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Iowa CONSERVATIONIST

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Department of Natural Resources

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Iowa CONSERVATIONIST

DEPARTMENT OF NATURAL RESOURCES

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FRONT COVER: Native prairie composition of blazing star and yellow coneflower with big bluestem in the background. Photo by Lowell Washburn.

BACK COVER: Hen mallard and brood. Photo by Lowell Washburn.

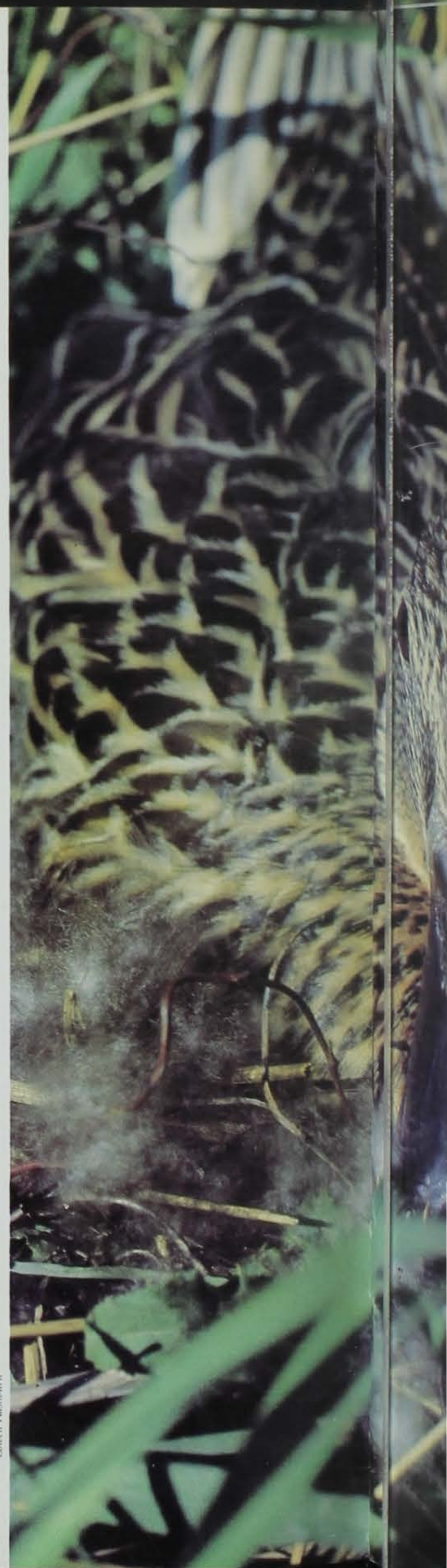
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NORTH AMERICAN WATERFOWL MANAGEMENT PLAN

A Strategy For Cooperation

By Lowell Washburn

In May of 1986, U.S. Secretary of the Interior Don Hodel and Canadian Environment Minister Tom McMillan met in Washington, D.C., to cosign a document called the **North American Waterfowl Management Plan**. The plan is a multi-agency, international approach designed to reverse the continent-wide destruction of wetland habitats and offers a clearly defined set of goals and objectives deemed necessary to increase and restore duck populations from their current all time low levels. (See "Trouble in Duck Country," page 4.)

A strategy for cooperation, the North American Plan runs through the year 2000. Simply stated, it is a blueprint for the most colossal waterfowl recovery program ever attempted. Long story short — it represents the best news for migratory birds since the creation of the duck stamp, and that may be an understatement.

Although continued research and management efforts are certainly important components, the plan places its greatest emphasis on the enhancement and protection of waterfowl habitat in both the U.S. and Canada. One of the most ambitious proposals is to change the land use practices on 3.6 million acres of prairie Canada currently being farmed, as well as to preserve an additional million plus acres of breeding grounds in the U.S. The agreement further calls for the protection of 886,000 acres of waterfowl migrating and wintering habitat, including over 680,000 acres of mallard and pintail wintering grounds along the lower Mississippi River and Gulf Coast regions. The price tag? A cool \$1.5 billion.

Anyone possessing a nodding acquaintance with current waterfowl dilemmas will be quick to realize that the North American Plan was born of necessity. Although certain web-footed species are holding their own, overall duck populations have exhibited a persistent decline since standardized surveying techniques were adopted during the mid-1950's. It has mainly been during the past decade, however, that the bottom has literally fallen out of the waterfowl picture. For example, from 1955 through 1959, the continental breeding population of mallard ducks averaged around 11 million birds on surveyed areas. The long-term average (1955 through 1985) was slightly over eight million, but during 1985 the population reached an all-time low of less than five and one-half million birds. Pintails have shown an even more alarming rate of



Trouble in Duck Country

By Lowell Washburn

More than one-half of North America's supply of waterfowl originate from an area known as the prairie pothole region — a 300,000 square mile glacial scar that runs from northern Iowa to west central Alberta. For eons, this wetland-rich ecosystem produced sky darkening clouds of migratory fowl that funneled down the flyways each autumn in incomprehensible abundance.

But today, both ducks and potholes stand at the brink of disaster. Where waterfowl and agriculture once shared the land, ducks have spent the last 30 years stepping aside of a "bigger is better" mind-set toward land use. The results have been catastrophic. In Iowa, the merciless eradication of our wetlands is nearly complete. More than 99 percent are now drained. Minnesota is catching up with half of its marshes destroyed.

Recently, the awesome forces of our gasoline driven technology have invaded prairie Canada — the last major stronghold for nesting waterfowl. Unless arrested, this development will undoubtedly signal the end for prairie nesting species like mallards, pintails and blue-winged teal. In western Canada, 40 percent of the potholes are already gone, and North America is losing what it has left for marshes at the rate of 700,000 acres per year.

As radical changes in land use occur, the upsetting of the ecological apple cart ushers in other events that hasten the demise of waterfowl, as well as other prairie wildlife. The coyote, for example, was traditionally the major predator on Canada's southern prairies. But as wetland has been converted to cropland, the red fox now dominates. Foxes actively search out bird nests, not only destroying eggs, but often capturing incubating females as well. As dozers

heap fencelines and windbreaks in great piles of debris, raccoons and striped skunks are rushing northward to exploit new habitats. In areas where duck nest success was once 50 percent or higher, only 10 percent or less are successful today. These rates, say biologists, cannot sustain waterfowl numbers over the long haul.

The straw that broke the camel's back came when prairie Canada suffered blistering droughts during six of the last seven years. Manitoba's Minnedosa region boasts the greatest concentration of potholes in all of prairie Canada — up to 100 per square mile. When I visited Minnedosa in late January, snow that should have been measured in feet was being measured in inches. In fact, most of the area held less than a foot. Elsewhere on the prairies, I am told that dust storms occurred in February. Currently, waterfowl numbers are at their all time recorded low. Of course, duck numbers always decline during drought cycles, then spring back when water returns — it's the way of the prairie.

But this time things are different. The grasslands, odd corners and marginal farm lands that once provided safe nesting cover have vanished and are now the domain of

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decline. There were around eight million breeders during the 1955-1959 period, but in 1985 less than three million were inventoried. Certainly the waterfowl resource cannot be expected to stand another 30 years of the sort they've just endured.

Fortunately, in spite of the fact that the North American Plan is only 15 months old, it is already advancing toward its goals with amazing swiftness. According to Tom

...during 1985 the (mallard) population reached an all-time low of less than five and one-half million birds. Pintails have shown an even more alarming rate of decline.

Dwyer, branch chief of the U.S. Fish and Wildlife Service Office of Migratory Bird Management, three of the plan's major components have already been set in motion. They are **The Arctic Goose Joint Venture** which is investigating the measures that need to be taken in order to sustain and increase barren ground, colony nesting geese; **The Prairie Habitat Joint Venture** which is a cooperative endeavor

between federal, private, and provincial conservation agencies to preserve wetlands in Canada's prairie pothole region, the continent's most important waterfowl breeding area; and **The Black Duck Initiative** which essentially is eastern Canada's counterpart to the Prairie Habitat Joint Venture and focuses mainly on the black duck, another species in serious decline.

Budgets being what they are, private sector involvement appears crucial to the overall success of the North American Waterfowl Plan. Ducks Unlimited has assumed the lead role in this arena and according to Dwyer, DU has become a key component in making the dream a reality.

To get the financial ball rolling, a request was issued for 10 state conservation agencies to each contribute a sum of \$100,000 toward the plan. Ducks Unlimited eagerly agreed to match those funds up to \$1 million. Canada jumped on the wagon, promising to match funds as they arrived at the border. Consequently, with DU money acting as the catalyst, each dollar generated in the U.S. becomes four by the time it is actually applied to habitat protection. During recent months five states (perhaps six by the time of this printing) have already committed to the plan.

Once those dollars reach Canada they will be used in a variety of ways, and major wetlands areas in Alberta,

huge, four-wheel-drive machinery. When water does return to the prairies, waterfowl will at best find a ring-around-the-tub type of vegetation surrounding those marshes that are still capable of holding runoff. But that won't cut it. Fox, raccoons and skunks have become all too efficient at keying in on those areas.

Fortunately, however, there is one bright, clearly defined light at the end of this otherwise dismal tunnel. That light is the North American Waterfowl Management Plan. The opportunity to restore the continent's waterfowl will perhaps never be more timely. The wholesale conversion of wetland to cropland has resulted in more debits than credit. And whether measured in beans, wheat, or corn, our modern day efficiency has resulted in the global food glut of all time.

Whether or not the North American Plan succeeds remains to be seen. But one fact is clear — this initiative may well represent waterfowl's last stand and deserves nothing short of the full court press on all fronts. How well this mission is carried out will largely determine whether we pass the torch to the next generation, or simply close our eyes and remember how it was.



Lowell Washburn

For the last 30 years ducks and geese have had to step aside for land use trends. With marshes being lost at a rate of 700,000 acres per year, the North American Waterfowl Management Plan is a last-ditch effort to preserve the dwindling waterfowl populations.

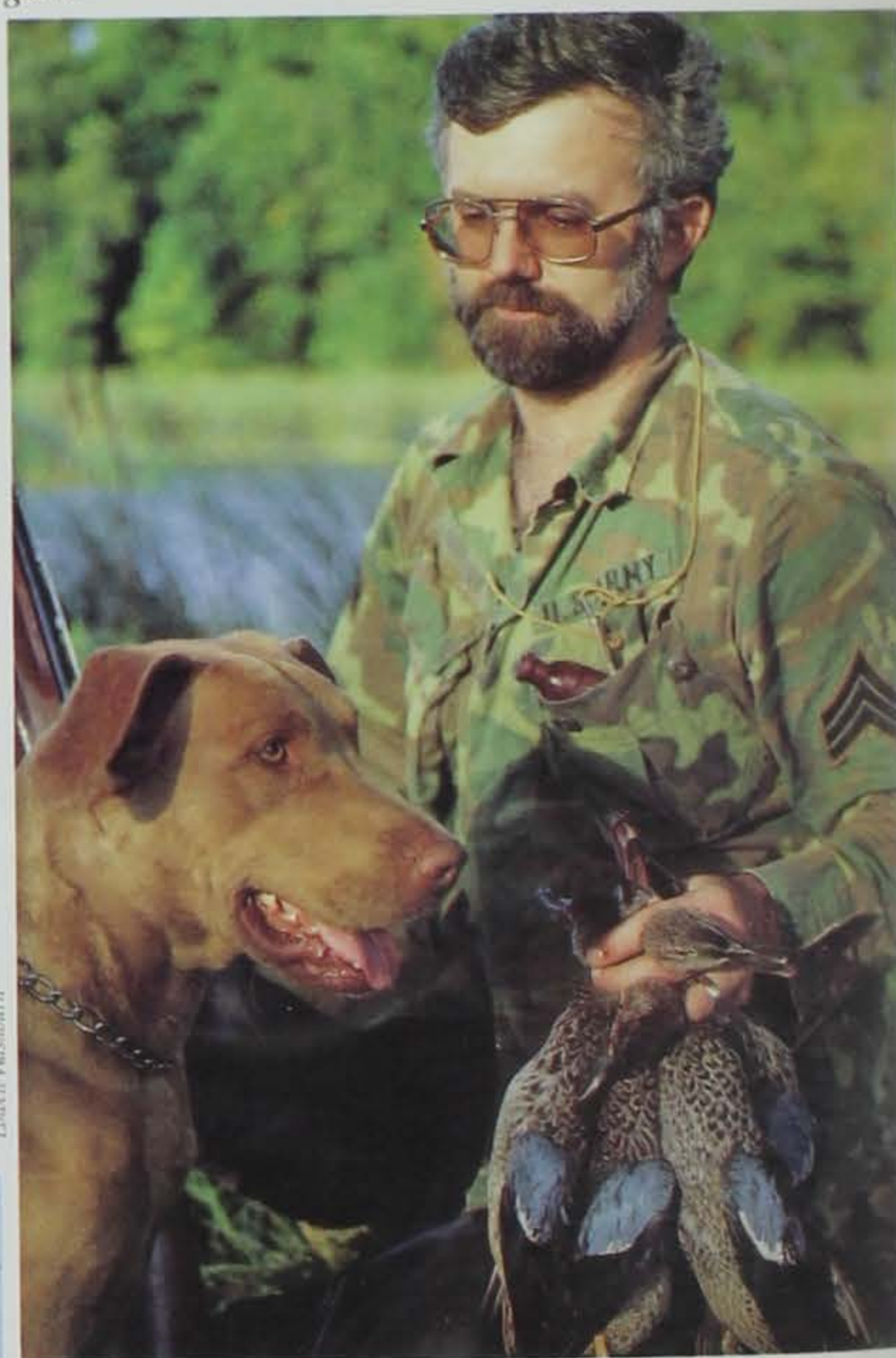
Saskatchewan and Manitoba have already been targeted for acquisition. Not all funds will be applied toward the direct purchase of wetlands. Canadians are well aware of the near fatal political backlash that occurred in North Dakota when certain interests felt government was acquiring too many wetlands too fast. But there is more than one way to skin a cat, or save a wetland.

