swan family resumed feeding. Although I continued taking photos, I knew that nothing would surpass the show I'd already witnessed.



Editor's Note: The Mallard Marsh trumpeter swans lost one additional cygnet during July. By late August, the adults were leading their three surviving youngsters on excursions to neighboring wetlands. In late October, the swan family embarked on its winter migration.

Why Me?

Article by Willie Suchy
Photos by Roger A. Hill



Some hunters are wondering why antlerless licenses were available in every county this year, and even why it's often better to harvest a doe than a buck. DNR deer biologist Willie Suchy explains why.

Many hunters, especially those in the northern part of the state, were undoubtedly surprised when they discovered they could purchase an antlerless license in any county for this year's deer season.

Although extra doe tags have been available in southern counties for many years, none had previously been offered in the northern counties. In fact, some may recall last year when hunters in several northern counties were prohibited from taking does for part of the gun season. Now, despite all the snow and cold last year which makes for difficult survival conditions, there were extra tags? Hunters under age 30 might be asking, "What's up with that?" Those older than 30 are probably muttering something a little more colorful.

So why the change? Did deer numbers really increase after such a harsh winter? Can't the DNR make up its mind? Is the DNR simply reacting to those who feel there are too many deer? These are some of the many questions I was asked after the new regulations were approved by the Natural Resource Commission in June.

There are reasons for the liberalized rules, just as there are anticipated results from the changes. This article is intended to identify both, and explain what you as a hunter can do to help manage deer in the area where you hunt.

But first, we need to look at the information the DNR uses to manage deer populations, and how it was used to make a seemingly contradictory decision.

Management By Numbers

There are three main sources of data used to manage Iowa's deer

opulation. Two — the aerial and potlight counts — are surveys DNR taff conduct on an annual basis, vhen conditions permit. The third — he number of deer killed on Iowa's oads — is recorded by DNR and)OT personnel throughout the year.

Another key piece of information s the number killed during the hunting easons. Harvest estimates are made sing a post-season postcard survey lesigned to estimate the number of loes killed statewide, within plus or minus 5 percent.

Each source of information has ts strengths and weaknesses. For example, aerial surveys conducted in January and February require cold emperatures and fresh snow, both of vhich were plentiful this past winter. However, that's not always the case. ts major strength is its timeliness, since it provides immediate feedback on hunting success.

Results from the spotlight survey conducted in April can vary depending on how soon leaf-out occurs, since foliage makes it difficult to see far from the road. Historically, the data from the number of deer killed on Iowa's roads has been the most consistent indicator of deer trends, especially after the raw numbers are "adjusted" for the volume of traffic.

To try to make sense of all this information, I use a computer model to "simulate" the number of deer in the population and determine how many need to be harvested to keep the population stable. The model factors in information obtained from research conducted in Iowa on productivity and survival to predict how many deer are in the population based on harvest and survey results.

How many deer are there?

After the 1998 season the model indicated that, due to liberalized harvest regulations in 1997 and 1998, deer numbers were leveling off after several years of recovery. The estimated number of bucks and does harvested had declined in 1998, and the roadkill was down for the first time in four years.

After the 1999 season, roadkills were again down, and the spotlight survey decreased for the first time in several years. Aerial counts were also down, though the winter was relatively mild, and mild weather makes for tougher counting conditions. Deer do not group up as much during mild weather, and locating them is more difficult.

Despite the decrease in survey numbers both years, the 1999 harvest had actually increased. The numbers were somewhat contradictory since success rates should decline as the population is reduced. Sometimes, though, it takes a year before much change is noticed.

The same thing appeared to have occurred back in the late 1980s, the last time liberal seasons reduced deer numbers. Based on declining survey numbers, it appeared the population was most likely declining, and restrictions were placed on some counties in northern Iowa for last fall.

Aerial counts rebounded this past winter, which is not unusual with prolonged cold and snow cover. However, by March, after nearly 100 days of continuous snow cover,

reports were coming in of deer starving, especially in northern Iowa. Analyses of the remaining fat stores in femurs taken from a sample of these deer indicated most had been under nutritional stress, a rarity in Iowa. The number of deer killed on the highways in 2000 had declined for the third year in a row. Based on this information, it appeared deer numbers were stable or decreasing, and somewhat conservative regulations were initially proposed for this fall.

However that all changed when harvest estimates were completed in April. Instead of the expected decline, the harvest increased, and not just slightly. In fact, surveys indicated an all-time record harvest of more than 126,000 deer last year. Unexplainably, most of the increase was in the number of bucks killed. The number of does taken stayed about the same.

When the spotlight surveys came back in April and deer numbers were up on nearly 80 percent of the surveys, I was faced with a dilemma. Although the reported number of deer killed on Iowa's roads was still decreasing, harvest and other surveys indicated deer numbers were increasing. I had to determine which was the most plausible scenario.

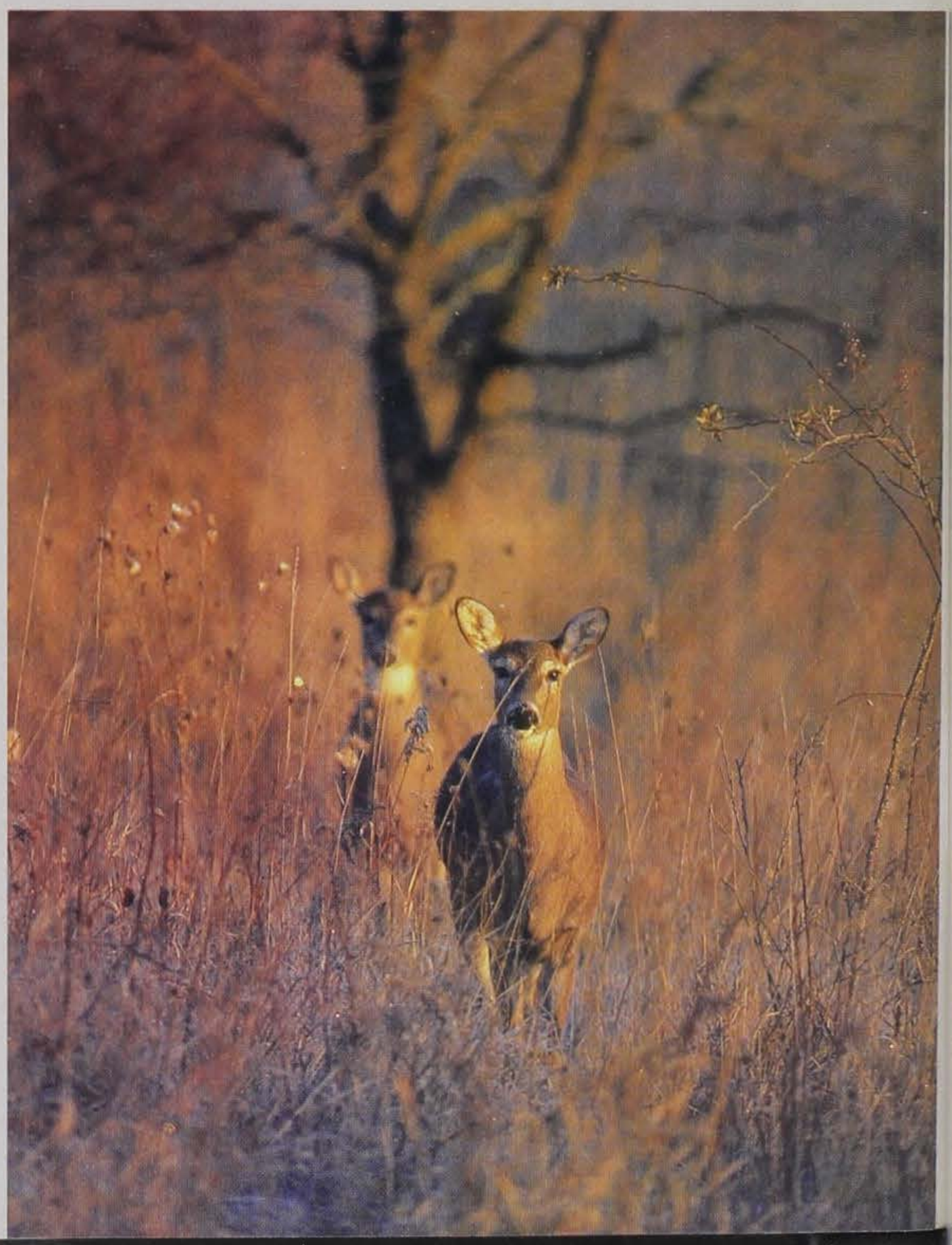
After running different combinations through the model it seemed most likely deer numbers were higher in 1998 and 1999 than originally projected, since the only way to have more bucks killed (buck harvest increased by nearly 17 percent during the 2 years) is to have been more in the population. And since research indicates the number of bucks and does born each year are about equal, doe numbers were surely on the increase since the 2000 doe harvest essentially stayed the same.

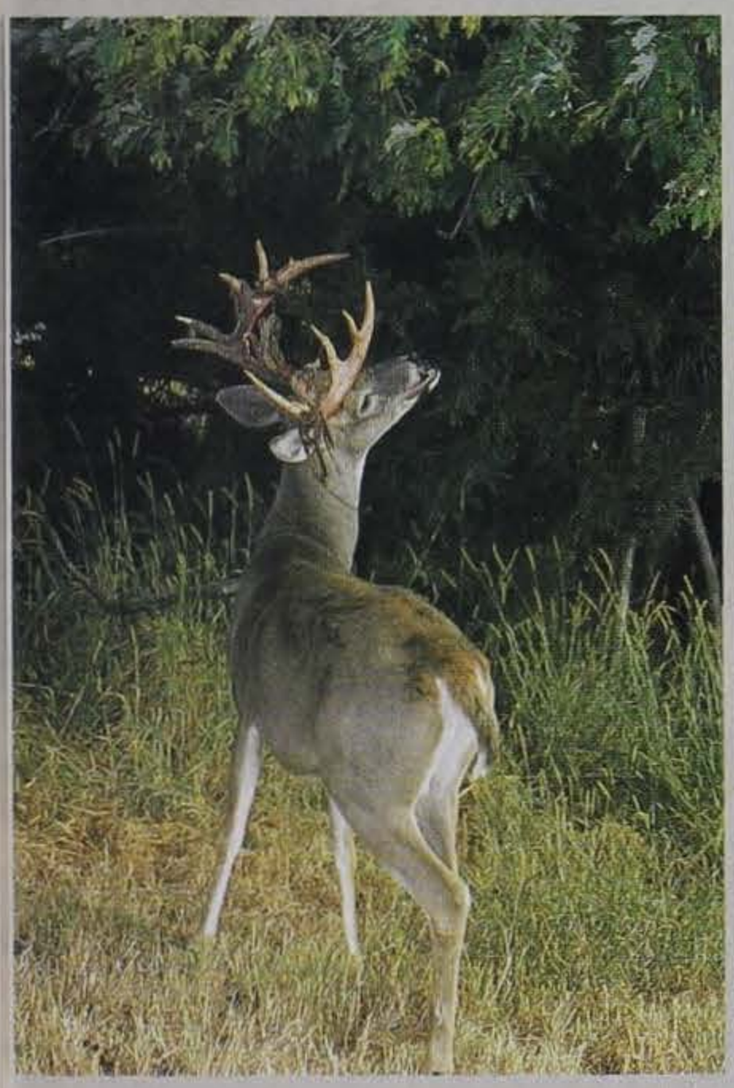
It now appears roadkill data may not as closely reflect changes in deer numbers as it has in the past. Conversations with some of our conservation officers indicate they believe fewer people are salvaging deer after they have been hit on the road. If this is true, it could explain why the index no longer reflects changes in the deer population as closely as it has, since salvaged deer made up about half the total reports in the past.

