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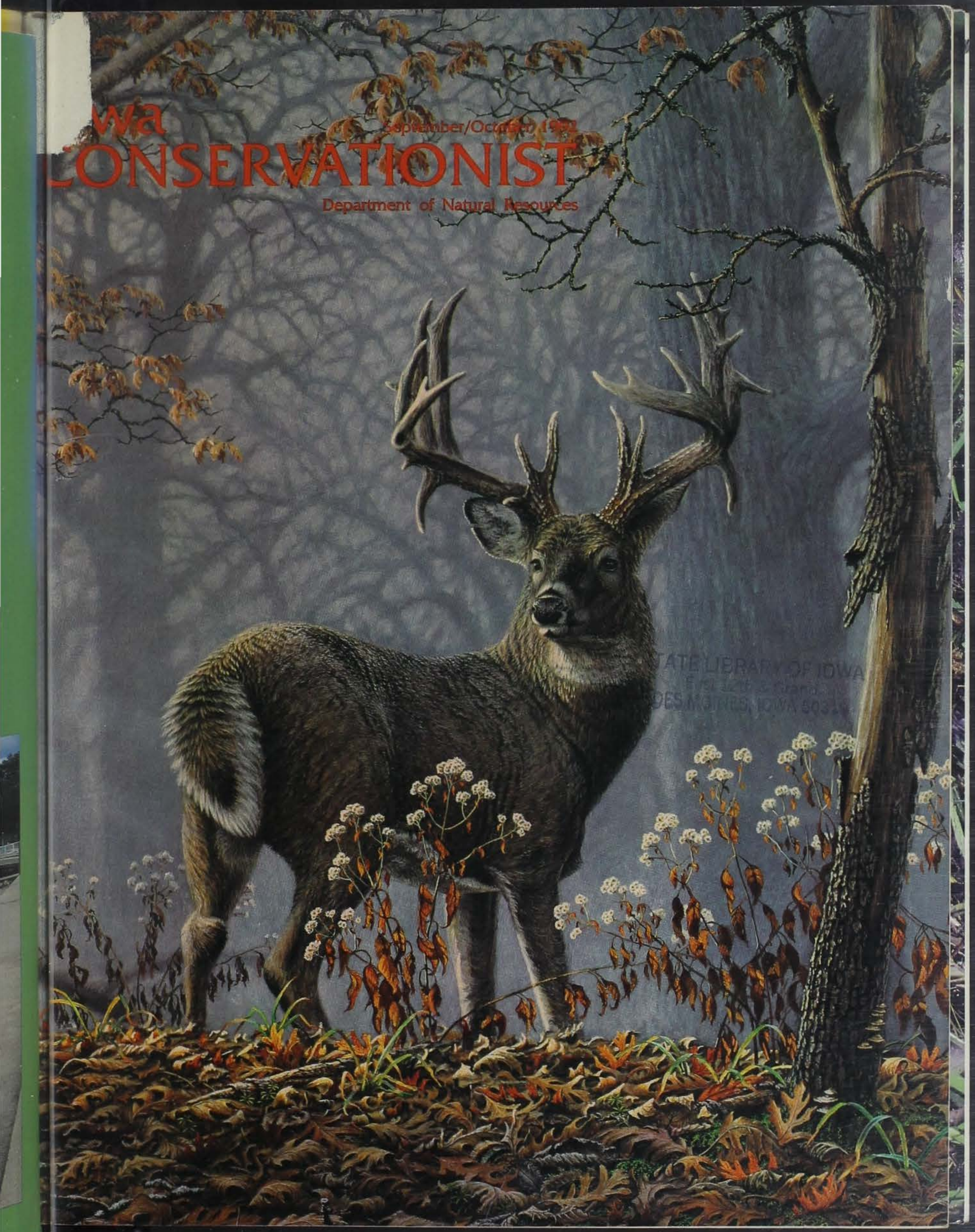
CONSERVATIONIST

September/October 1992

Department of Natural Resources



CONTENTS

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page 16

page 25

FEATURES

DEPARTMENTS

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COVERS

Front and Back -- *Broken Solitude -- Whitetail* by Larry Zach. For more information on this or other limited-edition prints by Larry Zach, contact White Oak Publishing, 901 S.E. Trilein Dr., Ankeny, Iowa 50021, (515) 964-1570.
Inside Front -- Fall color by Roger A. Hill.

