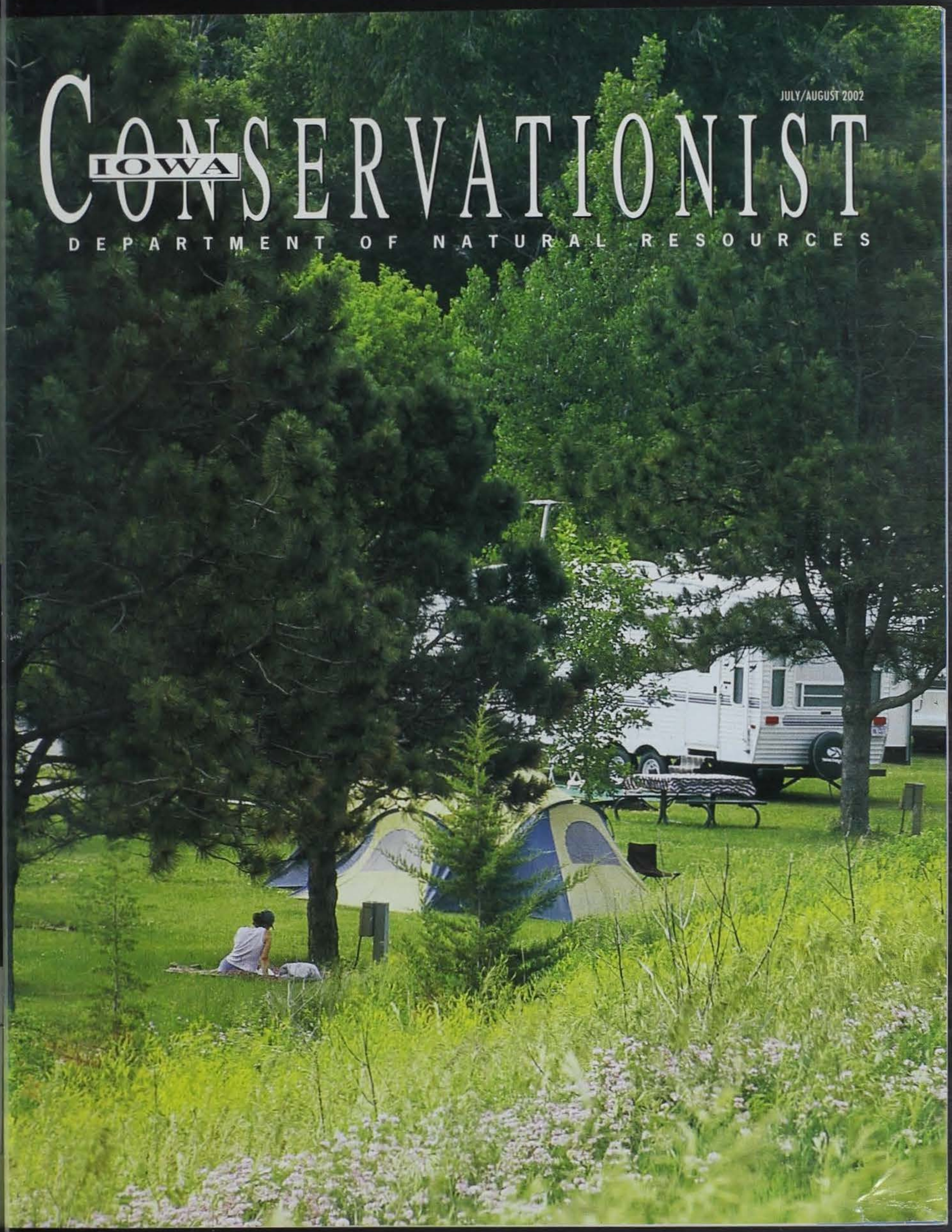
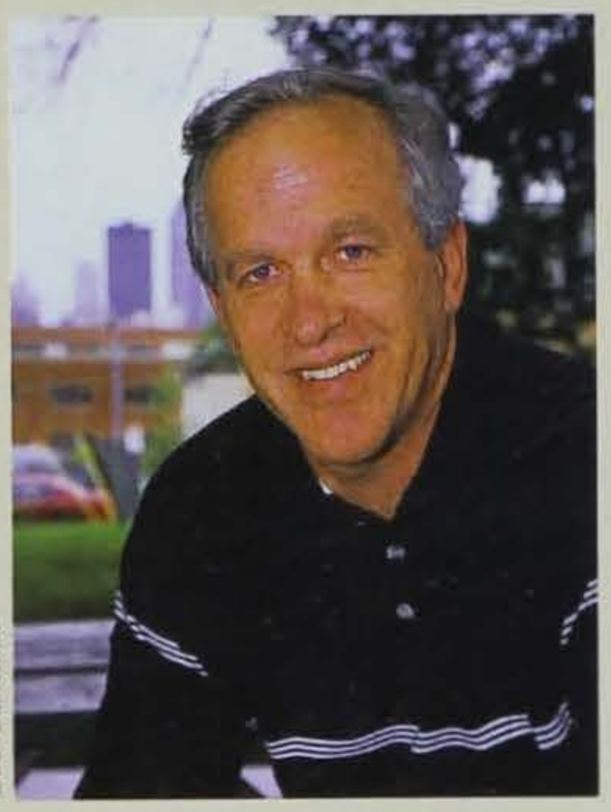
JULY/AUGUST 2002

IOWA CONSERVATIONIST

DEPARTMENT OF NATURAL RESOURCES



From the Director



Bob Castelline

New Livestock Law… A Promising Challenge

Iowa's new environmental livestock law may be the most comprehensive of any farm state in the nation. Some livestock producers contend the new law is too tough; some environmentalists say it is not tough enough. They pretty much agree on one thing, though; the process will be extremely challenging in the coming year to develop all the rules necessary to implement that new law.

Quick Civics Lesson

After the legislature passes a bill and the governor signs it into law, then the state agency responsible for that law must develop rules to enact it. That rules process requires a high degree of public participation, and review by a special committee of the legislature. Normally, it takes at least five months from start to finish for a rule to be adopted.

Opinions and facts about the new rules will be sought from experts in science, agriculture and the environment. But we also need and want to hear from anyone who has a stake in the matter. That covers a large number of Iowans with a lot of differing views.

The *promise* is that we will listen to all of you; we will do our best to give you an opportunity to communicate with us. The *challenge* is to process all of the input and come out with livestock rules that meet expectations. It will be impossible to satisfy everyone, but our goal is to adopt rules that can be implemented and enforced; rules that protect your water and air quality. It will likely take more than five months. I expect we will amend and improve the rules as we learn more.

Livestock production is vital to Iowa and the nation. And, livestock production can exist in a healthy environment. While there are different opinions on how this can be accomplished, I encourage your understanding and support as we help Iowa set a standard for other states to follow.

Jeffrey R. Vonk

Clay Smith

IOWA CONSERVATIONIST

FRONT COVER: CAMPING AT PRAIRIE ROSE STATE PARK NEAR HARLAN, ONE OF THE PARKS INCLUDED IN THE DNR'S EXPLORE IOWA PARKS PROMOTION (SEE PAGES 32-33) BY CLAY SMITH

Departments

Features

LETTERS

Permanent, Lifetime License Card Needed

On that magic day of May 11, 1999, after becoming the ripe old age of 65, I immediately took advantage of the state's fishing license offer and purchased a lifetime pass.

I was disappointed that I received a large piece of paper indicating that I was a lifetime holder. Subsequently, I wrote to Governor Vilsack's office suggesting that the DNR consider issuing a plastic card or at least laminate such a certificate.

As a retired athletic director, the elderly patrons in our district received a golden pass ticket with the offer to laminate the card. That was met with considerable enthusiasm by those who were recipients.

I would like to suggest that the DNR consider making such an option available, since a folded piece of paper eventually deteriorates.

Dick Wagner
Burlington

Great idea. We are working out the details of providing such a service. Stay tuned. — Eds

Likes The Recipes

We especially enjoyed this issue (May/June 2002) and the recipes entitled Taste of the Wild. We publish a regular series of old recipes in our Louisa County historical magazine, *LOUISA'S HISTORY*. With your permission we would like, in the future, to republish some of those listed as well as some in the Game Wardens Cookbook.

Also, we understand and accept the need to tastefully advertise but caution that this practice almost always leads to justifying ads for social and political causes.

Tom and Doris Woodruff
Davenport

Calendar Needs Help

I am very pleased with your annual calendar, but I have a couple of suggestions that I think will make it better. These may not be possible to implement, but I would like to pass them by you. Enclosed is a copy of a month from a neighboring state's calendar. There are two items I really like:

1) It has activities going on at state parks throughout the year.

2) It has phenological dates for nature events that can be watched for, i.e. nestings, migrations, etc.

I don't know if these phenological dates are kept by your department, but I find them very interesting.

Jeri Watkins
Sioux City

I would like to echo E. F. Winter's comments that appeared in the January/February issue of the *Iowa Conservationist* regarding your 2002 calendar. Apparently the Graphic Specialist who designed this calendar does not understand that calendars must be functional as well as aesthetically pleasing. Forget the fancy, schmancey fonts and give us something that is readable. And please, please, please include lines so that the appointments can be noted on the dates.

Enclosed is a copy of our December 2001 calendar to illustrate how we utilize it. I am sure most people use their calendar in this manner. The photographs are outstanding, too bad the calendar for 2002 ended up in our recycle bin.

Marilyn Jandik
Cedar Rapids

More On Advertising

Unfortunately the entities who have the most money to spend on advertising are most often the least compatible with nature and wildlife conservation. I own a small-town newspaper no longer in publication so I understand the need for advertising dollars, but it's a catch 22. If the ads run too contrary to the spirit of conservation in time I'll just forget to renew my subscription. There's more on my mind, but for now — nuff said.

I.H. Smith
Battle Creek

In the May/June 2002 issue of the *Iowa Conservationist*, you shared the opinions of a few readers regarding ATV advertising in the March/April issue. I was disappointed not to see a "response" from the editorial staff in the May/June 2002 issue regarding the editorial opinions or a statement about the magazine's policy on advertising. Even more disappointing are the ATV advertisements present in the issue (nine ads on ATVs and two on powerboats).

Non-motorized outdoor sports enthusiasts greatly outnumber motorized sports enthusiasts. Unfortunately, this "silent" majority is apparently not being heard or represented. The promoters/manufacturers of motorized sports machines are a powerful, economic force. The markups/profits on these products are greater and the "stakes" higher than for the non-motorized sports products. Direct and indirect connections to other politically and economically powerful industries (e.g., petroleum, tobacco, alcohol) support the influence of the motorized sports industry.

As more than one conversation, editorial, article and broadcast has indicated, it only takes one misused ATV, powerboat, jet ski, etc. to ruin the experiences of many hikers, hunters, fishermen, swimmers, wildlife viewers, bicyclists, campers, artists, etc. The misuse and illegal use of these machines threatens unique and sensitive environments, as well as rare, sensitive or reclusive wildlife. Furthermore, these machines waste energy and degrade air, soil and water quality.

What is the magazine's policy on advertising? Does the magazine intend to eliminate ATV advertising from its issues? By advertising a product, the magazine promotes the sale and use of the product. You may reduce your readership with a poorly conceived advertising policy.

Mark Snopek
Boone

This letter was edited for length. Following is the magazine's policy regarding advertising.

"Advertising in the Conservationist *shall be limited to the commercial advertisement of goods or services. The department will not accept advertisements for alcohol, tobacco or other products that are inconsistent with the mission of the Iowa Department of Natural Resources, obscene, illegal or otherwise inappropriate for publication in a department publication.*

The department will not knowingly publish advertisements that are factually inaccurate or misleading and may request additional verifications of facts or statements contained in any submission. The department shall not be liable for any loss or expense that may result from the publication (whether published correctly or not) or omission of an advertisement.

The Conservationist *reserves the right to publish occasional public service announcements submitted by governmental or non-profit organizations if space is available and if the proposed public service announcement supports the department's high priority objectives, or promotes conservation of Iowa's natural resources. — Eds*

The *Iowa Conservationist* welcomes letters from readers. Printed letters reflect the opinions of the author. Letters may be edited for length and clarity. Letters can be emailed to alan.foster@dnr.state.ia.us.

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Filing the Flight Plan: Iowa's Bird Conservation Areas

by Doug Harr

It's an early April dawn near the small, southern Iowa town of Kellerton. Several people have gathered at an elevated viewing platform with binoculars and spotting scopes trained on the eastern horizon. In the distance, against a slowly-warming orange glow of skyline, they watch silhouetted forms of dancers — greater prairie chickens "booming" in low, hollow sounds which accompany this ancient and awe-inspiring mating ritual.

Thanks to the site's designation as a Bird Conservation Area, approximately 16.5 square miles of both public and private lands now offer hope for survival of these magnificent

birds, once gone from the Iowa landscape. Prairie chickens are but one of several species targeted by improved habitat management here.

Bird Conservation Areas, or BCAs, like that at Kellerton are something Iowans can expect to see more of in the near future. Following a concept originally developed for grassland birds in Wisconsin, the Iowa Department of Natural Resources has embarked on a plan to ensure the conservation of all birds. Part of the plan involves locating areas where large tracts of significant bird habitat remain intact, especially on or near lands owned by public agencies or private conservation organizations. Once key sites are defined, the DNR hopes to work with private landowners who might voluntarily manage their habitat to benefit a broad array of bird species.

The BCA idea is an outgrowth of Partners in Flight (PIF). Using the North American Waterfowl Management Plan as a template for successful conservation efforts, PIF was launched in 1991 to provide similar benefits for neotropical migrant songbirds (birds which nest in North America and migrate to wintering areas in Central or South America). It has since evolved into a program aimed at the conservation of all land birds. With funding and staff initiated by the United States Fish and Wildlife Service, PIF now works with partners from numerous government agencies and private conservation groups.

A major partner organization, the American Bird Conservancy, recently published "*Partners in Flight—Conservation of Land Birds in the United States.*" This document described 93 eco-regions, each housing characteristic habitats occupied by "suites" of declining bird species. Suites are groups of birds that use similar habitat but may exhibit different body forms, functions, foraging techniques or nesting needs. More detailed management guides also have been produced by PIF, plans intended to direct landowners or managers toward conservation practices benefiting diverse bird communities within each eco-region.

As one means of delivering such beneficial management, the BCA concept still must undergo further

Designated Bird Conservation Areas such as the one at Kellerton are improving habitat management for a wide array of species. The Kellerton area, encompassing 16.5 square miles of both public and private land, will benefit a number of targeted grassland species. It has already aided the restoration of the greater prairie chicken in Iowa.

Roger A. Hill

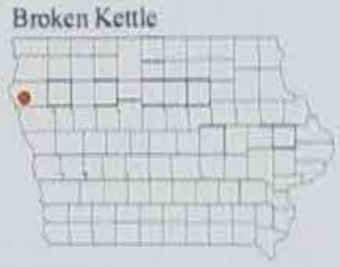
Roger A. Hill

Roger A. Hill

The Nature Conservancy of Iowa

Jerry Leonard

The Broken Kettle area, Iowa's largest expanse of unbroken prairie, is anchored by a 4,000-acre core of land protected by The Nature Conservancy. Broken Kettle offers great possibilities for grassland species such as sharptail grouse (top) and dicksissels (right).



grasslands should dominate private lands. Cropland is generally considered neutral. Large, upland trees are considered hostile — at least to grassland bird species — because they harbor predators which can have serious effects on many birds of concern.

At Kellerton, common aerial predators such as red-tailed hawks, great-horned owls and American crows pose credible threats to greater prairie chickens, short-eared owls, northern harriers, upland sandpipers, Henslow's sparrows, eastern meadowlarks and other declining grassland species. The DNR's Mount Ayr Wildlife Unit staff, which oversees Kellerton BCA's public lands, has been removing some tall perch trees, reducing predator threats and restoring grassy vistas.

"Grasslands with unbroken horizons once dominated Iowa," according to Melvin Moe, unit wildlife biologist. "Now this may be our rarest landscape."

Reducing the threat from aerial predators does not require removal of all woody growth, however. Savannas (grasslands with scattered trees) and shrubby grasslands also harbor certain declining birds, as do valleys with streamside woodlands. All these vegetative communities will be targeted for conservation within grassland BCAs like Kellerton.

More BCAs are on the drawing testing. Model BCAs are envisioned to be at least 10,000 acres. Within each designated area would be a 2,000-acre core of public or permanently protected conservation lands, plus several outlying protected parcels of 100 acres or more. Remaining private land within this matrix should also exhibit substantial suitable habitat. In grassland BCAs such as Kellerton, pasture, hay or other

board for Iowa. A grassland BCA is under discussion for the Broken Kettle area northwest of Sioux City. Nestled in the northern Loess Hills, it is Iowa's largest remaining expanse of unbroken prairie. Anchored by a 4,000-acre core of land protected by The Nature Conservancy, Broken Kettle offers great possibilities for bird conservation on a landscape scale. Additional properties held by various government agencies and private organizations or concerned individuals provide considerable assurance for retaining this region's historic character and resident bird communities.

Near East Okoboji Lake in Dickinson County lies the Spring Run Wetlands Complex, another candidate for BCA designation. Some 3,500 acres of public land anchor the site, featuring both grasslands and small marshes characteristic of Iowa's prairie pothole region. This BCA will serve many grassland birds of concern, plus habitat for wetland birds such as marsh wrens, trumpeter swans, Franklin's gulls, marbled godwits, American bitterns, black terns and secretive Virginia rails. Some of these nest locally; others rely on Spring Run for critical migratory habitat. Needless to say, Spring Run already is recognized as one of Iowa's foremost waterfowl

Roger A. Hill

Roger A. Hill

Roger A. Hill

Model BCAs are envisioned to be at least 10,000 acres, with a 2,000-acre or more core of public or permanently protected conservation lands. Remaining private land within this matrix should also exhibit substantial suitable habitat. Grasslands and marshes, typical of Iowa's prairie pothole region make up the Spring Run Wetlands Complex (top). This BCA, with a core public acreage of 3,500, will serve not only targeted grassland birds but wetland species such as trumpeter swans (left) and rails (above).

NABCI and "All-Bird Conservation"

Bird conservation plans of many types have been used over the past decade. Following the exemplary North American Waterfowl Management Plan, similar efforts were initiated for the conservation of migratory songbirds, shorebirds, colonial nesting birds, sea birds and other aquatic birds.

With such a flurry of activity, 120 conservation leaders from the U.S., Canada and Mexico met in 1998 to develop a strategy for coordinating efforts between various bird plans. What resulted was the North American Bird Conservation Initiative, or NABCI.

NABCI's vision is to achieve "regionally based, biologically driven, landscape-oriented partnerships that deliver the full spectrum of bird conservation." In a nutshell, it is often referred to as "all-bird conservation." Under NABCI's umbrella, efforts are underway to coordinate funding between the various plans, incorporate compatible elements of different bird plans into each other and to increase communication among the multitude of partners involved.

As with any large effort there have been growing pains. Differences gradually are disappearing as partners realize that a focus upon all birds assures each group's special interest species will benefit. With more people and programs aiding bird populations and conservation, limited funding will stretch further and political opposition to conservation efforts may diminish. In short, all avian life and every bird interest group stand to benefit.

The Iowa DNR's wildlife bureau several years ago established a steering committee to help guide and coordinate the agency's Prairie Pothole Joint Venture (PPJV) waterfowl habitat conservation programs. Committee members represented county conservation boards, Ducks Unlimited, the U.S. Fish and Wildlife Service, the Iowa Natural Heritage Foundation and others.

In 2001 that advisory group was expanded to cover all birds, based upon the NABCI example. Additional interests took seats at the table, including The Nature Conservancy, Audubon Society, Pheasants Forever and Sierra Club. The committee meets periodically to discuss all matters regarding bird conservation in Iowa. Partnerships and coordinated funding, PPJV waterfowl habitat restoration, proposed Bird Conservation Areas and other activities are reviewed and commented upon. Through this important communication tool, every interest group becomes actively engaged, regardless of views on hunting, in the overriding concern for conserving all of Iowa's diverse bird life.

— DH

production and migration areas.

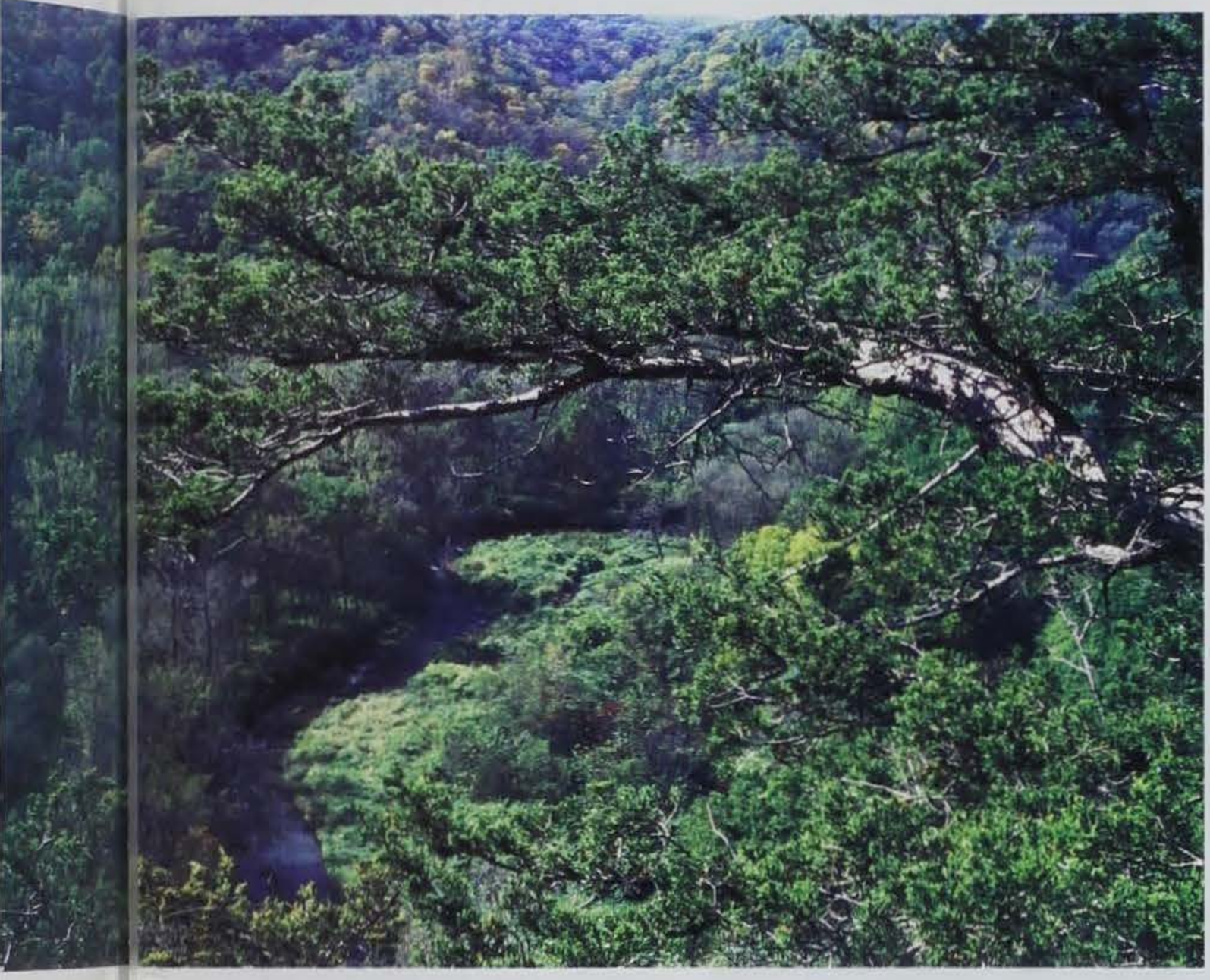
Forests also have their place in the mix. A forest BCA is being considered in the Yellow River State Forest and Effigy Mounds National Monument vicinity of northeast Iowa. Some of the state's largest remaining contiguous forest tracts are located there.

Clay Smith

Forest BCA designation would target more than just mature, unbroken forests. PIF has determined some of the birds undergoing population declines include species that require forest openings, young regrowth woodlands, shrubby transition areas, savannas and even some open grasslands. Also included will be floodplain timber along the Mississippi River and its Iowa tributaries. Birds that would benefit from such a BCA range from deep-forest species like acadian flycatchers and cerulean warblers, to savanna dwellers like red-headed woodpeckers or black-billed cuckoos, to grassland-nesting bobolinks and sedge wrens.

After public meetings are held to discuss Bird Conservation Areas and voluntary partnerships, the DNR will move to formally recognize each site.

Two more areas currently under review for BCA consideration are the Union Hills Wetlands Complex near Clear Lake and the Iowa River



Ron Johnson

Corridor near Marengo. Following on-site inspections, computer-assisted mapping of habitat types and other preliminary evaluations, these two areas are expected to be added to Iowa's official BCA list. Another half-dozen sites will later be considered for BCA status.

It is the hope that Iowa will become a national leader in the conservation of all birds — both game and nongame species. It's only fitting for a state with a long reputation for wildlife conservation leadership.