Based on these new projections, it appears a 25 percent increase in the number of does killed over the next two years is needed to bring the population back to a stable level. The belief holds true even if there were some mortality or reduced fawn survival due to the harsh winter. The antlerless quotas in northern Iowa are, for the most part, based on this projection and past doe harvest in each county.

What can you do?

Not all areas of the state need extra does killed, but there are probably some in every county. You (and the owner on whose land you hunt) are the best judge of whether there are too many deer on the area.





If you both agree there are plenty of deer, then by all means you can help reduce deer numbers by getting one or two doe tags. If you don't think you can use all the extra meat, you might still consider getting an extra tag or two and giving some of the extra to the landowner or a food pantry in the area. Venison can be donated to many places if it is processed by a locker into pure ground venison (no added beef or pork), packaged and stamped at the locker and frozen.

If the population appears stable, don't purchase extra tags. Taking more does in that case will only make the situation worse. Talk with the landowner and make the decision together. That will show you are willing to help and that you care about the animals, and the property you are hunting on as well.

Most public hunting areas do not have too many deer on them. If this is where you hunt, forego the extra tags or find someone with private property who needs an extra doe or two taken. I'm always surprised when hunters come up to me after the season and tell me they shot a bunch of deer on a piece of land, and now they don't see as many. Like I said, you are the best judge of how many deer are on the areas you hunt. Work with the landowner and determine if extra does need to be taken.

Finally, if there are plenty of deer in the area and you do get a couple of doe tags, pass up the younger, smaller bucks this fall with your regular tag. Simply letting them grow a year older will let some of them become dandy trophies in the next year or two.

Ideally, if you are at an acceptable population level, your harvest "goal" should be to kill about the same number of bucks as does each year. You need to kill about one-third of the does each year to keep the population from growing. If you can do this you should be able to keep the population stable and maintain some older bucks in the population. I wouldn't impose this restriction on new or young hunters since every deer is a trophy. But seasoned veterans should find some satisfaction in managing their harvest, since they'll be managing the deer population both for themselves and the landowner.

Give these suggestions a try and you may find this is one of those rare opportunities where you can have your cake (or in this case venison) and eat it too!

Willie Suchy is a biologist with the department in Chariton.

PAY AS YOU THROW

Mount Vernon residents take preservation seriously—right down to their garbage

Mount Vernon, one of Iowa's most picturesque cities, is also a pioneer in effective waste management

Article and photos by Bob Castelline

Traveling along Highway 1 in southeastern Linn County, it isn't apparent that the road beneath had once been a plowed furrow, over which weary 19th-century soldiers had returned from war. Nor is it apparent that the long, hump-backed ridge — known in geological circles as a paha — rising in the distance above the gently rolling landscape is all that remains of a once higher glacial plain. Or that a town, Mount Vernon, sitting atop that paha like a jewel on a pillow, had been born with a log-framed blacksmith shop and a general store along a single muddy avenue running perpendicular to the military road.

No, the ghosts of the past aren't here to greet you along the approach to Mount Vernon. No buckboard wagons. No livery stables. No housewives churning butter or men hammering away at horseshoes. On the surface, it's just another small town in Iowa.

But come a little closer. Look deeper. You'll see that history still lives in Mount Vernon. It lives in the limestone churches along First Street, built in the late 19th century, and in the Victorian homes constructed during the city's infancy. It lives in the original concrete marker for the Lincoln Highway, once part of the nation's first transcontinental roadway during the early 20th century. It lives in the town's oldest halls of academia, Old Sem and Old Main on the campus of Cornell College, built on the city's highest point by a hotelier and a Methodist minister.

CREATION'S PALETTE: Mount Vernon, home to thousands of trees, becomes ablaze with color during the fall.

And it lives in the trees. Thousands of them, some centuries old, are splashed every autumn with the brilliant pigments from creation's palette. These trees — maples, birches, oaks, elms — along with the ageless paha, link Mount Vernon to an era before man ever had beheld the beauty of this place.

Mount Vernon citizens hold a keen awareness of their city's heritage, as well as its beauty. But Mount Vernon's roughly 4,000 residents don't stop at simply talking about their town or including it in a tourist brochure. Their efforts to preserve the area's natural beauty extend beyond the preservation of its architecture or the planting of trees at a rate of 30 for every one lost to disease or storm. The people of Mount Vernon take seriously the issue of preservation, right down to their own garbage.

Pay-as-you-throw

Back in 1991, Mount Vernon embarked on a waste management plan that seemed revolutionary at the time. The city would charge its residents for each bag of trash collected, as well as a modest monthly fee for pickup of recyclables. The economic incentive was simple: Make less trash, pay less for garbage collection. The concept, called unit-based pricing, or its sexier nickname, "pay-as-you-throw," has

ARCHITECT: Dr. Donald Cell, a retired Cornell College professor, helped design Mount Vernon's pay-as-you-throw program.

environmental benefits, as well: Make less trash, send less to the landfills.

Few cities in the United States, let alone Iowa, were using the system when Mount Vernon took its giant step in 1991. But the program worked so well that Mount Vernon gained status as a "model city" and was one of just nine nationally that were included in a series of articles dubbed "pay-as-you-throw success stories" in 1997 by the U.S. Environmental Protection Agency.

Now, more than 10 years after Mount Vernon boarded the pay-as-you-throw bandwagon, the total number of cities in Iowa using unit-based pricing has grown to 446, third-highest in the United States. But the most recent 207 of those cities have adopted the system because an Iowa law requires it. That law compels all cities located within the 16 solid waste planning areas that have not diverted at least 25 percent of their waste from the landfill since 1988 to adopt a unit-based system. More than a few of them aren't happy about it.

IVY WALLS: But this isn't a college building. It's one of Mount Vernon's beautiful older homes

But there is good news. The system works, and it works on multiple levels. It encourages citizens to put less trash in the can, meaning landfill space is used at a slower rate. In order to put less in the can, citizens are recycling more, which means less energy and fewer virgin materials are needed to produce the goods they buy. And it means they're finding new and creative ways to reduce waste at the source, such as holding yard sales, giving clothing to the needy, leaving the grass clippings on their lawns and buying environmentally friendly products.

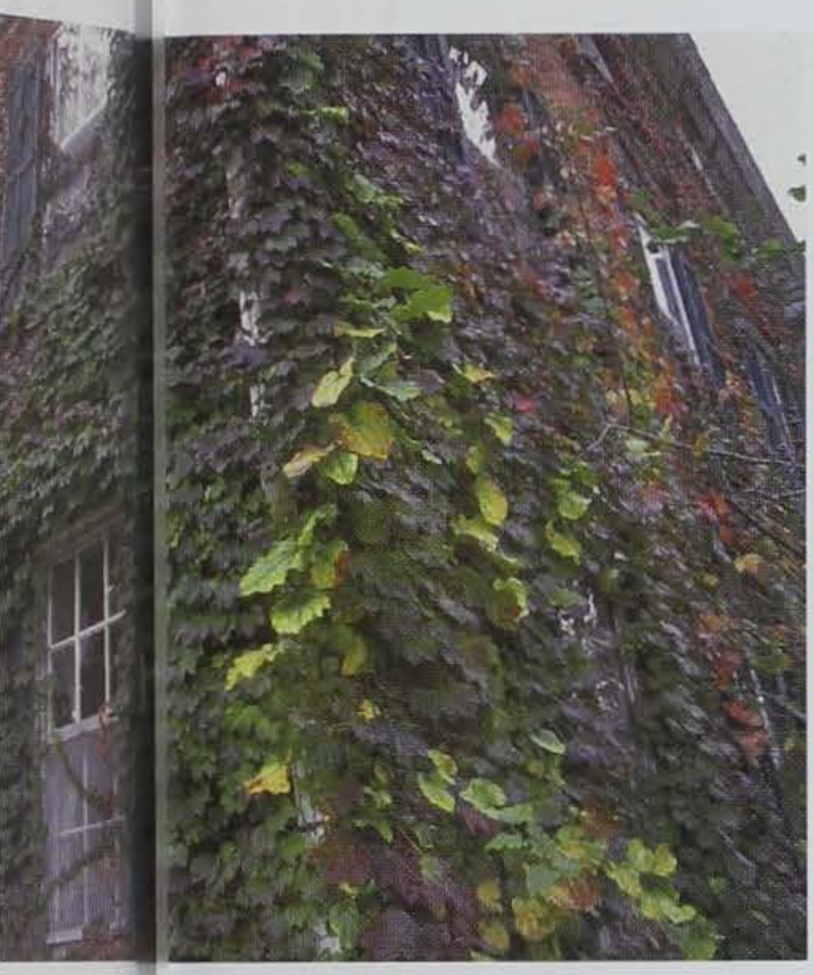
The chief benefit, however, is probably the least obvious and the most important to the bill-paying Iowan. Pay-as-you-throw costs less. "That's kind of hard for people to grasp," says Dr. Donald Cell, a retired professor of environmental economics at Cornell College. "But costs go down because it encourages people to recycle and send less to the landfill. So the landfill bill goes down for the community."

Setting up the program

Don Cell is an academic. His current and former Cornell College students call him "Dr. Cell," which is appropriate, but when you meet him, he'll tell you, "Just call me Don." He writes letters to the editor, likes homemade potato soup and loves Mount Vernon, his chosen place of residence since 1962. An arthritic hip has slowed him somewhat, putting a crimp in his tennis game, but he still ambles ably around his small town on foot. "There's almost nowhere you can't walk in Mount Vernon within a few minutes, and as long as I can walk, that's what I'll do," he says.

He's also an environmentalist, more accurately an environmental economist. The discipline, which he taught for 38 years at Cornell before retiring in May of 2000, emphasizes the use of economic incentives to protect the environment. In other words, it's the study of how to make it worth a person's while to *not* trash the earth. "As far as the market is concerned, there are a lack of economic incentives to protect the environment," Cell says. "The idea is to restructure those incentives so that the less the individual trashes the environment, the less the individual pays."

Pay-as-you-throw makes up a small piece of the environmental economics pie, but it's one of the tastiest pieces for Cell. He had championed the idea back in 1989 when the city was putting together a



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ecycling plan in response to the state's new waste diversion law. That law set a goal of diverting 50 percent of the state's waste from landfills by the year 2000. The League of Women Voters in Mount Vernon and neighboring Lisbon asked Cell to chair their committee after he wrote an article for the Mount Vernon Sun that claimed recycling alone wouldn't reduce waste significantly. After all, he said, reducing waste gets top billing in the reduce-reuse-recycle hierarchy.

"People talk a lot about recycling," Cell says. "Frankly, a curbside recycling program doesn't give you the incentive to reduce because you can recycle free of charge. But when you're paying by the container for every bit of trash, you have the incentive to reduce the part of your trash that you can't recycle." The League of Women Voters was convinced, and Cell was named co-chair of the city-appointed Reduction and Recycling Committee along with Sara Ellison of Lisbon.