DNR

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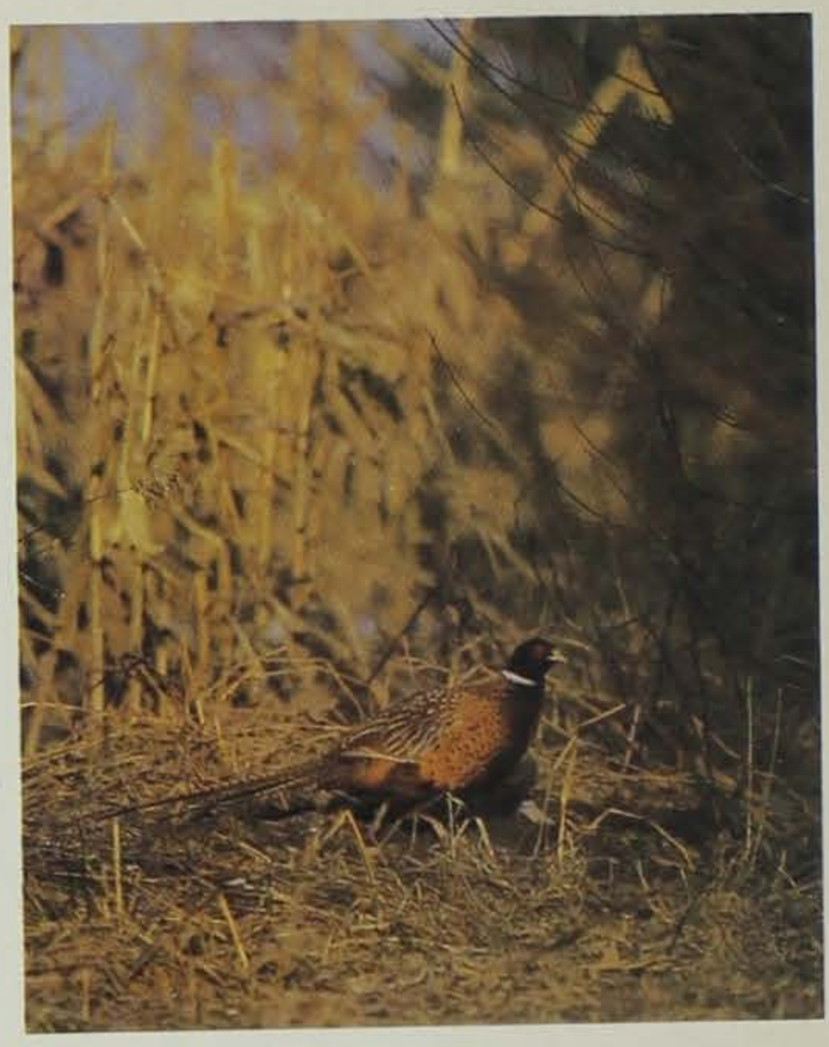