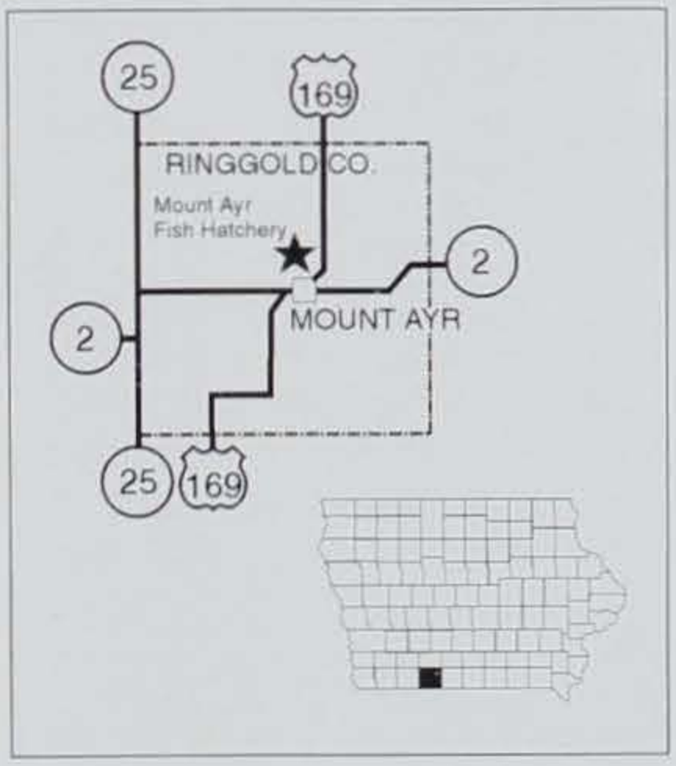
Forest species, such as the red-headed woodpecker, will reap the benefits of a forest BCA such as the one proposed in the Yellow River Forest area.

Doug Harr is the wildlife diversity coordinator for the department in Des Moines.

Getting the Max with the Minimum

by Mike McGhee

Ron Johnson



Mick Klemesrud

Located in far south-central Iowa is a small DNR fish hatchery that refuses to quit. The Mount Ayr Fish Hatchery, a warm-water aquaculture facility, sits on 22 acres in Ringgold County, approximately two miles north of Mount Ayr. There are eight earthen ponds totalling 6.35 surface acres of water. The city reservoir, Loch Ayr, is the sole water supply to the hatchery.

The hatchery was originally built in 1941, and expanded to its current size and configuration in 1959. Considered obsolete and scheduled for closure several times, the hatchery continues to produce fish as statewide stocking requests increase. Over the years, a variety of fish species have been raised at the facility including, walleye, saugeye, channel catfish, bluegill, redear, striped bass, largemouth bass, smallmouth bass and grass carp. In recent years, however, efforts have focused on walleye, smallmouth bass, bluegill and redear.

The ponds at Mount Ayr are filled and drained several times each year to raise different crops of fish. During a typical year, the ponds are prepared to receive small walleye in mid- to late-April. The catch basins or kettles (the lowest spot in the pond, where the water drains out and the fish concentrate) are cleaned of mud and debris. The valves are closed and the ponds begin to slowly fill with water. The water is filtered through a saran, a fine mesh cloth, to prevent unwanted Loch Ayr fish species from entering the hatchery ponds.

Filling the ponds begins two days prior to stocking, and the ponds take seven to 10 days to fill completely.

Walleye "fry," each less than one-quarter inch long, arrive from the Rathbun Fish Hatchery in sealed plastic bags, each containing several gallons of water and oxygen. Each bag contains 15,000 to 120,000 fry. If the bag is kept cool, the small 4- to 5-day-old walleye can be kept in the bag for up to five hours while being transported to another hatchery pond or lake for stocking.

Once at the Mount Ayr Fish Hatchery, the plastic bags are placed in the ponds for 15 to 20 minutes, allowing water temperatures in the bags and the pond to equalize. The fry are then slowly released into the pond at a rate of 80,000 to 100,000 fry per acre.

At this stage, the fry are still living on nutrients from their yolk sac, but after several days they are ready to feed on small zooplankton (small animals that live in the water). Alfalfa meal is added to the pond waters every four or five days to enhance zooplankton numbers. The alfalfa meal decays and thus encourages growth of bacteria, fungi and phytoplankton (plant plankton) populations on which the zooplankton feed. As the walleye grow, they continue to feed on the zooplankton and eventually add small insect larvae (benthos) to their diet.

The walleyes are in the ponds for 30 to 40 days, growing to an average length of 1 1/2 to 2 inches. At this size they are considered small fingerlings. The exact walleye harvest date is determined by the status of the remaining food supply. When food supplies are low the health of the fish can decline, cannibalism increases and overall survival is reduced. Survival rates in the ponds typically averages 60 to 65 percent, and annual walleye production at the Mount Ayr hatchery averages 340,000 small fingerlings.

Harvesting the fish is always a challenge. The concrete kettles are old and shallow and do not have a freshwater flow-through system, which is necessary for an efficient and orderly harvest. As a result, when the ponds are drawn down to where the kettles are visible, workers have less than 10 minutes to get the walleye out of the pond and onto the hatchery tank truck. Stress, due to poor water quality conditions in the pond, can quickly result in 25 to 75 percent mortality.

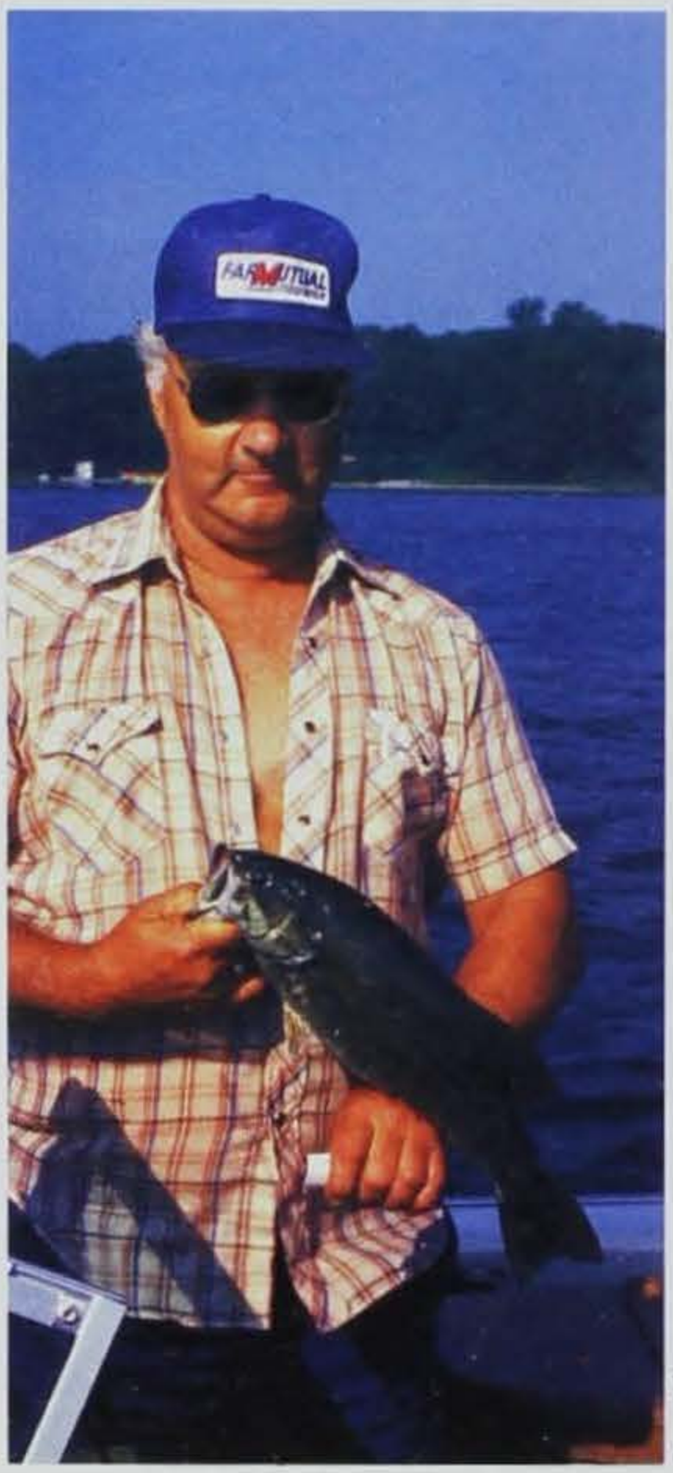
Clay Smith

After removing the walleye from the production ponds, the fish are stocked in Iowa lakes or sent back to the Rathbun Fish Hatchery. Those sent back to Rathbun are converted to a formulated pelleted diet until they reach 8 inches. Some Iowa lakes have environments that require these larger walleye to provide a significant walleye population for Iowa's anglers. Anything smaller, and survival rates decrease substantially.

Survival of naturally spawned walleyes is less than 5 percent in a given lake, and initial growth rates are slow. Hatchery reared 1 ∫-inch walleye stocked in southern Iowa lakes in June average 8-1/2 inches by early October, while naturally reproduced walleye average only 6 inches during the same time period. Therefore, stocking programs are essential in most Iowa waters in order to maintain a fishable walleye population. In fact, chances are a walleye caught in

Mike McGhee

Plastic bags of walleye fry are sealed and transported from the Rathbun Hatchery (top). After 30 to 40 days of growing, the Mount Ayr ponds are drawn down and the walleye fingerlings are quickly removed for stocking (above).



Ron Johnson

Sometimes after the adult bluegill and redear spawn, 2-inch smallmouth bass are added to Mount Ayr ponds. The hatchery's goal is to produce 4,000 to 7,000 5- to 7-inch smallmouth bass for fall stocking in Iowa's lakes.

southwest Iowa spent some time at the Mount Ayr Fish Hatchery.

After the walleye harvest, the ponds remain empty for about one week before being refilled with lake water. Adult bluegill or redear are then placed in the ponds for the summer. They reproduce naturally, and in the fall thousands of 1- to 2-inch fingerlings are removed for stocking in lakes around the state.

Sometimes 2-inch smallmouth bass are added to the ponds after the adult bluegill and redear spawn. The smallmouth bass feed on the small bluegill and redear that are produced. Fathead minnows are also added as supplemental forage. The goal is to produce 4,000 to 7,000, 5- to 7-inch bass for fall stocking in state lakes.

Normally, the ponds remain empty during the winter, but conditions at other state fish hatcheries sometimes necessitates over wintering 5-inch channel catfish in the Mount Ayr ponds.

In addition to raising fish, the Mount Ayr fisheries team also has management responsibilities in eight southern Iowa counties. The workload is generally handled with two fulltime employees and two part-time employees. However, during fish harvest, staff from other DNR districts pitch in to provide additional help.

As hatchery operations begin each spring, DNR fingers are crossed, hoping the 60-year-old main water supply valve will open to permit the coming year's hatchery activities. The waterlines, dikes and harvest kettles at the hatchery are worn out and leak. The main water line coming from Loch Ayr is below the thermocline, so oxygen levels in water supplied to the ponds are very low during the summer months.

Simple maintenance alone will not fix these problems. A statewide assessment of Iowa's hatcheries by FishPro Engineering recommended improvements and renovations at hatcheries where it was deemed cost effective. The final report, issued in April 2001, also proposed consolidating several fish hatcheries into a more centrally located site.

The cost to renovate the Mount Ayr Hatchery was estimated at $650,000. However, FishPro experts and Iowa DNR staff determined the money would be better spent building a new, bigger facility in a yet to be determined central Iowa site. Should that happen, Iowa anglers would benefit because the Mount Ayr fisheries team would be able to spend more time managing the fishery resources in their eight-county area. A new hatchery would also enable more efficient fish production, resulting in an expansion of the state's fish hatchery system to meet increased stocking demands.

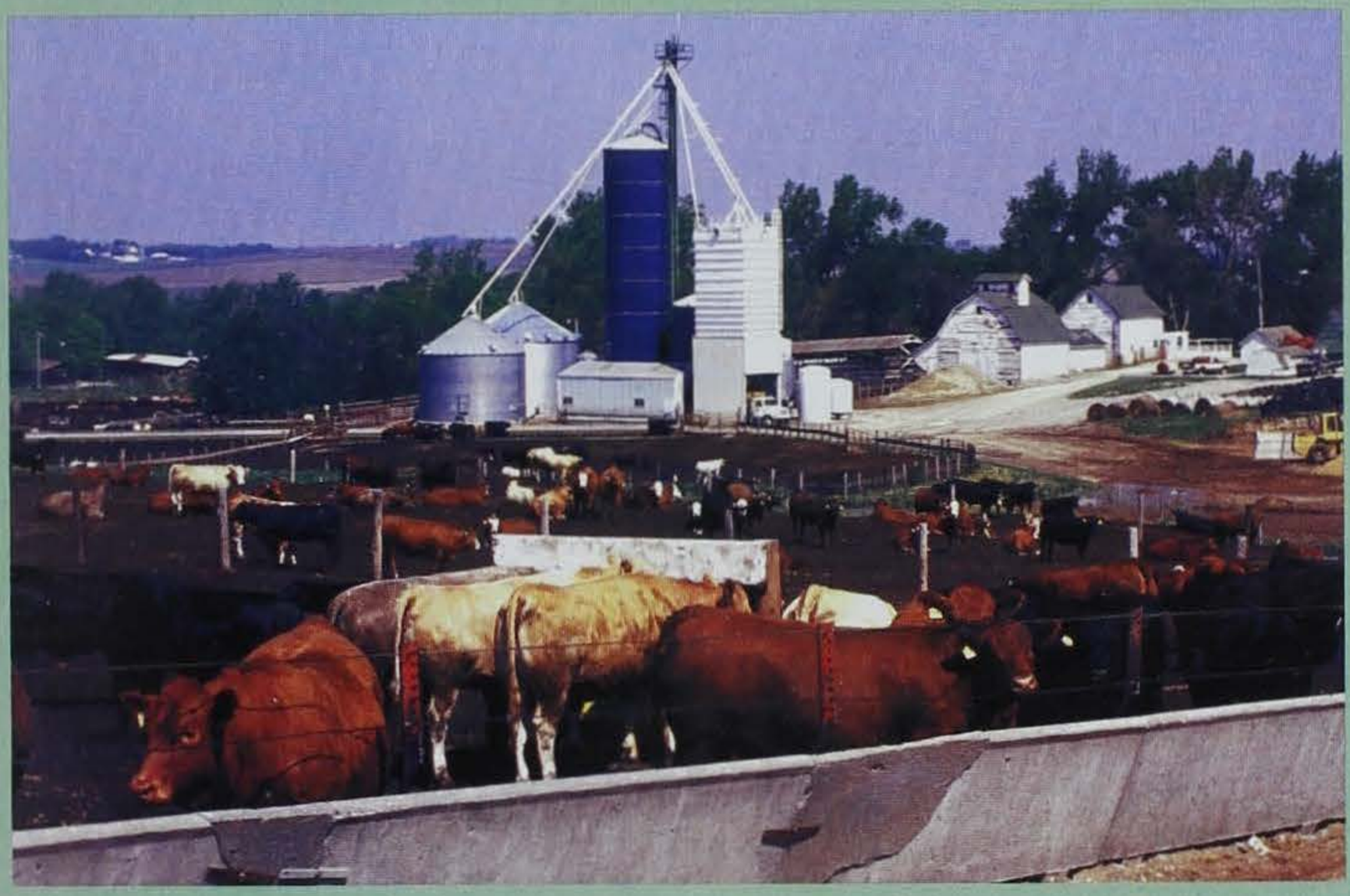
Until then, the Mount Ayr Fish Hatchery will continue operating, getting the maximum out of an antiquated facility, with a minimal investment of personnel and equipment.

Mike McGhee is a fisheries biologist for the department at Mt. Ayr.

Recipe for a Success Story

The Iowa Plan for Open Feedlots

Article by Karen Grimes
Photos by Lowell Washburn



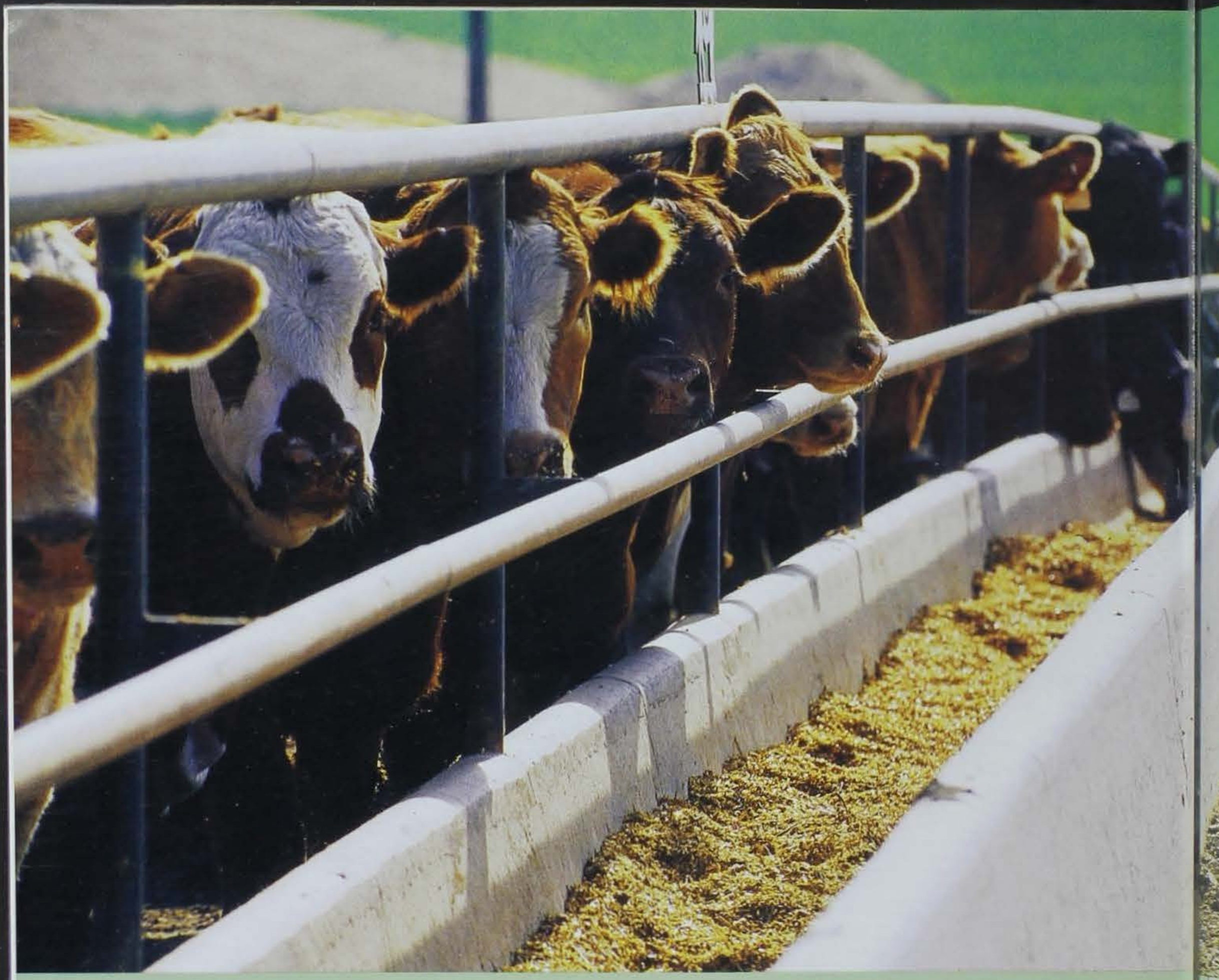
Throw in the most independent group you can think of – Iowa cattlemen. Add the U.S. Environmental Protection Agency, spurred by federal lawsuits to enforce the Clean Water Act of 1972. Toss in a state regulatory agency — the Department of Natural Resources — educators from Iowa State, environmental groups, the Natural Resources Conservation Service, commodity groups, Department of Agriculture and Land Stewardship and lots of lawyers and mix them up. There's no telling what will come out of the mix.

This unlikely mix turned out to be a recipe for success, when the group's cooperative efforts produced a workable plan to bring cattle, dairy and pork producers into compliance with environmental laws that have been on the books since the 1970s but have not been rigorously enforced. The process began in the summer of 2000, shortly after federal EPA inspectors conducted surprise inspections at four open feedlots in Iowa.

The EPA conducted the inspections, in part, to determine how well the Iowa DNR was doing its regulatory job of permitting open feedlots

What's an open feedlot?

An open feedlot is an area where animals are confined and fed for 45 days or more during a year. It differs from a confinement because it is either completely unroofed or only partially roofed. It differs from an open pasture, because the ground where the animals are kept is bare of any crop, vegetation, forage growth or residue cover.



What's an animal unit?

It's a unit of measurement designed to put different species of animals on equal footing when determining the capacity of an animal feeding operation. The basis for the unit is beef cattle, with 1,000 animal units equaling 1,000 beef cattle. Since dairy cattle are larger and produce more manure, it only takes 714 dairy cows to equal 1,000 animal units. Finishing hogs are considerably smaller, so 2,500 finishing hogs equal 1,000 animal units. And 100,000 broiler or layer chickens equal 1,000 animal units.

and enforcing federal and state environmental laws. The inspections were also held in Nebraska, Kansas and Missouri as part of a review of state programs in the four-state EPA region.

The federal inspections found many open feedlots in Iowa required to have a National Pollutant Discharge Elimination System (NPDES) permit did not have one. The permits, issued through the DNR, are required for open feedlots with more than 1,000 animal units (1,000 beef cattle or 700 dairy cattle). If a permit is required, the open feedlot must retain all manure runoff from day-to-day operations, as well as that which may result from a 25-year storm, or about five to six inches of rainfall falling within 24 hours. Depending on its location, a smaller operation with more than 300 animal units may also need a permit. All open feedlots are required to settle out solid manure.

Livestock producers prefer a state-run permit program over a federal program generally because regulators "closer to home" better understand their operations.

From that belief, Iowa's open feedlot plan was formed, beginning

Ver Steegh Brothers Farms, Eddyville

Recently graduated from kindergarten, Joseph Ver Steegh is already eager to raise beef cattle just as his great grandfather did when he bought the family farm located high above the Des Moines River north of Eddyville. From 130 acres in 1940, the farm has grown to support nine Ver Steegh families farming 4,000 acres of cropland today.

Already a proud cattleman at age 6, Joe is happy to help his dad, Craig, and his grandfather, Robert, as they feed cattle and discuss recent improvements in their open feedlot with Julie Nelson, an environmental specialist from the Department of Natural Resources.

The eldest Ver Steegh has been raising cattle on his farm for 51 years. A few years ago, he and his son, Craig, had a hard choice to make when runoff from the lot washed into a neighbor's farm pond. While they were determined to take care of the problem, they had to choose an option that made the best sense economically and environmentally. They could downsize the lot and prevent runoff by settling solids and feeding fewer cattle. Or, they could build for the future, increase the lot size to feed more than 1,000 animals – a move that would required a runoff control basin and to obtain a construction permit from the DNR.

The Ver Steeghs chose the most expensive option. They wanted to stay in the business of raising cattle. Driven by proposed changes in federal regulations, Robert and Craig also had to think about the DNR's interest in their feedlot after the pond incident. Having the DNR is interested in what you are doing is unsettling, according to Craig. But both Ver Steeghs said Julie Nelson has helped explain alternatives so they could make the best choice for their business.

"Julie's one of the best DNR people we've had to work with," said Robert.

Once they decided to expand the lot to 1,500 head, the Ver Steeghs faced the problem of finding an engineer. "It was very frustrating," Craig said. "Every time you talked to someone, they gave you a different answer."

"Nobody seemed to want to do the project, didn't know how to do it or was concerned about liability," added Robert.

Finally, the Ver Steeghs resorted to a list of engineers on the Internet, calling firm after firm until they located Crawford Engineering and Surveying of Independence. The engineering firm designed diversions and picket, or stop-log structures to settle out the solids in the manure, four runoff control basins to collect and hold the liquid runoff and a diversion below the basins that would prevent anything from reaching the neighbor again.

With much family labor contributed, the out-of-pocket costs were held to less than $29 per head, including engineering fees of $6,505 and $3,450 on test borings to evaluate soil suitability. About 28,000 cubic yards of dirt were moved during the construction of the basin.

"It's something you can live with," Robert said, referring to the cost.

While the Ver Steeghs are pleased with the new lot, they're still somewhat skeptical that it was needed, especially when they see other open lots for both cattle and hogs with streams running through them and no controls. However, all open lots will eventually come into compliance, the dollars spent in 2000 will likely be less than the dollars spent in 2004 for manure control installation.

Karen Grimes

"While there are no guarantees about future regulations, I think it's safe to assume, if anything, the regulations will be more stringent than they are now," Nelson said.

The Ver Steeghs know that, too. "We're in it for the long haul," said Craig. "And that's why they're willing to make an investment in the future.

—KG

Winter Feedlot
Gil & Pat Winter, Le Mars

by Ken Hessenius

Gil and Pat Winter own and operate a 2,750-head beef cattle feedlot, located approximately five miles southwest of Le Mars in Plymouth County. In addition to the feedlot, they farm 1,200 acres of row crops, half corn and half soybeans. Their son, Scott also works in the family farm operation, along with two other employees. The farm was purchased in 1970 and the feedlot portion of the operation has steadily grown ever since.

The feedlot is located one-quarter mile east of the West Branch of the Floyd River making it an environmentally sensitive site. With the increase in the feedlot size came an increase in the frequency and duration of discharges of runoff. Further complicating the matter, runoff from the farm fields affected the lower lots. Manure controls previously constructed were no longer adequate. In response to mounting environmental concerns, two runoff control basins, now called "settled open feedlot effluent basins," were constructed in 1994.

The Winters are no strangers to conservation. Pat Winter is a commissioner for the Plymouth Soil and Water Conservation District. She is also a board member of the Sioux Rivers Resource Conservation and Development agency. In addition, she is on the Governor's Council for Ag Education. "If we don't educate the next generation, who will?" said Pat. The farm sports conservation measures such as terraces, waterways, stream buffers and conservation tillage. "We've gone totally to no-till farming," said Gil.

The Natural Resources Conservation Service (NRCS) assisted in the engineering of the basins. "We wanted the expertise and cost savings," said Pat.

Part of the challenge was locating the outlet for the clean water diversion from the farm fields.

"A lot of time was spent placing the diversion tile," said Gil. "Sitting down and planning with the engineer was important. We came together at a point where we were both satisfied. If you can use the natural lay of the land you don't need to move as much dirt."

Total cost for the project was around $68,000, or about $25 per head. A minimal amount of cost share was provided to the Winters through the NRCS, because these types of projects did not receive high priority at the time. Jim Lahn, district conservationist for the Plymouth County Soil and Water Conservation District, said the new farm bill could provide additional help for producers that have to construct runoff control structures to meet environmental regulations.