An early step for Cell and the committee was to determine the best way to administer the program. A number of different methods are available (see chart), and the chosen method varies from town to town. In Mount Vernon, the process is simple. Households purchase tags for $1.75 each at city hall or one of several local stores, which sell the tags as a public service with no markup. The

PAYT Design Options

Option	Description	Advantages/ Disadvantages
Pre-paid bag	Households pay a fee by purchasing official, distinctively marked, standard-sized trash bags, typically 20-30 gal.	**Advantages:** A, B, C, D, E, F, I, S **Disadvantages:** a, b, c, d, e, f, g
Pre-paid tag/sticker	Households pay a fee by purchasing official tags or stickers. The fee covers a specific size container.	**Advantages:** A, B, C, D, G, H, I, S **Disadvantages:** a, b, h, i, j
Subscription systems	Households sign up for collection of a specific size or number of containers of garbage per billing period.	**Advantages:** J, K, M, N, S **Disadvantages:** k, m, n, o, p, q, r
Weight-based systems	Households pay a set fee per pound of garbage contained in designated containers. The garbage is weighed upon delivery or pickup.	**Advantages:** A, B, O, S **Disadvantages:** s, t, u
Hybrid systems	Households pay a base rate for a given amount of service and then pay per container for any garbage above the base amount.	**Advantages:** B, J, K, M, N, R, S **Disadvantages:** v, w

Advantages key

A - Easy to understand; **B** - Strong waste reduction incentive; **C** - No billing system req'd; **D** - Low distribution, storage, inventory costs; **E** - Faster, more efficient collection of trash; **F** - Advertising on bags could offset costs; **G** - Low implementation costs; **H** - Tags have low production cost; **I** - Easy to indicate payment for bulky items; **J** - Stable revenue; **K** - Containers work well with automated collection equipment; **M** - Containers may be labeled with addresses; **N** - Containers prevent animal scatter of waste; **O** - Precise measurement of waste generation; **P** - Recovers some cost through traditional financing; **Q** - Allows time to develop system familiarity; **R** - Can use same billing system; **S** - Fair

Disadvantages key

a - Revenue uncertainty; **b** - Extra staff time to sell bags/stickers; **c** - More expensive than tags; **d** - Incompatible with automated collection equipment; **e** - Animals can scatter trash; **f** - Residents using containers may object; **g** - Residents might "stuff" bags unless weight limit enforced; **h** - May not adhere in cold or wet weather; **i** - Stickers can be stolen; **j** - Stickers not as noticeable; **k** - High implementation costs; **m** - Limited incentive to reduce waste; **n** - Complex billing system needed; **o** - Complex storage, inventory and distribution systems req'd; **p** - Need method for collecting bulk items; **q** - Residents may find it difficult to choose a service level; **r** - Cash flow problem due to time lag between paying hauler and collecting fees; **s** - Exist only in pilot programs; **t** - Special trucks needed; **u** - Weights and measures not yet approved; **v** - Full costs of waste disposal not apparent to customers; **w** - May be confusing to customers

Source: State of Iowa Implementation Guide for Unit-Based Pricing

price for collection is one tag for each container, which must be no more than 30 gallons or 40 pounds, and multiple tags for bulky items. Residents pay $7 per month for collection of recycled materials, leaves and brush.

Pay-as-you-throw has a lot of advantages, but Cell's favorite is fairness — like utilities, you pay only for what you use. However, Mount Vernon and Lisbon have taken the concept one step further. Those cities allow a two-tiered discount of the monthly fee for low-income families, using the guidelines set forth by the federal school-lunch program. Lisbon gives an additional discount for the elderly. "I believe we're accomplishing two fairness principles here: Paying for your own waste plus giving a break to low-income households," Cell said.

City-sponsored surveys indicate that Mount Vernon residents believe pay-as-you-throw has been a fair way to pay for trash disposal, despite a recent price increase for both the monthly fee and tags. "The way it's worked out, if a person recycles and shops smart, the increase has been less than the rate of inflation over the past 10 years," said Michael Beimer, Mount Vernon's city administrator. "All in all, people get more now for their dollar than they did 10 years ago." And it certainly has worked to reduce waste. An EPA report shows the average Mount Vernon household had reduced the amount of trash it sent to the landfill from 45 pounds per week to just 27 during the program's first five years.

Another hurdle was figuring out how much to charge. Because the town had decided upon stickers instead of bags or containers, startup costs for trash collection were minimal. Using stickers means that expensive containers don't have to be purchased and complicated billing systems aren't required. Determining the cost of trash collection then becomes a simple matter of estimating the amount of trash and factoring in the cost per ton of hauling and landfill fees.

As for the monthly fee, Cell says Mount Vernon's fee covers the cost of recycling, as well as the collection of leaves and brush. Recycling costs, including large startup costs for bins and special trucks, can vary greatly, depending upon whether the recyclables are collected at the curb or at local drop-off centers. Collection at the curb is expensive compared to drop-off centers because of the labor needed to separate the material at the curb, although labor costs tend to run relatively constant once the program is up and running.

Cell said the choice between curbside or drop-off needs to be made on a case-by-case basis. "Obviously, it's kind of expensive to run recycling trucks all over the country in rural areas, so there is logic to the drop-off centers in some communities," Cell said.

Either way, Cell says, cities need a strong recycling program. Pay-as-you-throw without recycling encour-

ALL THOSE LEAVES: With all its trees, Mount Vernon has lots of leaves to pick up. Thanks to its comprehensive recycling program, residents can simply rake the leaves to the curb, where they are vacuumed up by the city's trash hauler, Waste Management of Iowa City. The leaves are taken to the local landfill for composting.

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ges illegal dumping, while recycling without pay-as-you-throw gives the esident no incentive to reduce waste. 'If you combine recycling with pay-as-you-throw for the garbage compo-nent, you have a comprehensive ncentive to reduce and recycle in very way," Cell said.

The system isn't perfect. Resi-lents can purchase large numbers of tickers before using them, which nakes predicting revenue difficult for he city. Stickers can be stolen, and ome don't stick in cold or rainy veather, although that hasn't been a roblem in Mount Vernon. And illegal lumping — dumping waste in a ditch nstead of paying for stickers — is always a concern. However, Cell says dumping hasn't been a problem because violators can be caught. "It isn't all that easy to keep your name out of your trash," Cell says. In addition, Mount Vernon's garbage ordinance includes a $1,000 fine for illegal dumping.

Garbage police

No law works without someone to enforce it. In the case of trash ordinances, the enforcer doesn't wear the uniform you might expect.

"Haulers are the garbage cops," says Gene Freiburger, former owner of Freiburger Waste Services, which carried Mount Vernon's trash to the landfill until he sold the business to Waste Management of Iowa City in 1999. "We're telling customers, 'You have to do it this new way, or we won't pick up your garbage.' That's a difficult role. We're providing a service, and our objective is to keep our customers happy."

Without the hauler's vigilance in holding customers to the rules — in Mount Vernon's case, that means "no sticker, no pickup" — unit-based pricing would never work. Freiburger, who served on Mount Vernon's Reduction and Recycling Committee during the planning of pay-as-you-throw, says the hauler needs to be closely involved with developing the town's garbage ordinance. "My job was to sort through the collection systems that were thrown out on the table, to help figure out which systems would and which ones wouldn't work," Freiburger said. "Then, once the system was in place, it was my job to enforce the ordinance."

Haulers face a number of challenges in cities that implement unit-based pricing, with perhaps the biggest being customer resentment. "Most haulers don't have any sort of public relations or education plan, but it's critical that customers understand why the unit-based pricing is being done," Freiburger said. "You've got to communicate with customers in a way that's fast, accurate and understandable. If you communicate with your customers, 80 percent of the problems will go away within the first month."

There are incentives for the hauler, as well. Thanks to pay-as-you-throw, the demand for special pickups of bulky items such as sofas, refrigerators and washing machines has doubled, Freiburger said, and that's good for business. Also, the increased need for specialized equipment and services on the part of the hauler, especially for recycling, tends to reduce the competition. "You get an idea very quickly of who wants to be in this business and who doesn't," Freiburger said.

Pay-as-you-throw politics

Changing the way people do almost anything is a tough sell, both for citizens and politicians. City governments constantly juggle the need to do what's right with the desire to do what's convenient, and pay-as-you-throw represents the big

PAYT: Looking beyond Mount Vernon

Mount Vernon's pay-as-you-throw program has been praised universally, and rightfully so. But not every city in Iowa has 4,000 residents, a college with lots of professors and a large city nearby — nearly perfect conditions for establishing any new system. Nor has every city established unit-based pricing voluntarily. Still, unit-based pricing can work for every city, even those under state mandate.

The city of Adair (population 894) is a prime example of a city that has made the best of state requirement and turned it into a positive. Along with a sticker system, Adair has established a curbside recycling program, which few small cities have done.

"Adair saw the wisdom of unit-based pricing," said Tammie Krausman, a management analyst with the Iowa Department of Natural Resources' Waste Management Assistance Bureau. "For them, it wasn't just an exercise in meeting state regulations. They could see that filling up the landfill was costly to everyone, and in many ways."

Small cities face more challenges than their large-city counterparts, and most towns fall into the small category. Of the most recent 207 cities required to establish unit-based pricing, most have populations of less than 1,000. Many have less than 100.

But small towns can establish successful programs, too. Krausman said unit-based pricing can be as simple as establishing and enforcing a bag-limit.

"You don't have to have a professor study the issue," Krausman said. "It just takes a little homework and activecommunication with your hauler."

Communication is essential with small communities. Many don't have a contracted hauler, while others may have two or three haulers. Cities need to discuss their programs with haulers to make sure what they're proposing will work. "Most haulers don't mind unit-based pricing once they get the system up and running," Krausman said. "But you need to contact the hauler ***before*** implementing the program."

Krausman added that public education is another key element to establishing pay-as-you-throw in small communities. "Once people understand it, they tend to like it," Krausman said.

City leaders who need help with unit-based pricing may contact Krausman at (515) 281-8382 or by e-mail at tammie.krausman@dnr.state.ia.us.

sombrero of public relations challenges. The convenience of simply throwing your trash in the can and letting someone else worry about it has been financed through user fees or property taxes in many cities for decades.

"When garbage collection is financed through fees or property taxes, it's out of sight, out of mind," Cell said. "You pay your taxes, and you don't know where those taxes are going. Some of that money is going to finance the landfill, which is 20 miles away. It may even make solid waste services appear to be free."

Beimer doesn't hesitate when asked the biggest political hurdle for pay-as-you-throw. "It's the education process," Beimer says. "We had to explain to people what was going to happen. Why would some people see increases in their costs while others would see decreases? It depended upon whether they chose to recycle. If you recycle, your costs go down. If you don't, they go up. A lot of education was done ahead of time."

Mount Vernon conducted an extensive public education campaign that included printed fliers, advertisements and town meetings, during which Cell gave talks explaining the program's logic. But if you ask Cell, he'll also tell you that the city didn't go far enough. "We should have hired a person half-time to conduct an ongoing educational effort," Cell said. "Let's take the case of grass, as an example. There is absolutely no purpose for collecting grass clippings. If people mow regularly, the clippings decompose on the lawn and add to its vitality. But people have this idea that they're supposed to rake up their grass clippings. Once we got that word out, the amount of grass collected dropped dramatically."