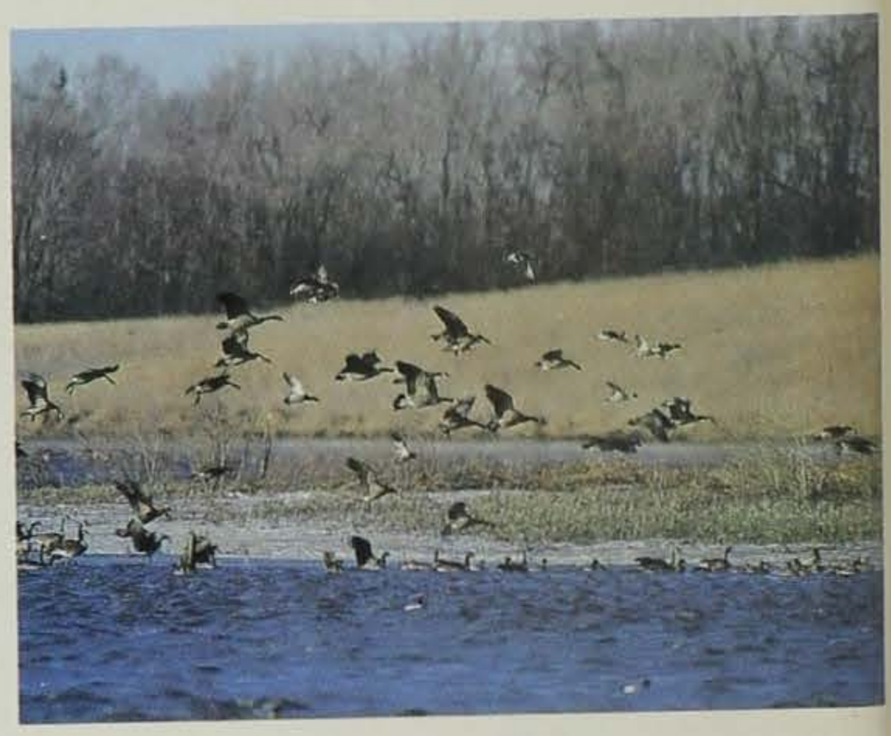
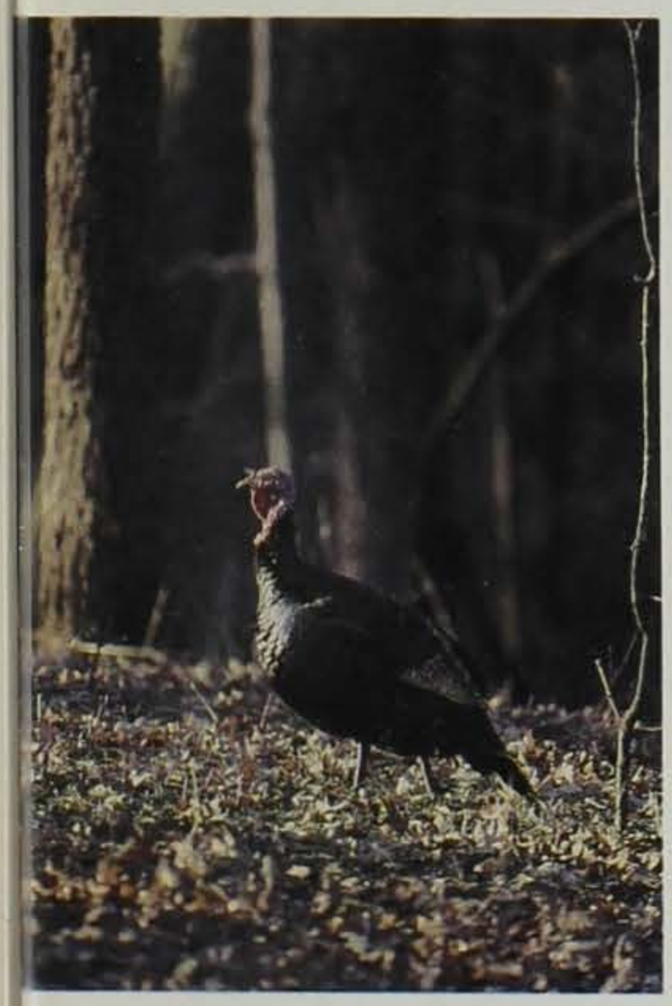
HUNTING FORECAST 1992