"The EQIP funding portion of the farm bill has been significantly increased," said Lahn. "They have also removed the 1,000 animal unit cap, which allows more producers to be eligible."

"The basin gives us peace of mind knowing we're controlling all the runoff," said Pat. "It gives us pride of ownership because we're state of the art and ahead of the curve." Another residual benefit has been a noticeable decrease in the Winter's fertilizer bill since construction of the basins. Sustainable agriculture lowers the cost of fertilizer, according to Pat.

"It is much better for the owner to be proactive and be responsible for the runoff; it is their pollution," Pat said, when asked about the recent emphasis on bringing more feedlots into compliance. "The runoff from your property should be controlled. You should not be allowed to discharge into rivers, streams, or onto neighboring property," Gil added.

The Winters may be moving into a different phase of their life. They are considering selling the feedlot portion of their farming operation. Having the permit can make it easier to sell the feedlot.

Owning and operating a large feedlot involves a lot of time and commitment. As the Winters contemplate their future in partial retirement Gil chuckled, "It may be time for us to move on and enjoy other things. It's time for someone else to have all the fun. Why should we keep it to ourselves?"

Ken Hessenius is an environmental specialist for the department in Spencer.

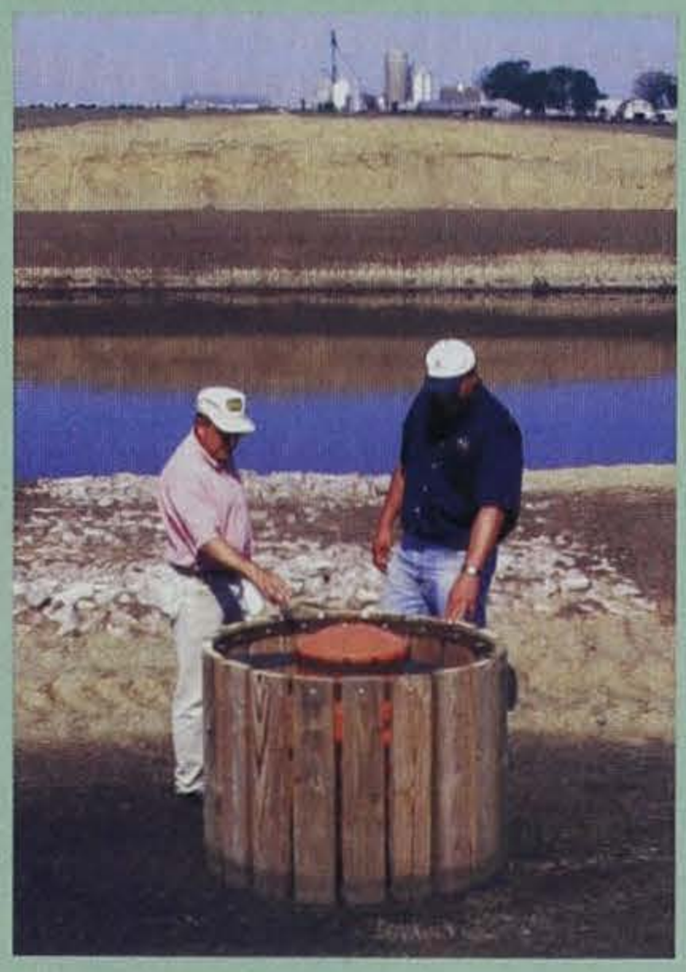
Karen Grimes

with a coalition of stakeholders formed in the fall of 2000. Meetings were fast tracked through the winter months as the group worked toward a plan that would address water quality, producer concerns and infrastructure shortages — including too few engineers and virtually no funding, and state and federal agencies that were strapped for funding and adequate staffing.

Adding to producers' discomfort were proposed changes in federal legislation that could mean anything negotiated in 2000 or 2001 would change when federal rules for animal feeding operations changed again in December of 2002. Producers were concerned about investing money into environmental controls that could be outdated within a year.

Despite these obstacles, the group finalized the plan for open feedlots in March 2001, choosing a three-pronged approach to address the problems.

"The three-step plan for voluntary registration, environmental assessment and compliance provided a sensible way for producers to bring their lots into compliance," said Wayne Gieselman, then coordinator of the DNR animal feeding operations program and now administrator of the Environmental Services Division. "The program was a major step forward, finding a way for us to meet our goals of clean water and for cattle and dairy producers to have time to adjust to this change in the regulatory climate."



Producers had less than a year, until Dec. 31, 2001, to register. There were some benefits for those who registered, including having more time to apply for a permit and to build the required runoff controls. As an incentive to sign-up, the DNR promised not to routinely inspect registered lots during the registration period. The EPA agreed to not inspect registered lots during the sign-up time period, too.

The voluntary registration has been a huge success, exceeding the DNR's expectations. To date, 1,578 open feedlots have been registered,

What's Solids Settling?

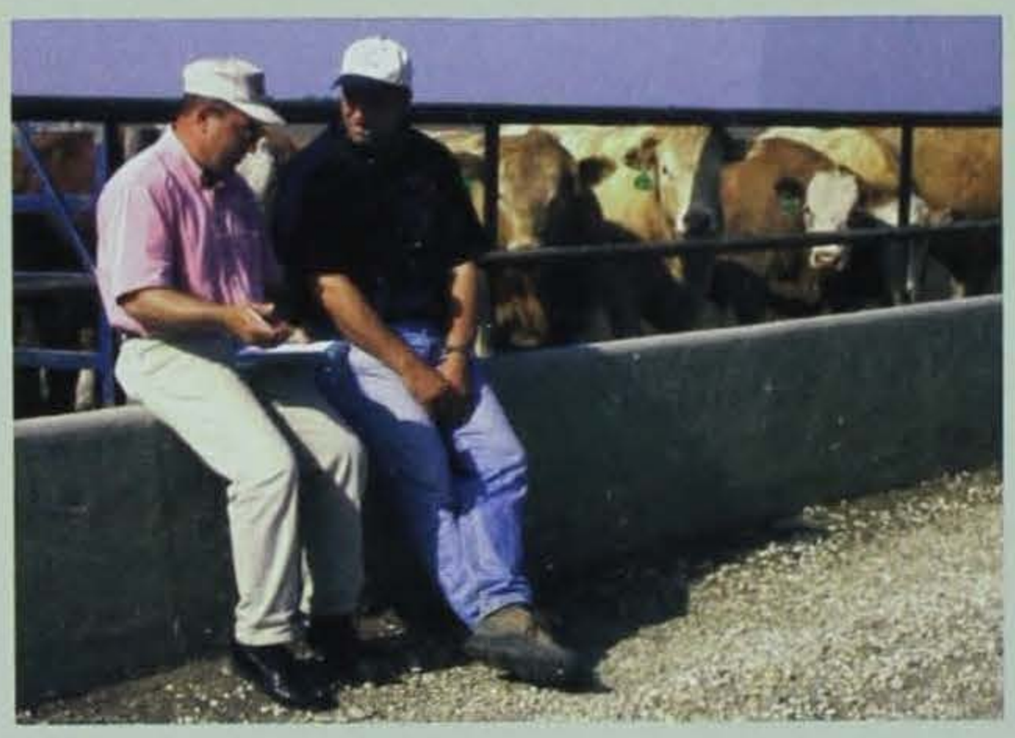
All open feedlots are required to settle manure solids from the liquid before runoff leaves the lot. Settling structures can be as simple as a terrace or diversion (top) or as complex as a basin (bottom). Both open feedlots above use picket structures to hold the solids and allow the liquids to overflow and be held in a runoff control basin. Later, liquids and solids from these basins can be used as crop fertilizer, completing the nutrient cycle. Cost-share funding may be available through the Natural Resources Conservation Service for solids settling and other structures that can improve environmental conditions below the feedlot.

Performance Beef
Kirk TeGrootenhuis, Alton

Kirk TeGrootenhuis was a little skeptical at first. He was told by the DNR that he needed to get a permit and provide runoff control for his proposed 2,880-head feedlot. He had planned to build the lot in a different location where a vegetative filter would provide pollution controls. However, DNR rules require that open feedlots with more than 1,000 head of beef cattle control all manure and stormwater runoff from the lots.

TeGrootenhuis is the owner of Performance Beef. The lot is located on a farm TeGrootenhuis purchased in 1990. Kirk and his family live on the farm, located approximately one mile south and one mile west of Newkirk in Sioux County. They have two employees.

"Usually feedlots figure you need one employee for every 1,000 head of cattle," said TeGrootenhuis. "We buy all of our corn. The manure solids are spread on corn silage ground and the liquid manure will be irrigated onto the alfalfa ground." They farm 200 acres of cropland; 160 acres of corn silage and 40 acres of



alfalfa, all of which is fed to the cattle.

To assist in the design of the feedlot and the manure controls, TeGrootenhuis enlisted the help of Paul Petitti, an engineer from Estherville. The lot was moved to the west and located on the crest of a hill to avoid having to control any external drainage of water. Drainage from the lots flows to the west and to the east and is captured in five separate settled open feedlot effluent basins, or "ponds" as TeGrootenhuis calls them. Each basin is protected by a solids-settling basin, which is designed to capture manure solids before discharging the liquids. The solids basins are cleaned twice per year and the liquids will be pumped as needed, depending on rainfall.

"I wanted to have a series of several small, shallow runoff basins," said TeGrootenhuis. "This allows us to maximize evaporation and makes cleaning them out easier." TeGrootenhuis emphasized the importance of working closely with the engineer to achieve a final design that is both environmentally friendly and that fits the producer's style of management. "I can't stress enough the importance of the engineer," TeGrootenhuis said. "We worked together on a daily basis for a period of time. The borings gave us a great idea of the soils you have to work with." Work on the lots was completed in the fall of 2001 and the first cattle were delivered that October.

When asked about drawbacks to the feedlot design, TeGrootenhuis responded, "I don't have any drawbacks. I was a little apprehensive at first, but I wouldn't have it any other way now. It works as well or better than I figured." He said the benefits of the system include being a good neighbor, ease of cleaning of manure solids for application in the spring and fall, and having the ability to irrigate the alfalfa. TeGrootenhuis estimated that environmental costs for his feedlot were approximately $50 per head. He moved 100,000 yards of earth at a cost of $1 per yard. Environmental costs for engineering were approximately $15,000.

"I've probably had over 20 calls from area producers about my feedlot," said TeGrootenhuis. "The DNR has been very good to work with. There is the fear factor to get over, but it's not bad."

In addition to manure runoff controls, TeGrootenhuis has designed and installed a nine-row windbreak on the north side of his lot, planted last fall. Terraces and the runoff controls from the feedlot protect a small meandering stream that winds through the middle of the farm. In a few years, as the trees mature, the cattle will feel the benefit of reduced wind. Wildlife, undoubtedly, will utilize and enjoy this newly created habitat for generations to come. This feedlot is an example of how agriculture and environment can coexist and thrive at the same location.

Understandably proud of his newly created feedlot, TeGrootenhuis, a third generation cattleman, clearly has the future in mind. To him feeding cattle is a way of life. "My grandfather always said if there are no cattle in heaven, I'm not going," TeGrootenhuis quipped.

—KH

Registration of Open Feedlots in Iowa (*State Totals*

Animal Units	Number	Percent
1 to 300	588	37.6
301 to 1000	806	51.5
1001 and more	171	10.9
Total	**1565**	**100**

Statewide Distribution of Registered Open Feedlots

Location *areas covered by DNR Field offices*	Number in Area	Percent
NE Iowa	168	10.7
North Central Iowa	131	8.4
NW Iowa	610	39.0
SW Iowa	398	25.4
South Central Iowa	151	9.6
SE Iowa	107	6.8
Total	**1565**	**100**

including 171 that are large enough to need a NPDES permit. After registration, the DNR conducts an in-house environmental assessment using existing Geographic Information Systems (GIS), soils data and topography maps to assign a high, medium or low environmental priority to each feedlot. Almost 400 in-house assessments have been completed: 580 still need to be assessed. The smaller feedlots, those with 300 or less animal units, will not be assessed.

Once the in-house assessment is completed, Ken Hessenius, an environmental specialist from the DNR Spencer field office, conducts an on-site assessment. The meeting is an opportunity for the producer to showcase the practices are already in place, and to discuss any concerns with the DNR. Hessenius offers technical assistance and alternative ways to comply with the law. So far, he has completed about 50 on-site visits.

The goal of the program is to have all open feedlots in compliance within five years. Higher priority lots are the first to receive visits and will be asked to have a compliance schedule within two years.

"We've tried to bring all the players to the table, working with the cattle association and the dairy people, and adding in educational agencies, environmental groups and other stakeholders," said Gieselman.

Participating groups that provided input on the plan include: Iowa State University Extension, the Iowa Beef Center, the Iowa Farm Bureau Federation, the U.S.D.A. Natural Resources Conservation Service, the Iowa Department of Agriculture, the Conservation Districts of Iowa, the Iowa Environmental Council, the Izaak Walton League and the Iowa Dairy Products Association.

For more information visit the Iowa Manure Management Action Group's (IMMAG) website at http://extension.agron.iastate.edu/immag/ or contact Reza Khosravi, acting supervisor of DNR Animal Feeding Operations, at 515-242-6128.

Karen Grimes is an information specialist for the department in Des Moines.

A Vanishing Species?

Decline of the Bobwhite Quail in North America: Not Just an Iowa Problem

The familiar "bob-white, bob-white" call of the northern bobwhite quail during the spring breeding season is almost an unfamiliar sound on many Iowa farms today. Actually, it is a sound not heard on many a farms nationwide. Hunters and farmers alike wonder why quail have disappeared. Some say it is hunting, even more say it's predators, and still more blame it on the abundant deer and turkey eating quail eggs and chicks. Still others blame weather, and in a surprisingly few instances, the loss of habitat is mentioned.

The purpose of this article is to help sort out all the truths and myths about the bobwhite quail decline in North America. It seems a logical place to start would be the current status of the bobwhite in North America and in Iowa.

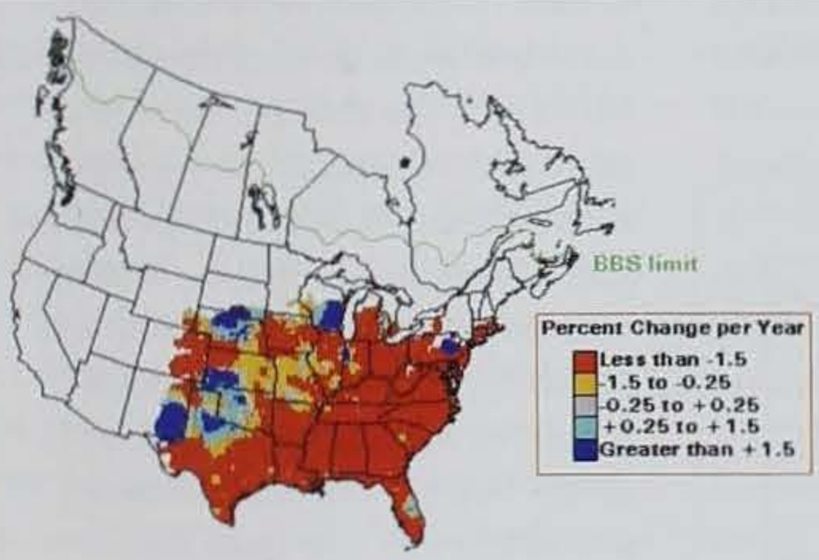
Current Status

The range of the northern bobwhite extends from the Atlantic Coast west to Nebraska, Colorado and New Mexico, and from the Gulf Coast north to the Great Lake states. Nationwide trends in bobwhite numbers are monitored with the Breeding Bird Survey (BBS), a call-count survey conducted during the peak of the June nesting season. Each survey route is 24.5 miles long, with 50 stops located at half-mile intervals along the route. A three-minute count is conducted at each stop, during which all birds seen or heard within a quarter-mile radius are recorded.

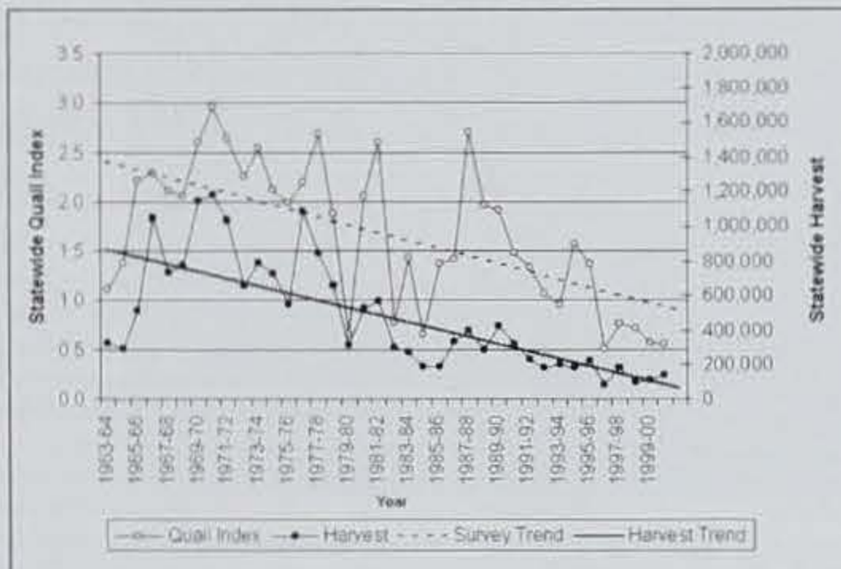
Nationwide, the survey shows quail populations have declined 2.8 percent a year since 1966. The greatest declines have occurred in the southeastern United States, with smaller declines in the Midwest. In Iowa, the decrease has been a little higher, at 3.8 percent per year. The survey shows from 1966-96 only three states, Nebraska, Kansas and Oklahoma, had relatively stable quail populations. These population trends are confirmed by quail harvest figures from across the country.

In Iowa, the DNR uses its own method to monitor quail populations: the August Roadside Survey. Most counties have two survey routes, each 30 miles long, and all quail seen on the routes are recorded. The survey shows quail numbers have declined 4 percent each year since 1962, which closely matches the national survey. The DNR also uses a mail survey of hunters to collect quail harvest data, and harvest trends have showed an identical 4 percent decline per year.

by Todd Bogenschutz



National quail trends from Breeding Bird Survey, 1966-96. Red shows regions where counts are declining more than 1.5 percent per year.



Iowa quail population and harvest trends from the August Roadside survey, 1962-01.

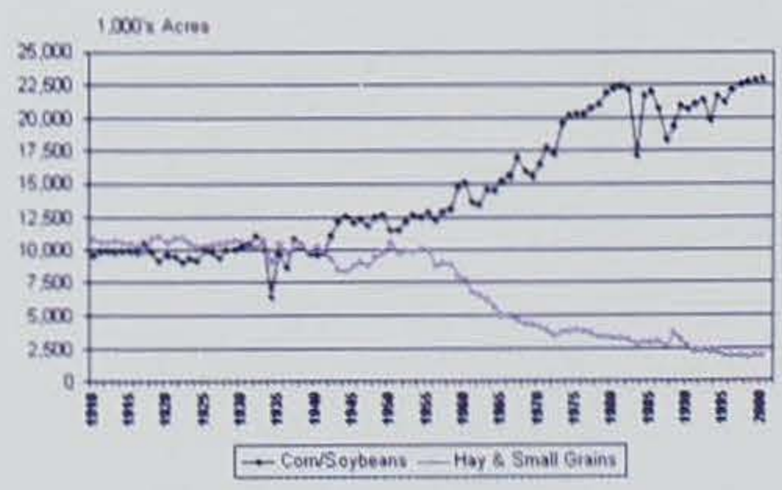
Historical Perspective

Many hunters and farmers alike are stammering that something needs to be done to stop the decline. However, contrary to popular belief, the decline in Iowa has not been a short term issue. Quail populations have been declining in Iowa since 1900. In his book, *A Country So Full of Game*, Jim Dinsmore notes early records around 1800 report quail were present in Iowa prior to settlement, but were common only to southeastern and south-central Iowa and absent on the prairie. Similarly, Aldo Leopold reports quail were likely scarce in Iowa prior to settlement. However, both authors noted quail populations exploded across Iowa with settlement. Leopold notes it was not uncommon in 1900 for a 300-acre farm to have 300 quail. Dinsmore reports two men flushed 19 coveys, and another group killed 250 quail, in one day in 1907 near Glenwood. The explosion occurred because early settlers created ideal quail habitat. Describing the impact of early settlers, Leopold wrote:

"The early settler brought the axe, plow, cow, split rail fence, hedges, weeds and grain to Iowa. The axe converted shady woods into brushy stumplots and the plow flanked them with weedy crop fields full of strange nourishing seeds (corn, wheat, oats). Plows on the prairie checked the sweep of prairie fires and shrubs promptly romped up every draw and coulee with quail at their heels. On the flat prairie each settler needed 3-6 miles of fence for each quarter section of land...lacking money for wire and timber for rails, settlers planted Osage orange hedgerows...tens of thousands of miles of as fine a quail cover as ever grew, planted on the hitherto quail-less prairie, and all within ten steps (quail steps) of weedy laden crop fields. Quail responded to this disturbance in the forest and prairies by the millions...it was the golden age of quail."

However, the golden age was short lived, as Leopold and Dinsmore both note Iowa quail populations began to decline by 1900. The advent of the tractor and the moldboard plow changed forever how Iowa was farmed.

With these and later timesaving implements, Iowa's landscape has undergone constant change since 1900. Cropping practices have changed, with less emphasis on hay and small grains and more on corn and soybeans. Bigger and better machinery has lead to fewer and larger farms resulting in the loss of brushy fencelines and hedgerows . Dinsmore notes osage orange hedges common in the 1850s were mostly gone from the north half of the state by 1931, and quail disappeared with them. Following World War II chemical use increased, and today, with Roundup-Ready crops, fields are virtually weed-free, and quail-free as a result.



Iowa cropping trends.

With complaints from farmers and sportsmen rising, the Iowa Legislature set the first bag limit on quail in 1878 at 25 birds per day. When this had no effect on quail numbers, the limit was lowered to 15 per day in 1915. Populations still continued to decline and the season was closed in 1916. It remained closed for 17 years until 1933, when it was realized the limits had not spurred the anticipated population recovery.

It should also be noted that because of bounties and unregulated hunting, deer, turkey, coyote, fox, raccoon and hawks had been essentially wiped out in Iowa by 1900, and quail populations were still declining. Populations did not recovery because the experts of the time did not understand the role habitat, predators, and hunting played in quail biology.

Quail Biology 101

It should be obvious from early records that quail prosper when grasslands or woodlands are disturbed. Biologists refer to these disturbed areas as "early successional habitats." The northern bobwhite is an R-selected species that prefers such habitat. R-selected species are small, short-lived creatures with high rates of turnover (reproduction and mortality) and dispersal (expand rapidly to new habitat when available). In a typical year, between 70 and 90 of every 100 quail die.

The high mortality rate is not considered detrimental because one pair of quail can produce 16 chicks, representing a 900 percent increase

in numbers. Iowa research also shows about 30 percent of female quail double brood, meaning they produce young from two nests in one year, resulting in a greater than 1,000 percent increase. The exorbitant reproduction rates are never achieved, however, because not all hens, nests or chicks survive the nesting season. The largest one-year population increase ever recorded in a wild Iowa quail population is 457 percent. Still, these characteristics explain why quail populations exploded in Iowa when the early settlers disturbed the prairie and forests with agriculture.

Biologically, quail are geared toward abundance, and computer models show harvests of less than 40 percent of the fall population are not detrimental. Iowa research confirms this, as survival rates on public areas with varying hunting mortality rates (12 percent compared to 28 percent in one particular study) were similar. These figures explain why closing the quail season between 1916 and 1933 had no effect on quail populations. Hunting was not cause of the decline.

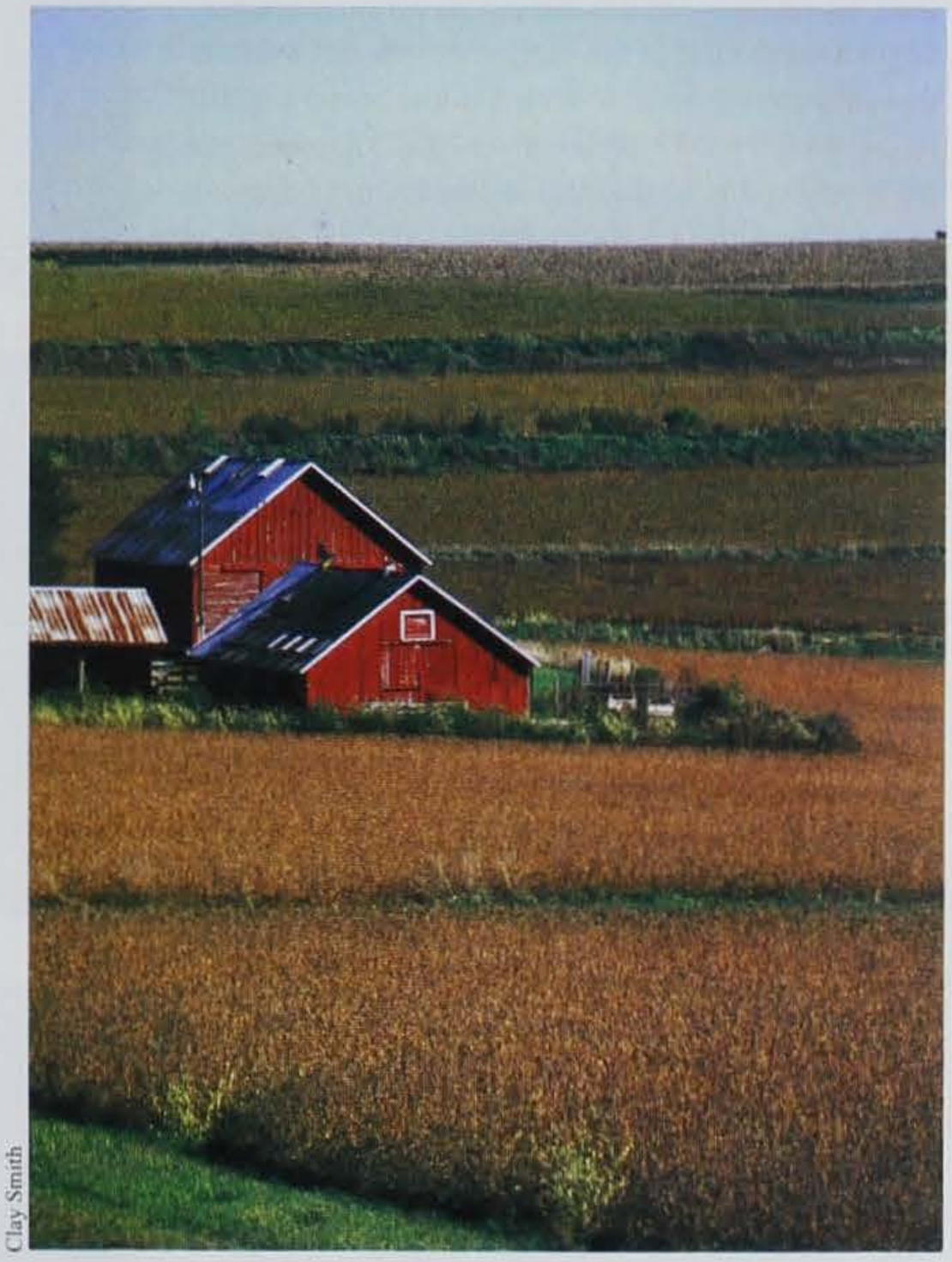
Many folks claim predators — even deer and turkey eating baby quail — caused the decline. That can not be the case, because during the time period in question, 1916 to 1933, deer and turkey were extinct in Iowa and most major predators had been eliminated. Yet even in this predator-reduced environment, quail numbers continued to decline. They did so because changing land use was eliminating early successional habitat so important to quail. Populations continue to decline today for the same reason.