Another important political ally was the local grocery store, Gary's Super Value, which agreed to sell the tags as a public service with no markup. Tags are sold at city hall, but

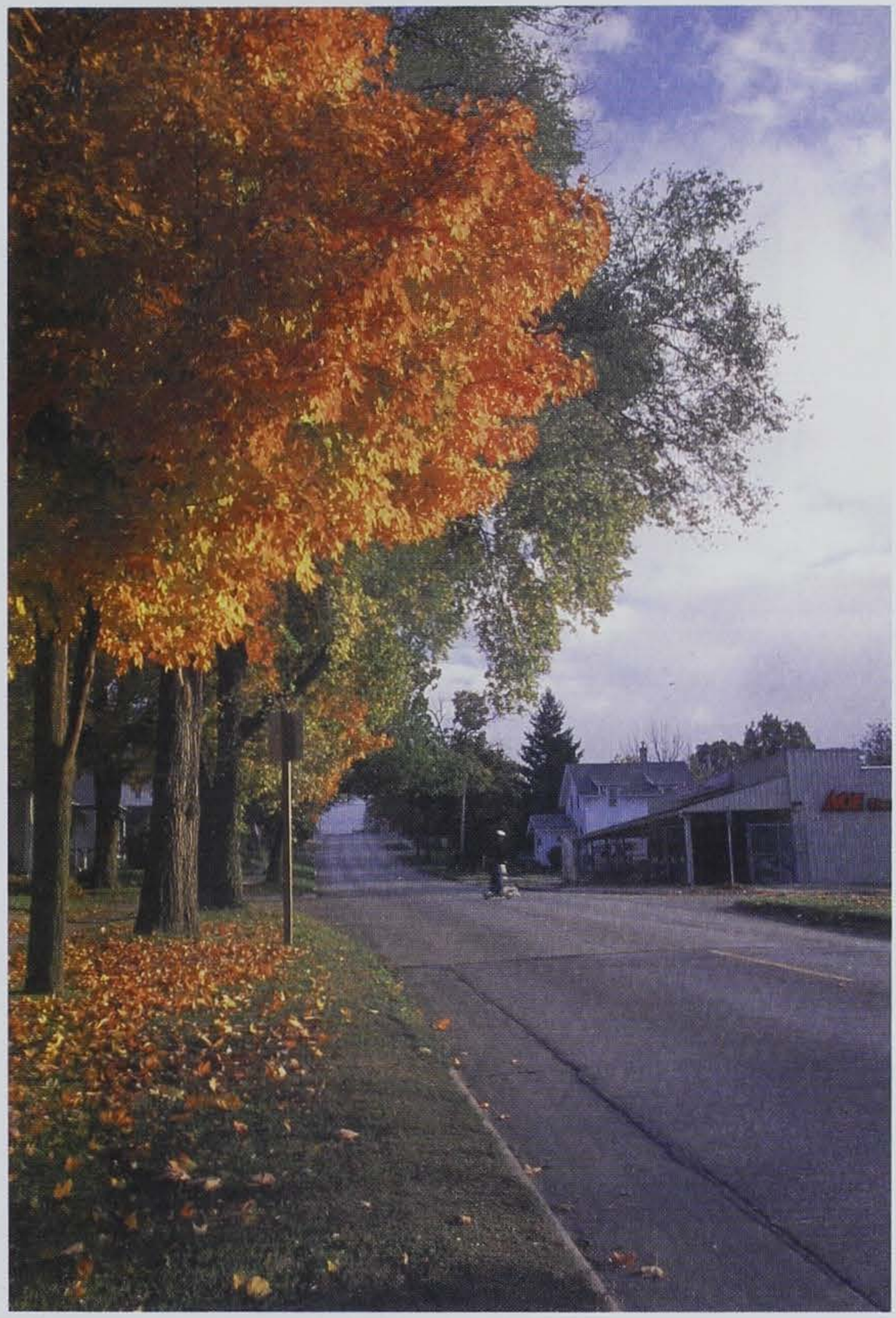
or convenience, they're also sold at he local store. "We had to explain to he people that all of the $1.75 was coming to the town to pay for the program, and nothing was going to he store," Cell said. Beimer says the store also promoted recycling, printing paper bags with "Recycling: It's Our Bag" and using bags made from ecycled materials.

Beimer says the community of Mount Vernon takes a proactive tance when dealing with environ- nental issues and recycling. But other communities may not be so ccepting. The key is developing a collective, ongoing environmental onsciousness. "It's not something ou do once a year or once in while," he says. "It's a continuing process, and we have to continue to get smarter.

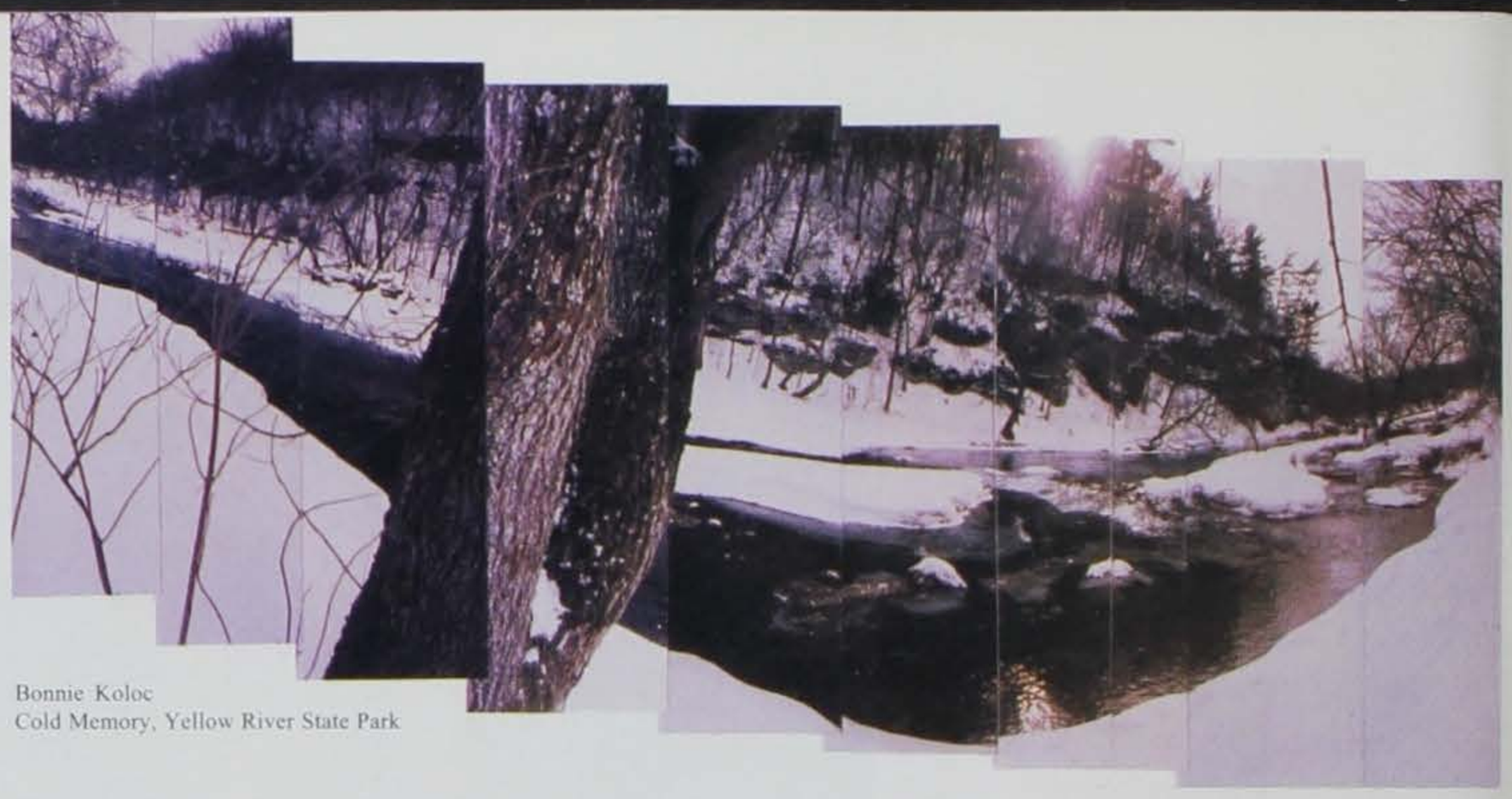
"I remember growing up, when milk was delivered in a glass bottle nd put in an aluminum box on your ront porch. Then they went to the ardboard container and finally to lastic jugs. Industry has evolved, and ve have to evolve with it."

For Cell, it's all about progress. "It's ironic," Cell says. "If you go back 40 years, we were polluting with ocal dumps, air pollution and water ollution, and we didn't think anything f it because we weren't aware of it. We're so much more aware of nvironmental risks today, and I think ve sometimes lose sight of the fact hat we've made this great progress. Pay-as-you-throw is an important art of that."

Bob Castelline is an information pecialist for the department in Des Moines



GRAND ENTRANCE: Highway 1, once a Civil War military road, leads visitors and residents in and out of Mount Vernon. The city is one of Iowa's most colorful, especially in autumn.



Bonnie Koloc
Cold Memory, Yellow River State Park

A SNEAK PEEK

A New Photo Exhibit Highlighting Iowa's Natural Features Goes On Tour

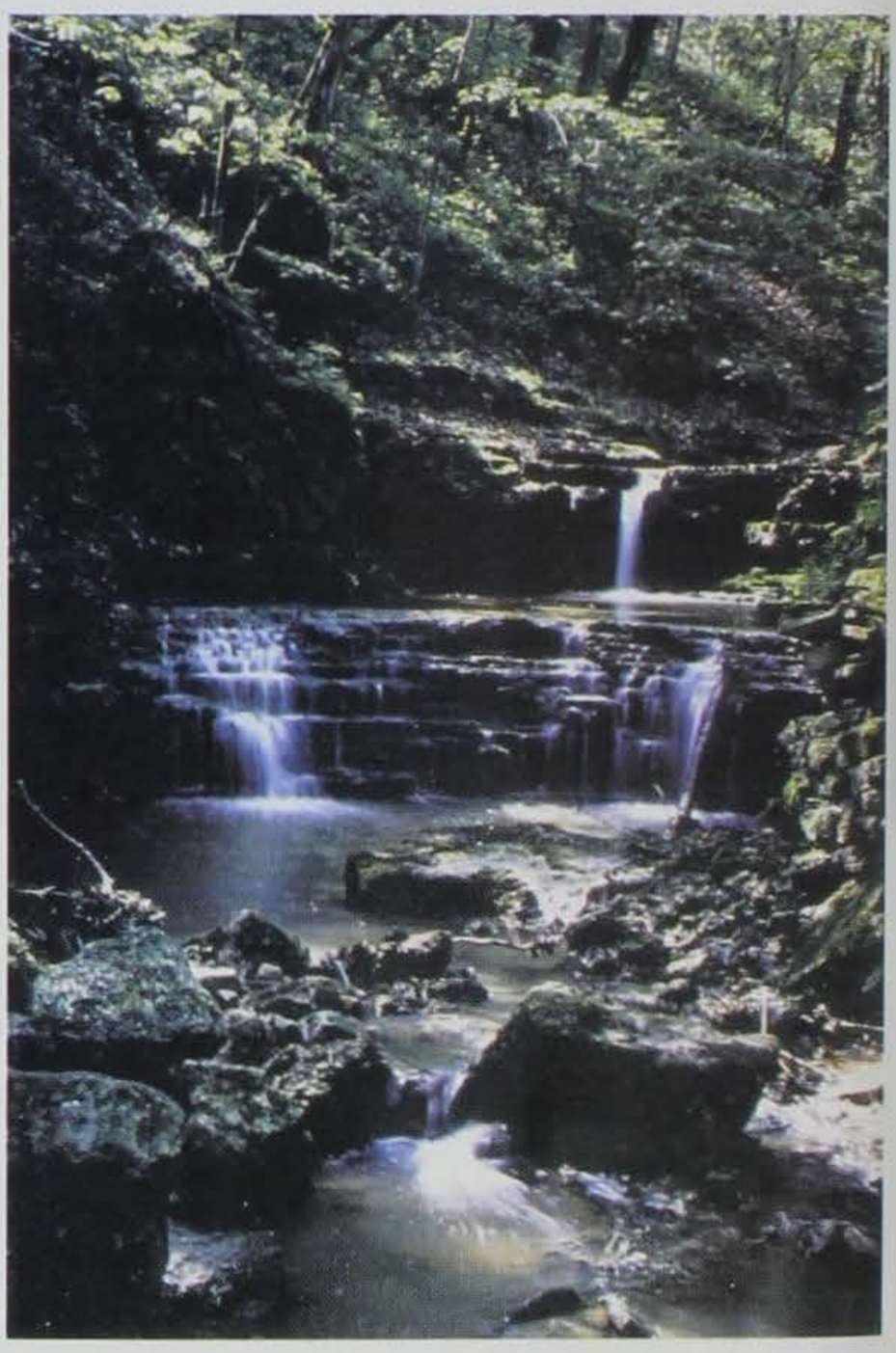
An exciting new photo exhibition of Iowa's natural resources will begin touring the state this summer. The 60-plus images in the "Iowa Collection: Photographs of Iowa's Natural Resources" highlight our natural resources through images of Iowa's state parks, preserves, forests and wildlife areas.