Article by Terry Little
Photos by Roger A. Hill

Lowell Washburn



As I sit in my office watching it rain for what seems like the 40th consecutive day, I realize that the forecast I am about to write has less chance of being accurate than last year's. Surely you remember the 1991 hunting season? The one that was supposed to be the best in a decade, but turned out in some respects to be nearly the worst?

Long ago we gave up holding weather forecasters and economists responsible for their predictions, because the events they foretell are beset by factors beyond their control. As I write this, constant mid-summer rains and a new magazine deadline that falls due before this year's major wildlife surveys are even started, present obstacles to accurate predicting as formidable as the uncertain path of the jetstream or the price of gold on the world market. If another prediction goes wrong, perhaps wildlife biologists will sink to the same level of esteem as those other uncertain oracles -- to be listened to, but not believed.

What happened in 1991? Early waterfowl seasons started off in promising fashion. Wetlands were in excellent condition, record numbers of Canada geese (mostly locally produced Giants) built up in northern Iowa, and early duck migrations arrived on schedule. The weather through mid-October was mild and early-season waterfowling was the best in several years.

Beginning with the opening weekend of the pheasant season, however, the weather turned as nasty and as inhospitable as fall in the Midwest can get. Rain, snow, ice, wind or all of them together bombarded Iowa for four consecutive weekends. Northwest Iowa was hit by a foot or more of snow on Halloween that piled into two- to three-foot drifts in all available cover. Southwest Iowa suffered through an ice storm that put six inches of ice on everything for several days. Clear Lake froze over on the earliest date since the 1940s. The rest of the state had to suffer through *only* cold, windy, wet weather that made each hunt an endurance trial, rather than the enjoyable outing it was supposed to be. Even hardy Minnesota and Wisconsin hunters were seen driving back north, with several inches of snow and ice covering their vehicles and dog trailers, before their vacations were over.

November, the critical month for duck, pheasant and archery deer hunting, was over before the weather relented. Migrating flocks of waterfowl jetted through the state on gale force winds days before the start of the major part of the duck season. Early season cover for pheasants, partridge and quail was ravaged by ice and snow before hunters got a serious start. By mid-November birds were pushed into the larger, difficult-to-approach flocks typical of late-season hunting. Many bow hunters gave up in frustration after nearly being blown out of tree stands during the critical peak of the rut. The early freeze stopped virtually all trapping activity on marshes and on land, and raccoon hunting was brought to a standstill as animals denned up early to ride out the storms. Many hunters of all types gave up their long-awaited hunting seasons after a disastrous trip or two early in the year.

Then fortune reversed itself and the weather in December and January turned out to be the mildest in recent years. Hunters' spirits improved, if not their successes.

Some pheasants and quail failed to survive the early, bad weather in isolated parts of western and northern Iowa. Losses, however, were neither severe nor widespread. Survivors scattered far and wide in search of food after the weather let up and remained in large flocks in light cover. These large groups were nearly unapproachable by hunters or their bird dogs.