What Can Be Done?

The decline in quail is linked to agricultural land use. Again, we know quail need early successional habitats. Research from Illinois shows landscapes that have 30 to 60 percent rowcrops, 15 to 30 percent grasslands and 40 to 80 feet of woody edges per acre can support quail populations. Landscapes that fall outside of these parameters generally cannot.

These parameters eliminate much of the northern two-thirds of Iowa from any possibility of quail because the landscape lacks the woody edges, and most areas are 70 to 90 percent rowcrops. Parts of the southern third of Iowa still have the preferred mixture of woody edges, grasses and rowcrops. However, quail numbers have continued to decline in southern Iowa because there is no disturbance to create early, successional habitat. Much of the potential quail habitat in southern Iowa is mature timber bordering old sod-bound grasslands and crop fields with no weeds. Quail need the disturbance in and among these different habitats to prosper.

Disturbance must occur every two or three years because, with Iowa and much of the U.S. quail range receiving abundant rainfall, natural succession replaces weeds and brush with grass and trees, the latter of which are not preferred by quail. Farming practices used to



Clay Smith

Quail prefer a mixture of woody edges, grasses and rowcrops, and prosper when these grasslands and woodlands are disturbed. Brushy fencelines and hedgerows, favorites of quail, have been lost to bigger and better farm machinery, and cropping practices that emphasize more corn and soybeans.

Bobwhite are small, short-lived creatures with high rates of reproduction and mortality, and expand rapidly into available habitat. The typical 70 to 90 percent mortality rate each year is not considered detrimental because one pair of quail can produce 16 chicks, representing a 900 percent increase in numbers. Biologically, harvests of less than 40 percent of the fall population are not detrimental, confirming hunting is not the cause of decline.

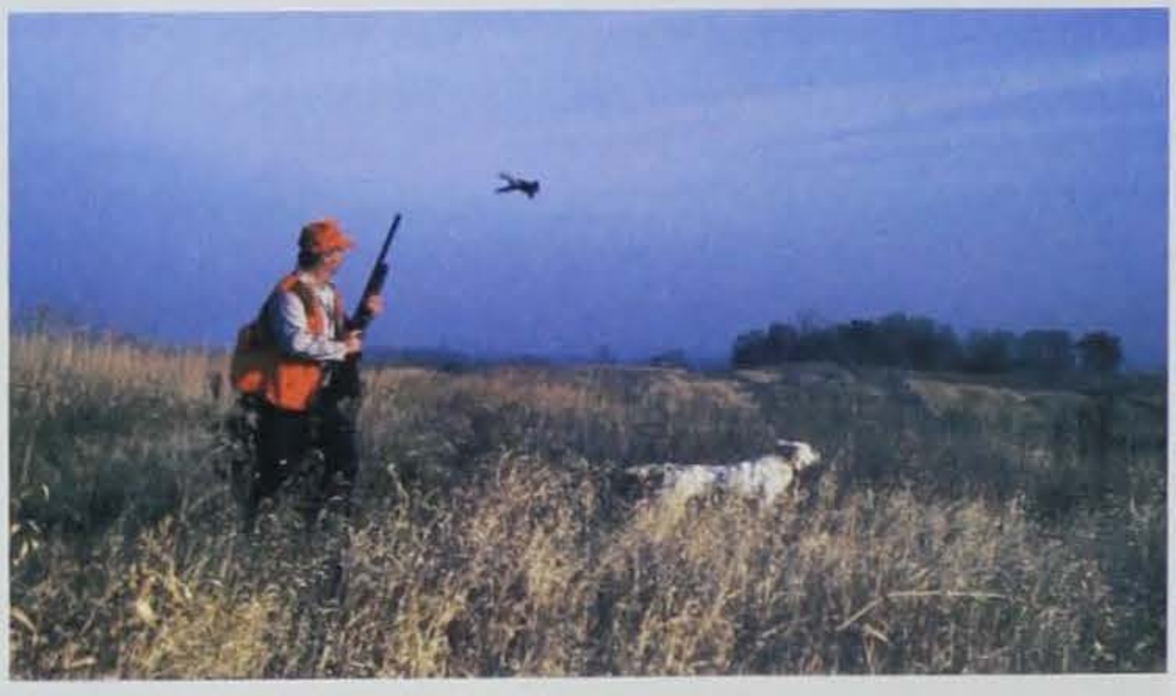
provide this annual disturbance over much of the bobwhite's eastern range, but with modern farming methods, this disturbance no longer occurs. The drier climates of the central plains produce sparse vegetation similar to the early successional habitats that disturbance used to create in the eastern quail range, which partly explains why quail numbers are relatively stable in Kansas, Nebraska and Oklahoma.

Several demonstrations in the southern states have documented quail numbers do increase when disturbance creates the early successional habitats. The first example involves the Ames Plantation in Tennessee.

This large plantation is home to the national field dog championships, and managers were using food plots, burning, strip disking and legume plantings to manage for quail. Quail numbers on the plantation were higher than on surrounding agricultural lands, but not as high as in earlier years. Most of the management activities focused on crop and grasslands, so a decision was made to disturb some of the timber through harvest.

Timber was removed on more than 2,000 acres, and in the first year following the harvest, winter survival of quail increased 10 percent and nest success increased 45 percent. These increases occurred despite a lack of predator control and an abundance of deer and turkeys. Researches believe the disturbance to the timber not only created the habitat quail prefer, but it also changed how predators used the habitat.

The second example involves the Black Prairie Wildlife Management Area experiment in Mississippi. The large area was predominately row crops and fescue pasture. In 1996, unit managers



Roger A. Hill

embarked on an extensive habitat management plan for bobwhite. The plan included the eradication of fescue in pastures through strip disking, herbicides and fire; fallow field borders along crop fields; and the establishment of cover strips and hedgerows to break up large fields.

Between 1996 and 1998, the quail population increased almost sixfold, from 20 coveys to almost 120 coveys. In the years that followed, the population declined to about 80 coveys. Researchers call this rapid rise and gradual decline the "new ground effect." The quail population exploded early when the new successional habitats were abundant. The numbers later dipped when the weeds were replaced by grass and the brush matured.

Iowa saw this same phenomenon following the implementation of the Conservation Reserve Program (CRP) in 1985. Iowa quail numbers spiked between 1985 and 1987, then declined again. When first established, CRP fields were full of weeds, but after several years grasses took over and quail numbers dropped when their preferred habitats disappeared. Without any disturbance, CRP fields remain grassy and are of little value to quail, which largely explains the decline in Iowa quail numbers since 1988.

These experiments show that quail populations can improve dramatically if new habitat is created or existing habitat is manipulated to create disturbance. Researchers also believe habitat changes also alter the predator situation. The number and types of predator are most prevalent in mature habitats and less so in early successional habitats. So habitat management to create early successional habitats not only creates the habitat quail need, it also reduces quail predators.

A key point to keep in mind is both involved large areas. Management on 20 acres or even 100 acres is not likely to dramatically change quail numbers. Early settlers and CRP changed hundreds of thousands of acres in Iowa and quail populations responded. To bring quail numbers back in the continental United States will require the creation of early successional habitats on large acreages.

Can It Be Done?

Perhaps the best hope to restore some quail numbers across the United States is through USDA conservation programs. Only the federal government has the resources and funds to significantly change thousands of acres of cropland to benefit quail. The programs that could be used include CRP, Wildlife Habitat Incentives Program (WHIP) and the Environmental Quality Incentives Program (EQIP). Through these programs farmers and landowners can receive financial incentives to manage their lands for quail and other wildlife species. Habitat practices covered under these programs include food plots, interseeding, strip disking, burning, fallow field borders, shrub plantings and tree removal. All of these practices can be used to create the habitats quail prefer. The DNR is using the $4.50 hunting license fee increase, which went into effect July 1, to fund 25 staff positions to work with USDA and private landowners. It is hoped that through this Private Lands Program partnership, enough acres of land can be impacted to benefit quail.

In Iowa's southern three tiers of counties there are approximately 9,375 square miles of cropland. A third of this (3,125 square miles) would likely need some sort of habitat improvement over a five-year span for landowners, farmers and sportsmen and sportswomen to see a measurable increase in quail numbers. The DNR's Wildlife Bureau certainly does not have the funds or staff to impact this much land, but USDA programs do. The CRP program covers almost 1,450 square miles of cropland in the southern third of Iowa. With other USDA programs like WHIP and EQIP it may be possible to create enough early successional habitat to increase quail numbers in Iowa.

Early in Iowa's history, early successional habitats were a by-product of farming and quail flourished as a result. Today's farming has eliminated early successional habitat, and consequently, quail are a very scarce commodity on the landscape. A partnership between USDA conservation programs and the DNR could reverse this trend, but it will take the support of both government agencies, landowners, sportsmen and sportswomen for this to occur.

The Wildlife Bureau's Private Lands Program is the first step toward developing a partnership between the USDA, DNR and private landowners. Iowa's sporting public can help by supporting the private lands program and by educating landowners about the habitat needs of quail.

For more information on habitat management for quail in southern Iowa, contact your local wildlife biologist or NRCS district conservationist.

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

Healing a Decade of Disaster

Article by
John Walkowiak
Photos by Clay Smith

Imagine a night of severe weather, when the wind blows so hard it is howling. You can hear the sound of breaking tree limbs up the street, followed by the sirens of emergency vehicles. Seconds later you lose electrical power to your home.

Now, imagine the next morning, awakened by the sound of chain saws. You view the destruction of the storm. Clean up leaves mounds of broken tree limbs and downed trees along the streets, schools and

Ron Johnson

parks. You wonder if the beauty and shade the mature trees brought to your community will ever be seen again in your life time?

Unfortunately, that same scenario played out numerous times in the 1990s, a decade that saw droughts, floods, ice storms, early snow storms and severe winds/tornadoes strike hundreds of Iowa neighborhoods and communities with frequency. These natural disasters caused millions of dollars in damage to the trees that graced our streets, shaded our schools and provided wildlife refuge in our parks. The task of rebuilding looked enormous, and with rule changes in federal disaster assistance, the cost of replacing trees was no longer an acceptable expense.

In 1999, former Iowa Speaker of the House Ron Corbett of Cedar Rapids, along with Rep. Scott Raecker of Urbandale, believed trees were a critical investment in enhancing the quality of life in Iowa communities. They developed the concept of investing state funds in replanting local public areas in Iowa communities with new trees through a program that came to be known as Million More by 2004.

From 2000 to 2002, the Iowa Legislature appropriated $250,000 annually to implement the program. Working with the Iowa Nursery and Landscape Association and Dunbar/Jones Partnerships, the DNR provided grants of $500 to $5,000 to community organizations to purchase and plant new landscape-sized trees on public areas. Communities were required to provide matching funds, purchase the trees from Iowa nurser-

Opposite page: Severe weather in the 1990s took its toll on Iowa communities. These disasters resulted in millions of dollars of damage to many mature trees gracing Iowa cities and towns.

Top and left: Olmsted Elementary and the community center/library in Urbandale received landscape trees thanks to a Million More by 2004 grant.

Above: Volunteers planting at Hazelwood Cemetery in Grinnell, another grant recipient.

Opposite page: Easter Lake and other Polk County parks were hit hard by storms in the 1990s. Million More by 2004 helped replace the losses.

Top: Whitter Elementary planting in Clinton

Above: The plantings at Armstrong Park in Fort Dodge helped replace trees lost in a particularly heavy ice storm in 1994.

Right: Planting at Monroe Elementary in Des Moines.

ies and provide at least five years of after-planting care until the trees were established enough to make it on their own.

From the $750,000 initial investment, more than 200 community projects have been completed across the state, resulting in the planting of 15,000-plus new landscape trees. The value of the plantings exceeds $1.5 million.

Rebuilding Iowa

On May 15, 1998, the northern part of Washington in Washington County was hit by a devastating tornado. Luckily, no one died or was seriously injured, but nearly 250 large trees along streets and in the city park were blown over or destroyed.

"It looked like a war zone," said Marde McConnell, chair of the Washington Beautification Committee.

In 2000, Stewart Elementary School in Washington received a Million More by 2004 grant and planted 65 new trees. In 2002, a second grant helped 32 community volunteers plant 32 new trees around Lower Sesquicentennial and Sunset city parks — in a driving rainstorm no less.

On June 29, 1998, a mesocyclone hit Jester Park just north of the Des Moines metro area. This Polk County Conservation Board-managed facility lost 600 mature trees, including its three-acre nursery site.

"Mother Nature does not discriminate," said Mark Dungan, county forester. "We lost both deciduous and coniferous trees – big and small."

In 2000, a Million More by 2004 grant helped Polk County replant 65 new trees in Jester Park. Matching funds for the grant came not only from county funds, but local donations. One such donation came from a group of YMCA camp kids who hid in a pit latrine during the 1998 storm; they raised $170 to help. Additional grants in 2001 and 2002 allowed the Polk County Conservation Board to establish new trees for screening and water quality protection at its most urban park, Easter Lake.

MidAmerican Energy, Aquila (formerly Peoples Natural Gas), Iowa West Foundation, Prairie Meadows Racetrack and Casino, Weyerhaeuser and many others through grants to local community organizations.

A casualty of the state budget crisis, Million More by 2004 will not be funded in 2003. It has, however, left a growing legacy of new trees, new investment and new hope for our communities. It has benefited local business, and fostered local volunteer fund raising efforts. Best of all it brought mature trees back to Iowa communities.

John Walkowiak is acting chief for the department's Forestry Bureau in Des Moines.

Planting the Seed for Private Investment

The demand for grants each year exceeds the funding available. Help came two years ago from Alliant Energy, beginning with its $75,000 contribution to the DNR's Earth Year 2000 project. More than $38,000 of that went to 35 community organizations in Alliant Energy's service area to establish 1,630 new landscape trees.

The help continued through Operation ReLeaf, a partnership between Alliant and the DNR. The program is designed to help Alliant Energy customers plant new landscape trees around their homes for energy efficiency. Since the fall or 2001, 11 county Operation ReLeaf projects have helped more than 2,500 Alliant Energy customers plant in excess of 4,500 locally purchased landscape trees.

Similar investments in community reforestation are being made by

Explore Iowa Parks

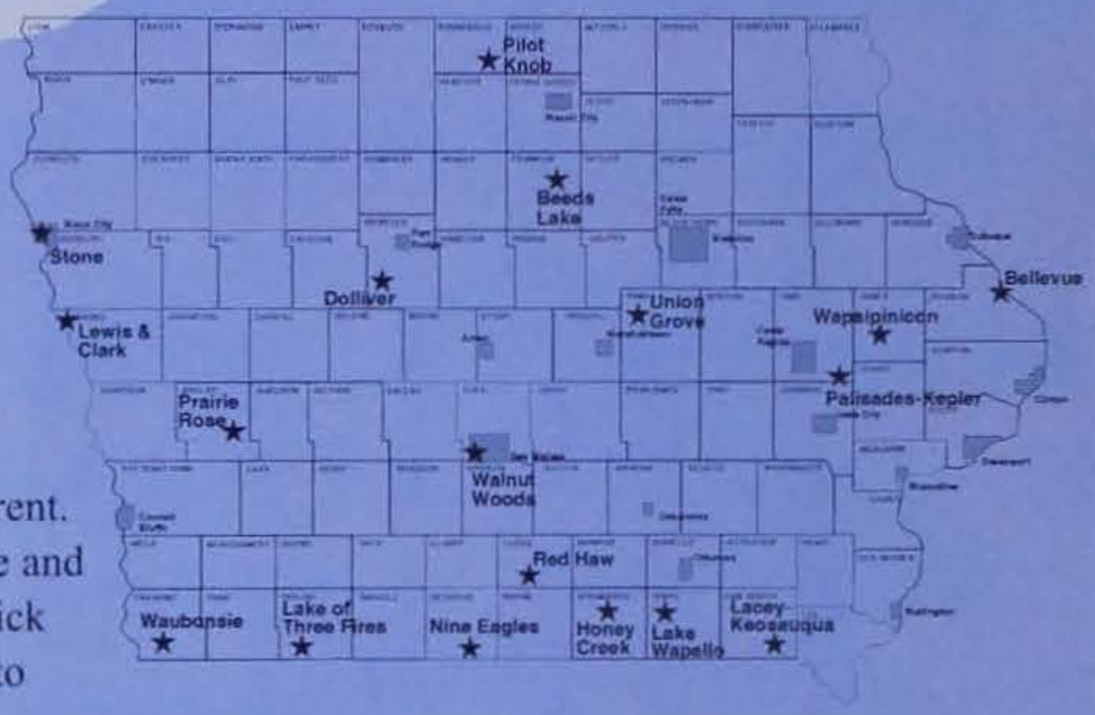
More than half of Iowa's 54 state park campgrounds create difficult questions for many campers. *Should I plan to get to the park Friday morning, even Thursday night, so I can get a campsite before the crowd arrives? Should I forget the weekend and camp during the week instead?*

Although there are plenty of campers who prefer the camaraderie of a full campground, there are others who favor more solitude.

Problem is: Where do you find it?

Solution is: Any one of the 18 campgrounds at right.

Often, old habits are hard to break. Camping is no different. Many people return to the same state park campground time and time again because they are familiar with the area or it's quick and convenient. But now, the DNR is offering an incentive to try something knew.



The DNR parks staff has identified 18 park campgrounds that are historically underused compared to the others. Each of these 18 is a jewel in its own right with something special to discover. It may be off the beaten path, perhaps another hour down the road, or just plain forgotten as a possible destination. If you try several of them this summer, you will be rewarded with more than a new discovery, a new opportunity or a new adventure for the family.

The program is called Explore Iowa Parks – a campaign by the DNR to spread out the camping pressure among more parks and increase the camping enjoyment available to you. Here's how it works.

Before Oct. 31, 2002:

- Camp at 4 of the 18 parks and you will receive a one-year subscription to the *Iowa Conservationist.* (You can add this year to your current subscription if you are already a subscriber.)
- Camp at 6 of the 18 parks and receive a one-year subscription, PLUS a state parks t-shirt.
- Camp at 10 and you receive the subscription, the t-shirt, PLUS a chance at one of three grand prizes on the opposite page.

All you need is the Explore Iowa Parks packet, available at all state park campgrounds from the park ranger or manager — pick them up at the campground of your choice. Included in the packet are complete rules, a brief description of each park, a DOT highway map and the new state parks guide. Use the packet envelope to save your camping registrations that you will need to mail to DNR by Oct. 31 to claim your reward(s). For more information, visit our website at:

www.exploreiowaparks.com

Participating parks include:

Beeds Lake - Franklin Co.
Bellevue - Jackson Co.
Dolliver Memorial - Webster Co.
Honey Creek - Appanoose Co.
Lacey-Keosauqua - Van Buren Co.
Lake of Three Fires - Taylor Co.
Lake Wapello - Davis Co.
Lewis & Clark - Monona Co.
Nine Eagles - Decatur Co.
Palisades- Kepler - Linn Co.
Pilot Knob - Winnebago Co.
Prairie Rose - Shelby Co.
Red Haw - Lucas Co.
Stone - Woodbury Co.
Union Grove - Tama Co.
Walnut Woods - Polk Co.
Wapsipinicon - Jones Co.
Waubonsie - Fremont Co.

1st

Palomino tent trailer
(retail value $5,000)
Donated by Herold Trailer Sales of Indianola and MidAmerican Energy

HEROLD TRAILER SALES
Since 1964 — Since 1964
Indianola, Iowa

MidAmerican ENERGY
OBSESSIVELY, RELENTLESSLY *AT YOUR SERVICE*

2nd

CanoeSport Outfitters

Two-person Perception Kayak
(retail value $600)
Donated by CanoeSport Outfitters of Indianola

3rd

Seven nights of free camping at state parks of your choice ($91 value)

The new *Iowa State Parks and Recreation Areas* guide, sponsored by Touchstone Energy® Cooperatives of Iowa, is available in the Explore Iowa Parks packets or individually by contacting the DNR at 515-281-5145; 502 E. 9th St., Des Moines, Iowa 50319.

DNR Photo

Ducks Unlimited Honors Former DNR Chief

by Lowell Washburn

Ducks Unlimited has announced plans to establish a series of legacy prairie wetlands honoring the distinguished career of former Iowa DNR Director Larry Wilson.

Wilson served as DNR Director for 14 years. In that time, he gained a reputation for being a tireless crusader for waterfowl and wetlands conservation. Wilson oversaw the creation of the Prairie Pothole Joint Venture, the REAP program and Iowa's private lands outreach.

According to Ducks Unlimited Senior Regional Director Rock Bridges, the wetlands tribute will center on the construction of three separate marsh projects honoring Wilson. Each Legacy Wetland will be named for Wilson, and the wetlands will be located across the state in eastern, northern and western Iowa.

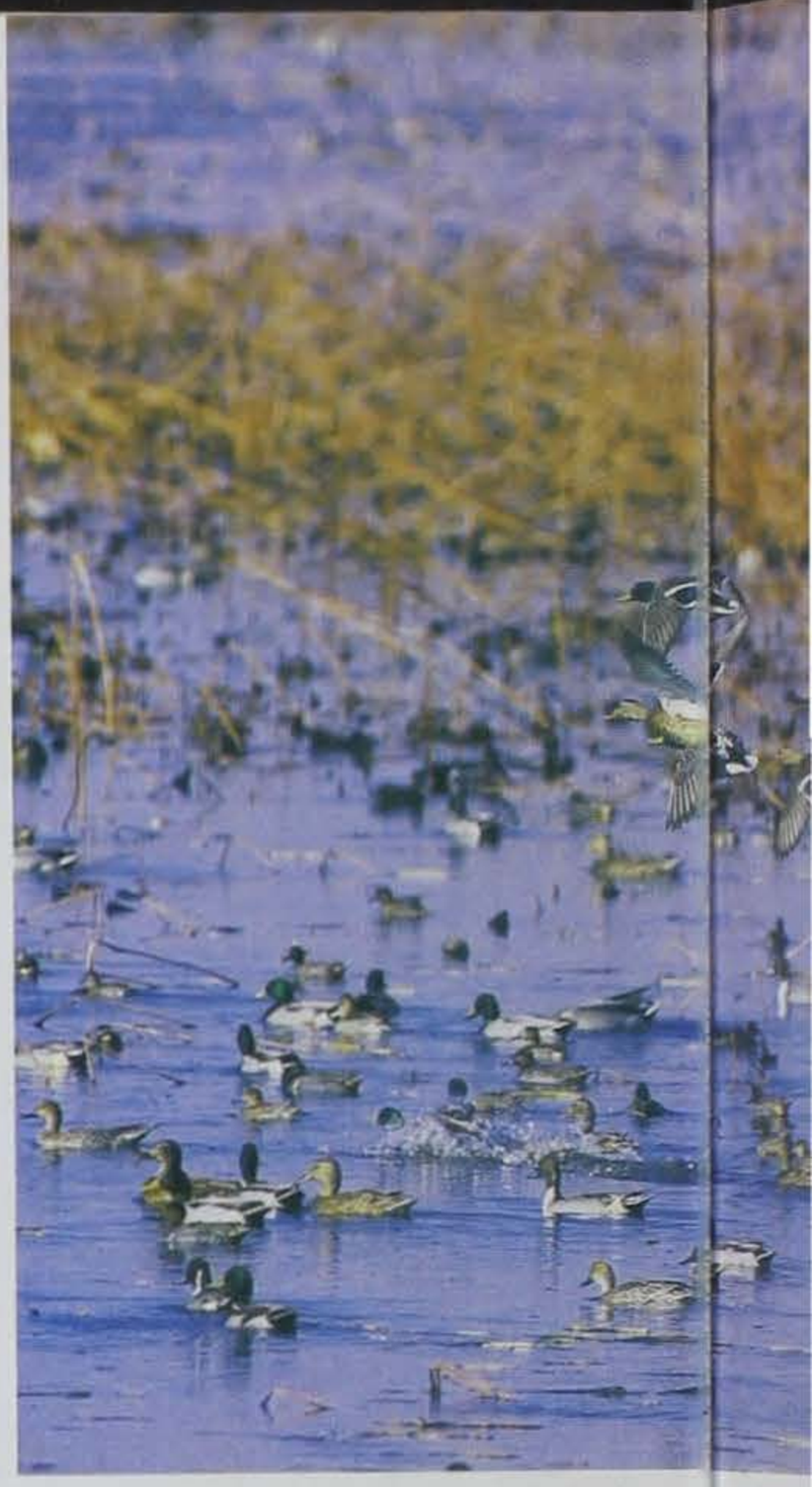
"The primary purpose of this wetland distribution is to make each project accessible to the greatest number of Iowans," said Bridges. "Of course, these areas aren't just for ducks. Regardless of location, each Wilson Legacy Wetland will provide breeding, migration and wintering habitat for a broad spectrum of wetland wildlife."