Nineteen professional photographers were chosen by the DNR, the University Museums at Iowa State University and the Iowa Arts Council for the project. Over a one-year period, each captured a striking series of images, using his or her own artistic approach and photographic skills. The selected images personify the beauty, diversity and uniqueness of Iowa's natural resources.

The project is funded by the Art in Public Buildings Program. A small percentage of the DNR's annual capital improvement budget is directed to projects focusing on art. Past projects have included a collection of famed cartoonist Ding Darling's works and the unique "heads" sculptures at the Pleasant Creek Recreation Area beach.

Scheduled stops for the "Iowa Collection" will be the Brunnier Art Museum at Iowa State University in Ames and the State Historical Museum in Des Moines. The exhibition will begin its tour this summer at locations to be announced.

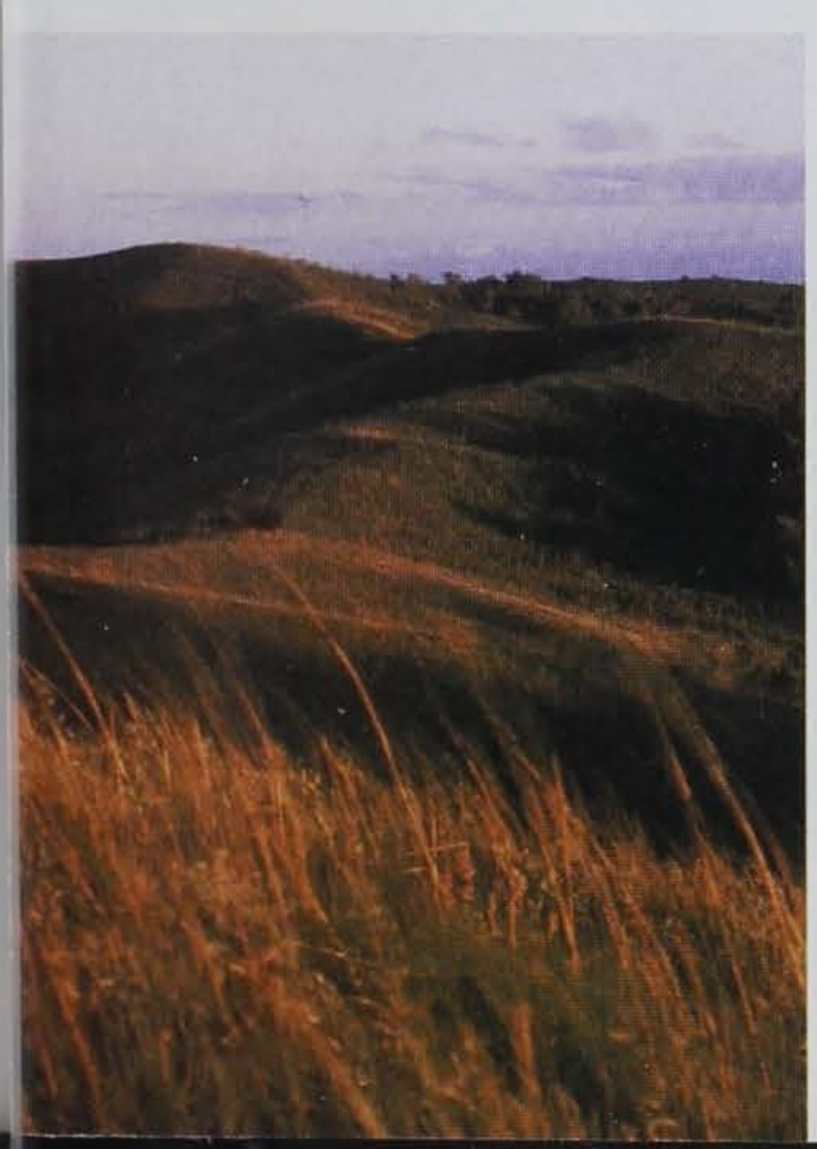
The DNR will purchase one photograph from each artist for display within its facilities, as well as in local communities, after the exhibition tour ends. These images and associated educational materials will provide the basis for a variety of interpretive programs in state parks as well as local school systems.

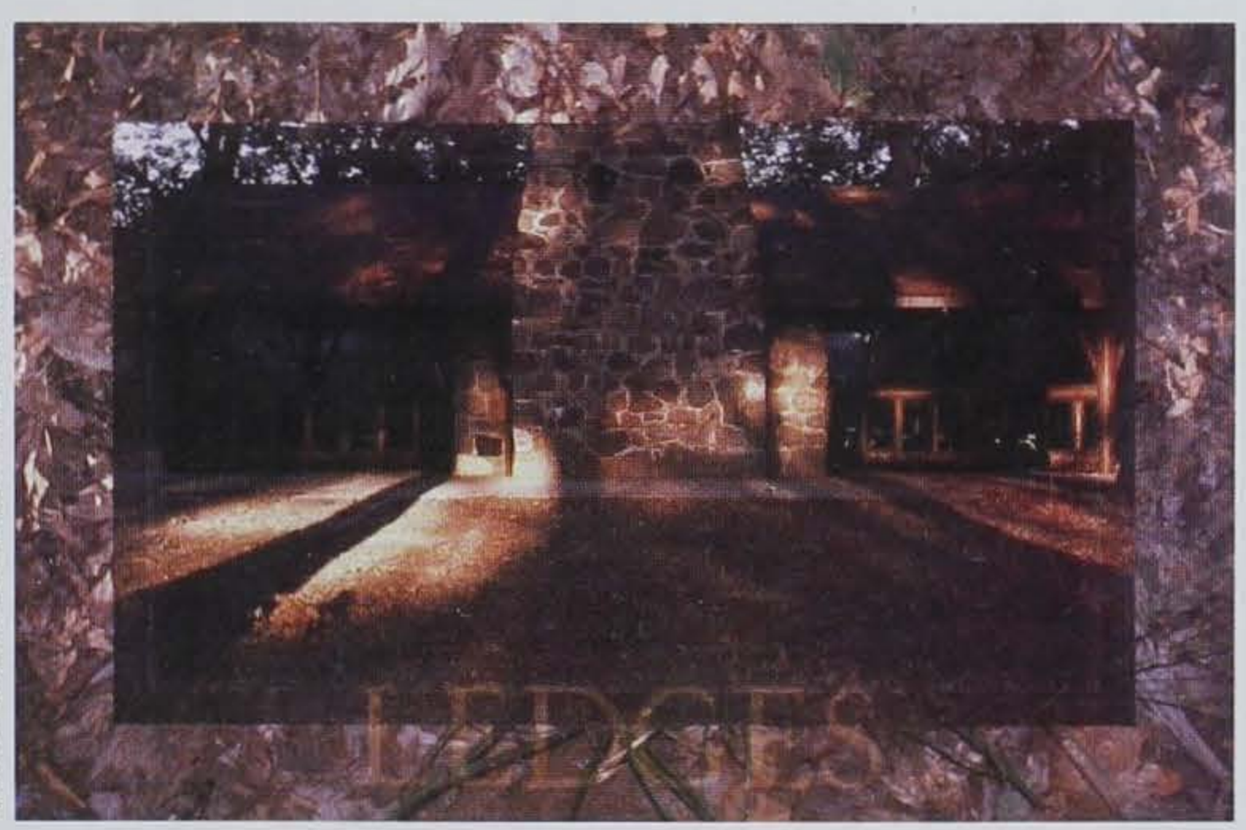


Larry Stone, Creek, Bixby State Pre

Stewart Buck, Whispers in the Mist, Big Creek State Park

King Au, Inclusion/Exclosure, McIntosh Woods State Park





Mary Stieglitz, Ledges Sunrise, Ledges State Park

Tom Rosburg
Wind and Evening Light in the Loess Hills,
Sylvan Runkel State Preserve (left)

Elinor Bedell State Park

Iowa's Newest Jewel in the State Park Crown

by Jim Scheffler

On Labor Day 2001, several hundred people gathered for the dedication of Iowa's newest state park, the first in 27 years.

Elinor Bedell State Park's 80 acres lie on the eastern shore of East Lake Okoboji. The park's mix of grassland, wetland, woodland and lakeshore provides a much needed addition to the array of public lands available to visitors of the "Iowa Great Lakes."

The land was a generous gift to the citizens of Iowa by Elinor and Berkley Bedell of Spirit Lake. The park's namesake was born in Mankato, Minn., in 1923. She grew up in St. Paul and spent her summers in Grand Marais, Minn., where her parents owned a

Jim Scheffler

Elinor and Berkley Bedell cut the ribbon at the dedication of Elinor Bedell State Park, Labor Day 2001.

Angela Corio

small resort. While attending Iowa State University, she met Spirit Lake native Berkley Bedell. They married in 1943 while Berkley was serving in the Army Air Corps.

Berkley Bedell is well known across the country, if for no other reason other than he served as a U.S. Congressman from 1975 to 1987. But his name is also synonymous with fishing. That's right, he is founder of the Berkley Company, the world's largest fishing tackle manufacturer.

The Bedells purchased the 80 acres of lakeshore property in the 1950s. Almost from the beginning, they had a dream it would someday be a state park. They share a long-term interest in the Iowa Great Lakes, the preservation of natural lands and in their community. So in 1998, they donated their land to the state for development as a park.

The DNR prepared a master plan for the park aimed at providing a mix of outdoor recreation facilities, yet left much of the site in a natural state. Several miles of hard-surfaced and gravel trails traverse the park, escorting walkers, bicyclists and rollerbladers through prairie, enhanced wetland, oak savanna and lakeshore settings. Other facilities include an eight-unit RV campground and an open shelter with rest rooms and kitchenette overlooking the lake. The shelter, which provides a scenic setting for group and family events, is available for rent.