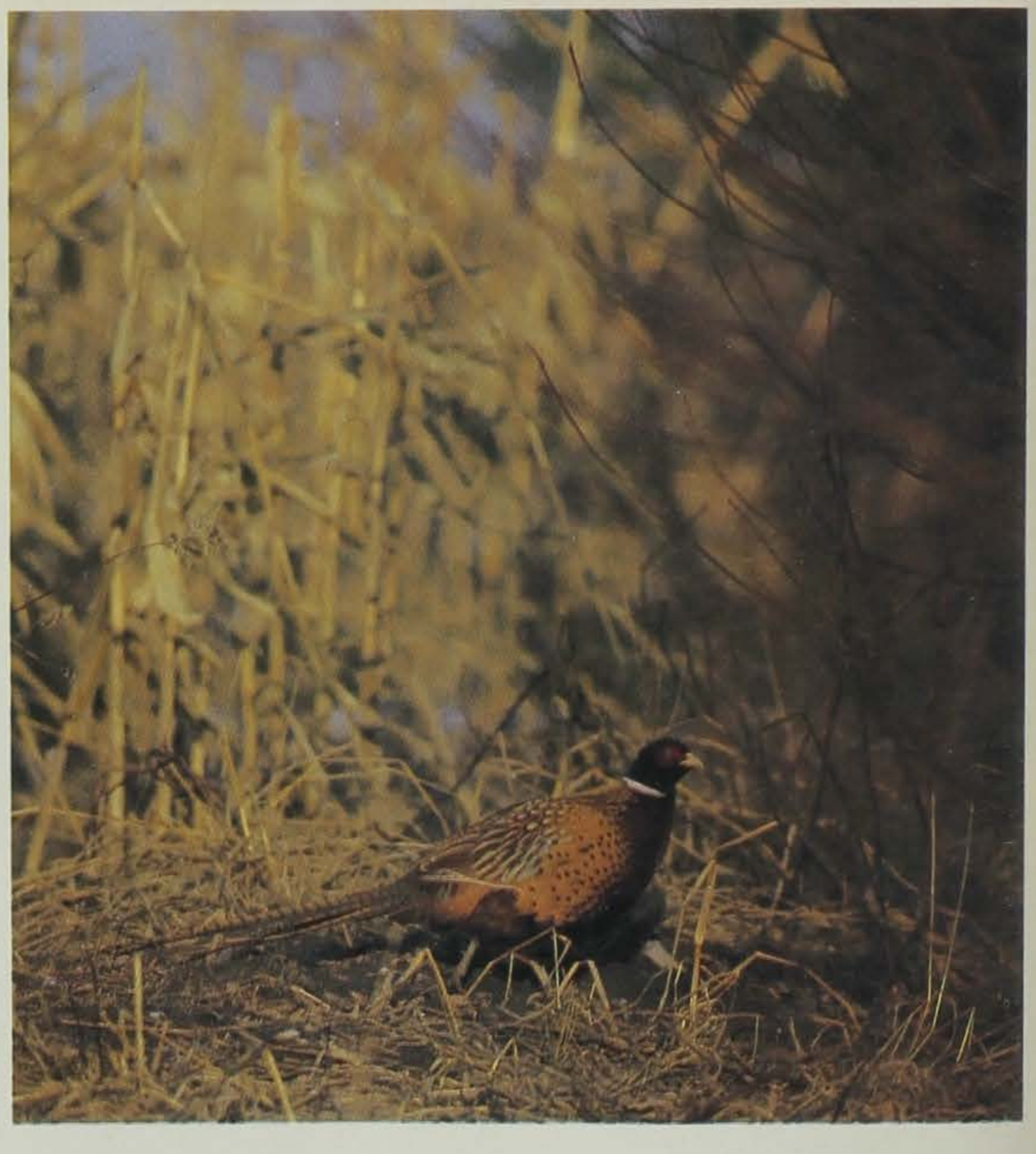
I recall hunting one farm after a

light snowfall on New Year's Eve. During a brief, two-hour hunt I found two pheasant flocks totaling almost a hundred birds. On two early December hunts in milder weather I had failed to flush a single pheasant, even though my dogs were constantly "birdy." Pheasants were so wild in the mild weather that they ran far in advance of the dogs, giving the impression that there were no birds present. I wonder what a dogless hunter would have thought about bird numbers after that experience?

I also recall at least five consecutive quail hunts on mild days in January during which several hunters with experienced dogs were unable to find a single covey. As many as five to 10 coveys had been found in each of these areas after the storms were over. Where were they? Were they still alive? If not, what killed them during mild weather? These questions still spark some protracted and vociferous differences of opinion in my circle of hunting companions.

Deer hunters also had unexpected difficulties in the mild weather they encountered. Hunters in the first gun season had to fight thawed-out, muddy roads and field lanes and unseasonably foggy weather most mornings. Access to timbered areas was difficult and hunters covered far less than the normal amount of ground during a day's hunt. Conditions during the second season were somewhat better, if still unseasonably warm, but less than a third of the hunters chose to hunt at that time. Mild weather let deer, especially mature bucks, stay out of the easier-to-hunt timbered areas they normally favor at this time of year and bed down in small draws or grassy areas. Hunters everywhere complained about not being able to find antlered bucks to hunt.

Surprisingly, the few waterfowl hunters that persisted in spite of miserable conditions had better-than-average late-season hunting. By mid-



Pheasants

1991: Harvest of 1.1 million cocks was down 19 percent from 1990 despite rosy predictions. Bad weather during November was the culprit.

Outlook: Better-than-average populations and a better year than 1991 projected. Mild winter and dry nesting season were favorable. Wet July probably hurt late nesting effort. Final assessment available by September.

Quail

1991: Harvest of 231,800 down 28 percent for same reasons as pheasants.

Outlook: Average season in most regions. Wet weather during peak nesting in July may have hurt nesting somewhat, but average production expected. Final assessment in September.

November many marshes and reservoirs thawed again and were accessible to hunters. Most migrating ducks were permanently through Iowa and basking in warmer temperatures in the South. Few large concentrations of waterfowl developed anywhere, but there were enough late migrators at several locations along the Mississippi River and the reservoirs in central and southern Iowa to provide consistently good-to-excellent hunting late in November.