According to Kent Brace, Canadian Wildlife Service coordinator for the NAWMP, the ultimate recovery of North America's waterfowl, and all other prairie wildlife for that matter, will depend upon the ability to affect major changes on the use of private lands in prairie Canada where "wall-to-wall" farming practices are beginning to occur. To accomplish this monumental task, the Canadian Wildlife Service has initiated a number of studies to field test a variety of options that encourage farmers to implement practices that benefit wildlife. These options include restoring drained wetlands, establishing large blocks of nesting cover, or even the installation of electrified, predator-proof fences around nesting cover. The CWS is supplying the necessary manpower, and Alberta has committed one-half million dollars per year toward the testing of various habitat protection techniques.

Initial response to these programs has been overwhelming, with farmers literally standing in line to enroll in experimental habitat programs. Under current economic conditions, raising ducks nets the landowner more profits than raising wheat.

Based on these signals, Brace feels that reaching the established goal of changing land use on 3.6 million acres of prairie Canada will not be a problem. In fact, planners are already beginning to explore the broader realm of developing closer relationships with government agricul-

Farm country potholes such as the one below are going fast. Iowa has lost 99 percent of its original wetland, and in western Canada 40 percent of the potholes are already gone.



Louise Washburn



Louise Washburn

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tural department to promote better soil and moisture conservation practices.

"Denuding prairie Canada of its cover has not been without cost," says Brace, who points to ongoing problems with soil erosion, increased salinity, etc. "The Canadian people are becoming very interested in conserving soil and water, and what is good for wildlife in the short-term is good for farming in the long-term," he says.

But, Brace cautions against moving too slowly and says the momentum must be maintained. Canadian agriculture is currently in a tremendous state of flux. The combined effects of wholesale wetland drainage, tearing out of fencelines and windbreaks, and the pressing of marginal lands into production have proven woefully cost ineffective. The result is a market surplus that has sent cereal grain prices to the basement. While everyone is wondering where to go from here, conservationists have a landmark opportunity to provide input into broad environ-

"We can document that acre per acre, our wetlands are capable of producing as many or even more ducks than anywhere in prairie Canada," he says.

mental problems that reach far beyond basic wildlife issues. "But this probably represents waterfowl's last chance," says Brace. "The door is opening and we'd better make this one work."

Canadian Wildlife Service Director James Patterson, agrees with that notion and believes there will probably never be a greater window of opportunity to move forward in waterfowl conservation.

"There is currently quite a feeling of optimism over the North American Plan here in Canada," he says. Granted, at first the 1.5 billion dollars does indeed seem staggering, but when you break it down into annual expenditures it is really not at all unreasonable.

Before the NAWMP was drafted, the protection of wetlands has maintained a low profile in Canada. But now, new habitat agreements from both federal and provincial governments total in excess of 167 million dollars. In addition to the revenues already being spent on the experimental private land initiatives, Saskatchewan has committed a total of 50 million dollars to the plan over the next 15 years. Indications point to other major provincial commitments in the near future.

Two years ago, Canada also began requiring waterfowl hunters to purchase a Habitat Conservation Stamp, a counterpart to the U.S. Migratory Bird Hunting Stamp. Around one-half million stamps are purchased each year, and the proceeds are spent through Wildlife Habitat Canada. However, unlike the U.S. system which makes the artist who designs the stamp a millionaire by retaining copy rights, Wildlife Habitat Canada reserves all rights. Consequently, wildlife reaps double benefits from the sale of stamps and the sale of collectible art prints. Canada's first stamp, depicting a pair of mallards painted by Robert Bateman, has now sold over 50,000 art prints making it

the top selling wildlife painting in history. Print revenues have far exceeded actual stamp sales, and all profits have gone to aid wildlife, a situation that should give us Americans food for thought.

Perhaps the brightest spot in the waterfowl financial picture comes from eastern Canada's Black Duck Joint Venture. This major part of the plan was dependent upon receiving \$20 million over the next 15 years. To date, the provinces of Ontario, Quebec, New Brunswick, and Nova Scotia have already made commitments totaling \$32.6 million over the next five years. Consequently, this portion of the plan is being rewritten and expanded.

How does Iowa fit into all of this? According to state waterfowl biologist Jim Hansen, the North American Plan has included Iowa as part of the prairie pothole complex. "That," he says, "is an important first step and provides an added impetus for us to preserve local wetlands. The plan also helps at the international level to define our goals and throws up a challenge that we all must strive to meet."

Richard Bishop, DNR wildlife bureau chief, adds that there is virtually no limit to what could be done to increase waterfowl habitats here in Iowa should adequate funding be secured. "We can document that acre per acre, our wetlands are capable of producing as many or even more ducks than anywhere in prairie Canada," he says.

Bishop is intrigued with the concept of obtaining the drainage basins where great marshes once stood. He notes that research has already revealed that viable seed beds for aquatic plant life lie dormant beneath croplands. "Just add water and you get something of an instant marsh, complete with valuable food plants," he says. "If we focus on basins, there is probably no limit to what we can accomplish for waterfowl."

According to Bishop, riverine overflow wetlands also represent one of our largest potentials for the future expansion of wetlands. Around 50,000 acres of such overflows currently exist.

Although the initial achievements of the North American Waterfowl Management Plan are certainly justification for an increased level of optimism, it must be remembered that we still have a long, long way to go. Regardless of how you slice it, the NAWMP is a last-ditch, eleventh hour, maneuver to preserve waterfowl populations as we know them. If the plan's goals are met, it will mean a breeding population of around 62 million ducks which should produce average fall flights of about 100 million. This would allow sportsmen a sustained harvest of about 20 million birds annually.

The cost of failure is too great to consider and could mean that even the next generation will miss the thrill of seeing a sunrise from a duck blind. Kent Brace put it this way, "If the North American Waterfowl Management Plan is not successfully implemented, prairie wildlife populations will continue to plummet and our (professional biologists') most significant professional accomplishment will be monitoring their demise — it's that simple."

Lowell Washburn is an information specialist located in Clear Lake. He has been with the department since 1984.

Endangered Groundwater?

New Strategies for Protecting Iowa's Underground Water Supplies

By J. Edward Brown

As a boy growing up in Wisconsin, I remember family trips "up north" to our cottage on the lake. When we would finally arrive, my brother and I would race to the old hand pump attached to the sand-point. Anxiously, we would wait for my father to get the water from home out of the trunk so we could prime the pump and be the first to drink from the mug on the nail. I remember the sweet taste of the drink and my belief that this surely must be nature's purest water. I also recall my disappointment several years later when, as an adult, I had the well water tested. It failed badly and the well was soon replaced.

Many Iowans have been aware for years of the dangers of bacterial contamination of shallow wells. We have known, too, that nitrates, which can enter the soil from certain plants and from farm fertilizers, have been commonly found in wells and their concentrations have been increasing steadily. But few of us were prepared for the results of testing for a variety of synthetic organic compounds in well water.

The growing diversity of contamination has created a new sense of

urgency around the need for a plan to protect the groundwater on which so many Iowans rely as their only source of drinking water. With growing evidence of concern, the Iowa General Assembly asked the Department of Natural Resources to study groundwater and to report its condition, then to recommend a strategy for groundwater protection. In January 1987 the Iowa Groundwater Protection Strategy was presented to the legislature. That strategy, or "blue book" as it has come to be known, was the result of considerable research and input from a wide variety of sources. Two advisory groups reviewed and made changes to it; a lengthy list of public meetings allowed others to provide their wisdom to the product; and finally, the Environmental Protection Commission of the DNR made the final review of the strategy, adding its own perceptions to the work.

When the strategy was presented to the General Assembly, it was well received. Included with it were legislative proposals which were taken directly into the body of the resulting legislative plan. Through many weeks of legislative debate and compromises, the Groundwater Protection Act was eventually passed and signed in June by Governor Branstad. Many of its provisions took effect July 1.

The goal statement and policies stated in the Act are the keys to understanding it. Basically, it calls on the state to protect the quality of groundwater in every way it can. The focus is on prevention of contamination. Where it is necessary, the restoration of contaminated areas is required. But, there is also a commitment to dealing with spills, leaks and other contamination in a positive way. Iowa will not be satisfied with a program that allows the state's groundwater to degrade any further. The basic tools to accomplish the provisions of the Act are research, demonstration and education.

Between \$11 and \$13 million are provided annually to carry out the Act. Funds come from a mixture of sources, many of which are fees for licenses and inspections regarding agricultural chemicals and hazardous household materials. Increases in tonnage fees for solid waste disposal

will generate new funds to protect groundwater. Money will also come from oil overcharge court settlements against certain oil companies which were found to have overcharged consumers from 1973 to 1981, when prices were federally regulated.

The Groundwater Protection Act calls for all Iowans to adopt new attitudes and behaviors, along with a new spirit of cooperation to help protect groundwater. In some cases, their willingness will be encouraged with financial incentives. Many state and local government agencies are responsible for implementing the act; a key to their success will be their ability to cooperate and communicate, not only among themselves, but with the public at large and the many individual user groups.

The accompanying sidebar on how the Groundwater Protection Act affects you shows some of its complexities. As much as we would all like, not every part of it can be put into place at once; it will take some time to implement it all, requiring a lot of patience for all of us involved. It will take even longer to begin reaping the benefits of this legislation, now noted as the most progressive groundwater protection plan in the nation.

The federal government is now looking at the need for legislation to overcome what is perceived as a general lack of progress by other states to act effectively on the groundwater issue — it is showing significant interest in what has been accomplished in Iowa, as are numerous other states.

Because so much is at stake, the DNR, the Department of Agriculture and Land Stewardship, the Department of Health, state universities and others are working very hard to make the early days of implementing the Act a success. We are also depending on all of the state's citizens to share our sense of dedication in making groundwater protection a goal we can achieve.

J. Edward Brown is the department's state water coordinator. He holds an M.S. degree in chemistry from Penn State and a law degree from the University of Virginia. Brown has been with the department since 1972.

THE GROUNDWATER ACT

How Does It Affect You?

General Provisions

- It significantly increases the amount of information collected by the state on the quality of groundwater.
- It establishes the Leopold Center at Iowa State University to study agricultural impacts on groundwater quality.
- It establishes an Environmental Health Center at the University of Iowa to assess pollution's impact on human health.
- It establishes a Small Business Center at the University of Northern Iowa to help small businesses properly handle and dispose of solid and hazardous materials.

Pesticides and Fertilizers

- Anyone engaged in the sale of fertilizers must obtain an annual license at the cost of \$10 from the Department of Agriculture and Land Stewardship.
- Anyone selling specialty fertilizers in quantities of 25 lbs. or less or applying specialty fertilizers for compensation must pay an inspection fee of \$50 annually.
- Anyone manufacturing specialty fertilizers in quantities of 25 lbs. or less must pay a registration and an inspection fee of \$100 annually.
- Anyone selling nitrogen-based fertilizers must pay an additional \$.75 per ton sold based on an 82 percent solution and prorated for different solutions.
- Commercial or public applicators applying any pesticide must be certified. Certified pesticide applicators must now pass a state exam.
- Any person applying a restricted-use pesticide must be certified.
- Anyone engaged in the sale of pesticides must obtain a \$25 annual license from the Department of Agriculture with the exception of dealers whose gross annual sales are less than \$10,000 for each business location owned or operated by the dealer. After July 1, 1988, the license will cost one-tenth of

one percent of gross sales.

- In order to register a pesticide for use in Iowa, the manufacturer must pay a registration fee for each chemical in the amount of one-fifth of one percent of gross sales up to a maximum of \$3,000.

Wells, Sinkholes, Watersheds and Wetlands

- All ag drainage wells must be registered with the DNR by January 1, 1988.
- The Department of Agriculture and Land Stewardship will set up a demonstration project to show what types of practices will eliminate groundwater contamination from ag drainage wells and sinkholes and also suggest alternative drainage methods.
- By 1991, all ag drainage well owners must submit a plan to the Department of Agriculture and Land Stewardship showing how contamination will be eliminated from their ag drainage well or wells.
- The state goal is to eliminate all contamination from ag drainage wells and sinkholes by 1995.
- All new well construction after July 1, 1987, can only be done after a permit has been obtained from the county or DNR.
- A schedule for closing of all abandoned wells will be established and a financial assistance program set up by the DNR.
- After July 1, 1987, upon the sale of any property, the landowner must disclose any waste disposal site, underground storage tank, or existing well on the property.

Solid Waste Management and Landfills

- The tonnage fee for disposal in landfills will increase after July 1, 1988, by \$.50 per ton per year until it reaches \$3.50 per ton. This may mean an increase in solid waste disposal rates charged to the customer by a municipality.
- Plans are being made for alterna-

tive disposal methods from tonnage fees.

- All sanitary landfill operators must be certified by the state by July 1, 1990.
- Private disposal of any waste on any property now requires a permit from the DNR.

Household Hazardous Wastes

- All retailers who sell household hazardous materials must now have a permit which costs from \$10 to \$100 depending upon gross sales. Permits are obtained from the Department of Revenue and Finance.
- Retailers will display shelf labels which identify products that are considered hazardous. Informational booklets will also be available which will explain how these materials are to be handled and disposed.
- Toxic Waste Cleanup Days will occur in at least six locations (and perhaps more) around the state where the public can dispose of household hazardous materials.

Underground Storage Tank Management

- New farm and residential underground storage tanks (put into service after July 1, 1987) with a capacity of less than 1,100 gallons must now be registered with DNR for a one-time fee of \$10.
- Farm and residential tanks under 1,100 gallons existing prior to July 1, 1987, shall be reported to the DNR by July 1, 1989. No fee is required.
- All underground storage tanks over 1,100 gallons must be registered with the DNR and tagged annually for a management fee of \$15.
- A legislative committee will make recommendations on establishing insurance pool to insure proper tank installation and removal of unused and leaking tanks.
- Unlawful to deliver product to untagged tanks.

LANDSCAPING FOR ENERGY

By Bill Farris

Landscaping around your home can help cut your heating and cooling costs, reduce noise and air pollution, and make your property more attractive and valuable. Arranging trees and shrubs in your yard is similar to arranging furniture in your home. You want them both to be functional and aesthetically pleasing. Therefore, money spent on landscaping your home can be a good investment.