The Bedells were pleased with how the park turned out.

Clay Smith

Jim Scheffler

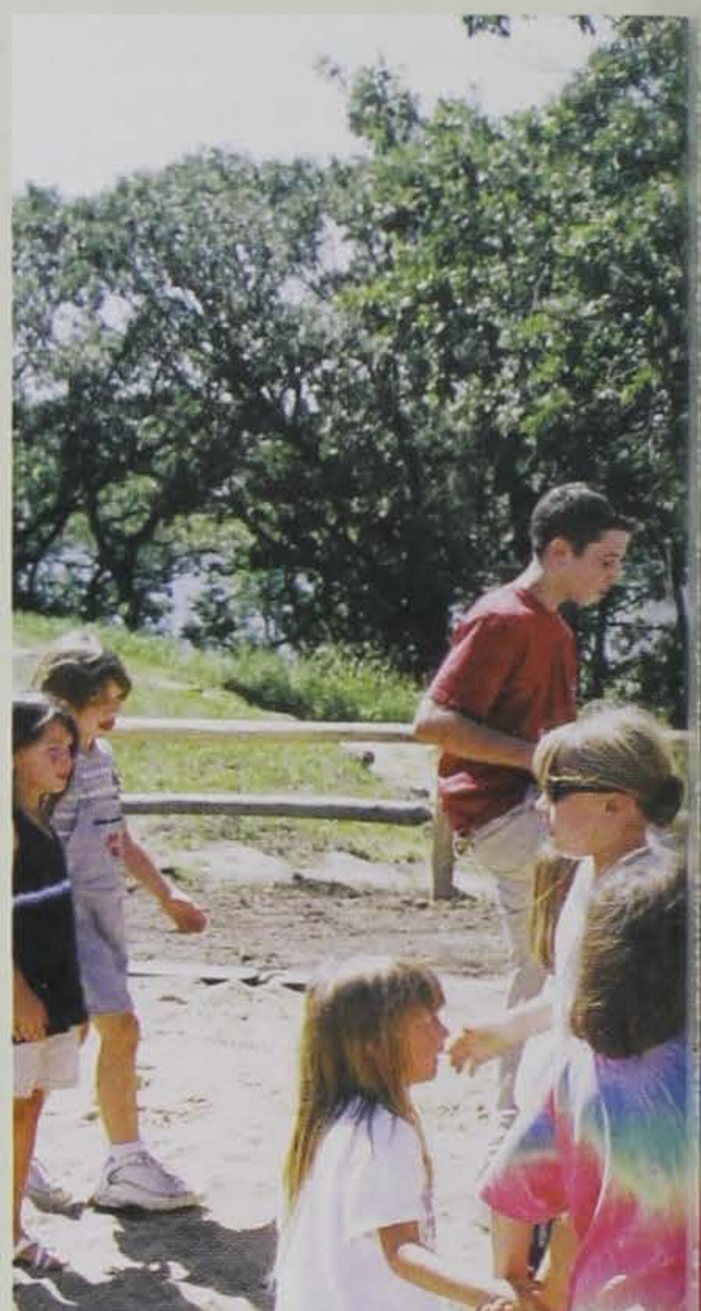
Parks Profile

"This is really a dream come true for the Bedell family," Elinor Bedell said at the park dedication. "We are very thankful to the DNR. They have made this park exactly the way we imagined. I think we both have felt - I know that I have felt very strongly - about the need to preserve land and space... So it makes us very happy to have the opportunity to have something we can give for preservation."

Elinor Bedell State Park, and Shelby's Playground, will provide wonderful experiences for visitors of all ages for generations to come. They are tremendous examples of what can be done when concerned citizens and the state work together.

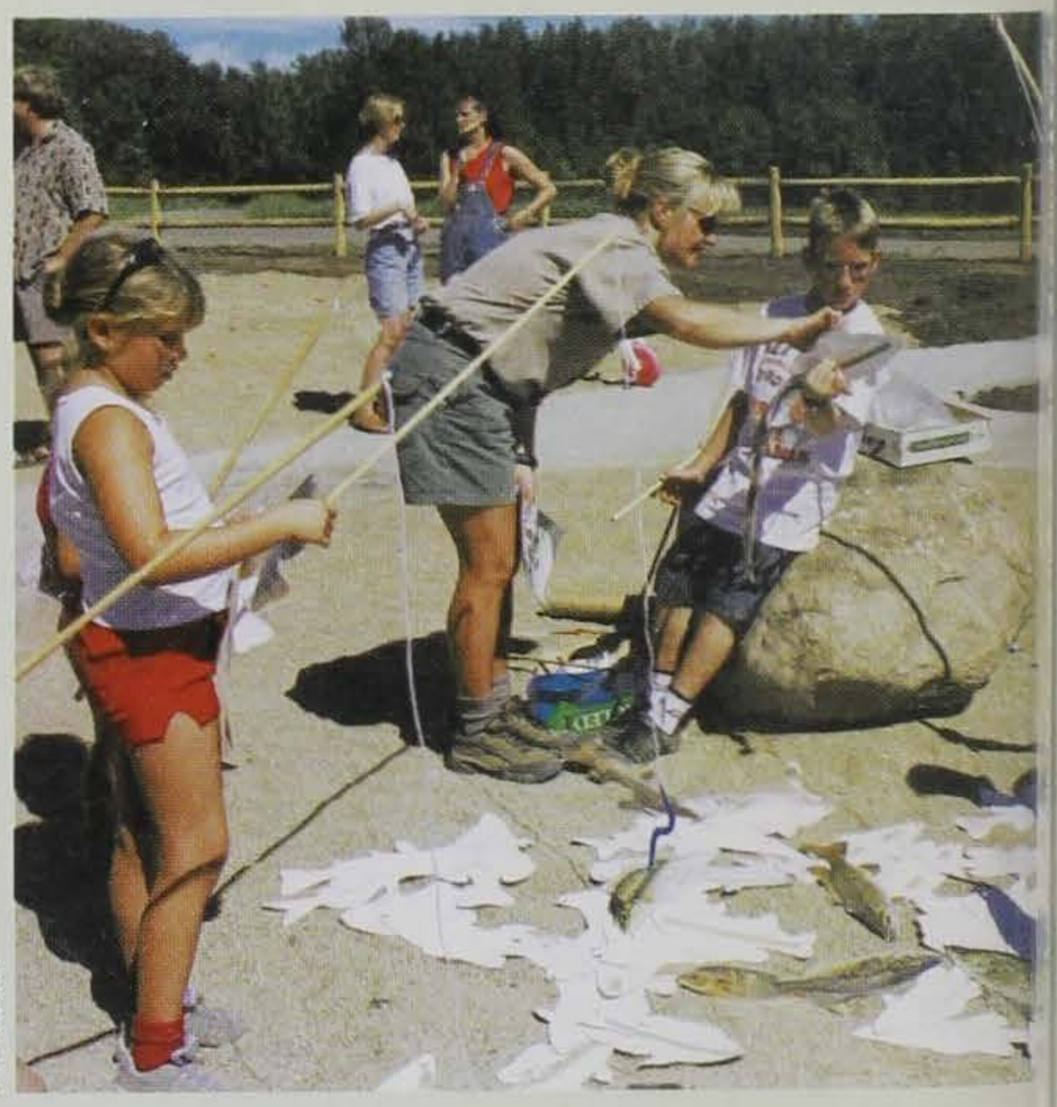
Jim Scheffler works for the department's Parks, Recreation and Preserves Division in Des Moines.

Angela Corio



Angela Corio

Jim Scheffler



Jim Scheffler

Aerial view of the 80-acre Elinor Bedell State Park and Shelby's Playground (above).

Clay Smith

Shelby's Playground

by Angela Corio

Shelby's Playground is dedicated in memory of the 2-year-old girl from Spirit Lake who died tragically in 1998.

It is truly the most spectacular playground for children ages 2 to 5 at a public park in the entire state. It features a 220-foot "sparkly" concrete tricycle track, complete with a burger hut and gas station, a log playhouse, spring riders, sand diggers, sand table, swings and a traditional climber.

The older children were not left out. A more challenging climber designed for children ages 6 to 12 includes a mountain climbing wall and tall slides. Federal playground safety guidelines recommend separate play structures for the two age groups due to differences in developmental and cognitive abilities.

The playground is set in a jungle of tall grasses, flowers, shrubs and trees. Plants in the playground are used as play elements, providing different settings to stimulate exploration, discovery and imagination. It will be a few years before the "jungle" is lush, so visitors are encouraged to return often and literally watch the playground grow.

This project was a joint effort between the DNR, which designed the playground, and the Great Lakes Rotary Club, which raised a majority of the funds. An impressive steel archway, designed and donated by Dallas (Texas) Iron Works, graces the playground entrance. A large group of volunteers, some very generous local contractors, AmeriCorps workers and dedicated park staff, constructed the playground in a few weeks. It was a testament to the power of partnerships.

Children should find Shelby's Playground to be stimulating, challenging, adventuresome and safe. They should find a wonderful place to explore their minds and bodies.

The playground is a fitting tribute to a little 2-year-old girl.

Angela Corio is a landscape architect with the department and designer of Shelby's Playground.

CONSERVATION 101

Necessity vs. Nicety: What Do You Really Need In The Field?

Article by A. Jay Winter
Photos By Bob Castelline

The outdoors is a great place to be regardless of when you go and how you spend your time. You can enhance the experience, and even make it safer, by carrying a few simple items in the field.

They can be stored in your pockets or fanny pack for easy transport. Most are not necessities, but they can make the experience much more enjoyable.

Necessities

Extra Gloves/Hat/Socks

Nothing can spoil a day in the field quicker than rain and cold. By packing a spare pair of socks, gloves and a hat, you can stay more comfortable by changing if the need arises. I figure as long as I have a spare, it will never rain on me (by the way that philosophy doesn't always work).

Seriously, spare socks, hats and gloves aren't strictly for comfort. They can also save you from a case of frostbite.

Multitool/Knife

I started carrying a multitool a few years ago, and now I rarely go anywhere without it. There is always something to fix, cut, file, scrape, screw, crack, measure or tighten. A multitool can handle it all. At the very least, a knife is an essential item to carry on any hunt.

If you are deer or turkey hunting, make sure to pack a pen to write the date of kill on the license.

Snacks/Water

If you are on a long hike, or spending an entire day in the treestand, you are bound to get tired, bored or hungry at some point. A snack can alleviate all of these problems at once.

Choose a snack that can be stored easily. Personally, I like Snickers® candy bars because they store easily in a fanny pack for a long period of time and they give me a boost of energy. Fruits, nuts and energy bars are also good to take, although the shelf life of fruit is limited.

Snacks help you sit still for long periods of time. Many times I have been tempted to leave due to boredom, hunger, etc., but a snack has kept me occupied, satisfied and in the stand longer. Water is also a must.

Cellular Phone

Modern technology can be great. Cellular phones, for example, can have a place in the field. If you are ever caught in a compromising safety situation, whether you fall out of your treestand or sprain your ankle, you can quickly summons help with your cell phone.

Cellular phones, however, cannot be used in the pursuit of game. If you use your phone to relay the location of game or coordinate the movement of hunters, for example, you may find yourself in trouble with a conservation officer.