"In addition to the obvious wildlife benefits, I think it should also be noted that the Legacy Wetlands will provide a broad spectrum of recreational opportunities," said Keith Helland, major donor chairman for Iowa Ducks Unlimited. "In addition to quality waterfowl hunting, these wetlands will also be used for activities like wildlife photography, birding, upland hunting and hiking.

"Beyond that, the marshes will provide some very tangible benefits in terms of soil conservation and will aid in maintaining or improving the quality of ground water," Helland added.

"Right now, Iowa DU is engaged in a two-pronged process. One process involves selecting the best locations for the Wilson Wetlands. The other aspect, of course, focuses on securing adequate funding to complete the projects," said Helland.

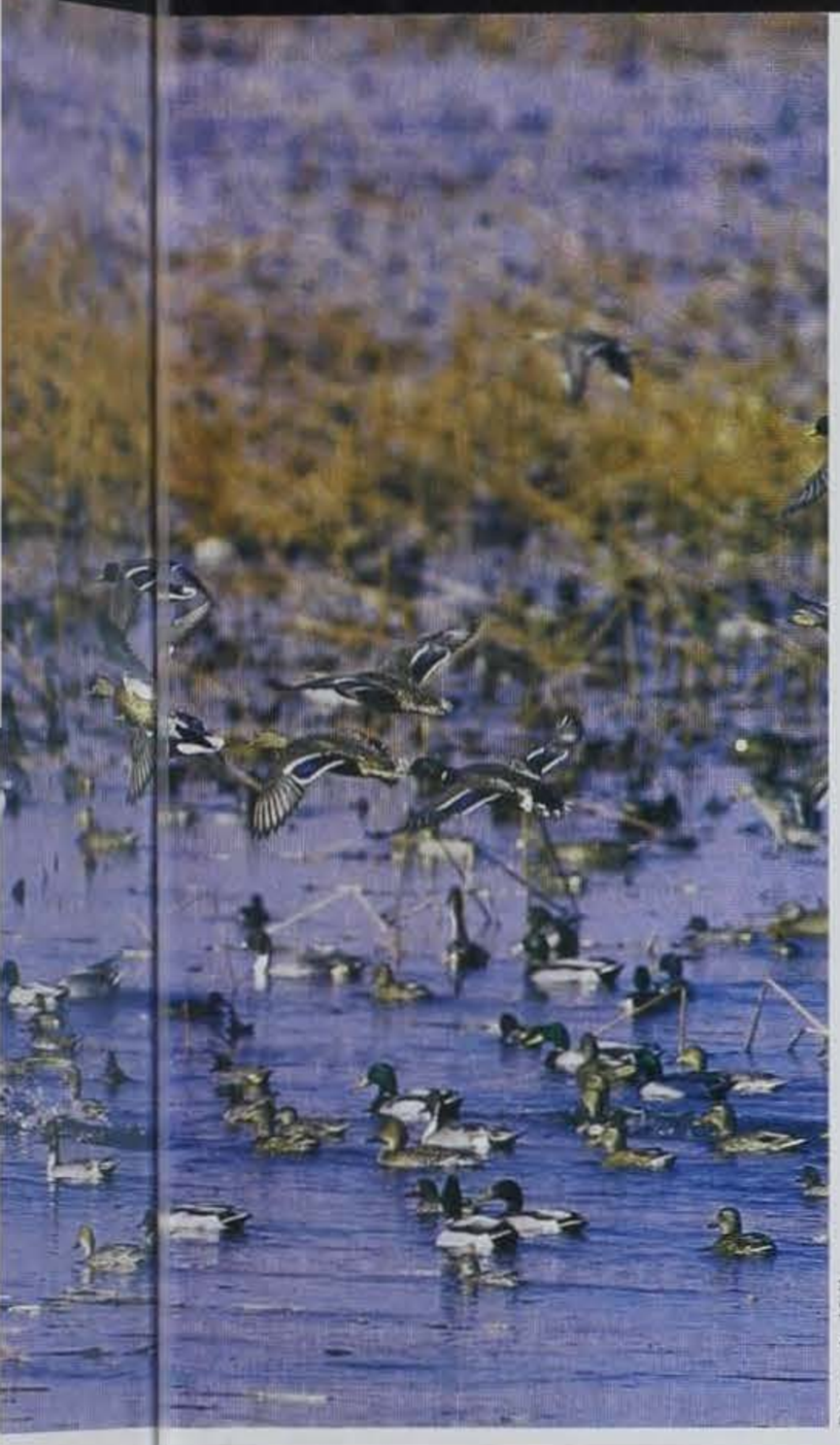
"To aid in securing that funding, we've selected a blue ribbon committee that can reach out to all Iowans. No aspect will be overlooked, and committee volunteers will work all the



Ty Smedes

Piping plover (above)

Ducks Unlimited (DU) is a private conservation organization. It has protected more than 40,000 acres of wetland habitat on 200 areas in 81 Iowa counties.



Roger A. Hill

way from top corporate levels right down to the person in the duck blind. In other words, we want to give everyone an opportunity to be a part of this project. This is a unique concept and we want to have everyone interested in Iowa wetlands to be involved."

DU has currently set the fund raising goal for the Wilson Legacy Wetlands at $500,000. Every dollar contributed to the initiative will be matched by an aggressive three-to-one cost share. If the $500,000 goal is met, at least $2 million will ultimately be available for the Legacy Wetlands project.

Fund raising will continue through the summer, culminating with an Oct. 5 tribute banquet at the Des Moines Izaak Walton League. Although banquet tickets are still available, seating will be limited to 400.

"The banquet is really going to be something. Our host will be WHO Radio personality Keith Kirkpatrick, and several leading conservationists will also be featured on the program," said Helland. "We have 15 pieces of original artwork and four original carvings to auction. We also have a number of very unique items that will go into 'Larry's Super Raffle.' This banquet is just going to be a lot of fun, and will hopefully take us past the finish line for establishing the Legacy Wetlands.

For banquet tickets or additional information regarding the Larry Wilson Legacy Wetlands write: Larry Wilson Tribute, P.O. Box 163, Lake Mills, Iowa 50450 or visit www.wctatel.net\web\larrywilsontribute.

super sleuthing smoggy mysteries

NOAA/Department of Commerce

Historic U.S. weather station circa 1885.

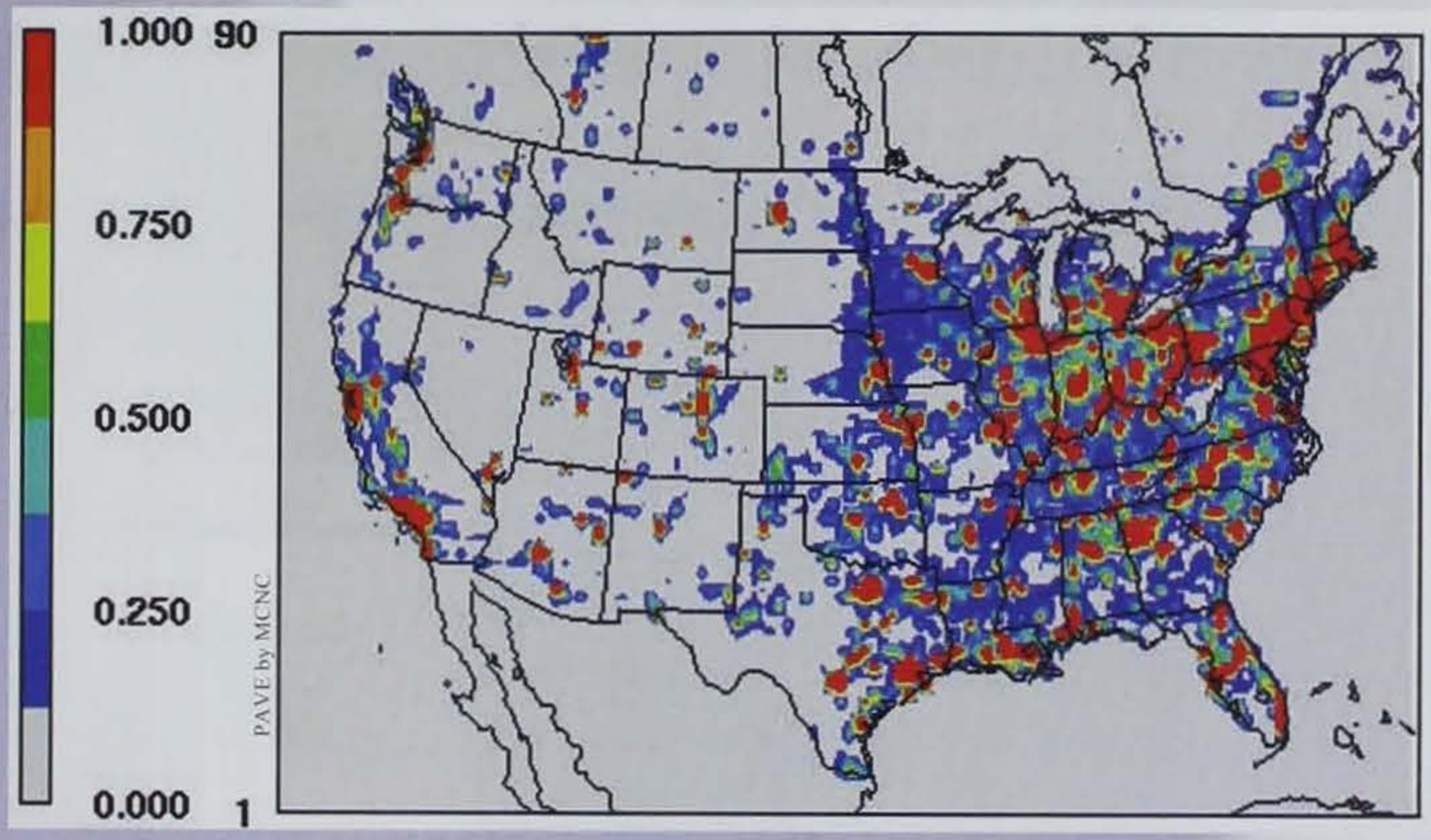
There is no room packed with weather balloons, dusty scientific devices, dog-eared weather maps layered on the wall or satellite images filled with arrows, lines and notes. Nor is there a fenced-in, forlorn building perched on a windy hilltop with a rusted sign —"Government Lab: Keep Out!"

You wouldn't guess that the mystery of Sept. 4, 1999, was being solved in a nondescript office building with a green awning above the door, and an ice cream shop and furniture store nearby. What is peculiar, however, is what goes on inside 7900 Hickman Road in Urbandale, the DNR's home to Iowa's top dogs when it comes to air quality.

Inside, many of the 70-plus staff sit surrounded by air quality permit drafts stacked in piles and columns. But three specialists sit at computers in uncluttered, nearly paperless cubicles. For these environmental super sleuths, piecing together a "whodunit" mystery is a high tech-affair without the visible Frankenstein-like lab devices, but stunning technology nonetheless.

This inquiry involves putting together the pieces to what happened on Sept 4, 1999, and a few other dates that summer. Many in eastern Iowa are witnesses, because everyone breathes the air. But there is no use asking them "What were you doing Sept. 4, 1999?" because very

by Brian Button



Emissions of nitrogen dioxide, a common pollutant from vehicles and factories mirror U.S. population centers. The gas can carry long distances, impacting smog formation far away.

few can provide clues. Only three sole individuals out of nearly 3 million Iowans are working on solving the mystery — the ones near the furniture store and ice cream shop in that government office.

On a warm, sunny September day in 1999, a blanket of polluted, smoggy air covered much of eastern Iowa — and DNR researchers want to know exactly how it happened. Why did the air quality deteriorate to levels considered unhealthy for some people? What airborne chemical reactions were taking place? What emissions were blown into the state? How much did Iowa emissions contribute?

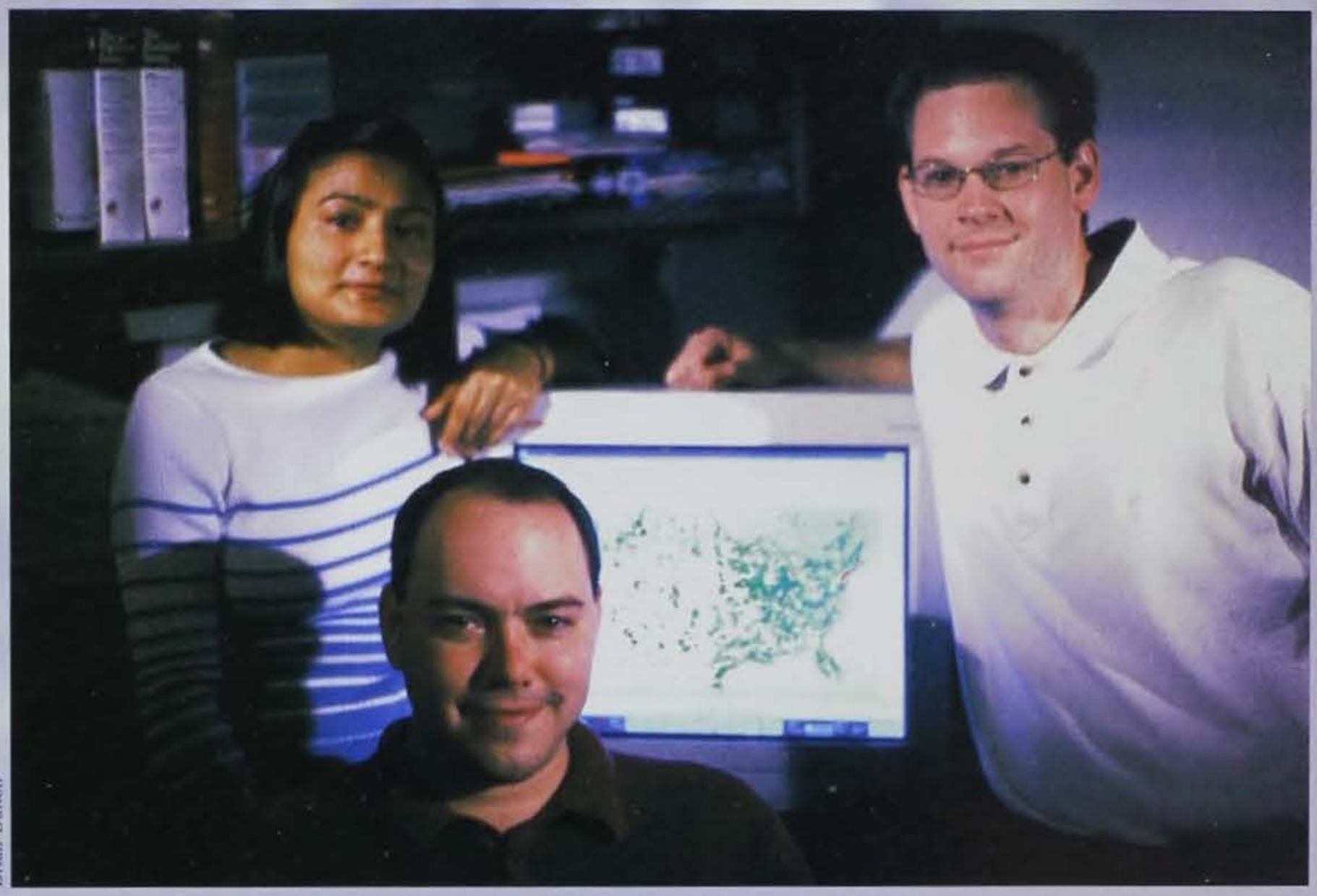
Each year, several days of unhealthy air are detected in Iowa, and learning more about how past pollution developed can help maintain Iowa's relatively clean air in the future — when more people and traffic, greater electrical demand and more emissions are almost a certainty. To do so requires a regional air quality model — a super-complex, computing miracle of recent years now commonplace among air pollution professionals nationwide.

"We are constructing historical reenactments of weather and pollution levels using computer models," said Chad Daniel, lead regional modeling researcher for the DNR air quality bureau. He said the computer models are using past data to represent not only air quality, but pollutant emissions and meteorological conditions on that September day over much of the Midwest — about 20 states.

"By looking at a large region, we learn about cumulative but tiny effects on the airshed from emission sources great distances away," he said. The model will show an area from the Twin Cities to Kansas City, south into Texas extending east to the Ohio and Tennessee river valleys.

Like a modern day Sherlock Holmes, Daniel rattles off details like a machine gun. "We know the exact pollution levels on those days from smog monitoring equipment. We also

NOAA/Department of Commerce



Brian Button

(Clockwise) The DNR's Priyanka Painuly, Matthew Johnson and Chad Daniel apply advanced degrees to run computer models that simulate past air pollution events across multi-state regions.

know meteorological conditions in Iowa and across the nation. We know how many tons of emissions enter the air daily, even hourly, in Iowa and other states from on-going work to count human and natural emission sources."

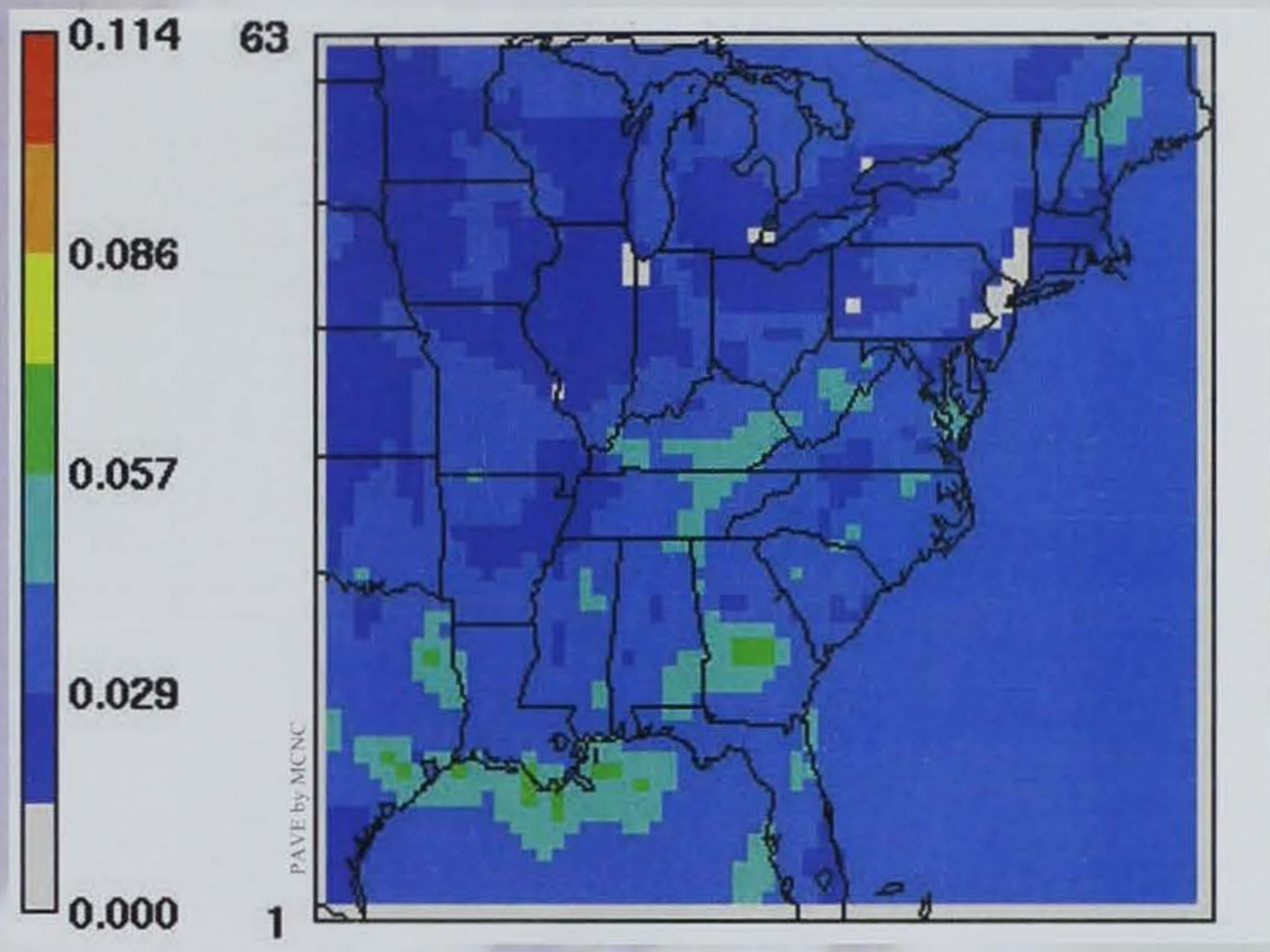
While that's a lot of knowledge, it doesn't exactly tell how pollution forms. Simply having apples, flour and sugar in the kitchen doesn't bake a pie. Each element plays a role, and like a pie, the right recipe is needed to cook up a smoggy smorgasbord: a pinch of nitrogen oxides from vehicle exhaust, a handful of smokestack emissions, a splash of fumes from paints and cleaners and a dusting of gasoline vapors. But if the chemical batter is mixed too much by air layers or winds — like an over-beaten dough — smog levels won't rise. If the mix is right, and it cooks in warm air and strong sunlight, then presto, a day's serving of lung-burning smog is catered.

Smog recipes are complex, and that's where the DNR's computer models help determine not only how each ingredient played a role but where each ingredient came from. The researchers are, in essence, analyzing the pie to find out how it was made by taking a historical day known to be polluted, then figuring out how it happened.

"All that data is input into three computer models — one to re-enact the meteorological conditions, the second to replicate emissions. The third computer model takes results of the first two models and simulates and recreates how pollution formed on the days of interest," Daniel said, briefly grinning to acknowledge how astounding the effort is before chattering off more facts and figures.

Indeed, the ability to use regional computer models to reenact past

pollution events is a feat previously reserved by the nation's most polluted states, where the technology was recently first applied. While the DNR used computer models for years to predict how emissions from a single Iowa factory affect local air, a regional model is vastly more challenging. It looks at every emission source plus weather and air chemistry over perhaps a dozen states. It may take eight computers working together 43 hours to run one model. Then details are tweaked, the model re-run repeatedly until the results are satisfactory.



Computer output shows ground level ozone — the main chemical in smog for July 8, 1995 at good to moderate levels for the day. The DNR will produce similar maps for the September air pollution episode that occurred in eastern Iowa after first completing the emissions and meteorological models. Unhealthy levels will appear as orange and red.

Windy Wonders

The preparation and training to even begin the process is intense. The DNR has three staff — two hold advanced degrees in meteorological sciences, the third an advanced degree in environmental engineering — who work solely on developing Iowa expertise in regional modeling. For months, they set up the models, obtain and refine convoluted statistics, and tune and adjust how each piece of the computer model interprets data until the model results nearly match what happened on those days.

To do so, Daniel, along with the DNR's Priyanka Painuly and Matthew Johnson, use software named CAMx, SMOKE, MM5 and others to process gathered evidence from "witnesses" in Ohio, Iowa, Missouri, Texas and a dozen-plus other states. It isn't from human eye-witnesses, but millions of pieces of complex records gathered from pollution monitoring equipment, weather stations, satellites and emissions data from those places — numbers that represent pollution levels, wind speed and atmospheric mixing.

It includes emissions — in tons — for dozens of chemicals from a 1,000-plus counties. And nearly every type of imaginable emission is quantified or estimated — exhaust from gas-powered golf carts and chain-saws, paint fumes, tailpipe exhaust, vapors from gasoline pumps, power plant emissions, ink fumes from printing and emissions from every other *thingamajig* that creates exhaust or puts chemicals into the air. Fumes from aerosol deodorants, cleaners and solvents used by tens of millions of people in the region are estimated. Even pine fresh pinene, a reactive substance released from pine forests, is included. And swamp gas. And the list goes on.

"Data from hundreds of air pollution monitors across the Midwest and eastern U.S. is obtained, National

Meteorological station atop an Iowa air pollution monitor.

Clay Smith

Weather Service data, and information on how many tons of pollutants were released from every county in each state over each hour of the day," says Daniel.

The meteorological computer model portion of the effort uses historical weather data to better understand how air moved across the country days before, during and after Sept. 4 and other polluted days that summer of 1999. It also shows how air layers mixed above the earth's surface up to about 50,000 feet, and other features.

The final air chemistry computer model will predict how pollution formed, displayed on computers as a weather map-like movie showing not clouds or storms, but noxious smog.

That model will provide clues to what happened on and around that September day. When did the pollutants reach unhealthy levels, how much came from Iowa sources and how were smog-forming gases transported, or carried on winds across the country?

A Foul Wind Blows

"Pollutant transport is a major air issue nationally," said Daniel. Acid rain is an example from the 1980s, and future debates will rage over other pollutants such as airborne toxins like mercury, smog-forming gases and health-damaging soots that also burglarize scenic views with visibility-reducing haze. "Gaining experience now with regional models will help us better understand Iowa's role in pollution transport issues and how to best solve them."