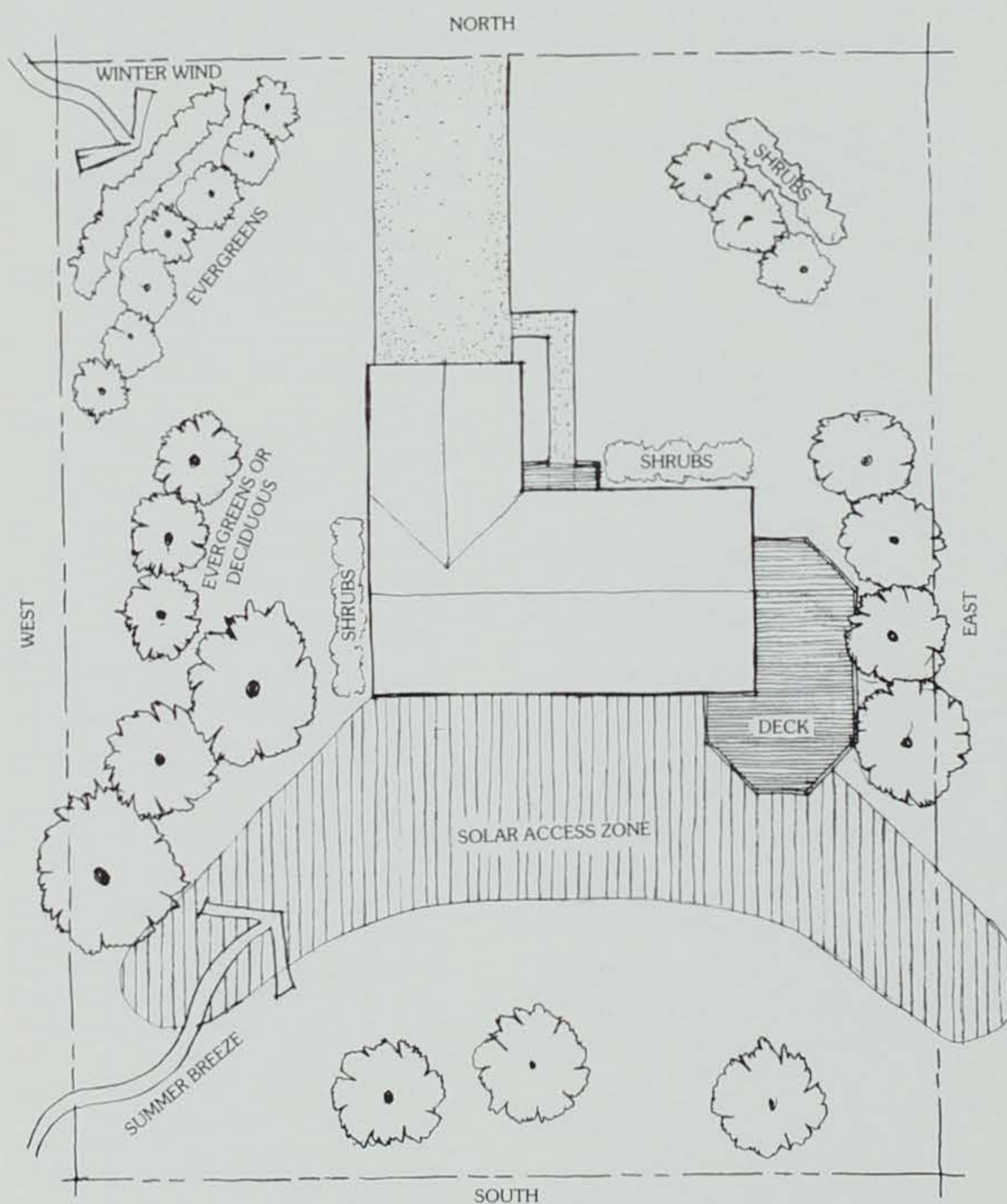
An unprotected home loses much more heat on a cold windy day than on an equally cold still day. Evergreens offer good protection against winter winds, reducing wind velocity by up to 20 percent. Well-located trees and shrubs can intercept the wind and cut your heat loss. Up to one-third of the heat lost from a building may be through the wall and roof as wind increases the convective air currents along the outside.

Foundation plantings can create a "dead air" space which slows the escape of heat from a building. These plantings also help reduce infiltration losses around the foundation of the home. Evergreens and shrubs are more effective for this purpose than deciduous (leaf shedding) trees. The evergreens should be planted close together and form a tight barrier against air movement. This dead air space will also insulate your home against the hot summer, thus reducing the need for air conditioning.

Trees also act as an outside air conditioner. On a hot day, a mature tree may release 100 gallons of water into the air. As the moisture rises, it carries away heat. Energy experts estimate that this effect could be equal to five room air conditioners running 20 hours per day.

Carefully planned landscaping can affect the solar radiation on buildings and people. During winter, deciduous trees and shrubs shed their leaves and allow the sun to warm your home. This is an important consideration for the southern exposure of your home. Overhangs on the south side will also aid in cooling your home during the summer. These overhangs will not affect the warming rays of the winter sun because of the sun's low angle.

Maple, ash, oak and other full-



Properly placed trees and shrubs will insulate your home against summer heat and winter cold.

crowned trees are the best for summer shading as their high branches permit greater visibility and do not block the flow of cooling summer breezes. Trees also provide maximum shade when planted in groups in a gradual curve. This will funnel the wind to the desired area without significantly decreasing the velocity. Prevailing winds come from the northwest and west in the winter and from the south in the summer; however, these winds can be altered by hills, fences and plants. Wind patterns can be determined by attaching streamers to four-foot stakes. Set them in a grid pattern with each stake being 10 feet apart.

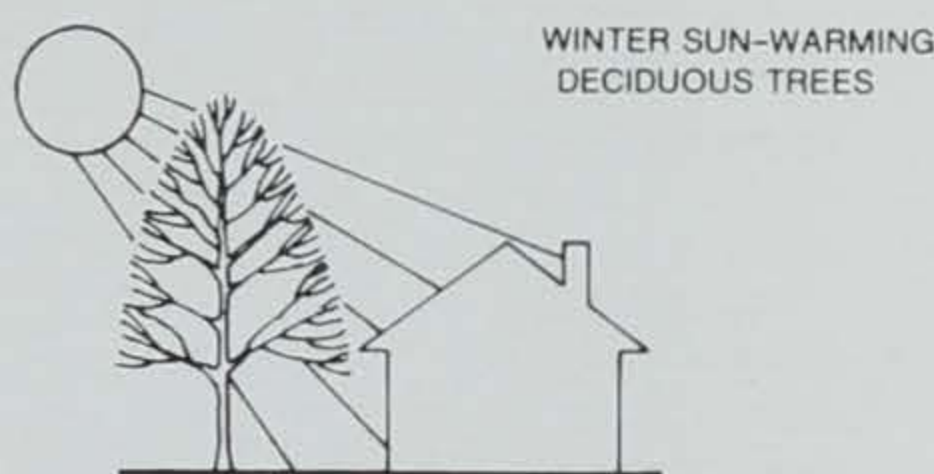
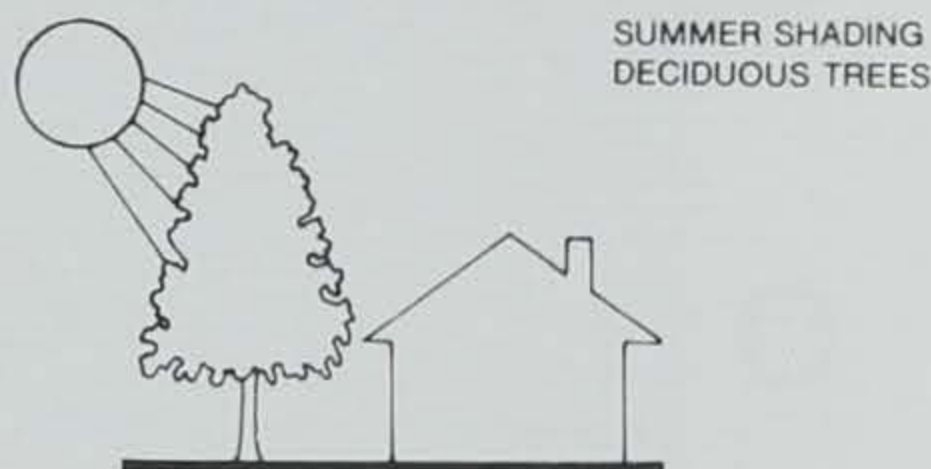
It is not necessary to plant trees or shrubs for energy-saving purposes on the east side of your home unless there is a large area of glass which could be heated by direct sun exposure. Planting on the east side should still be considered for aesthetic purposes.

A roof does not need to be completely shaded to achieve excellent results. A USDA study in Alabama showed that air conditioning costs could be reduced effectively as long as a roof averaged 20 percent or more of shade during the entire day. Another study showed that an 8°F difference between shaded and unshaded wall surfaces was equivalent to a 30 percent increase in insulating value for the shaded wall. These results will depend upon the amount of insulation within the walls and attic of your home.

For specific information on trees and shrubs for energy efficient landscaping in your area, contact your county extension service, local nursery or garden center.

Bill Farris is the department's state forester. He holds a B.S. degree in forestry from Iowa State. Farris has been with the department since 1961.

During winter, deciduous trees and shrubs shed their leaves, allowing the sun's rays to warm the house.



A windbreak on the northeast side of your home will help reduce heat loss in winter.

Unearthing Ancient Amphibians

By Robert McKay

Occasionally during a geologist's routine activity, unusual or rare discoveries are made. Such was the case in the spring of 1985 when another geologist, Pat McAdams, and I visited a small, inactive limestone quarry near the town of Delta in western Keokuk County. We discovered a layer of rock containing abundant fossil amphibian bones.

Fossils are the remains of ancient organisms, or traces of the activity of such organisms. The sedimentary rock sequence in Iowa is rich in fossils, containing literally trillions, and encountering them in the course of geologic work is quite common. The majority of these fossils are the shelly remains of invertebrates (animals without a backbone) which inhabited ancient seas. Less frequently found, although not uncommon, are fossil teeth, scales and bone from marine and terrestrial vertebrates such as fish, reptiles and mammals. Geologists study fossils and use their findings to interpret evolutionary relationships through time, aid in correlation of rock units from place to place, and to improve our understanding of the ancient environments in which the rocks were deposited.

Occasionally, geologists or amateur rock hounds discover exceedingly rare fossils which are previously unknown or which are known from only a few locations worldwide. These discoveries can greatly increase the scientific knowledge concerning the origin and evolution of certain animal groups and the environments in which they lived.

The discovery of fossil amphibian bone in Keokuk County ranks as one of these very rare fossil finds.

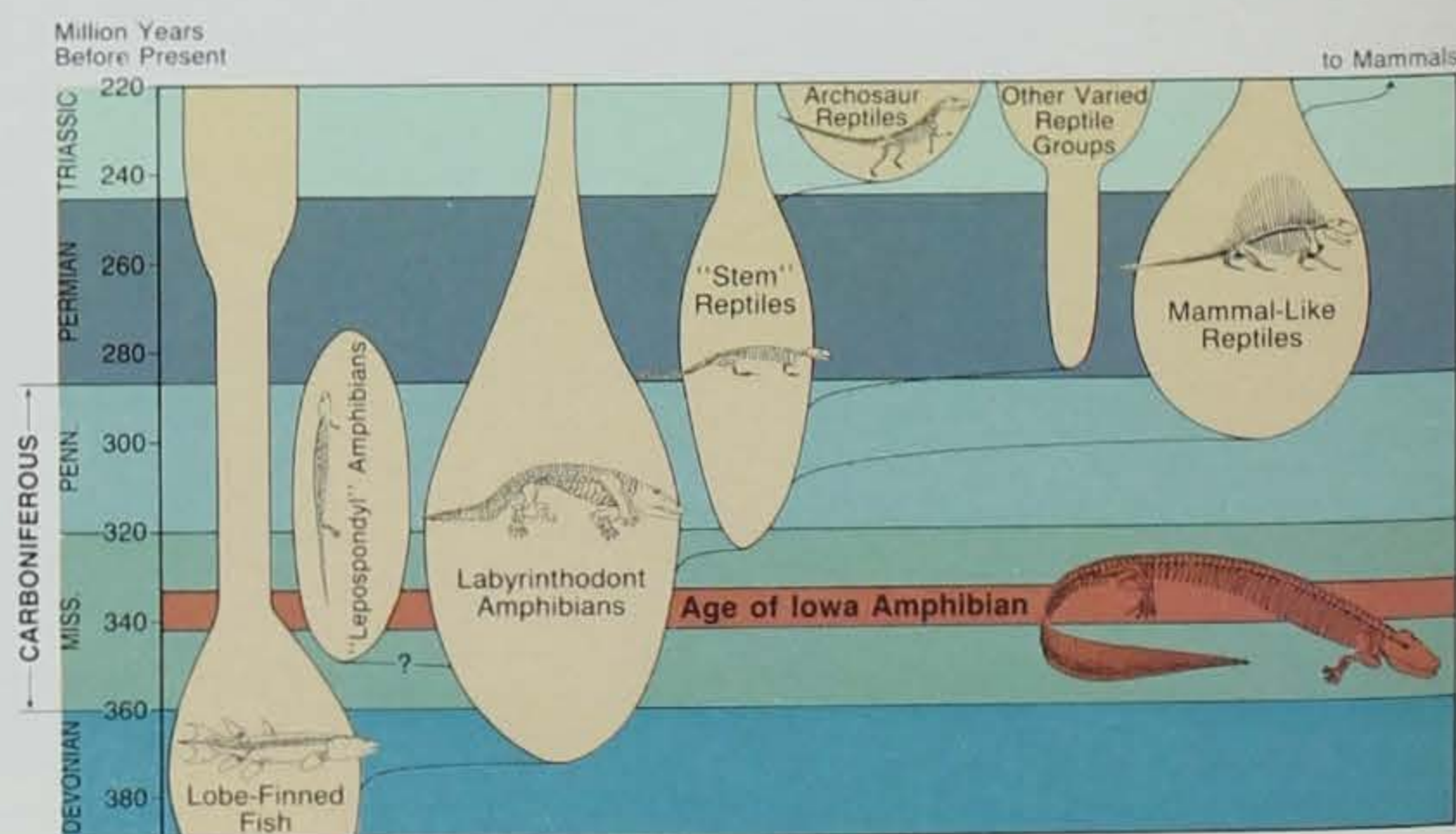
Amphibians are the most primitive and earliest known tetrapods (four-footed animals). They represent the earliest successful attempt by vertebrate animals to migrate from the aquatic realm and colonize the land.