Here's another hint. Cell phones no longer in use can still make the difference between getting the help you need, suffering through a cold night, or worse, dying. Cell phones you no longer carry a calling plan for can still be used to access the 911 system. Just keep the battery charged,

Bob Castelline

Necessities

and if an emergency situation arises, call 911 for help.

Toilet Paper

Toilet paper is important for obvious reasons. However, it does have other uses. It works great for marking blood trails and other notable locations. I once marked the location of a red-tailed hawk nest, which earned me hunting permission for life.

The best feature of toilet paper is it is biodegradable. The first rain or moist day will cause any portions left in the field to break down.

Here's a hint. Find a roll about one-quarter full and flatten it. Put the flattened roll in a resealable bag. This will prevent it from unrolling and keep it dry.

Niceties

Binoculars

Binoculars should be essential for anyone spending time in the outdoors. When I first started carrying binoculars, they saw limited use. Now, I use them often — to study birds, locate animals and identify vehicles. They allow me to appreciate my surroundings to the fullest. I recommend a small pair you feel comfortable with and can easily carry.

Camera

I value the time I spend outdoors, and when that time is over, I can relive my experiences through photographs.

By taking a camera, I can share my experiences with people who can't or won't get out and enjoy nature. I can capture the sunset, the bird I have never seen before or the car parked in a strange place. Cameras also allow me to capture a harvested turkey, deer or other game in their natural surroundings, not on the tailgate of my truck or the porch at home. An inexpensive point-and-shoot or disposable camera will work fine.

The only problem with cameras is pictures don't lie. That 12-inch smallmouth you caught last summer will always be a 12-inch smallmouth, unless you hide the pictures of course.

Flashlight

Spend enough time in the outdoors and eventually you will find yourself out in the dark. A flashlight can help you find your way out of the woods, or complete delicate tasks. A small flashlight that can fit in a pocket or fanny pack will suffice.

Duct Tape

Duct tape is truly the handyman's secret weapon. I have used it to patch waders, fix lights on my boat trailer and build blinds. The silver duct tape will work, but I prefer the military duct tape. It is super sticky and drab olive in color, which makes it camouflage.

I keep a roll around the house throughout the year and save the last of the roll for my fanny pack. Like toilet paper, flattening the roll makes it easier to pack.

Compass

A compass can be a valuable tool to anyone who knows how to use it. A compass can help you locate places on a map, find your way in the fog or navigate to your secret hotspot without using

Bob Castelline

Niceties

markers. The safety and security of a compass costs less than $10, plus a little practice.

These items can make your outing more enjoyable, and they may just save your life. None however, other than maybe a cell phone, are of great value if you find yourself physically incapable of seeking shelter or help. Along with packing your necessities and niceties, leave an detailed hunt or outing plan, and stick to it. It may just save your life.

A. Jay Winter is a training officer at the Springbrook Education Center in Guthrie Center.

KIDS' CORNER

by Elizabeth Frederick
Ben Schlader

Haste Makes Waste . . . Take Time to Know About These Items

Newspaper - 58 percent of U.S. newspapers are recycled. Paper and paperboard make up 40 percent of the material thrown away.

Glass - It can be recycled more times than any other material. Reusing glass containers is an even better idea!

Aluminum cans - In Iowa, 98 percent find their way to the recycling bin. Making new aluminum from old requires 95 percent *less* energy than making it new.

Plastic bottles - Americans go through about 2.5 million plastic bottles per hour. That's 22 billion each year!

"WASTE IS A RESOURCE THAT WE HAVEN'T FOUND A USE FOR YET"

Leave the Leaves and Compost the Most!

- Yard waste accounts for almost 18 percent of our landfill waste. That's 31.6 million tons!

- Composting not only keeps yard waste out of the landfill, it also provides us with free, nutrient-rich soil for our lawns and gardens.

- Organic materials, much of which could be composted, take up 46 percent of our landfill space.

It Doesn't Compute

By 2004, as many as 315 million computers nationally could be thrown away. This will add 1.2 billion pounds of lead, 2 million pounds of cadmium, and 400,000 pounds of mercury to our landfills.

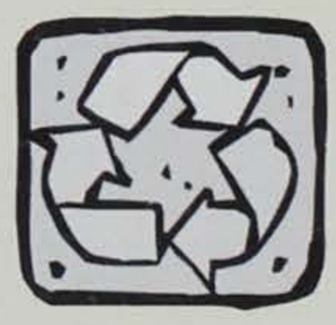
Take a hike! (or use some pedal power)

Walking and bicycling are far more efficient than driving everywhere we go. They don't pollute, aren't expensive and actually make us healthier!

The Three Rs: Reduce, Reuse, Recycle

By using these three Rs the amount of waste going to the landfills will be greatly reduced.

Reduce - Use less disposable products. Buy products that use less material in the manufacturing process. Buy in bulk instead of single servings. Packaging accounts for more than 30 percent of your garbage.



Reuse - Find a use for something normally thrown away. Turn coffee cans into birdhouses or plant flowers in old jars.

Recycle - Establish a plan to recycle everything possible.

Rollin' Along

- Three million tires are worn out each year in Iowa. That's one for every man, woman and child!

- Since 1998, DNR programs have led to the cleanup of 6 million waste tires and 30 nuisance tire stockpiles. All tires recovered have been processed and reused.

Words to Find

COMPOST
DISPOSABLE
DNR
ENERGY
GLASS
LANDFILL
METAL
NEWSPAPER
ORGANIC
PLASTIC BAG
RECYCLE
REDUCE
RENEWABLE
REUSE
YARD WASTE

C	L	A	N	D	F	I	L	L	B	R	Y	C
R	Y	A	R	D	W	A	S	T	E	C	P	R
E	L	B	A	S	O	P	S	I	D	L	B	E
X	S	S	A	L	G	M	S	P	A	I	U	N
B	R	P	P	Z	H	R	E	S	Q	E	E	E
E	E	P	S	T	R	S	T	R	C	W	L	W
N	P	M	R	G	U	I	R	R	I	C	R	A
E	A	V	V	E	C	M	E	N	N	O	E	L
R	P	E	R	B	Q	S	C	D	A	M	D	B
G	S	L	A	T	E	M	Y	Z	G	P	U	E
Y	W	G	L	G	Q	S	C	P	R	O	C	X
N	E	S	E	S	T	V	L	M	O	S	E	C
F	N	F	A	S	S	L	E	C	W	T	L	F

How Much Do You Throw Away?

Every person generates an estimated 4.73 pounds of trash everyday. For this activity, figure how much trash you and your family will throw away.

1.) If you generate 4.73 pounds of trash everyday, how much is that in a week?_____

2.) How many pounds of trash is that in a year?_____

3.) How many people are in your family?_____

4.) How much trash does your family generate in one day?_____ one year?_____

5.) Using 3 million as the population of Iowa, how much trash do Iowans generate in one day? _____

6.) How much trash do Iowans generate in one year?_____

7.) If every Iowan recycles just 1 pound of the 4.73 we generate, how much less would that be? _____

Sources of Information:
Iowa Recycling Association

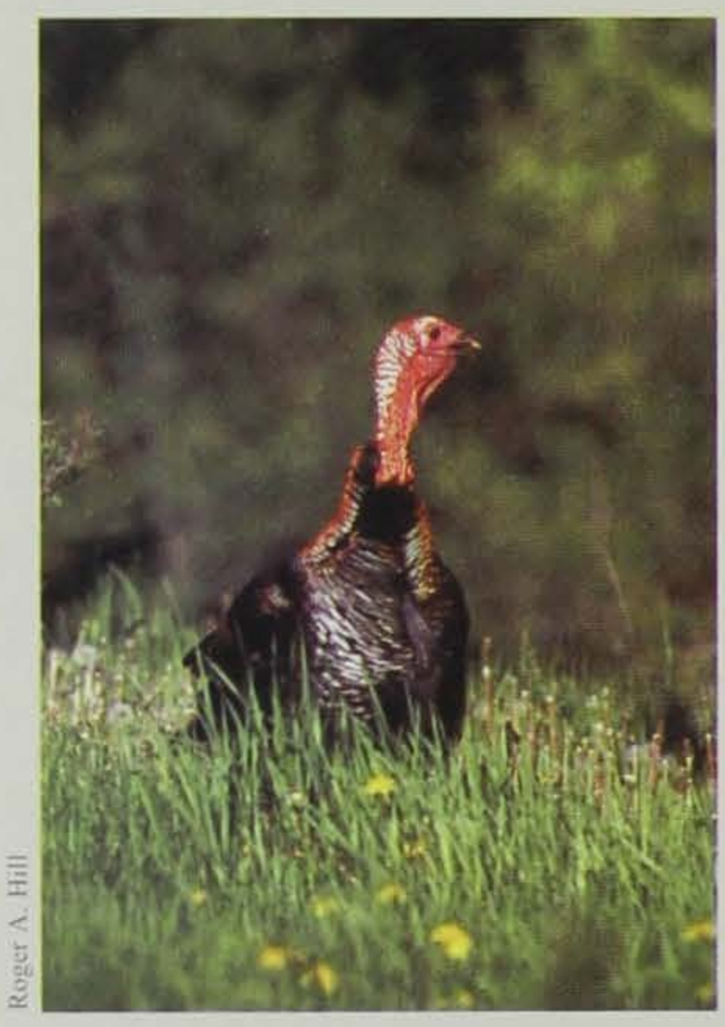
United States Environmental Protection Association

DNR Land Quality and Waste Management Assistance Division

Elizabeth Frederick and Ben Schlader are AmeriCorps volunteers at the DNR Conservation Education Center near Guthrie Center.

Conservation Update

Spring Turkey Licenses On Sale Now At ELSI Agents Statewide


Roger A. Hill

Resident spring turkey licenses for the 2002 season are currently on sale at any one of the more than 900 Electronic Licensing System for Iowa (ELSI) sales agents statewide.

All spring turkey licenses, including the limited quota state forest zones, will be sold over the counter. Licenses for the state forest zones will be sold until quotas are reached or the last day of each respective season, whichever comes first.

All other licenses, including free landowner/tenant licenses, will remain on sale through the end of each respective season. Archery-only licenses, valid statewide during all four seasons, can be purchased through the final day of the last season. However, hunters are advised to purchase licenses early to avoid last minute lines at the counter.

Season dates are: Season 1, April 15-18; Season 2, April 19-23; Season 3, April 24-30; and Season 4, May 1-19.

Residents may purchase up to two spring turkey licenses, as long as at least one is for zone 4, season 4. If two licenses are purchased, both must be either archery-only licenses or combination gun/bow licenses.

Residents must also purchase a small game hunting license and pay the wildlife habitat fee, if normally required to do so. Resident landowners and tenants and their qualifying juvenile children do not need a small game hunting license or pay the habitat fee if hunting only on land they own or rent.

Nonresidents must apply through the ELSI telephone ordering system Jan. 6-28. If quotas are not reached during the initial drawing, remaining licenses will go on sale beginning 6 a.m. Feb. 10 until quotas are filled or the last day of the season for which the license is valid, whichever comes first. Nonresidents must also purchase a small game hunting license and pay the habitat fee in addition to purchasing a turkey hunting license.

The 2002 Spring Turkey Hunting Guide, which contains turkey hunting regulations, license options and purchasing instructions, is available at any ELSI license agent.