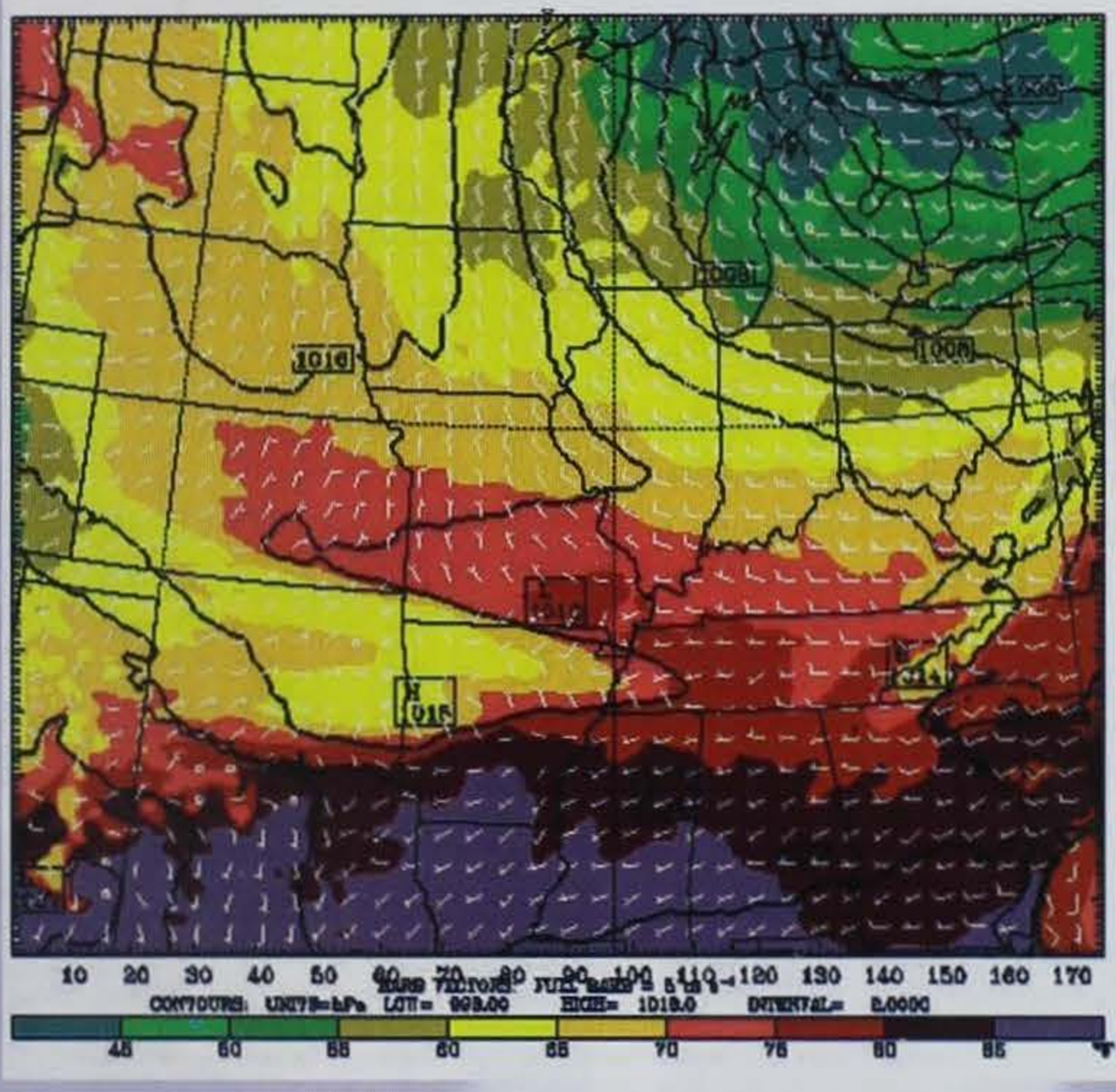
The EPA uses similar models to determine which states should be targeted for additional cleanup measures if they significantly harm the air quality of downwind regions. With the new skills and expertise, DNR researchers hope to double-check the accuracy and claims made by future models run by the EPA and other states as well.

And that skill is worth the sweat. In the mid-1990s, several eastern states unsuccessfully tried to force expensive pollution controls on Iowans, claiming our emissions significantly contributed to their smog woes. After months of wrangling — and regional modeling — the evidence disproved the claims.

Daniel hopes the crew can get the final model completed this autumn. But first, the three computer models must work in harmony.

"The model everyone wants to see puts all the pieces together to get the real-world picture of what exactly happened Sept. 4, 1999. That's how we evaluate an air pollution episode," he said.

Brian Button is an air information specialist for the department in Des Moines.



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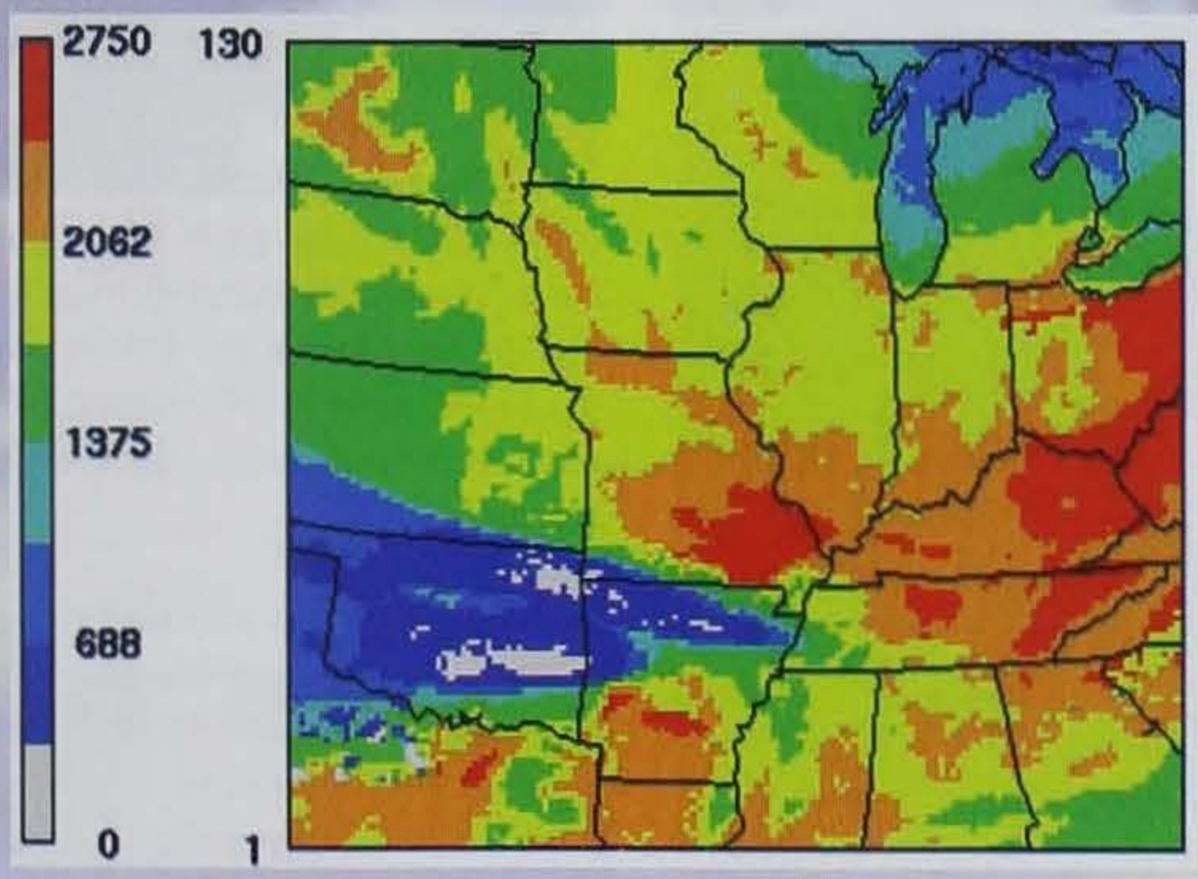


PAVE by MCNC

Left: A computer surface plot shows wind barbs for wind direction and speed, isobars or areas of constant pressure and colorized temperatures. This plot is generated from a meteorological model, one of three models used to recreate historical pollution.
Below left: Details of the planetary boundary layer — the area from the Earth's surface to the free atmosphere mixed by turbulent eddies created by surface friction and rising thermals. Deep layers help dilute emissions while shallow layers confine emissions and help elevate pollution.
Below: Early radiosonde launch in 1936. Today twice daily around the country, weather balloons still ascend to measure temperatures, dew points and wind speed and direction. These atmospheric soundings are a primary source of upper air data for weather prediction and to calculate planetary boundary depth layer.

NOAA/Department of Commerce

For more about air pollution, visit **www.iowacleanair.com.**

Help in a Crunch

Recognizing the Valuable Role of Volunteers

by Diane Ford-Shivvers and Stefanie Forret

All too often, they are forgotten. They give their time, their money and their expertise in an effort to make Iowa a better place to live. Local, state and federal agencies simply can't do all the work that needs to be done. Two DNR programs in particular depend on these volunteers to protect and enhance the environment.

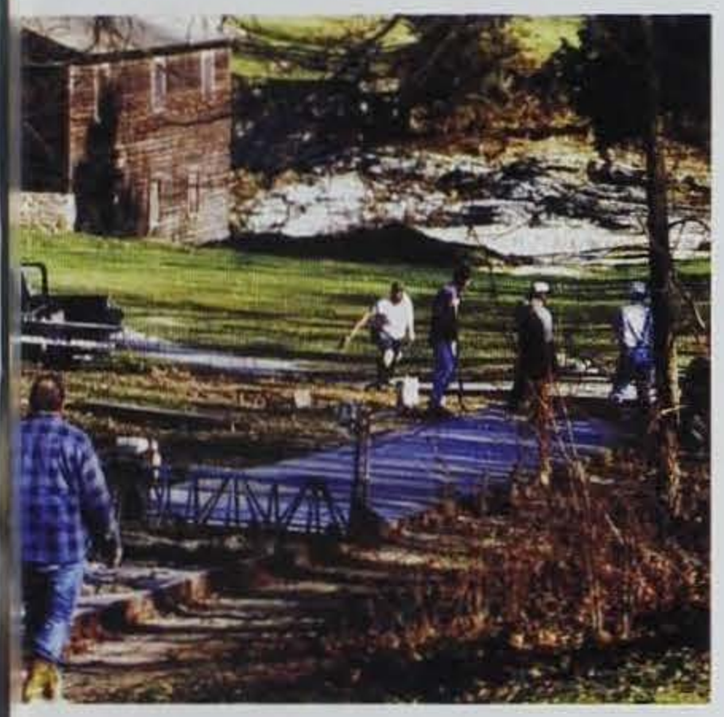
The Keepers of the Land program provides support for successful volunteer programs and develops new opportunities for volunteers, especially in state parks. The IOWATER citizen water monitoring program teaches individuals how to monitor local streams, lakes and ponds, and provides the equipment to do so. In November, more than 200 environmental volunteers from across Iowa representing these programs and others came to Des Moines to celebrate their selfless contributions to Iowa's natural resources. The 200-strong were the 2001 Volunteers in Natural Resources Award Winners.

2001 KEEPERS OF THE LAND AWARDS

Outstanding Individual Volunteer Award – Eric Meyer, Lake View. *(below - right, receives award from former DNR director Paul Johnson)* Meyer planned and implemented a difficult swimming beach renovation at Black Hawk State Park

Campground as an Eagle Scout project. He secured donations of railroad ties and 68 tons of sand, the drivers and trucks to deliver them and the 23 volunteers needed to complete the project.

Outstanding Volunteer Group Award – Friends of Discovery, Lewis & Clark State Park, Onawa. *(right)* The Friends of Discovery group is dedicated to maintaining and displaying three wooden replicas of Lewis & Clark expedition boats, the only place along the Lewis & Clark Trail where authentic replicas can be seen on the water. This year, the friends group contributed more than 4,500 hours giving historical programs, raising money and performing maintenance activities.



Outstanding Volunteer Project Award – Friends of Pine Creek Grist Mill, Muscatine. Formed in 1996, the friends group has worked thousands of hours restoring the historic grist mill at Wildcat Den State Park. Members restored machinery and installed lighting, and staffed the mill on Sunday afternoons in the summer and during the annual Heritage Day that showcases various pioneer crafts and skills. They have raised approximately $60,000 for the restoration.

Outstanding DNR Staff Award - Pat Schlarbaum, Boone. *(below)* Schlarbaum has worked with volunteers in the Wildlife Diversity Program since 1985. His most notable efforts have been with the Peregrine Falcon Reintroduction Program, Iowa's Bluebird Recovery Program and the Osprey Introduction Project. Much of the success of these programs has been because of his dedication to working with volunteers and key players who help make these projects happen.

2001 Director's Award – Lewis & Clark Festival Committee, Onawa. *(below)* The committee has a 17-year history of partnering with the DNR in planning, promoting and working at the annual Lewis & Clark Festival, which drew an estimated 10,000 participants in 2001. Sixty key volunteers work an estimated 500 hours during the weekend festival selling souvenirs, parking cars, registering participants and ensuring the smooth running of the festival. The money raised goes back into making the festival self-sustaining.

Clay Smith

IOWATER volunteers play a vital role in monitoring the quality of Iowa's water resources.

2001 IOWATER AWARDS

Volunteer of the Year – Curtis Lundy. Lundy began monitoring Duck Creek in Davenport in 1998 with the Izaak Walton League's Save Our Stream program and has been with IOWATER almost since its inception. His enthusiasm and coalition-building skills helped form the Iowa Riverbend Streamkeepers, uniting teachers, state and federal government agencies, conservation groups and the Riverboat Development Authority in a five-county monitoring strategy.

Volunteer Organization of the Year – Hawkeye Fly Fishing Association. The Hawkeye Fly Fishing Association was founded in 1975 by a small group of Iowa anglers and conservationists dedicated to promoting fly fishing and conservation to preserve Iowa's waters. Many of their members participated in early IOWATER "pilot" workshops in 1999 and have continued to actively support the program. The association is an active advocate for environmental policy, participating directly in the saving of French Creek and expressing support for strong water-quality standards through the DNR.

Clipboard Award (Most Data Submitted) – James Martin. When it comes to energy, Martin is definitely a leader. He and cohort Brian Emerson have established a comprehensive web organization, "Watersheds Unite," which provides information, resources and citizen networking for issues surrounding water quality in Iowa. In addition to his prolific volunteer water quality monitoring on Snyder Creek, Martin also is a valuable volunteer for the Johnson County Soil and Water Conservation District with his extensive Geographical Information System (GIS) expertise.

Professional of the Year – Lora Friest. Friest is the coordinator for the Upper Iowa River Watershed Project in northeast Iowa. Through her efforts, more than 80 IOWATER sites and dozens of volunteers and professionals have been coordinated and focused on the 640,000-acre watershed. Friest has repeatedly helped IOWATER "push the limits" on procedures through advisements and participation.

Clipboard Award (Most Data Submitted) – Donald Lund. *(not pictured)* Lund has proven a tireless volunteer for many years with the Hawkeye Fly Fishing Association. His pursuits of fly fishing and dog tracking and his love of the outdoors enhance his contributions to the IOWATER database. He spreads his volunteer work across eastern Iowa, including Dutton's Cave in Fayette County, Bigalk Creek in Howard County, Old Womans Creek and Phebe Creek in Johnson County, and Bigalk Creek and Bohemian Creek in Winneshiek County.

James Martin, left, and Mary Skopec, acting section supervisor of the DNR's Ambient Water Monitoring Program.

Curtis Lundy

Lora Friest

Steve Veysey of Hawkeye Fly Fishing Association

Mary
upervisor
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eye Fly

The First Annual Volunteers in Natural Resources Conference was held Nov. 16-17, 2001 at the Hotel Fort Des Moines in downtown Des Moines. The conference was sponsored by the IOWATER volunteer water-quality monitoring program, the Keepers of the Land volunteer program and the Iowa Academy of Science.

In addition to celebrating and recognizing the achievements of IOWATER and Keepers of the Land volunteers, attendees participated in workshops with natural resource professionals to gather ideas and learn about various programs and projects. Workshop topics ranged from how to start a "Friends" group, to the Clean Water Act, to funding sources for conservation practices in Iowa.

As part of the event, IOWATER and Keepers of the Land hosted a banquet to award outstanding volunteers and volunteer groups in the two programs.

The next conference is scheduled for Nov. 22-23, at the Airport Holiday Inn in Des Moines.

Nationally recognized volunteer Chad Pegracke of the Mississippi River Beautification and Restoration Project will be a featured speaker. For more information about his project, go to www.cleanrivers.com. To learn more about IOWATER or Keepers of the Land, visit their respective web sites at www.iowater.net or www.keepersoftheland.org.

For registration information, contact Stefanie Forret at (515) 281-3150 or stefanie.forret@dnr.state.ia.us.

MARKETPLACE

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MARKETPLACE

The Return of The Prairie

by Wayne Buchholz

Clay Smith (left and background photo)

Each year, the Mines of Spain of today becomes closer to resembling the original Mines of Spain of 1796. However, it will never be quite the same as it once was. The park has more forested area than before. It has lost the herds of bison and elk and the wanderings of black bear, wolves and cougars. But, as I have been told many times by park visitors, "...the park is very natural. It is hard to believe there were once corn and hay fields here or even farm sites. It is truly one of Iowa's natural wonders."

When Julien Dubuque was granted sole rights in 1796 to mine a 189-square-mile swathe of land along the Mississippi River near present-day Dubuque, the land grant listed the area as the Mines of Spain. Below the soil lay rich veins of galena, a lead ore; above it was an equally rich array of natural resources, dominated — like much of the rest of Iowa — by tallgrass prairie.

Much has changed in the centuries since. Today the Mines of Spain Recreation Area spans 1,380 acres (2.15 square miles). When the park was dedicated in 1981, the bulk of the land was in forests — approximately 800 acres — and cropland — 320 acres of mostly corn, soybeans, oats and hay. Creeks, hilltop prairies, a quarry and other smaller features made up the rest of the land.

In the 1980s, however, efforts were made to diversify the habitat. Some of the crop fields were planted with trees and shrubs. Approximately 25 acres were planted to tallgrass prairie, with no forbes. The primary goal was to establish a food source and safety zones for wildlife nesting. Although the plant life greatly benefited wildlife, it did not create a natural habitat.

Things would change again beginning in 1993 when the Mines of Spain was dedicated by the National Park Service as the Julien Dubuque's Mines National Historic Landmark. With that status, it became clear the Mines of Spain needed to be transformed back, as close as possible, to the natural condition found there in 1795. Less than a year later, in the spring of 1994, the first tallgrass prairie was planted in field number 42.

With a small budget, and using the parks farm management lease, a long-range plan was developed and implemented. One of the key elements of the plan was to convert all agricultural fields in the north half of the park to tallgrass prairie.

The goal was to plant approximately 125 acres of land by 2005. As of this spring, 213 acres have been planted to prairie in the north half of the park, far exceeding the goal. In addition, 53 acres have been planted in the south end. In the next four years, approximately 68 acres are scheduled for planting in the southern end of the park.

What has made this long-term project unique are the partnerships created over the past seven years. Numerous wildlife organizations have contributed funds to purchase seed. At $100 per pound, and 2 to 5 pounds needed per acre, funding limits planting. Quality seed commands such prices because it is scarce and each pound has 50 to 60 varieties of forbes and eight species of grasses.

The parks farm lease permits the use of rental fees for labor, equipment use and seed purchase. Resource Enhancement and Protection (REAP) and Department of Transportation Roadside Enhancement funds, along with a grant last year from the National Park Service, has allowed development of a habitat reminiscent of pre-settlement to continue.

With prairie planting, patience is required. During the first and second years, weeds normally dominant. The third year the land begins to resemble a prairie. The prairie continues to evolve until year 10, when it can be considered a sustainable, restored prairie.

What has brought attention to the park are the other accomplishments attained over the years. The seed

used in each year's plantings has been purchased from the same source, ION Exchange of Harpers Ferry. In doing so, the prairies have maintained a consistent eco-type (same genetic patterns). That allows all fields in the park to some day share similarities in grass and flower heights, color and blooming periods. With different eco-types, each field would look different.

In 1997, the Friends of the Mines of Spain (a non-profit organization for the park) donated a combine — the first — to the DNR's Parks, Recreation and Preserves Division. Seed harvested on site created a new seed source, enabling more acres to be planted each year. In 1999, a second combine and a fanning mill were purchased by the friends group. This allowed the park to collect an even greater quantity of seed and clean it for planting.

In 1998 a unique partnership was formed with the local Department of Transportation (DOT) maintenance garage to harvest prairie seed for use in and around the Dubuque area. Each year park and DOT staff have worked together to harvest approximately 32 acres of prairie, netting about 400 pounds of seed annually. Half is used in the park and the other half on state road right-of-ways around Dubuque.

In the past five years numerous volunteers, scouts, families and schools have assisted in hand-collecting seed. Because some seed drops in July, August and September, many of the forb seeds need to be collected before fall combining begins. The volunteers say collecting, cleaning and being able to say they helped replant a prairie is reward enough.

This spring, the Cedar Ridge Ski/Foot Trail was planted in prairie. If seed is available and timing permits, about seven acres in RipRow Valley will be planted (north of the Julien Dubuque Monument).

What has made the reclamation and transformation of the Mines of Spain unique is the commitment from park staff and the DOT. Above all, the dedication of numerous volunteers has been the difference in meeting — and in some cases surpassing — the goals set.

Savanna restoration also began in 1998 at the Julien Dubuque Monument, Catfish Creek and Horseshoe Bluff areas. Trees and underbrush were cleared to create a savanna — a combination of prairie and oak trees. In 2001, 25 volunteers showed up at an Earth Day event to clear trees at Horseshoe Bluff. Boy Scout Troop 11 came out twice, as did employees from Alliant Energy of Dubuque.

Iowa State University Assistant Professor Heidi Asbjornsen's ecology class has also assisted in the savanna restoration. Joint research and continued restorations will be seen from that partnership in the future.

Anyone wanting to assist in the prairie or savanna restoration can contact the park office. For additional information and maps of the park, visit www.minesofspain.org.

Wayne Buchholz is the park ranger at Mines of Spain.

Prairie Species Found at The Mines of Spain

Annise Hyssop • Black-Eyed Susan • Brown- Eyed Susan • Butterfly Weed • Canada Anemone • Compass Plant • Cream Gentian • Cup Plant • Dotted Mint • Indian Grass • False Aster • Foxglove • Golden Alexander • St. Johns Wort • Heartleaf Alexander • Hoary Vervain • Ironweed • New England Aster • Ox-eye Sunflower • Big Bluestem Grass • Partridge Pea • Alumroot • Prairie Blazing Star • Prairie Cinquefoil • Purple Coneflower • Purple Prairie Clover • Rattlesnake Master • Red Root • Riddell's Goldenrod • Little Bluestem Grass • Round-headed Bushclover • Seedbox • Showy Goldenrod • Showy Tick Trefoil • Smooth Blue Aster • Stiff Goldenrod • Swamp Milkweed • Sweet Black-Eyed Susan • Switchgrass • Canada Rye Grass • White Prairie Clover • Wild Bergamot • Wild Lupine • Wild Quinine • Wild Senna • Yellow Coneflower • Porcupine Grass • June Grass • Sideoats Grama

Roger A. Hill

Purple prairie clover is just one of the many plant species found at Mines of Spain.

Parks Profile

Mines of Spain

It's All In The Name

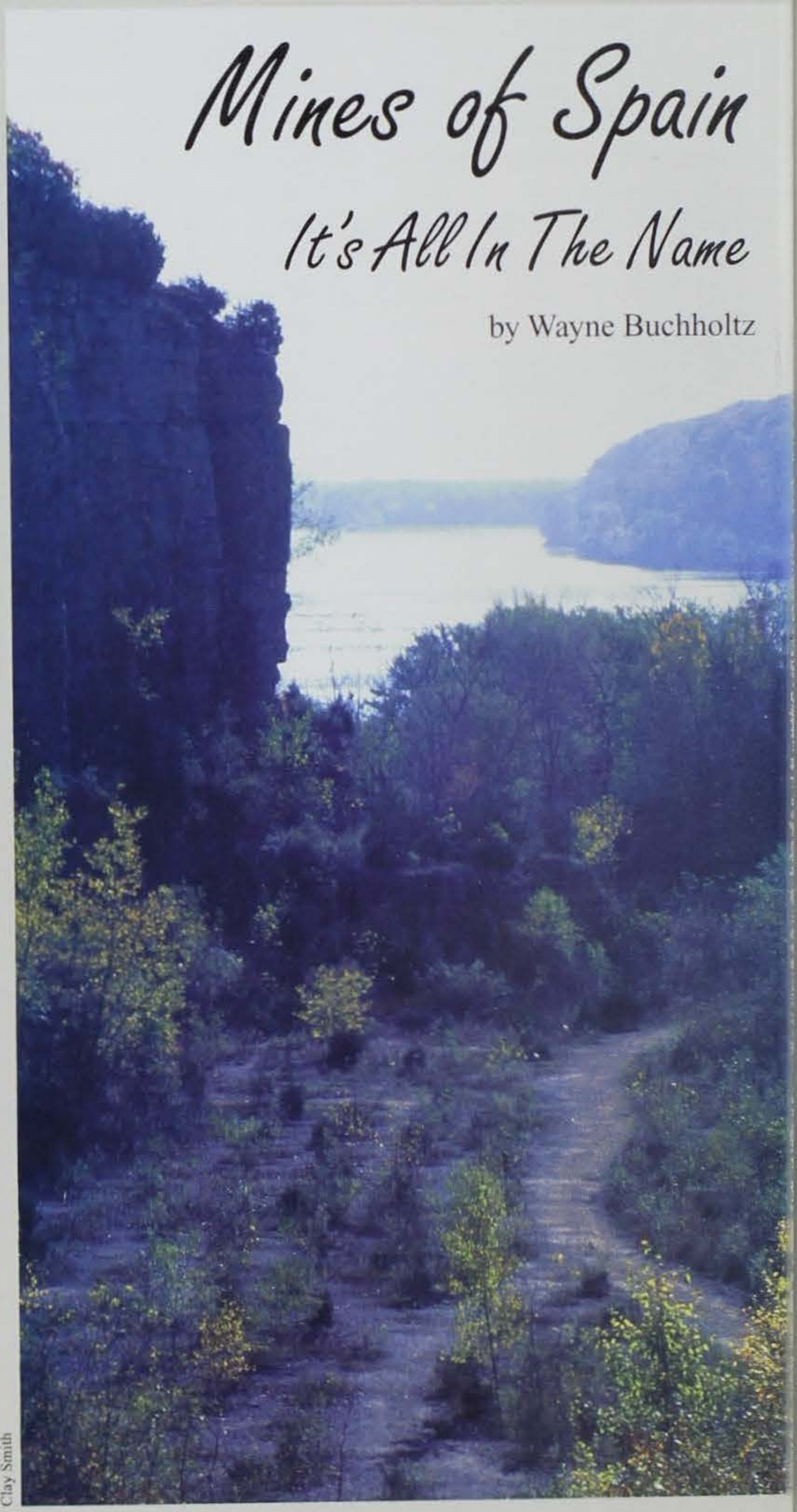
by Wayne Buchholtz

Located near Dubuque along the cliffs overlooking the Mississippi River, the Mines of Spain State Recreation Area is rich in history. It has ties to many different cultures, dating back more than 8,000 years.