They are also the basal stock from which all other land vertebrates, including reptiles, birds and mammals have evolved. But the transition from fish to tetrapod, as well as the early history and subsequent diversification of early tetrapods, is poorly represented in the fossil record and thus poorly understood.

The earliest tetrapods are known from a few specimens found in Upper Devonian-age rocks (about 370 million years old) in East Greenland. Within the next youngest rock series, the Mississippian (360 to 320 million years old), only about 20 fossil amphibian localities are known worldwide. Most of these are in Scotland, while only six are in North America. The fossil amphibian material from the Keokuk County site is of this age and is unique because the bones are abundant and well preserved, and also because they represent the oldest known tetrapods in North America and some of the oldest known in the world.

Soon after the discovery, plans were initiated to unearth the bone bed and collect fossil specimens. The state of Iowa leased a portion of the inactive quarry, and a team of scientists was assembled for the planned excavation. Dr. John Bolt, Curator of Fossil Amphibians and Reptiles at the Field Museum of Natural History in Chicago, was enlisted to lead the project. With partial funding from the National Geographic Society, excavation of the bone bed began on June 10, 1986, and continued throughout the summer, ending on September 5.

The bone bed, 20 inches thick, was partially exposed in the quarry wall in the middle of a bowl-shaped limestone and shale-filled depression. A backhoe was employed early in the excavation to strip off approximately 10 feet of rock which covered the bone-rich layer. Once down to the bone bed, a crew of six geologists using rock hammers, trowels, knives, brushes and dental picks



The Iowa discovery will add significantly to the understanding of evolutionary relationships of early land-dwelling amphibians and reptiles.



carefully uncovered and removed hundreds of specimens during the summer-long excavation. The bones were embedded in limestone conglomerate and shale; many were fractured and needed to be coated with glue before removal.

The collection, which is undergoing further laboratory preparation and study at the Field Museum, includes head and body remains of extinct amphibians of the subclass Labyrinthodontia and variety of fossil fish remains. At least two groups of labyrinthodonts, colosteids and anthracosaurs are represented. These early amphibians superficially resembled salamanders in shape and body form, except that they were much larger, attaining lengths of three feet or more. They possessed large, toothed jaws and were voracious predators whose diet probably consisted mainly of fish. Geologic study of the enclosing and surrounding rock strata has demonstrated that the amphibians lived in shallow, fresh to brackish water ponds or lakes occupying lowlands in a subtropical climate. These nonmarine environments of deposition were apparently widespread through western Keokuk

County 335 million years ago.

Lakes and waterways on the landscape at that time served as habitat for the giant amphibians and the fish upon which they fed. Scattered depressions within this landscape, such as that preserved at the Delta Site, served as sites where skeletons and bones were deposited, concentrated, buried and preserved from the destructive effects of weathering and decay.

The 1986 excavation was a great success and removed approximately half of the main bone bed. Further

excavation is anticipated during the summer of 1988. The Delta Fossil Amphibian Site has become one of the premier fossil localities in Iowa and North America, and has the potential to fill significant gaps in our knowledge of early land-living vertebrates and their evolution. It truly promises to be an unusually revealing "window to the past."

Robert McKay is a geologist for the department's geological survey. He holds an M.S. degree in geology from the University of Iowa.



Robert McKay

Abundant Mississippian-age amphibian and fish fossils were discovered in 1985 within this bowl-shaped limestone and shale-filled depression (above) exposed in a quarry near Delta, Keokuk County.

View of a partial amphibian skeleton showing vertebrae and attached ribs.

Volunteers from the Kellogg Garden Club collect prairie seed to be used for planting additional prairies.

Mark Wagner



Volunteering - An Aid to Iowa's Resources

By Mark Wagner

Many of our people have a deep interest and love for nature. They like to be outdoors enjoying the variety and color of wildflowers, catching a glimpse at Iowa's wildlife, or relaxing during a quiet afternoon of fishing.

As a naturalist with the Jasper County Conservation Board, I often meet people who are interested in putting their love of the outdoors into action. These volunteers for conservation have helped tremendously throughout the years in county and state conservation projects across the state. In Jasper County, many of these dedicated and hard-working volunteers have helped to make Jasper County a better place to live for people and for wildlife.

Members of Boy Scouts, Girl Scouts, and Campfire groups have constructed and placed bluebird houses in many Jasper County parks, while two local high school biology classes have donated more than 75 bluebird and kestrel nesting boxes. Thanks to the work of these volunteers, bluebirds visit and nest in many of our parks and natural areas.

The Izaak Walton League in Jasper County purchased a tree planter and loans it to county residents at no charge. Ikes members have been active in planting trees and shrubs for wildlife, and they helped to establish fish habitat at Rock Creek State

Park after the lake was renovated. Members of the Izaak Walton League also purchased and donated seven 22-caliber rifles for use in hunter safety classes and youth activities. Thanks to the Ikes, wildlife in Jasper County have a place to live, and young people learn about conservation ethics and safety.

Ashton Wildwood Park boasts an astronomy observatory, donated by members of the Des Moines Astronomical Society. By donating their time and equipment, the astronomers have helped sponsor numerous public observing programs, to the delight of hundred of visitors.

Some landowners in Baxter donated part of their land to enable the new Chichauqua Valley Recreation Trail to travel through the heart of their town. A trail access and picnic area were also constructed with donations received from the generous town of Baxter, enabling people from all over to enjoy the trail.

Volunteers with the Retired Senior Volunteer Program (RSVP) have helped with a number of mailings and newsletters. These volunteers have helped to promote conservation awareness to thousands of Jasper County residents.

Youth and adult organizations of all kinds, as well as school classes, have helped to transplant wildflow-

ers and collect prairie seeds. These seeds and transplants have improved the beauty and habitat value of many areas managed by the county conservation board.

Other volunteers have helped as hunter safety instructors, as conservation education workshop facilitators, and as workers helping with conservation projects. Some special people have even bequeathed their land to conservation organizations.

There is a lot of conservation work to be done in Iowa. Staffs with state and county conservation organizations work hard to establish and protect areas that are rich in wildlife and plants. However, much of the work for conservation has been done by volunteers who are genuinely interested in the natural treasures of Iowa. These volunteers for conservation are very special people.

If you'd like to donate some of your time or resources for conservation, contact your county conservation board, soil conservation district, extension service, or Iowa Department of Natural Resources field personnel.

Mark Wagner is a naturalist with the Jasper County Conservation Board. He has a B.S. degree in fisheries and wildlife biology from Iowa State. He has worked in the conservation field for 12 years.

It was July 1945. Dust rolled away on the hot, humid wind as an automobile pulled to the side of a rural lane in Cherokee County, Iowa. A 61-year-old woman emerged from the car and gazed at the expanse of flower-spangled green land stretching from her feet to the horizon. Excitedly, she waded into the tall grass, stopping frequently to examine plants and carefully record their identity. After lingering briefly over a stunning purple sweep of blazing stars, she reminded herself of the need to visit and evaluate several other tracts of native prairie that day. Motivated by a sense of urgency, she returned to her car and raised another cloud of dust as she headed toward Larrabee.

Later, back in her office at Iowa State University, Dr. Ada Hayden would report to the Conservation Committee of the Iowa Academy of Science of her visit to the land now known as Steele Prairie, writing, "Cherokee No. 2: A fine example of true prairie. A rich flora in excellent condition exists here. In midsummer an abundance of blazing star (*Liatris*) of several species were in bloom. It is a very colorful example of a rare and vanishing flora. It is an ideal tract for a scientific preserve."

Although Dr. Hayden's recommendations in 1946 for acquiring several other potential prairie preserves were acted upon, including Cayler Prairie, Kalsow Prairie, Freda Haffner Kettlehole, and Hayden Prairie

(named in her honor), the prairie she called "Cherokee No. 2" faded from attention until 1972 when it was drawn to the attention of Iowa State University professor Dr. Roger Landers by Lynn Brabard, one of his students who lived in Cherokee County. Unfortunately, the prairie which was 360 acres in size when Ada Hayden saw it in 1945 had been recently reduced to 200 acres. Dr. Landers, then president of the Iowa Chapter of The Nature Conservancy, immediately recognized the outstanding natural significance of the "rediscovery" and urged the Steele family to preserve the remaining acres. However, movement toward formal protection of the prairie proceeded very slowly until 1986 when the Steele family consented to sell it to The Nature Conservancy and the Iowa Department of Natural Resources. During Prairie Heritage Week, September 6-12, 1987, Steele Prairie will be dedicated as the newest member of the state preserve system.

Steele Prairie is a landscape of broad, well-drained uplands separated by shallow swales. It is located at the headwaters of Gray Creek which flows southeast toward the Little Sioux River, about 10 miles downstream. Topography is gently rolling with relief of less than 30 feet between upland crests and swale bottoms. Several feet of loess (wind-deposited silt) cover glacial till on the uplands while silty alluvium fills the swales. Soils of Steele Prairie are of

two general groups, reflecting their development in different topographic environments — well-drained upland soils and more poorly-drained swale soils. The well-drained upland soils are "prime agricultural land" because of the ease with which they can be tilled and farmed; this fact helps to explain why native prairies are extremely rare in Iowa and further testifies as to the conservation resolve of the Steele family to refrain from plowing the remnant during the agricultural boom of the late 1970s and depression of the 1980s.

There are also two major plant communities in Steele Prairie — mesic or dry prairie on the uplands dominated by big bluestem, prairie dropseed and many colorful wildflowers, and wet prairie in the swales dominated by sedges, blue-joint grass and cordgrass.

The transfer of Steele Prairie from voluntary, private protection by the Steele family to mandated, public protection as a state preserve by the Iowa Department of Natural Resources is being made possible by a cost-sharing agreement between the state and The Iowa Nature Conservancy, a private conservation organization. Under the "natural diversity" component of the Iowa Plan for spending lottery funds, the state of Iowa will pay for half the cost of approved land acquisition projects — the other half must come from a