The result of these unusual weather conditions was that the harvest of most wildlife species were down from 1990 (see table below). Only waterfowl hunters had an overall better season, as predicted. Weather wasn't the sole factor involved in all cases, however. Deer regulations were designed to reduce the take of does in all of central and northern Iowa to stabilize or increase deer numbers. And fall wild turkey seasons were curtailed for the second year because of poor hatches over most of the state the past four years. All things considered, 1991 was not as bad a year as our memories might suggest. However, the question will forever remain: *What would 1991 have been like had the weather been reasonably cooperative?*

1992: A Better Year Ahead?

There is every indication that 1992 will be better than 1991, maybe

HUNTING SEASONS AT A GLANCE

Species	1990 Harvest	1991 Harvest	Change
White-tailed deer			
Archery	10,146	8,807	-13
Muzzleloader	8,703	5,886	-32
Shotgun	70,153	68,942	-13
Wild Turkey			
Spring Season	8,191	7,968	-3
Fall Season	4,588	1,386	-70
Upland Game			
Ring-necked pheasant	1.4 million	1.1 million	-19
Bobwhite quail	321,500	231,800	-28
Gray partridge	148,000	45,500	-69
Ruffed grouse	9,300	5,700	-39
Gray/fox squirrel	466,100	407,200	-13
Cottontail rabbit	609,800	437,000	-28
Furbearers			
Raccoon	103,468	106,000	+2
Fox (red and gray)	14,400	14,380	--
Coyote	5,068	4,500	-11
Muskrat	70,133	106,000	+51
Waterfowl			
Ducks	105,800	156,200	+48
Geese	29,700	40,100	+35

Deer

1991: Harvest down 15 percent due to poor hunting weather and license restrictions designed to protect does.

Outlook: Good season, similar or better than 1991. Deer herds mostly stable with similar season format.

even the banner year we were expecting last year. After the November storms were over, winter weather remained mild right through to spring and virtually assured good survival of gamebirds. Deer herds remain in good-to-excellent condition all over Iowa. The same regulations that reduced last year's take of does will assure that more fawns will be born this spring. Wetlands are slowly recovering from drought in the prairies of Canada and the U.S. As a result, breeding populations of ducks and wetland-based furbearers are continuing their slow rebound from the low levels they experienced in the mid-1980s. Most goose populations came through the fall and winter at near-record levels.

April was cool and wet in Iowa, but the precipitation we received was scattered and in small amounts in most places. This allowed replenishment of wetlands and an early green-up, but shouldn't have bothered nesting birds of most species. Wetlands were full, but relatively little flooding occurred to impact nests of Canada geese. The critical mid-May through June period could hardly have been more ideal for most resident wildlife. This is the critical season when ground-nesting birds are sitting on nests and hatching downy young. Wet, cold weather during this time can wreak havoc with the production of young pheasants, quail, wild turkeys and other ground-nesting birds. Weather was dry but not hot, and nesting success must have been high. Cool spring weather retarded the development of hay fields and delayed mowing somewhat, which was another positive sign. Late June hay mowing, and the USDA's decision to open some CRP fields to haying and grazing in July, came after the normal peak of the pheasant hatch in early June. While not beneficial, this mowing could have been disastrous had it occurred a month earlier.

Geese

1991: All-time record Canada goose harvest of 31,000 due to successful restoration program.