Sixth Annual Missouri River Natural Resource Conference Set For April 21-24 in Nebraska

The 6th Annual Missouri River Natural Resources Conference will be held April 21-24 at the Marina Inn in South Sioux City, Neb.

Hosted by the Nebraska Game and Parks Commission, the conference serves as a forum for researchers, resource managers, policymakers and citizens on Missouri River issues. It is an opportunity to learn the status of the river's environmental condition and share opinions on river management.

The annual conference highlights the 735-mile channelized portion, a unique section of the Missouri River, which begins at Sioux City. Field trips include a visit to Gavin's Point Dam on Lewis and Clarke Lake and Gavin's Point National Fish Hatchery where the endangered pallid sturgeon is raised. Boat trips will tour the habitats of the endangered interior least tern and threatened piping plover along the 59-mile Missouri National Recreational River. Tours will also include stops at local Lewis and Clarke sites and river bends on the channelized river below Sioux City, Iowa where habitat is being restored.

For more information, contact Jeanne Heuser at 573-876-1876 or Jeanne_Heuser@usgs.gov.

New Fish Habitat Fee Will Help Create And Enhance Aquatic Habitat

Revenue from a new fish habitat fee will enhance fishing opportunities across the state.

Last year the Iowa Legislature approved a $3.50 fish habitat fee. Residents age 16 to 65, and all nonresidents, will be required to pay the fee to fish on public waters of the state.

The new fee works much like the wildlife habit fee. After the agent writing and administrative fees are deducted, the balance ($2.23) will be split between the DNR and Iowa counties to create, restore and enhance fish habitat.

The new fee is expected to generate between $600,000 and $700,000 annually to increase fishing opportunities in the state. DNR fisheries staff are working with county officials to identify what types of projects will qualify for funding.

The Legislature also approved fee increases for several licenses and privileges. The Wildlife Habitat and Migratory Game Bird fees increased for both residents and nonresidents.

In addition to license fee increases, nonresidents will be required to purchase a small game hunting license and pay the Wildlife Habitat Fee, in addition to purchasing a deer and turkey license, to hunt those species in Iowa.

The increases (right), along with the new fish habitat fee, were effective Dec. 15, 2001.

Mike McGhee

Fish habitat projects, like installing stake beds, could qualify for funding from revenue raised through a new fish habitat fee.

2002 License Fee Increases

License	Current fee	New Fee
RESIDENTS		
Migratory Game Bird Fee	$6	$8.50
Wildlife Habitat Fee	$6	$8.50
Fish Habitat Fee	N.A.	$3.50
NONRESIDENTS		
Migratory Game Bird Fee	$6	$8.50
Wildlife Habitat Fee	$6	$8.50
Fish Habitat Fee	N.A.	$3.50
Fishing	$23	$36.50
Fishing (seven day)	$9	$27.50
Hunting (18 and over)	$61	$80.50
Hunting (under 18)	$26	$30.50
Deer (any sex)	$151	$220.50
Deer (antlerless)	$151	$150.50
Turkey	$76	$100.50
Furharvester	$181	$200.50
Fur Dealer	$501	$501.50
Location Permits	$55.50	$56.50
Aquaculture	$51	$56.50
Bait Dealer	$61	$66.50
Trout Fee	$11	$13.50
Game Breeder	$15.50	$26
Taxidermy	$16	$26.50
Falconry	$20.50	$26.50

Conservation Update

Portrait Of The Land Receives National Award

Iowa — Portrait of the Land, published by the Iowa DNR, received the 2001 "Outstanding Publication Award" at the Association of Earth Science Editors' annual national meeting Oct. 27-30 in Lawrence, Kan.

This award recognizes outstanding achievement in editing by Jean C. Prior, design by Patricia J. Lohmann and writing by Larry A. Stone. The book was the culmination of efforts by a project team representing all bureaus within the DNR, as well as the Office of State Archaeologist and the State Historical Society of Iowa.

The full-color 89-page publication presents a portrait of Iowa's land and resources as they were originally and as they are today. It also challenges Iowans to consider the future portrait of the state and realize that they will paint it by their interactions with the land and its resources.

Copies are available for $5 from the DNR, Wallace Building, 502 East 9th St., Des Moines, Iowa 50139-0034, or by calling (515) 281-5918.

Worth County Wind Farm Dedicated in December

Worth County in north-central Iowa is now home to 89 wind turbines producing electricity for Iowa and Wisconsin. The new wind farm was dedicated Dec. 4.

Known as the Top of Iowa Wind Farm, the 89 900-kW turbines will produce about 80 MW of electricity per year, or enough power for 40,000 homes. Alliant Energy has signed an agreement to purchase the power from project developers Midwest Renewable Energy and Zilkha Renewable Energy of Houston.

The project cost $90 million to construct and will generate about $500,000 in annual tax revenue for Worth County. Additionally, 35 landowners will benefit financially from leasing space on their land for turbines.

Phase two of the new wind farm will include 88 additional turbines to be installed next spring.

'Glasphalt' Recreational Trail Paving New Roads in Cedar Falls

A joint effort between the Iowa Department of Natural Resources and the Iowa Department of Transportation has resulted in a new recreational trail in Cedar Falls, but this isn't any ordinary trail.

The new trail in Cedar Falls is made of "glasphalt," an asphalt mix that uses ground glass as part of the aggregate. City Carton, a recycling center near Cedar Falls, worked with the DNR and the DOT to collect 70 tons of recycled glass from Cedar Falls residents, and that glass was used in the pilot project.

Container glass, windowpane glass and fluorescent tube glass can be used in a glasphalt mix.

Once collected, the glass for the Cedar Falls project was sent to Des Moines, where it was crushed using a special machine at Metro Wrecking & Excavating Inc. The glass was then sent back to Cedar Falls, where it was used in the asphalt mix. Weichers Construction and Rampart Corporation collaborated on laying the glasphalt.

The use of glasphalt dates back to the 1970s, but its popularity has waned over the past 30 years.

Mike Heitzman of the DOT said large-scale uses for glasphalt, such as highway projects, are limited because of the amount of glass needed. But he said the use of glasphalt for trails and parking lots has great potential.

Iowa Landowners Invited To Annual Pheasants Forever Convention

Saturday Workshop To Focus On Private Lands Habitat Development

Iowa's 101 Pheasants Forever chapters are inviting landowners to the organization's annual convention in Des Moines, highlighted by a special private lands habitat workshop. The convention will be held Jan. 18-20 at the Downtown Marriott in Des Moines.

The Private Lands Workshop/Mini Convention, held all day Saturday, will bring in experts covering all wildlife management topics, including farm program delivery. The DNR's new private lands biologists will look at each individual landowner's farm information and suggest habitat projects and programs.

Information on farm ponds and nearby habitat, deer and turkey management, native prairie restoration, creating effective winter cover and developing food plots will be available. Dr. Bill Clark of Iowa State University will lead a discussion on predation, and Jim Posewitz of the Orion Foundation, a world expert on the future of hunting, will give his perspective on what sport hunting will be like in 10 to 20 years. The 2002 State Habitat Banquet and Auction will be held Saturday evening.

Friday activities include an afternoon habitat tour featuring Pheasants Forever projects. Habitat experts will be on hand to answer questions. The State Art Print Competition will also be held Friday. Famed outdoor media personality and conservationist Tony Dean will be on hand Friday evening for a special presentation on Conservation in the Prairies.

Registration is $79, which includes access to all activities during the weekend.

For additional information: call or email Jim Wooley at 641-7744-2238 or jwooley@pheasantsforever.org. For hotel room reservations, call the Des Moines Marriott at 515-245-5500.

Upcoming NRC and EPC Meetings

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

Agendas are set approximately 10 days prior to the scheduled meeting date. For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, 502 E. 9th St., Des Moines, Iowa 50319-0034.

Natural Resource Commission:

- January
  No meeting
- February 14
  Des Moines
- March 14
  Ames
- April
  No meeting
- May 9
  Creston

Environmental Protection Commission:

- January 22
  Des Moines
- February 18
  Des Moines
- March 18
  Des Moines
- April 15
  Des Moines
- May 20
  Des Moines

Warden's Diary

A Day To Remember

by Chuck Humeston

It looked like it was going to be one of those days filled with what we call, "windshield time."

I was on my way to Spirit Lake returning two personal watercrafts dealers had loaned to us for summer boating enforcement. It was early, and the sun was just beginning to glow. It was going to be an absolutely beautiful day, even if most of it was going to be spent behind a steering wheel.

My coffee cup was full, and frankly, my biggest concern was how to break the news to my cohort Gary Owen, who was meeting me in Spirit Lake, about the dent one of the PWCs sustained in its left corner. Doesn't everyone have one fall off a trailer at least once?

The day was Sept. 11.

I had the radio on, and the first thing I heard was a brief report of an airplane crashing into the World Trade Center in New York.

"A small plane accident," I thought. "Or else some nut." I sipped on my coffee some more.

Then a second report claimed it was a large airplane. I turned up the radio. Soon the music was interrupted with the report of a second airplane hitting the other World Trade Center Tower.

"What in the world?" I thought. "This isn't any accident. What in the world is going on?"

Every radio station abandoned normal programming and stayed with the unfolding story. Newscasters reported the airplanes were airliners. The World Trade Center towers were burning.

"Airliners? My God, all those people!"

Reports came in of a third crash in Washington, D.C., then a fourth in Pennsylvania.

"What is going on?"

I arrived in Okoboji and raised Gary on the radio. He heard the same stories I had.

Word came in the Pentagon had been hit in one of the crashes, and maybe even the White House. The realization swept over me in a cold wave. I opened the door of my squad and Gary and I looked at each other.

"We're being attacked aren't we," I said. He nodded.

We unloaded the PWCs and decided to get a cup of coffee before returning home. We walked into the restaurant, and a few people were watching a TV mounted on the wall. The Towers were collapsing. Everyone was speechless. It was beyond comprehension.

We walked back to our squads, and wished each other safety. Fellow officers always do that, but this time we knew things had changed.

I called my wife, my children and my parents. For some reason, I just needed to know they were fine. My son and daughters are grown and on their own, but still I told them not to be afraid and that everything would be all right. It was all I could say given I didn't have any answers?

Like everyone else, I watched the tragedy unfold on television. I watched the actions of the firefighters, the police, the paramedics and the other volunteers. I grieved for the lost and their families.

Never in my life had I been so proud to be a public employee, and a police officer. I can't imagine what those at Ground Zero are going though, and what they will have to deal with later.

Like all of you, I've tried to get back to some resemblance of normalcy. But it's not the same. In honor of those lost, maybe it never should be. Every morning, I put out my flag, and pray for those in the military who are fighting for me. What else can I do?

I know I still have a job to do, but I find myself struggling with its importance. We've been reminded of the price for the freedom to go to work every day, and lead the life we want in this country. But in honor of them all, we all need to keep doing what we do.

I kept a copy of a Sept. 11 newspaper, just like my parents kept copies of the paper after Pearl Harbor, VE and VJ days. I don't want to forget. I've heard it said it's not good to hold onto anger, that one should forget and let go. I've always believed that.

But not now. Not this time.

The choice of a new, um, species

This photo was sent in by Roy Anderson, taken at his home in Council Bluffs. Squirrels, raccoons and deer frequent the area, especially the squirrel chair feeder, and occasionally activate the motion sensor. Squirrels have made their home, and raised young, in a squirrel house made from a wooden keg. This one, apparently, enjoys a soft drink with its dinner.