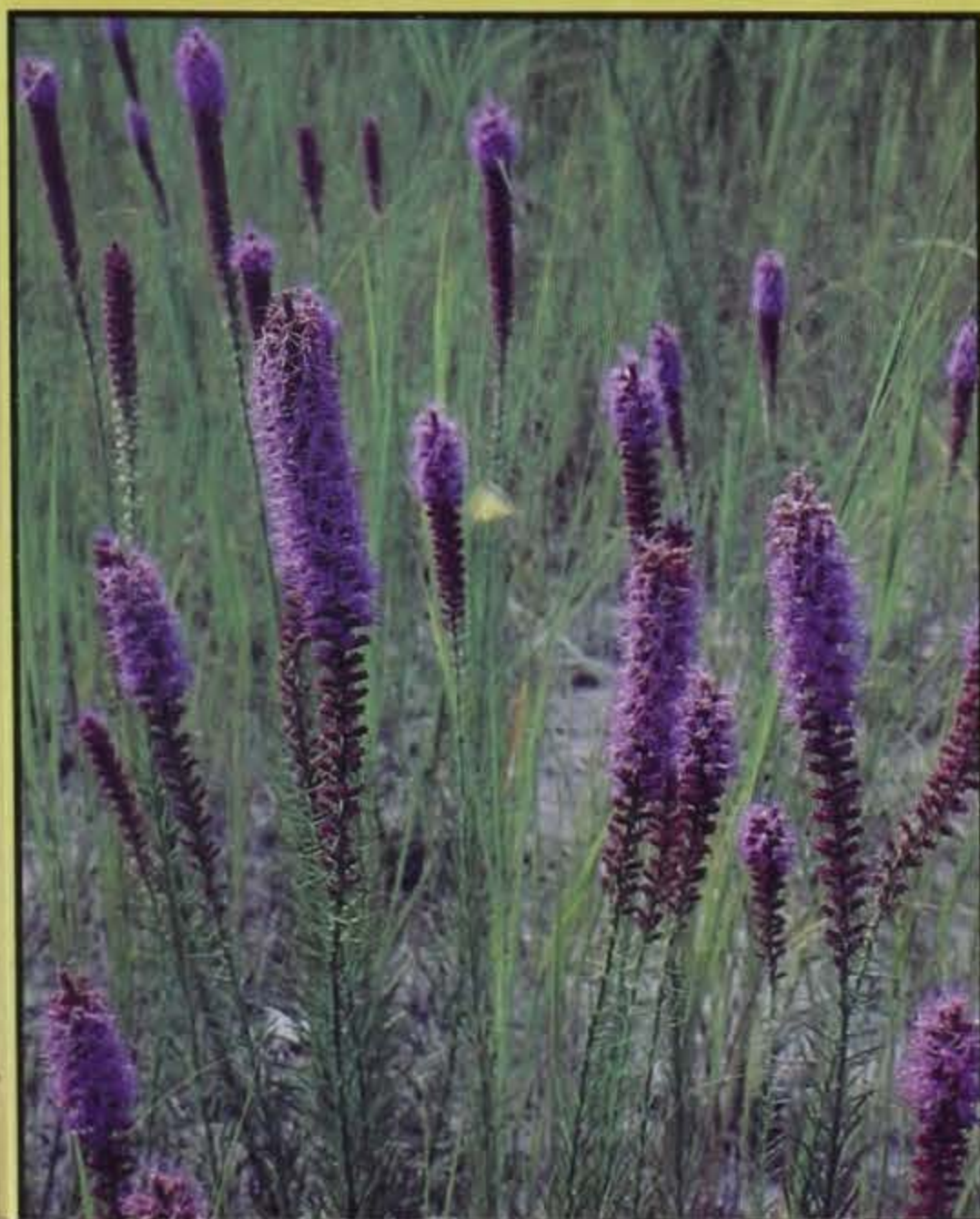
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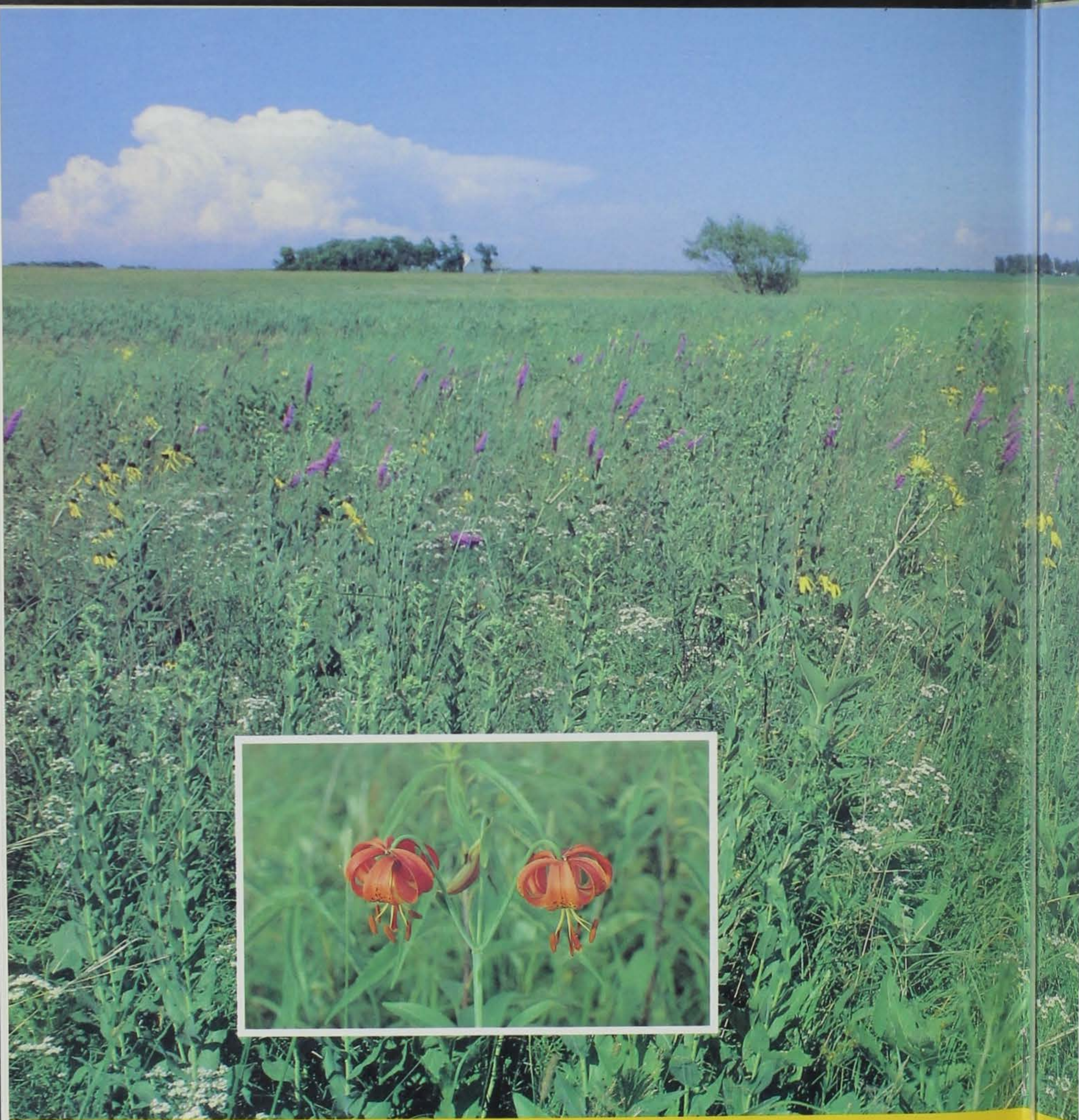
STEELE PRAIRIE

A Rare Flora Preserved

By John Pearson and Ethen Perkins

Prairie blazing star

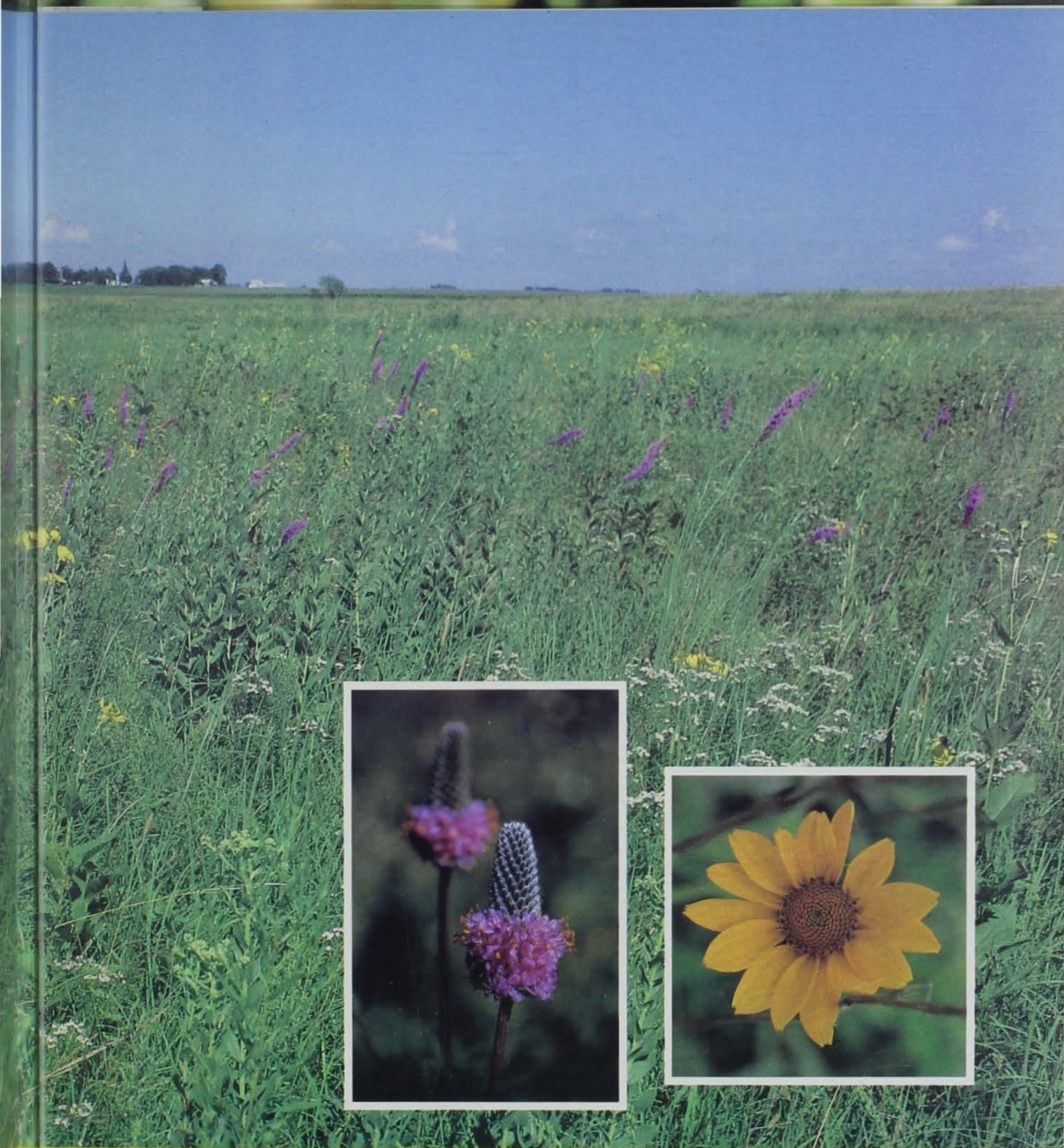




*State Preserves Advisory Board
Department of Natural Resources
The Nature Conservancy
Iowa Academy of Science
Cherokee County Conservation Board*

PRAIRIE HERITAGE

September 6-12



RTAGE WEEK

ber 6-12, 1987

Steele Prairie by Wayne Schennum

Inset photos (l. to r.) Turk's cap by Roger Sparks, prairie clover by Doug Harr and tickseed by Ron Johnson.

continued from page 15

private source. As the interim titleholder, The Nature Conservancy has committed itself to raising the private funds needed to complete the Steele Prairie project and is actively seeking donations. For the permanent protection of Steele Prairie to become a reality, it is essential that conservation-minded individuals and organizations contribute to the Conservancy's effort. Donations should be sent to: Steele Prairie Campaign, The Nature Conservancy, 424 Tenth Street, Suite 311, Des Moines, Iowa 50309.

Successive generations of the Steele family managed their unique land as a native grass hayfield by mowing it each year in late August—a practice which served to preclude

its conversion to cropland and also maintained it in a healthy condition, free from excessive accumulation of mulch. Beginning in 1981, prescribed fire was used as a management tool. Burning will play a major role in the maintenance and enhancement of Steele Prairie in the future, carefully planned as to the size, location and timing of burns. A detailed management plan has been developed by the Iowa Department of Natural Resources in conjunction with The Nature Conservancy, the Cherokee County Conservation Board, and other advisors. Although Steele Prairie will ultimately be owned by the Department of Natural Resources, assuming a successful fund drive by The Nature Conservancy, responsibility for managing

the prairie will be delegated to the Cherokee County Conservation Board.

It has been 42 years since Ada Hayden first identified Steele Prairie as a desirable conservation project. She would surely be pleased to know that Cherokee No. 2 is on its way to becoming the scientific preserve of her vision.

John Pearson is a plant ecologist with the DNR bureau of preserves and ecological services. He holds a Ph.D. in botany from the University of Wyoming.

Ethen Perkins is the stewardship director for the Iowa Field Office of The Nature Conservancy. He holds a Ph.D. in botany from the University of British Columbia.

CALENDAR

August – September 1987

August 1	Senior's Day	Hickory Hills Park Black Hawk County 319/277-2187	August 15	Reptiles and Amphibians Display 4:00 to 7:00 p.m. Slide Presentation at 9:00 p.m.	Jester Park Polk County 515/999-2559	August 29	Mississippi River Revival	Spruce Creek Park Jackson County 319/652-3783				
August 1	Kids' Fishing Clinic 9:00 - 11:00 a.m. & 1:00 - 3:00 p.m.	Pollmiller Park Lee County 319/463-7673	August 15, 16	Archery Shoot 8:00 a.m. to noon	Hickory Hills Park Black Hawk County 319/296-1795	August 30	Mississippi River Revival Music Fest 2:00 to 6:00 p.m.	Spruce Creek Park Jackson County 319/652-3783				
August 1	Pioneer Folk Music 7:30 p.m.	Spruce Creek Park Jackson County 319/652-3783	August 16	Art Alive! 1:00 to 5:00 p.m.	Lake Cornelia Park Wright County 515/532-3185	September 6-12	Prairie Heritage Week					
August 1-4	Palo Alto County Fair	Fairgrounds Emmetsburg 712/837-4866	August 16	Five Ridge Trek 2:00 to 6:00 p.m.	Five Ridge Prairie Preserve Plymouth County 712/947-4270	September 11, 12, 13	Festival of the Forest	Pioneer Park Page County				
August 1, 8, 15, 22, 29	Ashton Observatory One-half hour after sunset	Ashton Wildwood Park Jasper County 515/792-9780	August 20, 21, 22	Hunter Safety	Swan Lake State Park Carroll County 712/792-4614	September 12	Steel Shot Workshop	Big Hollow Recreation Area Des Moines County 319/523-8381				
August 2	Grassland Glory 2:00 p.m.	Indian Creek Nature Center 319/362-0664	August 21, 22, 23	Iowa Game Fair	Black Hawk Park Black Hawk County 319/266-6813	September 12 and 13	Iowa Trappers Association Fall Convention	Southern Iowa Fairgrounds Oskaloosa 515/932-7574				
August 3	Prairie Seasons Walk 6:30 - 7:30 p.m.	Marshall County 515/752-3150	August 21, 22, 23	Country & Old Time Music Festival	Marion County Park Knoxville 515/828-2214	September 26 and 27	Ft. Atkinson Rendezvous	Ft. Atkinson 515/281-5629				
August 6	Bike Ride 7:00 to 8:30 p.m.	Hartman Reserve Nature Center Cedar Valley Nature Trail 319/277-2187	August 21	Friday Night at the Movies 9:00 p.m.	Lake Cornelia Park Wright County 515/532-3185	August						
August 7	Friday Night at the Movies 9:15 p.m.	Lake Cornelia Park Wright County 515/532-3185	August 21-22	Hunter Safety Workshop Must Pre-register	Izaak Walton League Clubhouse Indianola 515/961-6169	S	M	T	W	T	F	S
August 8	Full Moon Walk 8:30 to 9:30 p.m.	Marshall County 515/752-3150	August 22	Prairie Trek 10:00 to 11:00 a.m.	Rolling Thunder Prairie Warren County 515/961-6169	2	3	4	5	6	7	8
August 8	Swan Lake Fun Day	Swan Lake State Park Carroll County 712/792-4614	August 22	DU Green Wing Day 9:00 a.m. to 3:30 p.m.	Black Hawk Park Black Hawk County 319/277-5999	9	10	11	12	13	14	15
August 9 and 23 September 6	Wagamon Mill Tour 2:00 to 4:30 p.m.	Jasper County 515/792-9780	August 22	Star Walk 8:30 p.m.	Hillview Park Plymouth County 712/947-4270	16	17	18	19	20	21	22
August 14	Slide Presentation "Reptiles and Amphibians" 9:00 p.m.	Yellow Banks Park Polk County 515/266-1563	August 23	Mixed Best Shot Entry Fee — \$15	Briggs Woods Golf Course Hamilton County 515/832-1994	23	24	25	26	27	28	29
August 14	Another Night with the Stars 8:30 p.m.	Black Hawk Wildlife Area Jackson County 319/652-3783	August 29	Astronomy Tonight	Swan Lake State Park Carroll County 712/792-4614	30	31					
August 15	Reptiles and Amphibians Display 9:00 a.m. to Noon	Yellow Banks Park Polk County 515/266-1563				September						
August 15	Bowhunting Films and Speaker 6:00 to 9:00 p.m.	Hickory Hills Park Black Hawk County 319/296-1795				S	M	T	W	T	F	S
								1	2	3	4	5
						6	7	8	9	10	11	12
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						20	21	22	23	24	25	26
						27	28	29	30			

WARDEN'S DIARY

By Jerry Hoilien

Feature, if you will, Bill Fuchs, Miles Camery, Howard Lovrien, Swede Lindval, Wayne Sanders and myself in the marsh hunting ducks on the ol' Missouri River. What a sight! If you recognize the names, you've been around more than a few years. They are mostly former Iowa wardens who had gone "federal" many years ago. They had left the old Iowa Conservation Commission to work for the U.S. Fish and Wildlife Service as federal game wardens. Most of them have been in charge of various states directing federal fish and game law enforcement on waterfowl and endangered species. They worked the important stations checking falconry and exotic species coming from all over the world. Most of these men are retired now, some still hanging in there, working for Ducks Unlimited or similar organizations. They represent a lot of years of experience and expertise.