The Mesquakie are the earliest-known inhabitants of the park area during recorded historical times. They migrated through Wisconsin from Michigan before settling in the area between 1760 and 1780. They established several villages, one at the mouth of Catfish Creek just south of where the Julien Dubuque Monument now stands. The Mesquakie relied heavily on fur trading, first with the French and later with the British and Spanish. Lead became a supplement to the fur trade and a source for trade goods.

Even before the Mesquakie arrived in the area, lead deposits were noted by early French explorers. Julien Dubuque, a French Canadian trader in the Prairie du Chien area, came in search of the rich veins of galena (lead ore) he had heard of. He befriended the 1,750-strong tribe of the Mesquakie, which granted him permission in 1788 to mine lead in the Dubuque area. Shortly thereafter, Dubuque built a residence, trading post and mining operation near Catfish Creek and the Mesquakie settlement.

Dubuque sought to have the land legally recognized as his own, first from the Spanish in 1796 and later from the Americans in 1804. The 1796 agree-



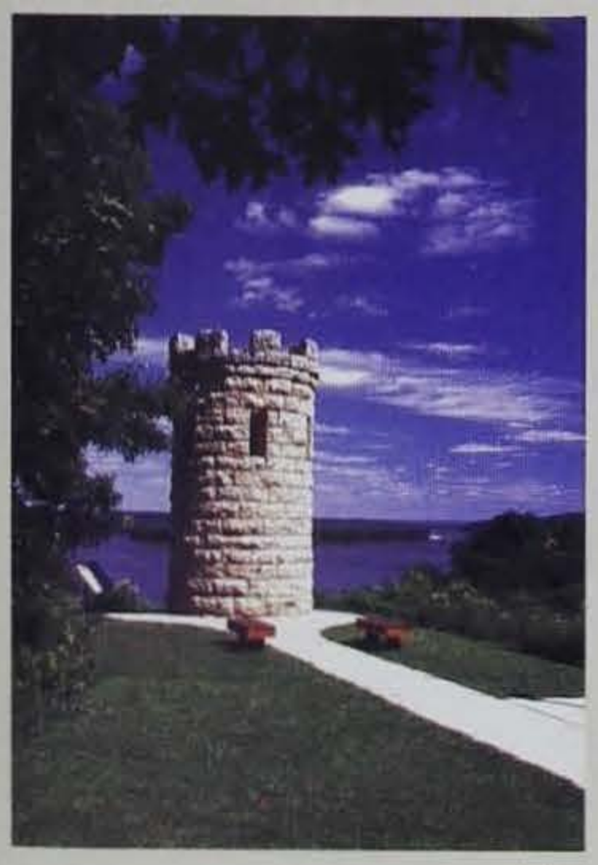
Clay Smith

LEFT: View from Horseshoe Bluff Interpretive Area.

BELOW: Pine Chapel at Mines of Spain

BOTTOM: Julien Dubuque Monument

Clay Smith



Ty Smedes

ment between Dubuque and Spanish Governor General Francisco Luis Hector de Carondelet of New Orleans gave the charismatic trader exclusive mining rights to the 189-square mile area, which stretched 21 miles along and nine miles west of the Mississippi River. On the land grant, Carondelet named the area "Mines of Spain" after the mining area in Spain where the Phoenicians and Romans once mined copper and lead.

At one time, the Mines of Spain was the major source of lead in the New World. So important was its mining industry that Iowa's only revolutionary battle was fought there when British forces came downriver and captured the mines.

During this era, many French-Canadian traders developed trading relationships with Native Americans by adopting portions of their culture. Traders frequently cemented alliances through marriage and residence with them. Julien Dubuque may have formed his close relationship with the Mesquakie through these means. It is alleged that Dubuque married Potosa, daughter of Mesquakie Chief Peosta. That belief is furthered by the fact that, after Julien Dubuque died March 24, 1810, he was buried by the Mesquakie in the park. Decades later, in 1897, the Julien Dubuque Monument was built on that very burial site. This park landmark provides a scenic view of the Mississippi River valley.

Julien Dubuque and the Mesquakie were not the only inhabitants of the Mines of Spain area. There is evidence — mounds, rock shelters and campsites — that prehistoric Native Americans from the Woodland period (nearly 8,000 years ago) had lived in the area.

Other early lead miners followed Dubuque, and their "footprints" are captured through the scores of pit mines found throughout the park and area. Remnants of many different mining technologies have been documented, from the Native American pit mining and Dubuque's mining operation, to the shaft mines of the early 1900s. In conjunction with the mining, the area was also logged for lumber used in the construc-

Parks Profile

tion of lead ore smelters and steamboats to conduct commercial enterprise. There is also evidence of 14 farm sites from the mid 1800s, including lead mines and adits (horizontal entrances to mines) associated with the farms. The farms and mines were used from the 1830s to the early 1900s.

Due to the historical significance of the area, in 1993, the National Park Service dedicated the park as "Julien Dubuque's Mines National Historic Landmark." In all, there are approximately 250 individual archeological sites making up the Mines of Spain Archeological Property Group listed with the National Register of Historic Places.

With the rich cultural and natural history, Mines of Spain is not a typical state park. Following the park's dedication in 1981, a master plan for future development was designed to enhance and interpret its historical and natural features. The day-use park is an oasis for those who enjoy nature and history. Opportunities include hiking, cross-country skiing, picnicking, limited hunting and interpretation programs.

The E. B. Lyons Interpretive Center, located in the park, is open year-round. The interpretive center provides exhibits on the early Dubuque settlement, history of mining, and the plant and animal life of the park and surrounding area. It also features the Betty Hauptli Bird and Butterfly Garden, prairie areas, hiking trails and the historic Junkermann farm site.

There are 10 different hiking trails in the park. Each has been connected to create a trail system spanning 15 miles. Hikers and walkers can spend an entire day on the trails and still not cover them all. Each trail has its own unique characteristics, and lengths vary from three-fourths of a mile to three and one-half miles. They wind through 200-year-old-plus oak trees, white birch, river birch and hickory groves. Hikers can learn about the geology of the area on the Horseshoe Bluff trail or view rock outcroppings on the Cattesee trail. The Junkermann trail includes remnants of an old farm site, including Pine Chapel, grapevine terraces, a herb garden, root cellar, natural prairie and surface lead mine. Floating trails cross over wetlands to a blind where viewers can catch a glimpse of river otters, great blue herons or the abundant deer, turkeys and songbirds. Scenic vistas overlooking the Mississippi

Friends of Mines of Spain

The Friends of Mines of Spain is an organization of park supporters that have provided funding for projects and interpretive materials. It has also been instrumental in the creation of a new area just north of the park called RipRow Valley. Group members have been actively involved in summer and winter programs, including the annual Mines of Spain Fall Seminar, which will be held Sept. 14. For more information about the park, visit the Friend's group website at www.minesofspain.org.

Clay Smith

Interior view of the Otto Junkermann sitting room inside the E.B. Lyons Interpretive Center

River allow visitors to view tugboats maneuvering barges up and down the river or paddle-wheeled boats which pass by daily.

Native prairie and forests of oak, hickory, birch, aspen, maple and basswood are present today, untouched since Dubuque's era. A large portion of the park to the south was once farmed either as cropland or pasture. Other areas of the park have been logged, quarried or mined. During the past 10 years, park staff has been very active in the restoration of the tallgrass prairies in the park (see pages 48-49 for full story).

Each season at Mines of Spain brings a new and wonderful view of the park. So, let your journey begin. Take a look at the past, walk or hike in the present and think about the future. It's all here at Mines of Spain.

Wayne Buchholtz is the park ranger at Mines of Spain.

MINES OF SPAIN AT A GLANCE

LOCATION: Located along the south edge of Dubuque. Access to Mines of Spain and E. B. Lyons Interpretive Center is off U.S. Highway 52.

SPECIAL FEATURES: The E. B. Lyons Interpretive Center serves as a visitor information center and park office. Displays and exhibits document the history of the park. The Betty Hauptli Bird and Butterfly garden, native prairies, woodland flower gardens, hiking trails and the historic Junkermann farm site are just a few of the attractions found their.

The Horseshoe Bluff Interpretive Area details the areas geological history. Fifteen-acre wetland with two floating trails provides access to a wildlife observation blind.

Julien Dubuque in buried beneath a monument that bears his name, which sits high above the Mississippi River and serves as a landmark to the park.

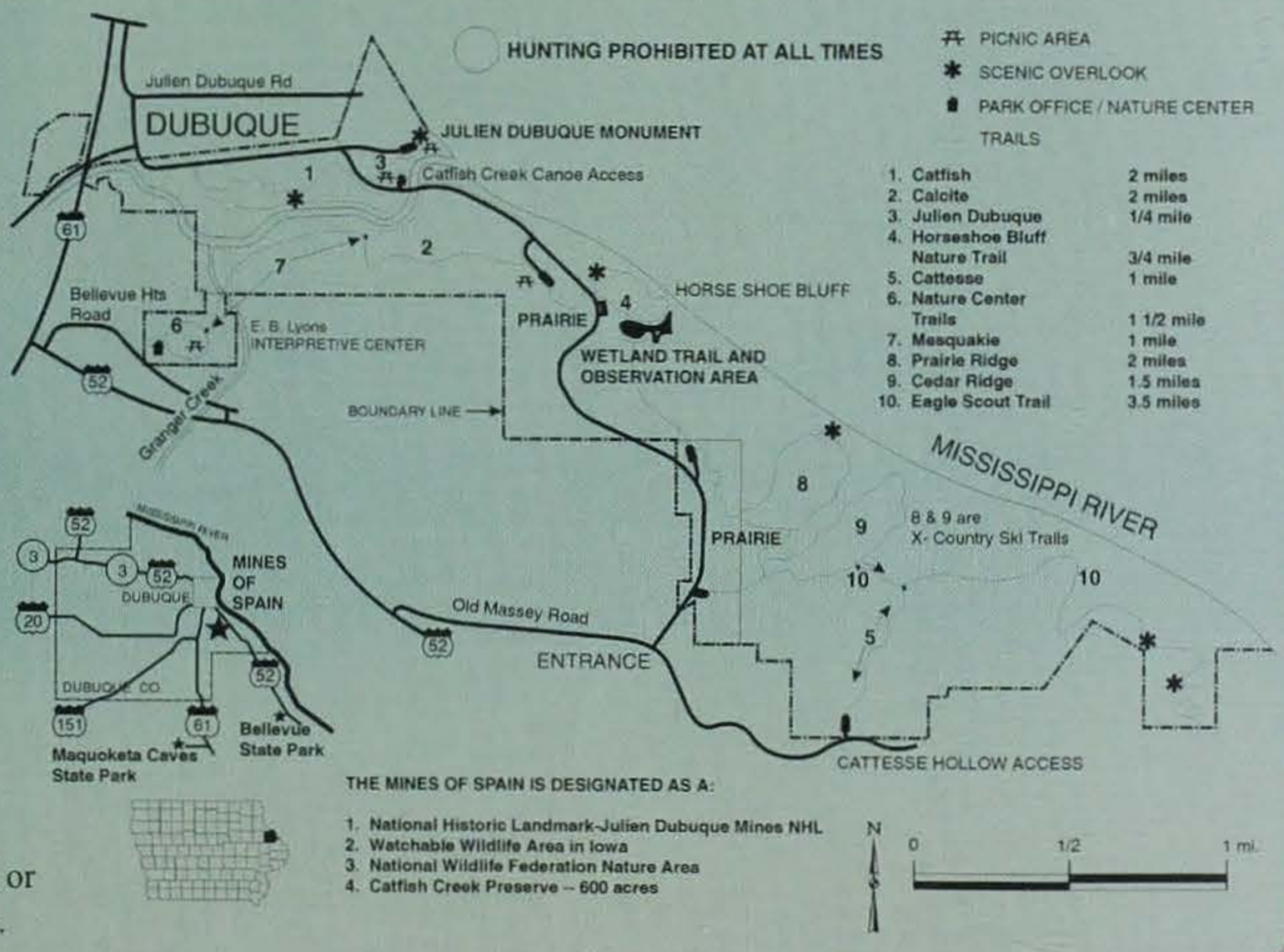
TRAILS: Four miles of maintained ski trails; 15 miles of hiking trails. There are also five individual nature walks within the park, including those at the E.B. Lyons. Open seven days a week during the summer (May 1 through Oct. 15), and Monday through Friday during all other times. Normal hours are 9 a.m. to 4 p.m. Monday through Friday, and noon to 4 p.m. Saturday and Sunday.

PICNICKING: Picnicking areas are located at the E. B. Lyons Interpretive Center, Julien Dubuque Monument and at Horseshoe Bluff area.

HUNTING: Limited hunting is allowed. For specific details, contact the park office.

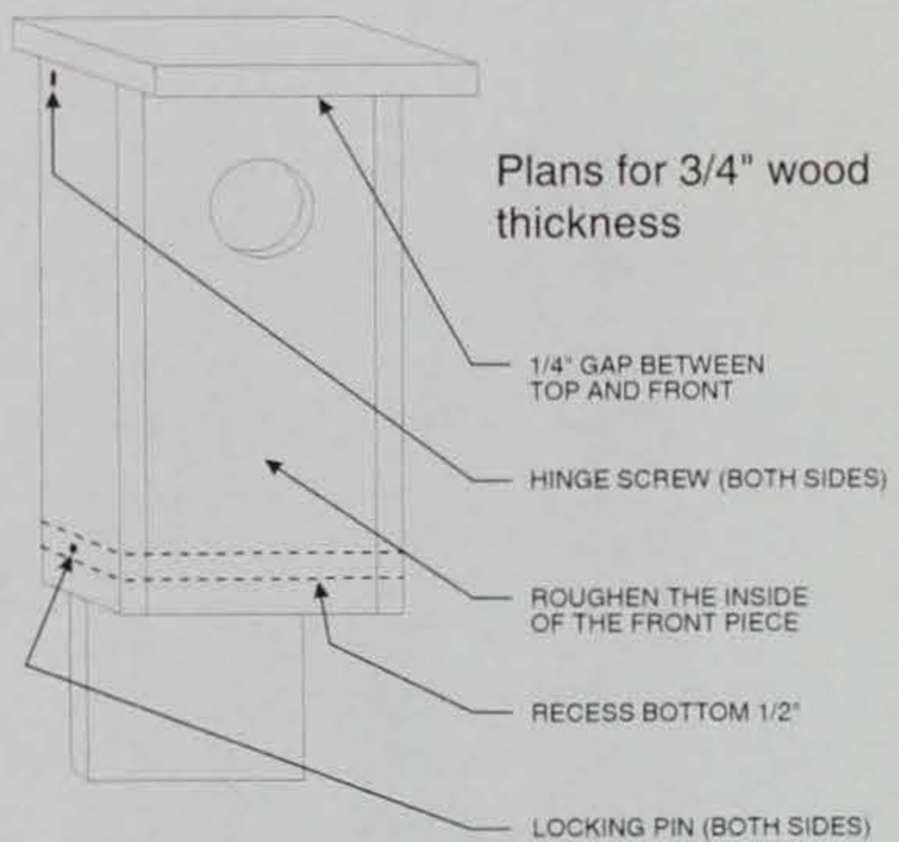
FUN FACTS: Mines of Spain is a National Historic Landmark, a national Wildlife Federation Nature Area, an Iowa Watchable Wildlife Area and is home to the 600-acre Catfish Creek Preserve.

CONTACT: 563-556-0620, or Mines_of_Spain@dnr.state.ia.us.



Bluebird Report Form 2002 and Bluebird Nest Box Plan

Building and monitoring bluebird boxes can be a fun and satisfying hobby. Follow the directions below to build a box any bluebird would be happy to call home. If you already have an established bluebird box trail, make sure to fill out a 2002 Bluebird Report Form, available on the following page. The information is a valuable tool for monitoring bluebird populations.



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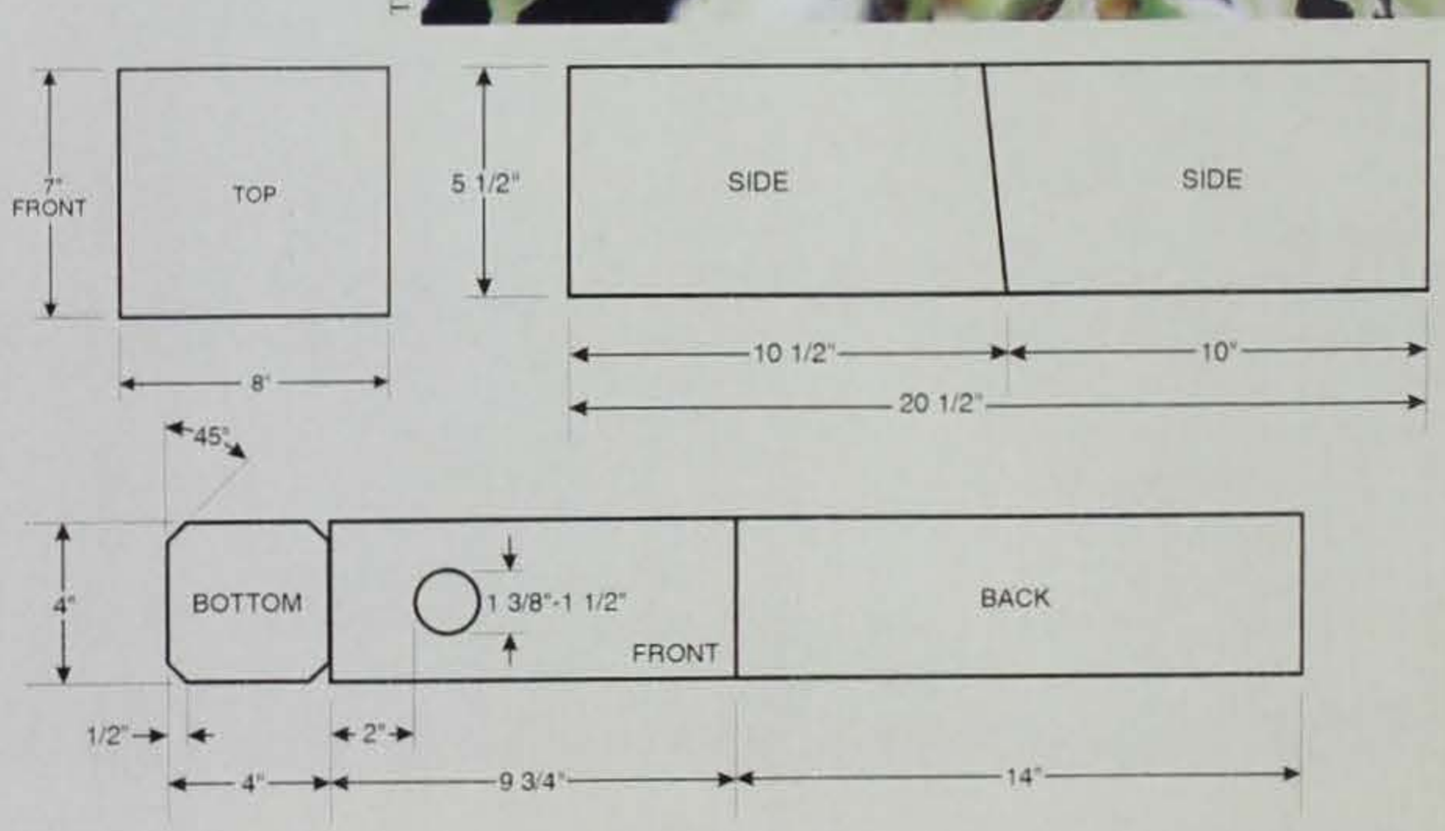

Plans compliments of Iowa's Wildlife Diversity Program

For those with established bluebird boxes, sending in the report (right) helps preserve these birds. The data collected from the reports provide a more accurate picture of the birds' welfare and recovery in Iowa. Please take the opportunity to record your findings this summer and return to Jaclyn Hill at the address below.

_____ How many bluebird boxes did you monitor?

_____ How many successful broods?
(a single nesting with one or more bluebirds fledged)

_____ How many *blue* bluebird eggs?

_____ How many *white* bluebird eggs?

_____ How many bluebirds hatched?
(This number cannot be greater than the number of eggs.)
_____ How many bluebirds fledged?
(This number cannot be greater than the number of eggs.)

_____ How many tree swallows hatched?
_____ How many tree swallows fledged?

_____ How many chickadees hatched?
_____ How many chickadees fledged?

_____ How many kestrel boxes did you monitor?
_____ How many kestrels fledged?

_____ How many purple martin compartments did you monitor?
_____ How many purple martins fledged?

LAST NAME FIRST NAME BOX LOCATION, COUNTY

ADDRESS (AREA CODE) TELEPHONE

CITY STATE ZIP CODE

Send to: Jaclyn Hill, 2946 Ubben Ave., Ellsworth, IA 50075

Note: If you have boxes in more than one county, please submit a separate report for each county.
No group names, individual reports only.

Kids' Corner

Amphibian or Reptile?

There was a time when snakes, frogs and turtles were as fascinating to young Iowans as computer and video games are today. As much as these and other electronic gadgets have monopolized children's free time in recent years, there are still many who would rather catch frogs in the family pond, watch turtles sunning on a log or chase snakes in the grass.

Iowa is home to dozens of species of snakes, frogs, turtles and salamanders. All are classified as either amphibians or reptiles. The following crafts, exercises and games will help identify some of the different species in Iowa, and whether they are reptiles or amphibians.

Reptiles . . .

- have dry skin covered with scales
- lay eggs with protective shell
- have lungs and breath air
- are cold blooded

Amphibians . . .

- have smooth and moist skin
- are four-legged
- depend on water for to survive
- lay jelly-covered eggs in calm waters
- lay eggs that hatch into larvae, known as tadpoles, which later transform into air-breathing adults
- are cold-blooded (their body temperature is the same as the surroundings)
- main food is insects
- (Most) spend part of their life in water or damp areas

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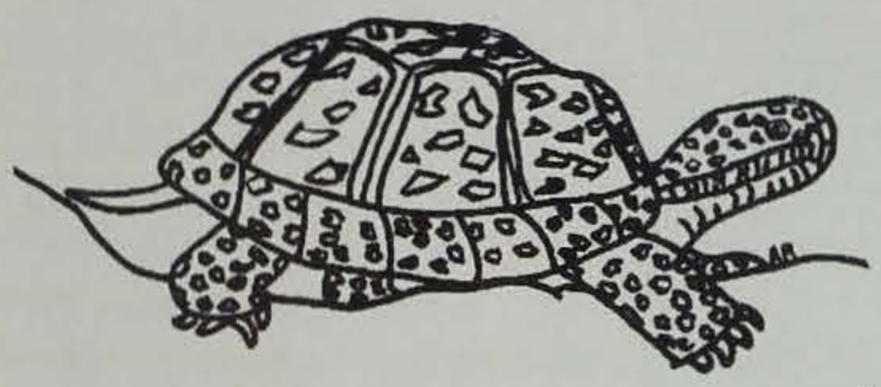
G S O Q U E K E K U M L P L L A U O R U J T N E R H U
A F P D H I D J D E X L D F M R J M K F O N B X Z T L
R R W A O X M L Q T I T I Q F D U H Z P T R U T O R L
T O M T I A W E L Z U U U K P F L I F Y L E J A R O S
E G I A M S K E B E L R B J S R A L K H T R K R F N N
R V T O D J H Z D N X T T V D O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

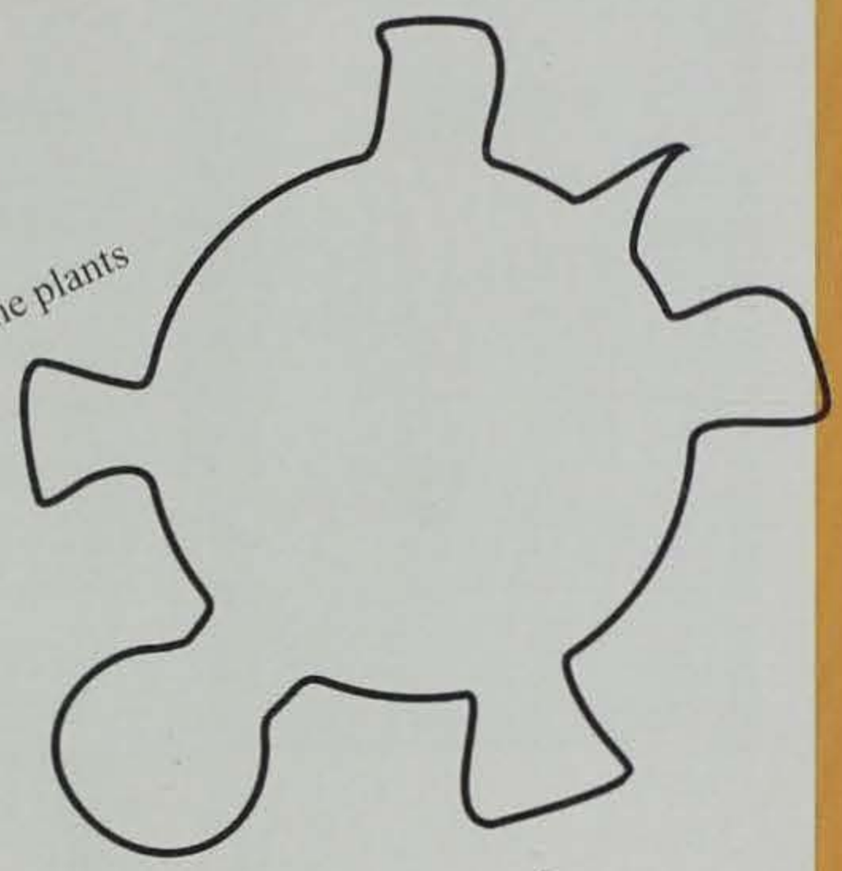
Word Search for Iowa Reptiles and Amphibians

AMPHIBIANS
REPTILES
SNAPPING TURTLE
PAINTED TURTLE
SPINY SOFTSHELL TURTLE
NORTHERN LEOPARD FROG
AMERICAN TOAD
GRAY TREE FROG
WESTERN CHORUS FROG
CRICKET FROG
NORTHERN WATER SNAKE
BROWN SNAKE
EASTERN GARTER SNAKE
FOX SNAKE
MILK SNAKE
BULL SNAKE



Turtles

turtles are reptiles
do not have teeth
eat insects, worms, grubs, shellfish, fish and some plants
can live up to 150 years
male turtles are smaller than females

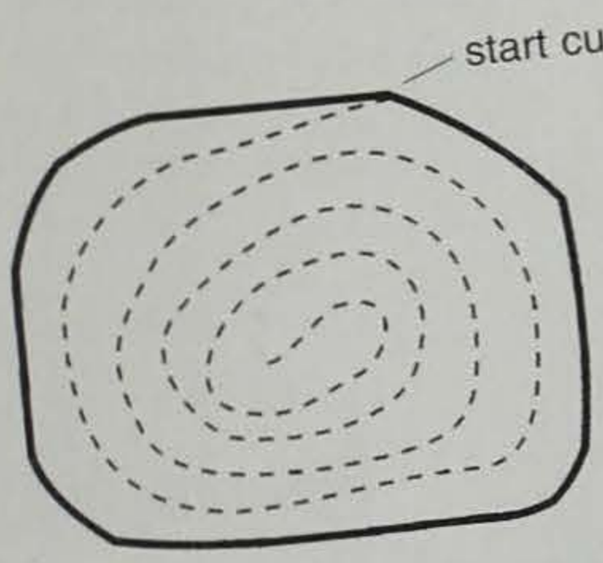


Walnut Turtles

Using the pattern shown cut a turtle shape out of a piece of paper. Use a half of a walnut shell or any other type of nut. Glue the flat part of the walnut shell so that the rounded part is the shell of the turtle.