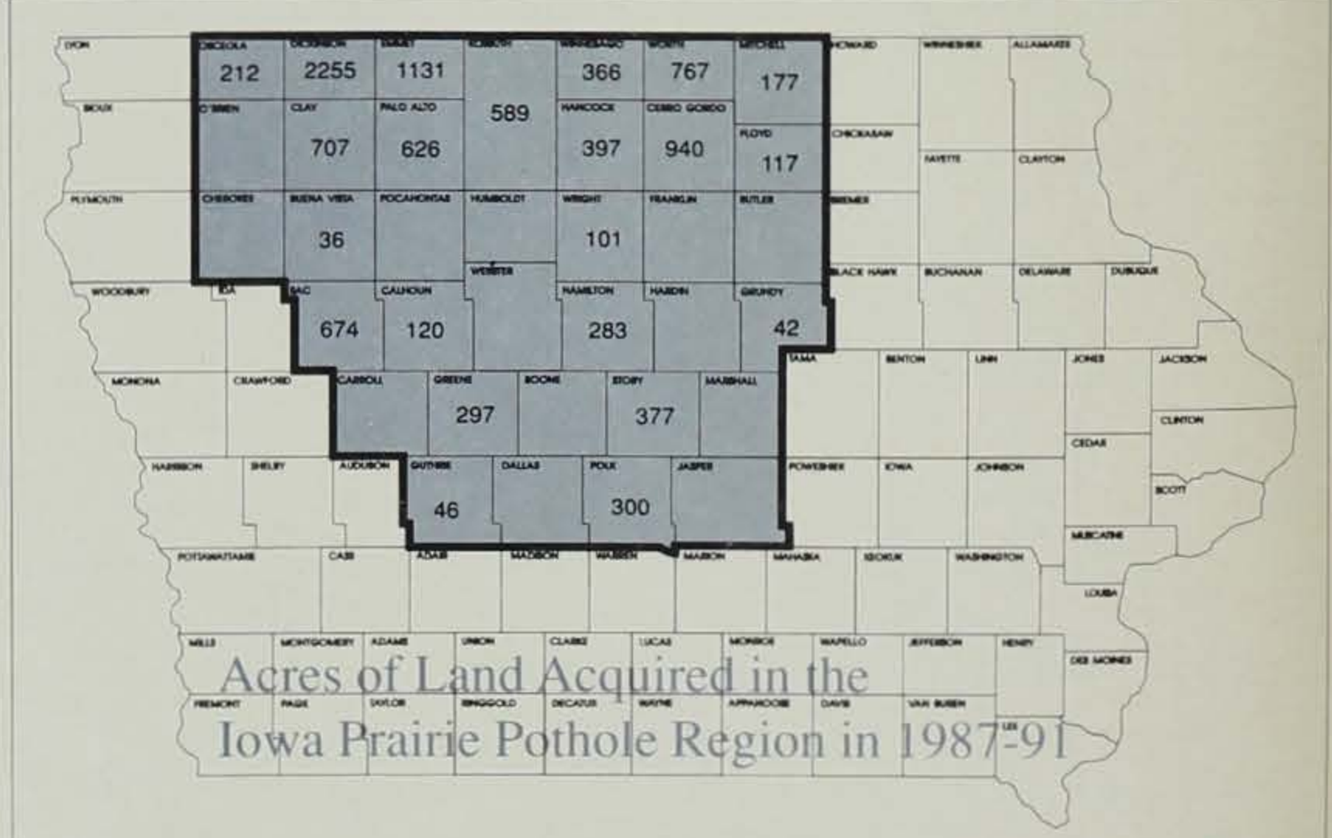
Outlook: Excellent season. Record production of Giant Canadas in Iowa, plus good numbers of migrating geese in spite of poor production in the Arctic.

Lowell Washburn

Ducks

1991: Harvest of 156,000 best in five years.

Outlook: Good hunting under restricted season format. Breeding populations up 10 percent and expected fall flight up 11 percent (similar or higher than last year). Iowa wetlands in excellent shape.



Acres of Land Acquired in the Iowa Prairie Pothole Region in 1987-91

Total Acres = 10,560 Total Cost = $8,801,853

Converting Dollars to Habitat

Wildlife biologists and astute hunters have realized for generations that habitat is the key to wildlife abundance. Therein lies the problem in an agriculturally dominated landscape like Iowa's. It has been said that no other state has suffered such drastic changes in its original appearance as did Iowa in its first century of settlement. Along with the disappearance of our native prairies, wetlands and forests went much of our native wildlife.

Today less than one percent of Iowa exists in its natural condition, and most of this is in widely scattered, small tracts of land under management by some government agency. The DNR's wildlife bureau manages 255,000 acres of wildlife management areas and the Forests and Forestry Division manages about 35,000 acres of state forests for wildlife habitat and public hunting. Small acreages in five national wildlife refuges and the small holdings of numerous county conservation boards contribute to this effort. All told, less than one-half million acres are protected in public ownership managed primarily for wildlife. This represents only 1.4 percent of our land area, nearly the least of any state in the nation.