They had asked me to join them in their annual get-together to duck hunt. I was both pleased and honored. It was great to visit with them after all the years, and the evenings were full of "war-stories" and old memories, some serious and some humorous. Lots of talk of the "old days" back in Iowa and all the changes that have taken place — how the warden's job has changed so dramatically, with lots of comments, both pro and con. There was a great deal of interest in the new publication called the International Game Warden, a quarterly magazine published by Don Hastings of Box 595, Edwardsville, Illinois 62025. Stories by, for and of game wardens from all over the U.S., Canada, Africa, etc. A fine publication.

No doubt about it, we had a great time! Duck and goose stories galore. Some pretty wild ones, too; and so it went, on into the night.

We didn't start out very early the next morning. The coffee was on way before daylight — but we had to have an extra cup of coffee or two to wash down Swede's oatmeal and raisins.

Bill and I took his old Gruman

sportboat (seems to be a favorite of retired wardens) out to the hunting area and picked out a good-looking spot. Not another group of hunters in sight — great!

The weather was beautiful. The next Gruman came in and helped us put out the decoys. Believe me, there was lots of discussion as to how and where to put them. I guess they humored me — I got to direct the set-up. After all the work was done and redone, the last Gruman boatload pulled in.

"You guys do good work!" they smiled, chuckling to each other, having out-manuevered us into putting out all the decoys. "Where do you want us?"

"Right there!" I yelled, pointing to a nice stand of cattails just west of the decoys.

"Looks good!" they replied as their motor revved up and drove them hard, wedging them back in to be well hidden by the reeds and cattails. All ready to hunt!

"We'll go over here, Bill!" I pointed out some nice cover to the southwest. The other boat followed us in. Great set-up!

We hardly even had time to pour some coffee when a nice flock of mallards came winging-in. Everybody's

calling was superb, changing to low chuckles and feed calls as they swung right into the decoys, wings cupped and feet dropping. Bang, bang! Two shots rang out from the far boat, and two ducks folded from the flock, dropping dead in the decoys.

"Nice shooting, guys." I smiled as Bill's Chesapeake retrieved the two hen mallards. "Good hunt! You're done!" Hen mallards are a hundred points.

"You've got to be kidding," one yelled. "I would have sworn those were drakes!"

"Maybe they changed sex on the way down," a man in the third boat laughed.

One shooter looked at the other. "If I didn't know better, I would say we were set-up — we were looking into the sun!"

I yelled over, "Someone once said, you have to get up pretty early in the morning to fool an ol' game warden — especially two!"

Which ones got boxed in? I'll never tell — ask them! All kidding aside, it was one of the greatest few days I have ever had. Most special of all was the companionship and friendship. Once again, I was so privileged to hunt, walk and talk with "the finest people who walk out-of-doors!"



Jerry Hoilien



Today farmers are working with public and private agencies to put quality wildlife habitat back on their land.

By Richard Bishop

Not long ago, a serious competitive war was being waged by a variety of land users. Among these fierce competitors were farmers, agri businessmen, industrialists, sportsmen, preservationists, hobby farmers and general conservationists. Land prices were high and so were prices of agricultural commodities. Implement dealers, seed and chemical dealers, livestock people and other agri businessmen were prospering. Farming was a good business and Iowans leveraged themselves greatly to obtain additional land for agriculture. Many acres of land were converted from grassland, wetland and timberland into row crop or pasture land. Those who wanted to buy land to keep in permanent wildlife habitat for hunting, viewing or just preserving were met with stiff resistance and competitive bidding from those wanting more cropland. Likewise, companies or municipalities trying to buy land for industrial development, airports, schools and businesses faced opposition from local agricultural interests. The

often-used argument was "we can't afford to take anymore of our farm land out of agricultural production because we are being asked to feed the world."

Urban people wanting to get away from "city life," back to a more natural existence, were often spoken about in harsh terms for buying small farms or acreages in the country. It seemed like there was continual disagreement among the various factions on who should own the land and how the land should be managed.

Sportsmen and other conservationists often severely criticize the farmer for turning timber into pasture, draining wetlands, or plowing up previously uncultivated land for additional crop acres. In turn, farmers were not too supportive of people buying land for other than farming reasons. There was no doubt that, as most available land was turned into row crops, ecological diversity was reduced and upland game species like pheasant, quail and rabbits declined.

However, things soon changed.

Land Use D

The bottom dropped out of agriculture. Crop prices plummeted followed by plunging land prices. These dives impacted not only the farmer but most farm-related businesses — from implement dealers, seed and fertilizer companies to mainstream businesses on the town square.

While Iowans are still trying to achieve some stability in these chaotic times, and determine where Iowa needs to go in the future, some very important land use views are merging. This crisis has taught us, to coin an old phrase, "not to put all our eggs in one basket." We must achieve a somewhat diversified approach to business and land use. It is interesting to listen to people's views now as compared to 1979. Instead of competition, it seems to be one of compatibility. I read and hear that we need less land in row crop production to improve farm prices, that we need to protect highly erodible land from soil erosion for future generations, reduce silting of our lakes and rivers, plant more acres to trees, reduce chemicals in storage and groundwater supplies, provide more wildlife habitat, attract new industries to Iowa, and improve recreational opportunities. All of these views now seem to pull in the same general direction, and if they would ever join forces they could work for the betterment of the majority of Iowans.

It's not been all talk either. There are a few actions that have taken place in recent months that demonstrate the concern of the public. The Food Security Act of 1985 (1985 Farm Bill) has signaled a major effort by government to reduce supplies of feed grains and provide highly erodible land protection from erosion for ten years through the Conservation Reserve Program (CRP). Today, farmers have idled 1.4 million acres of cropland under this program. CRP objectives include better water quality in lakes and streams, increased habitat for wildlife, increased timber

e Diversity Benefits Many

planting and a reduction of hazardous chemicals in our water supply. This bill is a major step forward in addressing some of the most serious problems affecting Iowans. These lands taken out of production should reduce surplus commodities while at the same time reduce soil erosion, provide valuable wildlife habitat and improve other recreational opportunities.

The Iowa Legislature, among other things, took a major first step in passing the groundwater protection bill. It also passed bills to provide more trails for recreation, stated a desire to place 10 percent of state land in public ownership and obligated money from the state lottery fund for the purchase of ecologically important areas including the Loess Hills State Forest. This signals a concern by lawmakers to address the need to protect our natural resources and at the same time maintain our agricultural importance.

Farmers are working with the

Department of Natural Resources and Pheasants Forever to put quality wildlife habitat back on private land. The interest in this program has increased significantly in the past two years. Some people are seeing the economic value of pheasants and are promoting pheasant hunting around their community. Resident hunters spend about \$53 million annually in pursuit of their sport, while non-resident hunters bring about \$10 million into the Iowa economy each year. The farm bill will result in more pheasants and other wildlife which will benefit the sportsman and increase revenue in local communities.

Protection of wetlands, stream corridors and watersheds, not only improve water quality, but provide more ducks, fish, furbearing animals like the muskrat and mink and many non-game animals. It also keeps or takes these lands out of agricultural production which should benefit farm prices in the long run. Good

agricultural prices and improved recreational opportunities together would help entice industry into our productive state.

Other actions of business, farming and the Department of Natural Resources have a collective effect in addressing these major goals. The capping of agricultural drainage wells would help solve some of the groundwater pollution problem and could result in the restoration of valuable marshland if money is appropriated to purchase these lands from the impacted owners. Presently, revenue from the sale of Iowa Duck Stamps along with privately contributed funds of Ducks Unlimited, Pheasants Forever and Wetlands for Iowa, are being pooled to purchase some of these remaining wetlands and surrounding uplands. The problem with this program is far too few dollars exist to take advantage of the willingness of landowners to sell this type of land.

All of these changing attitudes are contributing to a healthier and more diversified Iowa with a spirit of cooperation rather than competition and hostility. The major step, still to be taken, is to coordinate the various legislative mandates, business desires and recreation interests into one concrete plan that provides dollars to achieve specific objectives that will directly or indirectly affect all Iowans. A strong commitment to protecting our natural resources is compatible with a good business atmosphere as well as a strong agricultural environment. We should not pass up this unique opportunity to benefit so many.

Richard Bishop is the wildlife bureau chief for the department. He holds a B.S. degree from Iowa State and an M.S. degree from the University of Arizona. He has been in wildlife research and management for 20 years.



Lois Washburn

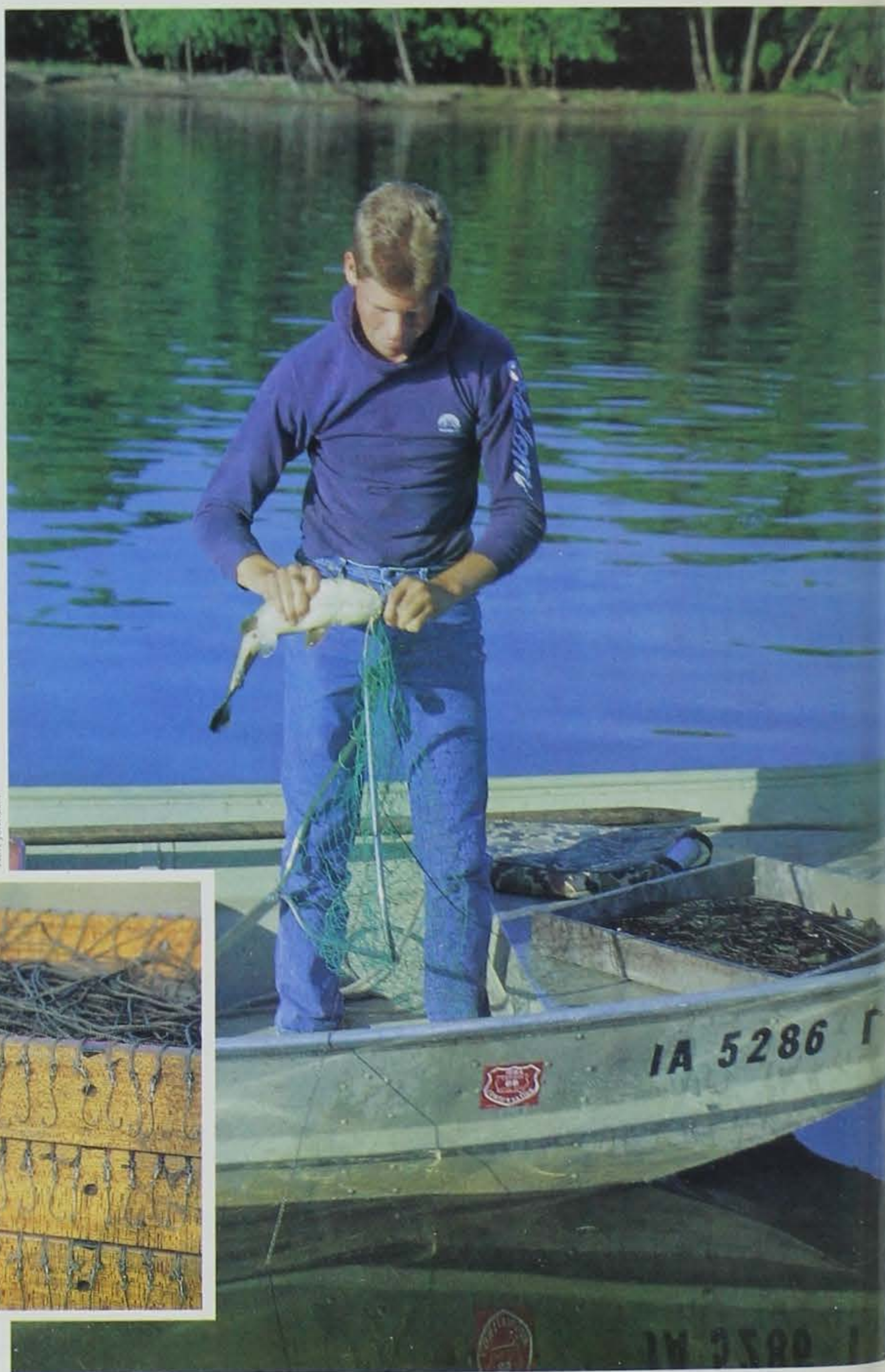
Fishing for Food and Fun

Trotlining Iowa's Border Rivers

By Gary Ackerman

With a little work, you can stock your freezer with an Iowa fish product that is inexpensive and superior in quality when compared with the expensive, pre-packaged, frozen fish available at your local grocery. Consider halibut steak at \$6.68 per pound, Canadian walleye fillets at \$5.99 per pound, breaded shrimp at \$5.98 per pound, and trout fillets at \$4.88 per pound. Pre-packaged fish is becoming excessively expensive, but you can do something about it. Why not try trotlines to catch your very own supply of fresh Iowa fish? Consider our abundant and excellent quality food fishes readily available in Iowa rivers. Combine a little bit of knowledge with lots of ambition, a meager investment in equipment, and you can take advantage of Iowa's bountiful supply of natural resources.