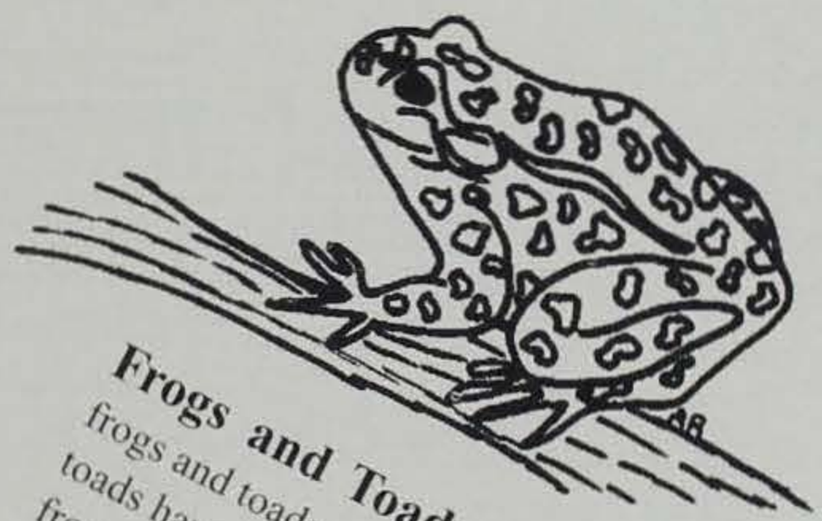
Snakes

snakes are reptiles
shed their skin at least once a year depending on their diet
have a backbone
do not have ear openings and eyelids that move
can swallow an item that is larger than its head
eat rodents, insects, worms, frogs, toads and fish
most Iowa snakes are not poisonous



Spiral Snakes

Take a piece of paper and round off the edges by cutting them. Color. Next cut a spiral all around the paper. Decorate and you have a pet snake.



Frogs and Toads

frogs and toads are amphibians
toads have a rough and warty skin
frogs have smoother skin
toads are slower than frogs

Conservation Update

Ty Smedes

Balltown Overlook in Dubuque County

Photography Bus Tour Planned This Fall

The DNR and nationally recognized Iowa outdoor photographer Ty Smedes will be hosting a fall photography bus tour to northeast Iowa Oct. 4 through 6.

The tour will make stops at Cedar Rock State Park, home to a historic Frank Lloyd Wright house; Pikes Peak State Park; and Yellow River State Forest. Smedes will be offering sessions on how to capture the outdoors on film, while DNR forester Jerry Kemperman will provide information on plant and animal life encountered along the way.

The tour will depart from Ames and Des Moines. The cost is $395, which includes round trip transportation, two nights lodging, one breakfast, three lunches and photography sessions.

For more information, contact Penny L. Brown at 515-331-6690, or Jean Eells at 515-832-1771.

2001 Pheasant Harvest Lowest On Record

Poor weather and habitat conditions in 2000 came back to haunt Iowa pheasant hunters in 2001, according to recently completed harvest figures.

Pheasant hunters harvested an estimated 470,116 roosters – a record low and a 53 percent decline from 2000 when hunters harvested more than 1 million birds. The previous low was 724,000 in 1984.

The 2001 pheasant season followed the third snowiest winter on record, then a cool wet spring. Combine the weather factors with a dramatic loss in Conservation Reserve Program cover, and it is a recipe for disaster.

"Prior to last season, I estimated we would harvest 600,000 to 650,000 birds," said Todd Bogenschutz, upland biologist for the DNR. "My estimates are based on past comparisons of August roadside survey counts to harvest. The 2001 roadside counts were 59 percent lower than 2000, so a lower harvest was expected, but not this low."

The lower-than-expected harvest was due in part to 27 percent fewer pheasant hunters. With such a poor forecast, people simply didn't hunt, Bogenschutz said. Iowa's popularity with nonresident pheasant hunters also declined for the fifth straight year. Iowa had 23,781 nonresident pheasant hunters, down from 50,350 in 1997.

The low harvest numbers were not restricted to pheasants. Quail numbers were down 77 percent from 2000. Hunters harvested an estimated 32,226 quail in 2001, down from an estimated 140,828 in 2000. The partridge harvest estimate was also an all-time low for 2001. Bogenschutz estimates 5,814 partridge were harvested, down from 19,258 in 2000.

There is also a new all-time record low harvest of 196,483 cottontail rabbits, a 40 percent decline from 2000.

The DNR uses a random survey of small game hunters following the small game season to determine the size and distribution of Iowa's small game harvest. Low populations of game and low hunter turnout combined for some of the lowest harvest numbers since the hunter survey began in 1963.

Eight Fishing Clinics, Tournaments Remain Throughout Summer

A handful of fishing clinics and tournaments are scheduled throughout the remaining summer months. Activities vary at each clinic and may include fish identification, how to operate a reel, different ways to cast, knot tying, how to handle fish, bait presentations and different fish cleaning methods. Call the clinic for more details. Following is a list of the remaining events by date.

AUGUST

Aredale
Youth Tournament, Aug. 10, private pond, 319-267-9946

Maquoketa
All Ages Clinic, Aug. 10, Horseshoe Pond, 563-652-3783

Sioux City
Specialty Clinic, Aug. 17, Bacon Creek Lake, 712-252-1335

Rock Valley
All Ages Clinic, Aug. 24, Fairview Area, 712-552-3057

Sioux City
Specialty Clinic, Aug. 25, casting event, Chris Larsen Park, 712-252-1335

SEPTEMBER

Martensdale
Youth Fly Fishing Clinic, Sept. 1, Annett Nature Center Pond, 515-961-6169

Allerton
Fishing Tournament, Sept. 14, Bobwhite State Park, 641-873-4242

Bennett
Fishing Tournament, Sept. 28, Bennett Pond, 319-886-6930

Clay Smith

Local Bass Tournament Gains National Endorsement From FishAmerica Foundation

For the first time in its 20-year existence, the FishAmerica Foundation has offered its name to a fishing event.

The event, formerly known as the Sioux City Missouri River Bass Tournament, will now be called the FishAmerica Foundation Missouri River Bass Open. The tournament is scheduled for Aug. 25 in Sioux City.

"Our namesake affiliation with a growing bass tournament and youth fishing derby in the Midwest is a pilot project to enhance and encourage these types of grassroots efforts," said Tom Marshall, managing director of American Sportfishing Association's FishAmerica Foundation.

"Fishing tournaments clearly reach and educate the very grassroots conservationists that FishAmerica wants to reach."

Added to the tournament this year are two events for children ages 7 to 14. A "Hooked on Fishing — Not on Drugs" youth fishing derby is scheduled for Aug. 17, and a youth casting contest will be held on Aug. 25. Winners of the youth casting contest qualify to compete on the national level.

During the past 20 years, FishAmerica has helped more than 700 grassroots efforts to enhance fish populations and water quality throughout North America.

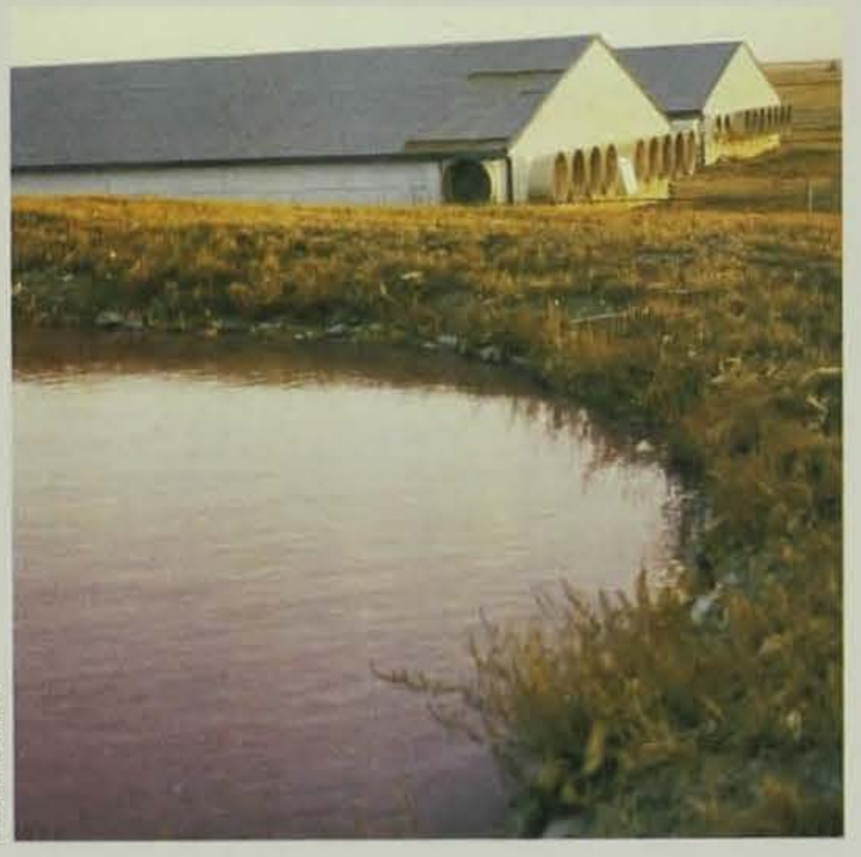
For more information, visit www.bassaction.com.

Conservation Update

New Fees For Construction Permits, MMPs

The Environmental Protection Commission recently approved new fees for animal feeding operations.

Effective immediately, operations seeking a construction permit, and operations filing an original manure management plan, will need to pay a $250 fee. Operators seeking both will be required to pay $500.



Karen Grimes

The new rule was filed and adopted by emergency, but the DNR will also go through the normal rulemaking process. The public can comment on the fees on or before a public hearing to be held at 1 p.m. Aug. 6 in the fifth floor conference room of the Wallace Building in Des Moines.

The new livestock law requires the fees before the DNR can approve a construction permit. New construction permit applications are now available on the DNR's website at www.state.ia.us/dnr/organiza/epd/wastewtr/feedlot/feedlt.

New Air Monitors Tracking Visibility In Iowa

Iowa is home to two new state-run monitoring sites analyzing the air for pollutants that steal the view and create haze. The federally funded monitors are at Viking Lake and Lake Sugema in southwest and southeast Iowa, respectively.

Visibility is a major air quality issue. Natural visibility in eastern states is 90 miles; 140 miles in the West. Today, pollution holds eastern views to 14 to 24 miles, and 33 to 90 miles out West. Although monitoring at national parks and wilderness areas began in the 1980s as part of the Clean Air Act's plan to protect scenic vistas, the monitors are a first in Iowa.

Iowa's monitors collect microscopic particles to better understand how pollutants react and move across the nation to create haze. Each station collects airborne metals, sulfates, ammonium, nitrates and carbon. The filters are shipped to California for analysis. Visibility is calculated based on the light scattering properties of each substance.

For more about air, visit www.epa.gov/air/visibility. Also, see the article on pages 36-41.

Ninth Annual Becoming An Outdoors-Woman Workshop Set For Sept. 6-8 At Springbrook

Women interested in learning more about the outdoors are invited to attend the Ninth Annual Becoming an Outdoors-Woman workshop Sept. 6 through 8.

The workshop is aimed primarily at women, but is an opportunity for anyone 18 years old or older to learn outdoor skills usually associated with hunting and fishing, but which are useful for many other outdoor pursuits. The workshop is held at the Springbrook Conservation Education Center near Guthrie Center.

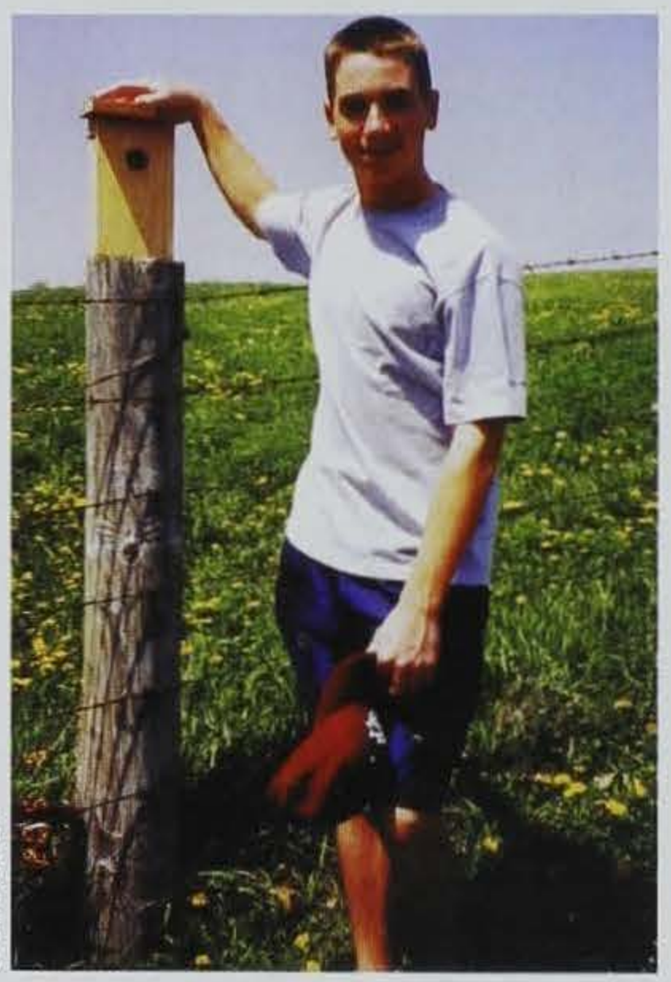
Workshop topics include: basic fishing, muzzleloading, fly fishing, birdwatching, archery, nature photography, beginning shotgun shooting, basic motor boat skills, orienteering and map reading, canoeing, camping, Dutch oven cooking, dog handling, backpacking and much more. The cost is $135 and covers food, lodging and materials for the weekend workshop. Registration is limited to the first 100 participants.

Brochures and registration forms for this year's workshop can be obtained by contacting: Julie Sparks, Becoming an Outdoors-Woman, Iowa DNR, Wallace State Office Building, 502 E. 9th St., Des Moines, Iowa 50319-0034; phone 515-281-6159 or email at julie.sparks@dnr.state.ia.us

Volunteering Today For A Better Iowa Tomorrow

On The Trail Of Bluebirds

In Iowa, more than 95 percent of the land is in private ownership. Hence, private lands management has become a valuable part of many wildlife diversity programs throughout the state. The focus of private lands management programs has been encouraging citizens and landowners to create and maintain wildlife habitat on their land. In northeast Iowa, that charge has been answered by Dyersville teenager Mike Konzen.



Cheri Konzen

Konzen by one of his bluebird boxes.

Konzen is an avid outdoorsman. In the fall of 2001 he began looking for an opportunity to volunteer and make a positive contribution towards the outdoors. Konzen contacted the DNR Keepers of the Land volunteer program and identified a project in his area that combined his goals and an interest in woodworking — building bluebird boxes.

Wood products for the 15 bluebird boxes Konzen built were provided by the State Forest Sawmill at Yellow River State Forest. During December 2001 and January of this year, Konzen constructed and installed bluebird boxes along newly established trails in Delaware and Dubuque counties. Long-term plans include the upkeep, maintenance and monitoring of the boxes.

For Konzen, the most rewarding aspect of the project came this spring when he discovered nests and eggs in most of the 15 boxes. Many have subsequently become homes to fledgling bluebirds.

For information on establishing a trail, contact the Boone Wildlife Research Station at 515-432-2823, or visit the DNR's wildlife website at www.state.ia.us/wildlife. For information about the Keepers of the Land Program, call 515-281-0878 or visit online at www.keepersoftheland.org. For those who have established bluebird boxes, see pages 54-55 for the 2002 Bluebird Report Form.

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:

- August 8
  Clear Lake
- September 12
  Maquoketa
- October 10
  Carroll
- November 14
  Neal Smith NWR
- December 12
  Des Moines

Environmental Protection Commission:

- August 19
  Des Moines
- September 16
  Des Moines
- October 21
  Des Moines
- November 18
  Des Moines
- December 16
  Des Moines

Warden's Diary

Day Of The Lizard

by Chuck Humeston

It always seems weird things happen to me when I'm either training new officers or answering nuisance animal complaints; like the time I was training a new officer and we had to cross some rocks to get to the other side of a small creek to check some fishing licenses. I'd walked across those rocks probably hundreds of times with no problem. But oh no, this time in my best authoritative "follow me," I took two steps and SPLASH!

Then there are the nuisance animals complaints, from being trapped in attics with psycho squirrels to being toe-to-toe in corn cribs with cornered raccoons. But that's another story.

Given my track record, it didn't surprise me when the two scenarios combined and made for, as usual, strange mojo.

It was summer, and I was training a new officer in the Mason City area. We had just finished lunch and were leaving the restaurant when I heard over the radio that Mason City police were being dispatched to a residence on a complaint of a lizard in a tree.

I figured the situation was under control, until an eager summer water patrol officer picked up his microphone and proudly announced we could handle the call. Instantly, the gravity of the situation hit me. *"Training a new officer and nuisance animal complaint. This is bad, bad, bad," I thought.*

I started thinking of the possibilities. A gecko on a tree limb. A chameleon in the rose bush. A salamander on the front steps. Good grief, just how much of a problem could this be? Little did we know.

I called the seasonal officer, reluctantly, to tell him we would be on the way too. I had other things I wanted to tell him, but it wouldn't have been proper over the radio. Besides, it might be a good experience for the trainee riding with me. Wrong. Not the way these things work for me.

We drove to the address and turned down the alley. I figured we would drive up, stop, pluck the lizard off the bark, tell the new officer, "See, this is how it's done. Any questions?" and be on our way.

That was until I turned the corner and saw an animal control car, a Mason City police car and the Mason City Fire Department. A rifle was laying on one of the cars, and everyone was looking up into a very large soft maple tree.

"I understand there's a lizard problem," I said. They pointed to the very top branches of the tree. There was something, all right. Not a gecko. Not a salamander. Not even a chameleon. But it WAS extra large and green. *"This is not going to be a good day," I thought.*

"It's a monitor," the officer said. "Four feet long."

"Well of course it is," I thought. "A 4-foot monitor. Why does that not surprise me"

"Any ideas?" he asked. By then a crowd was gathering, but nobody claimed ownership of the fugitive lizard. Someone suggested baiting a live trap at the bottom of the tree. I suggested calling the electric or telephone company to dispatch a "cherry-picker" and hoist somebody to the top of the tree to grab the lizard.

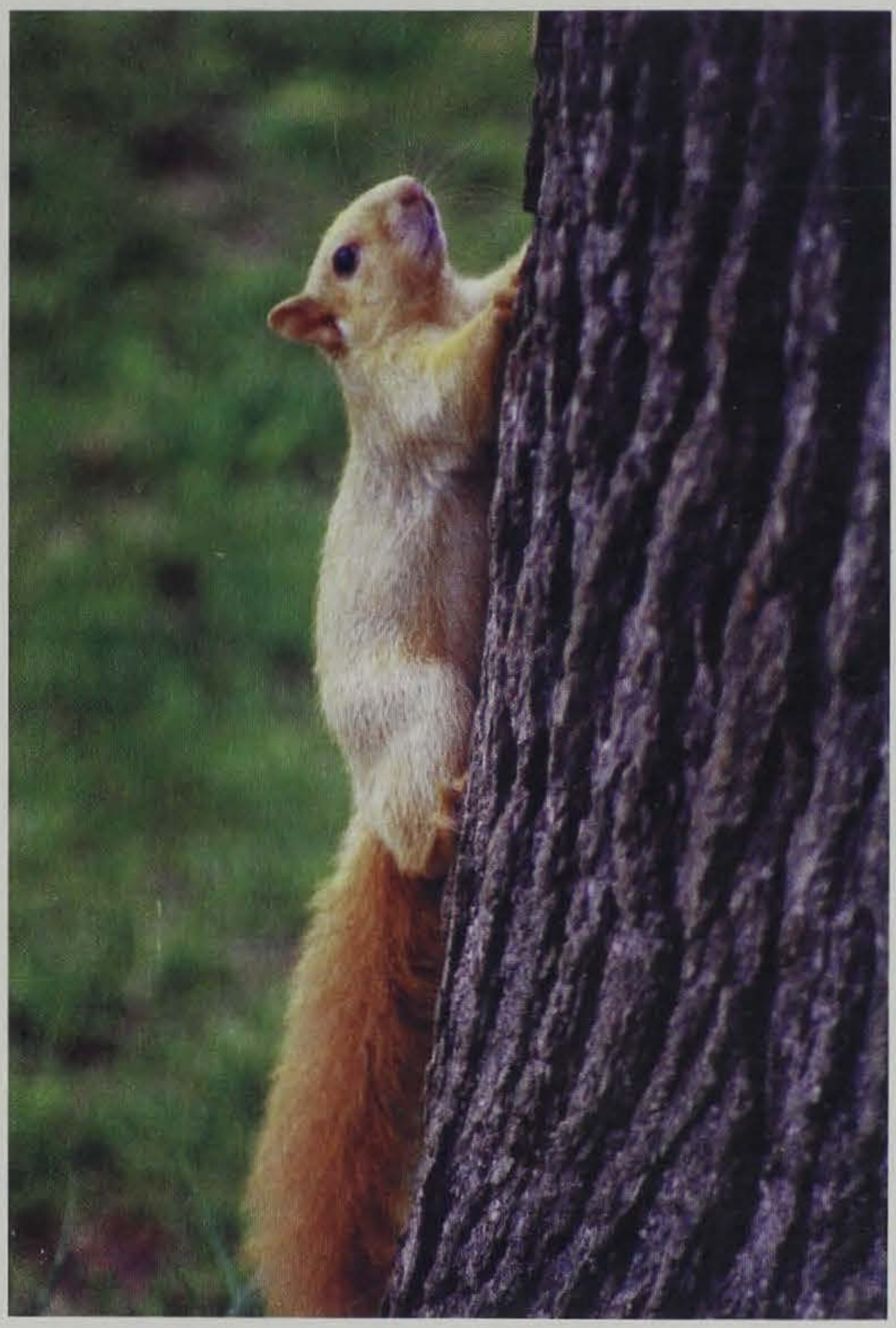
About that time an exotic pet store owner arrived, who was knowledgeable of monitors. He offered a piece of sage advice. "Monitors are mean, they bite, and they scratch." Hmmmm.

Another bystander chimed in, "Hey, why don't we get a fire hose, and blow it out of the tree onto the ground! Then we'll catch it!" I could see the fire fighters' eyes light up as they looked at each other. I had visions of uniformed officers and fire fighters chasing a wet, mad, 4-foot long lizard around a tree.

I looked at my trainee. "Come on, we're getting out of here." Knowing when to retreat is a valuable part of training.

We left as they were going for the hose. I later read in the paper the monitor was captured, by someone in a "cherry picker." I wonder how the poor guy fared.

They Say Blonds Have More Fun



Beverly Russell of Albia snapped this photo of a " blond" squirrel in her backyard in May 2000. It is actually a typical fox squirrel with atypical coloration. A genetic abnormality altered the squirrel's hair from its normal orange to "strawberry blond."

Take me fishing.
Because my wedding will
be sooner than you think.

Water works wonders

FOR FISHING, BOATING, AND
THE ENVIRONMENT

Enjoy Fishing in Iowa's State Parks and Recreation Areas