Iowans and non-residents may now purchase a special license called a sport trotline license to fish trotlines for food gathering pursuits in Iowa's boundary rivers. The areas open to sport trotlining are the Mississippi, Missouri and Big Sioux Rivers. Many tons of fine food fish are wasted or



Trotlines can catch a wide variety of food fish from our border rivers.

under-used every year in Iowa's major rivers. The application of this simple fishing gear is one way we can make better use of our under-used natural resources.

The license is inexpensive. A boundary water annual sport trotline license for resident fishermen costs \$10. For non-residents the fee is \$20. The license permits a person to use a maximum of four trotlines with a total of two hundred hooks. Your license can be purchased by submitting a license application to the License Bureau, Iowa Department of Natural Resources, Wallace Building, Des Moines, Iowa 50319. Pick up your license application form from any conservation officer or DNR field office.

Please remember you will be competing with commercial fishermen. Use good judgment and common sense when fishing trotlines. Rules governing the use of trotlines for fishing our boundary waters are similar for both sport and commercial fishermen, except sport anglers cannot sell their catches.

Trotliners can catch a wide variety of commercial food fish from our border rivers. Some of the more common species taken on trotlines are channel catfish, flathead catfish, freshwater drum, shovelnose sturgeon, carp and bullhead. There are no daily catch or possession limits for any of these species caught from border rivers.

You must identify your trotline by tagging them with a metal tag listing your name and address. It must be tied to the trotline above the waterline. A good source of metal address tags are trapping supply houses, or you can make your own with a metal engraving tool and some soft metal. A practical way of getting your identification tags above the waterline is by using stakes. Cut ten-foot sections from a straight-grained hardwood and round them off, or you can cut willows for stakes. Tie your identification tag near the top of the stake.

Fishing trotlines is hard work, but it is also fun. Here are some methods for fishing float and sink lines using the stake system:

Sink lines. Simply tie the beginning of your trotline near the bottom of the stake, sink the stake firmly into

the bottom near shore, then slowly and carefully lay out your trotline. Sink lines are generally more effective from early summer until fall. They are set over the bottom and are always more efficient when set in current habitats like the main channel border, side channels and in chutes.

Float lines. Use the same stake system, but use it at the end of your trotline. Simply tie the end of your trotline to the stake about two feet deeper than the depth of the water you are fishing. Tie the beginning of your trotline to a sturdy tree limb or something strong that is level with the water surface, then lay out your trotline to the end stake, pulling the entire trotline very tight. Then sink the stake firmly into the bottom. A float line must function like a "huge rubber band" to jerk back and set the hook whenever a fish strikes the bait. Float lines are most productive when the water begins to warm in early spring when the water stage is increasing. Float lines are most effective when fished in shallow backwater habitats. You will always be more effective in taking catfish by fishing your float lines adjacent to and parallel with shorelines of stump fields, fallen trees and along the edges of aquatic vegetation. You'll catch lunker channels prowling and feeding in these places at night in the spring.

Channel catfish are the prized catch for most trotliners. Channels will eat just about anything soft, smelly and organic. Here are some successfully used baits: white soap, soured or fresh clam meats, cheese, marshmallows, snails, elm tree seeds, grapes, leeches, frogs, crayfish, garden worms, nightcrawlers, catulpa worms, salamanders, many insects, most aquatic insect larvae, cut fish bait, minnows and small fish. Some important considerations when choosing bait are the availability of the bait, the kind of trotlines being fished, the time of year, and the water temperature. Always examine the stomach contents of your first channels to determine what food items they are eating.

Early spring fishing: The first food items channels begin feeding on are dead fish. Usually these are small gizzard shad which drift slowly along

the bottoms. Channel catfish gorge themselves on the most easily available items when the water temperature is cold, but they soon move into shallow backwaters as water temperatures and water flows increase. They then begin feeding more aggressively, and excellent catches of catfish are frequently taken at this time.

The application of this simple fishing gear is one way we can make better use of our under-used natural resources.

You can fish either float or sink lines. I prefer float lines when fishing in the shallow backwaters. Cut bait, small chunks about one-half inch square made from fillets of carpsucker or small chunks cut from chubs or suckers, are excellent choices of bait for spring channel cats. You might want to try dead minnows baited whole. A bit later, when nightcrawlers become available, they too are an excellent early-season bait. Cut them into two pieces, for one-half of a nightcrawler is enough bait to take a hungry channel. One minor problem with crawlers and minnows is that they are preyed upon by many game fish species, so don't be too surprised if you find your trotline stripped of bait with very few catfish hooked on it. Float lines are targets for thievery, so get up early in the morning and raise your trotlines at first light. This will eliminate the problem and will also eliminate potential conflicts with recreational boaters running into your lines.

Pre-spawning channels feed heavily up to the time they spawn, which is at a water temperature of 69°F. At this time, one of the finest channel catfish baits are the larvae of dragonflies. Dragonfly larvae begin metamorphosis a few degrees earlier than when channel catfish spawn, so one can walk along river banks early in the morning and pick up enormous amounts of these larvae. Keep them wet or they will metamorphose into adults. Then freeze them for later use.

Bullhead fishing can also be tremendous on trotlines in early spring. Float lines set in shallow backwaters or sink lines set across shallow mud

flats produce excellent catches as soon as the water first begins to warm. Nightcrawlers or garden worms are excellent bait. Cut-bait or dead minnows also produce bullheads. In the upper-most pools of the Mississippi River it is not unusual to take 15 or 20 bullheads in one night, off a 50-hook trotline.

Summer fishing: Trotlining in the month of June can be specialized for taking shovelnose sturgeon. Sink lines baited with garden worms, nightcrawlers, small crayfish or dragonfly larvae are excellent choices for fishing over shallow gravel and sandbars and frequently found along the main channel border.

Sturgeon often congregate in mass below confluences of the major tributary streams. These are often good places to set for sturgeon. Select a time when the water is raising slightly and first becoming turbid. Fish in relatively heavy current along the main channel border or in the main channel. Fishing along riprap and wing dams are often good places also. Once you locate congregations of feeding sturgeon, you will be amazed how easy they are to catch. Sturgeon are an excellent food fare when smoked, or try preparing them as you would lobster. A note of caution — if you hook a huge lake stur-

geon, please return it to the water unharmed as they are rare and protected by Iowa law.

Flathead catfish are an ever-present bonus fish often taken on trotlines. Most larger ones, even 50 pounds or more, are taken accidentally when they swallow other smaller fish caught on trotlines. Small channel catfish or freshwater drum are the usual victims. Some trotliners might want to fish specifically for flatheads. It takes special techniques, for these fish feed primarily on live baits. Some of the better baits are carp, bullhead, carpsucker, dogfish, bluegill, green sunfish, chubs and suckers. To keep the baits alive, set out one trotline at a time. Flathead, steaked and breaded in cornmeal and flour, then pan-fried are one of my favorites.

Late summer fishing: Late summer trotlining usually means sink line fishing. You will catch a wide variety of different kinds of fish on the bottom. Small crayfish are one of the very best baits, and will take a wide variety of fish. Channel catfish, freshwater drum, shovelnose sturgeon, carp and many others readily feed on crayfish. If I had but one bait to select, crayfish would be it. Other good summer and fall baits are dragonfly larvae, grasshoppers,

dried beef blood, leeches and night-crawlers.

One fine, but forgotten, food fish that is most abundant in the Mississippi River is the freshwater drum. They are very easily taken on trotlines. Sink lines baited with small crayfish, dragonfly larvae or night-crawlers are all good baits. Deeper, slow flowing, off-channel areas are good habitats to fish for drum. Probably the one great error most people make with drum is they don't take proper care of the fish when afield. They are a soft and easily spoiled fish, so one must take extra care to preserve them properly. Take an ice chest and cool them down immediately upon catch. Keep and fillet the smaller ones. They are super fine eating when breaded and deep-fried. Larger drum have a tendency to become fatty and strong tasting, and they freeze poorly. I would not recommend keeping drum larger than four pounds for eating.

Carp are another fine food fish. Trotlines are effective in catching them. Carp are selective bottom feeders, so sink lines are the better choice of gear. Late summer and fall are optimum times for carp fishing. They are more abundant in side channels, sloughs and along the main channel borders. Some of the better baits for carp are small crayfish, dragonfly larvae, canned sweet corn, doughballs and nightcrawlers. They are tough to land and they fight very hard, so carp can be fun to catch. They are best used for smoking or canning. I prefer larger, 10- to 20-pound carp as their flesh is firm, white and sweet. Or you might try baking a large carp. They are excellent, and one can economically feed a large group of people.

It is not going to be easy to stock your freezer by trotlining. It is hard work. However, you will be rewarded many times over with food and fun, for the fish you catch will be your reward.

Gary Ackerman is a fishery management biologist stationed at Guttenberg. He has worked for the Iowa Department of Natural Resources and the U.S. Bureau of Commercial Fisheries since 1964. He holds a B.S. degree from the University of Wisconsin - Madison.



Ron Johnson

Conservation Update

Deer Seasons Set

Officials of the Iowa Department of Natural Resources are predicting a record deer harvest during this fall's hunting season.

Any-sex license quotas have been increased by about 90 percent this year to stabilize or decrease the deer herd in most hunting zones. Nearly three out of four hunters will receive an any-sex license. With the good deer population available to the hunter this fall, officials expect to break last year's record high of 62,702 deer harvested.

The application period for the 1987 deer licenses is July 27 to Sept. 9. Any-sex license applications will continue to be accepted through Sept. 9, but applications received between Sept. 10 and Oct. 31 will be buck-only licenses.

A random drawing will be held for each zone and season combination to determine the recipients of any-sex deer licenses. Enclosing the priority certificate from the back of last year's bucks-only license will give the applicant an advantage in this year's drawing.

Archery hunters will have two choices of seasons this year. The first season will be from Oct. 1 to Dec. 4, and the second season from Dec. 21, 1987, to Jan. 10, 1988.

The first shotgun season will be held Dec. 5-9 and the second season Dec. 12-20. Muzzleloader hunters will have two special seasons this year to choose from. The first will be held from Oct. 10-18 and will be limited to 3,000 any-sex licenses. The second season will be from Dec. 21, 1987, to Jan. 10, 1988, and will be an unlimited number of licenses. Shooting hours for all seasons will remain the same as the previous year, sunrise to sunset for shotgun seasons, and one-half hour before sunrise to one-half hour after sunset for archery and muzzleloader.

All eligible landowner-tenants will be issued a free any-sex license. Eligible landowner-tenants must reside on their farm unit, may only hunt on their own land, and are entitled to only one license. Hunters who obtain an archery license and a shotgun license or an archery and a special muzzleloader license are entitled to harvest one deer on each license.

License fees will remain the same as last year at \$20 each. Applications may be obtained from local county recorder offices, sporting goods stores, or by writing to the Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

The any-sex quotas for paid shotgun hunters this fall:

Zone	Season 1	Season 2
1	800	1,600
2	800	1,600
3	1,000	2,000
4	4,000	8,000
5	3,500	7,000
6	2,900	5,800
7	1,675	3,350
8	2,000	4,000
9	3,500	7,000
10	1,500	3,000

1986 RECORD YEAR FOR DEER HARVEST

Hunters recorded another record deer harvest in 1986 with an estimated 62,702 deer taken. This figure represents a 43 percent increase from 1985 when 44,219 deer were taken. An estimated 51,730 deer were taken by shotgun hunters, 9,895 by archers, and 1,077 by muzzleloader hunters.

Higher hunter numbers, excellent weather during the season, a high fall deer population and higher any-sex license quotas were responsible for the increase.

Shotgun licenses issued were up 12 percent from 1985 with 84,858 paid and 25,432 free licenses issued. Archery licenses represented an increase of 16

percent with 26,521 licenses issued. A total of 4,219 muzzleloader licenses were issued as compared to 1,522 licenses issued in 1985.

Deer harvest increased in 1986 due to increased any-sex licenses issued and higher hunter numbers. Shotgun hunters reported a total of 19,580 does harvested, a 65 percent increase from 1985. An additional 2,775 does were harvested by archers and 412 by late season muzzleloaders.

The traffic mortality rate increased as 7,225 deer were reported killed in traffic accidents, as compared to 5,925 in 1985. Fifty-five percent of the traffic kills were does.



**Safety education
is for everyone**



James Lawson, park ranger for Lake Wapello State Park, was named state park employee of the year for 1986. Lawson, who's been with the department since 1984, was the third park employee to receive the award since the program began three years ago.

CLASSROOM CORNER

By Robert P. Rye

Raccoons are frequently discussed during classes at the Conservation Education Center. The number one comment concerns the animal being present around campers and/or garbage cans. The animals prefer to eat what is the easiest to obtain. Look around where you live. What animals are there? Why are they there? Is it because there is an easy source of food? shelter? or a place to live?

An additional way to test your skills on the knowledge of raccoons is with the following true/false questions.

1. Raccoons are believed to be more closely related to pandas than other animals.
2. Raccoons have a name that is American Indian in origin.
3. Raccoons are limited to foods found along streams and lakes.
4. Man (especially in automobiles) and dogs are the raccoons' most important predator.
5. Raccoons are as equally at home on the ground as in trees.
6. Raccoons are common in many different habitats of our state.
7. Raccoons are true hibernators.
8. Raccoons have five toes on each foot and nonretractable claws that leave flat-footed tracks.
9. Raccoons are easily identified by their mask and their black tail rings.
10. Raccoons are active both day and night.

Answers:

1. True; 2. True; 3. False (they are omnivorous and eat anything); 4. True; 5. True; 6. True; 7. False (they will become active when weather improves); 8. True; 9. True; 10. False (they are active only at night).

Donations

Morris Foods and Seeds Indianola	\$150 worth of assorted flower bulbs for Lake Ahquah State Park
Larson Manufacturing Lake Mills	\$150 worth of utility poles for playground construction at Pilot Knob State Park
Council Bluffs Jaycees Council Bluffs	\$220 for picnic table materials for Lake Manawa State Park
Laverney and Lettie Huenke Bellevue	Materials for butterfly garden at Bellevue State Park, valued at \$75
Glenn Jackson Council Bluffs	Clock for the park office at Backbone State Park, valued at \$90
Bob Allen Des Moines	Hunting coat for state park employee of the year award, valued at \$299
Flatt's Nursery, Inc. Waterloo	Assorted evergreens for park landscaping at George Wyth State Park, valued at \$3,500
Shirley AG Service Percival	Materials for wildlife management at Waubesa State Park, valued at \$87
Ben Fortune Anamosa	Wood duck houses for Wapsipicon State Park, valued at \$200
Marion Exhibition Hall and Trade Center Marion	Use of floor space at park user permit exhibition booth, valued at \$250
Hill and Williams Truck Line Marion	Truck rims for fireplace construction at Wapsipicon State Park, valued at \$300
Exlens Standard Anamosa	Use of end loader for river access maintenance at Wapsipicon State Park, valued at \$120
Anonymous	Copy paper for interpretive center at Bellevue State Park, valued at \$100
Anonymous	Use of plow for wildlife management, valued at \$120
Dean Greiner Brighton Scott McAllister Mount Pleasant	Seed corn for wildlife management, valued at \$65
Futura Farmers of America Ventura	Materials for picnic table construction at McIntosh Woods State Park, valued at \$183
Anonymous	Wild birdseed for Elk Rock State Park, valued at \$119
Rick's Phillips 66 Grinnell	Car rims for fireplace construction at Rock Creek State Park, valued at \$70
Meisner's Electric Newton	Lights, fence, pipe and scrap metal for Rock Creek State Park, valued at \$768
Agri Equipment Grinnell	Wire mesh panels for fireplace construction at Rock Creek State Park, valued at \$100
Anonymous	Use of tractor for road maintenance at Black Hawk State Park, valued at \$60
Anonymous	Wood chips for trails and butterfly garden at Bellevue State Park, valued at \$600
Anonymous	Sinks for ranger residence at Backbone State Park, valued at \$300

NEW STATEWIDE STEEL SHOT RULE

All waterfowl hunters are now required to use steel shot throughout the state when hunting migratory game birds other than woodcock.

This law applies to all lands and waters under the jurisdiction of the Department of Natural Resources, the U.S. government, or any county con-

Federal Duck Stamp Increases to \$10

The federal migratory bird hunting and conservation stamp, commonly referred to as the federal duck stamp, will cost \$10 this year compared to \$7.50 in recent years.

The increase went into effect July 1, 1987, with issuance of the 1987-88 stamp featuring a trio of redheads flying low over a backwater marsh, as designed by Arthur G. Anderson of Onalaska, Wisconsin.

All waterfowl hunters 16 years of age and older are required to purchase a duck stamp each year. Proceeds from duck stamp sales are used to acquire vital wetland habitat for addition to the national wildlife refuge system.

Since the program began in 1934, over \$300 million has been used to purchase more than 3.5 million acres of wetland habitat.

The rise in price is due to a major provision contained in the Emergency Wetlands Resources Act of 1986 passed by congress in an attempt to stop the continuing loss of wetlands. The Act also calls for raising the duck stamp price to \$12.50 in 1989-90 and to \$15 for 1991 and subsequent years.

servation board as well as private lands.

Private land exceptions are no longer valid when hunting waterfowl. Previous exceptions had included certain farm ponds less than two acres and streams less than 25 feet in width when located at least 150 years from larger water areas.

INTERESTS OF WOMEN HUNTERS TO BE EXAMINED

The Iowa Department of Natural Resources is hoping to learn more about the motivation and interests of female hunters within the state. A survey of women hunters is underway, conducted by Karen Craft, a biologist in the wildlife research section. A sample of women hunters selected from each county will be contacted by telephone and mailed a survey questionnaire within the next two months.

A similar survey has been initiated in other midwest states which will shed light on the reasons women hunt, the aspects of the sport that are most important to them, factors influencing their development as a hunter, and the types of hunting they most enjoy.

Hunting is an important

form of outdoor recreation for many Iowans. In 1986 approximately 205,000 residents bought a license to hunt within the state. Of roughly 85,000 paid deer licensees, between four and five percent were women. Women also enjoy small game, upland bird, waterfowl and turkey hunting within our state.

Knowledge of hunter characteristics (both men and women) can be used to further hunter education and the management of Iowa's game species. To date, little is known about the motivation and ethics of female hunters and how they compare to characteristics of males. The survey should provide some interesting results, and is hoped to stimulate further interest in the sport by women recreationists.

SEWAGE TREATMENT PLANTS RECOGNIZED FOR EXCELLENCE

Municipal sewage treatment plants located in Cedar Rapids and Storm Lake have been recognized by the U.S. Environmental Protection Agency (EPA) for excellence in operation and maintenance.

The EPA's Regional Operations and Maintenance Excellence Awards were given to six plants located in the region's four states of Iowa, Missouri, Kansas and Nebraska.

Cedar Rapids' treatment facility was chosen as the best operated and maintained plant in the category of "Advanced Treatment of More Than 10 Million Gallons A Day (MGD)." The facility goes

beyond minimum federal requirements for treatment and is necessary to protect the water quality of the Cedar River. The treatment plant at Storm Lake was selected in the category of "Advanced Treatment of 1-10 Million Gallons A Day." The plant abates a previously common polluted condition in the Storm Lake outlet and the North Raccoon River. Several major fish kills and poor water quality are on record in prior years.

Iowa's two plants are also in competition for EPA's national awards program to be announced in October.

Department Takes On New Design

One year has passed since the Iowa Conservation Commission, Department of Water, Air and Waste Management, Iowa Geological Survey, and Energy Policy Council joined forces to become the Iowa Department of Natural Resources. A concerted effort to successfully unite these agencies into one entity has been reinforced again and again by the common beliefs in fostering the preservation of our state's natural resources. Mutual understanding and respect have empowered the department to become stronger than ever.

Many changes have occurred during the past year to reinforce and better represent the department's views. One of these changes has been the designing of a new logo. Designed with the assistance of Max Rauer, Jr., a freelance artist from Des Moines, the logo's colors stand for each area of Iowa's resources which

are under the department's jurisdiction. Blue represents the skies (air quality) and waters; green, the foliage; brown symbolizes the earth and ground; while yellow represents the energy.

As Larry J. Wilson, Director of the DNR, stated in the August 1986 issue of the *Conservationist*, "The mission of the Department of Natural Resources is to ensure the proper management and protection of Iowa's natural resources while actively encouraging public use and enjoyment of Iowa's resources in a manner consistent with sound management principles. For the most part, the historic purposes of the individual agencies which make up the DNR will be continued to meet this mission. I truly believe that all of these purposes stand a better chance of being more fully realized under our DNR than they did when we stood separately."



Fort Atkinson Re

September 26-2

Captain Edwin V. Sumner
B Company, 1st U.S. Dragoons
Commanding Fort Atkinson
Iowa Territory

September 1986

Captain Sumner:

I would like to share with you an event which took place on your post recently. It was the tenth annual celebration of Fort Atkinson, of the people who served there and of a lifestyle long passed.

As my troops marched to parade for morning colors and the opening of the celebration, I thought of you and the 211 troops on post 143 years ago. Many of the sights would be familiar to you but others you would not have seen in your era.

In front and behind the fort were more than 150 tepees and tents. More buckskin clothing than cloth was evident as 450 men, women and children from 10 states showed period crafts, demonstrated hunter/trapper lifestyles and military.

If you had been touring your post with me, you would have been both surprised and entertained. We would have visited crafts people weaving, making pottery, spinning and turning rope. Others were producing cornhusk dolls, decorative wreaths, straw-woven decorations, paintings and drawings. We might have stopped for food or purchased a cup of apple cider. The stews and fry bread were as good as in your time.

The sound of rifles being fired would have drawn us to the area where "buckskinners" were showing their shooting skills. They competed to see who could

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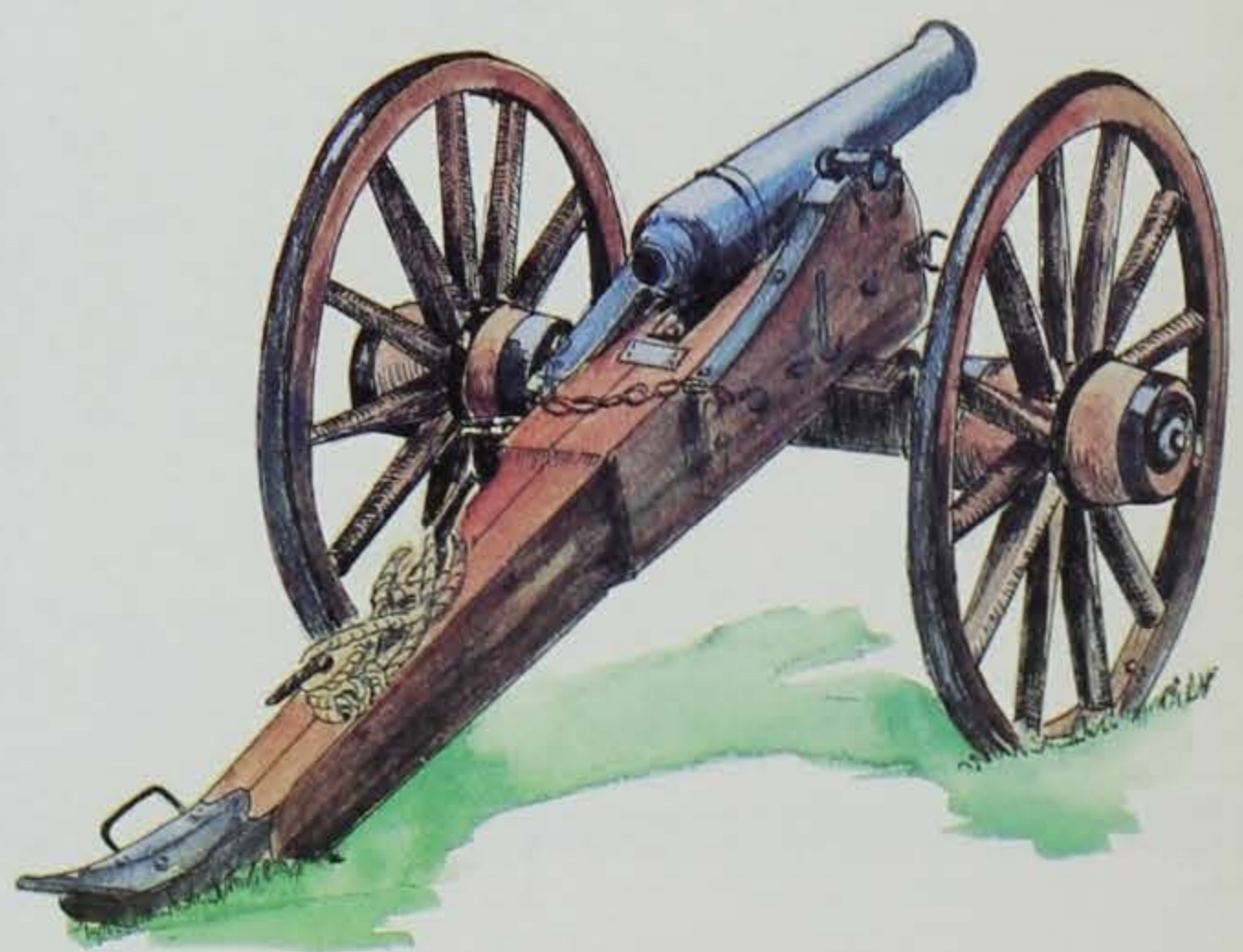
Illustration by Betty Petersen

Betty Petersen is an information specialist. She has been with the department for 10 years.

on Rendezvous

per 26-27, 1987





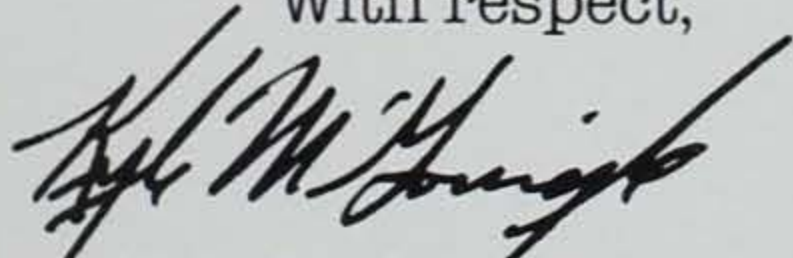
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cut a string with a single shot and which team could be first to shoot a post in half. Since the tents of K Company would be nearby, I would have invited you to inspect my camp, soldiers, their equipment and the drill of the soldier. You would also have enjoyed the cannon drill every two hours, as one and sometimes two cannons were fired.

Perhaps later we would have watched the blacksmith as he prepared to blow a 145-pound anvil 30 feet into the air. Everywhere we strolled there would be costumed hunter/trappers and in their camps many things would catch your eye. The medicine poles, painted symbols, and dress would cause you to wonder how long these people had lived beyond civilization. You would have seen colorful trade blankets spread with offerings of beadwork, powder horns, knives and a hundred other items for sale.

As we approached the path leading down to what in 1843 were company gardens, you would see a village. At the bottom of the hill would be brightly-colored tents and stands selling foods you are unfamiliar with, and things you haven't seen. The area has indeed changed since you left. Next September we will again celebrate and remember. I wish you could join us.

With respect,



Captain Kyle McGonigle
K Company, 1st U.S. Infantry
Commanding The Ghost Garrison



Kyle McGonigle is a freelance writer living in Des Moines. He also belongs to the Ghost Garrison, an Iowa-based group which authentically recreates the lifestyle of 1840-period soldiers.