With this in mind, it is not surprising that acquiring lands for wildlife management and to provide public hunting areas has been a priority program of the DNR's Fish and Wildlife Division for more than two decades. The major problem in acquiring wildlife lands has been, and still is, the lack of sufficient funding. Although small amounts of money have been directed to land acquisition from general state tax revenues, these amounts have been unreliable and inadequate to meet the challenge. Most of the burden has fallen on the hunters and anglers of Iowa to support the wildlife resources that all citizens enjoy.

The table at right and accompanying map on page 8 show the cost, acreage, location and source of funding for all lands acquired by the Fish and Wildlife Division since 1979, the landmark year when the wildlife habitat stamp was first required of most hunters. The following section explains the source of funds in greater detail for readers not familiar with them.

State Waterfowl Stamp: A $5 stamp required of all waterfowl hunters between the ages of 16 and 65. Funds are dedicated to waterfowl projects, with 15 percent sent to Ducks Unlimited for habitat improvement projects in Canada. Current revenue -- $160,000 annually.

Habitat Stamp: A $5 stamp required of all hunters between 16 and 65 years old. Funds are dedicated to habitat acquisition and management. Half the revenue goes to county conservation boards. Current revenue available to the DNR -- $ 700,000 annually.

Fish and Wildlife Trust Fund: Money derived primarily from the sale of hunting and fishing licenses and permits, it is dedicated to managing fish and wildlife resources.

REAP (Resource Enhancement and Protection Program): Funds derived from lottery profits and general tax revenues. Although originally designed to be funded at $30 million annually, it has never received appropriations greater than $21 million. Funds are divided between 17 different programs related to natural and cultural resources. Current revenue to the DNR available for land acquisition -- $ 1.3 million in 1993.

U.S. Fish and Wildlife Service: Funds for wetland acquisition and easement derived from a combination of federal waterfowl stamp sales and general federal tax revenues. Most of this money has come through the Prairie Pothole Joint Venture, a recent program to improve waterfowl and nongame breeding habitat in the north-central states and Canada. The map on page 8 shows the location and extent of PPJV acquisitions. Current revenue -- $ 1 million annually.

Donations: Direct gifts from private citizens to the Fish and Wildlife Division. Current revenue -- unpredictable.

Turkey Trades: Reimbursement at $500 per turkey for trapping expenses incurred by the wildlife bureau in sending wild turkeys to Texas and Kentucky to restore turkeys to former habitats in those states. Current revenue -- $250,000 annually.

Private Organizations: Donations of land or money to acquire lands by private conservation organizations. The primary groups involved have been Ducks Unlimited, Pheasants Forever, Iowa Natural Heritage Foundation and National Wild Turkey Federation. Numerous groups have dedicated lesser amounts. No acreages are shown in the table because these donations usually contribute a small amount to the total cost of a larger project. Current donations -- variable.

Nongame: Contributions to the Chickadee Checkoff on state income tax returns. Current revenue available for land acquisition -- none.

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Land Acquisition Program 1979-1991

Wildlife Bureau

Funding Source	Acres	Cost
Waterfowl Stamp	3,669	$ 1,902,010
Habitat Stamp	14,367	4,510,846
F&W Trust Fund	518	237,377
REAP	3,338	1,816,977
U.S. F&W Service	3,641	3,769,865
Donations	1,317	0
Turkey Trades	2,377	749,090
Private Organizations	0	4,214,411
Nongame	218	125,830
Totals	**29,445**	**$17,326,406**

The persistent and widespread rains in July present the only cloud on an otherwise sunny outlook for upland bird production. For their first four to six weeks young birds are susceptible to hypothermia if they are exposed to soaking and chilling rains. By the time they are fully feathered they are able to withstand normal rainfall and survive better. July rains were mostly light with few intense storms over large areas. Pheasant and turkey nests normally hatch by mid-June and probably suffered little ill effect from this type of rain. Quail nesting usually peaks later in the summer, and chicks from late June or July nests, or in the small areas where heavy rains occurred, may have suffered some losses. By the time this article is printed, the DNR's August roadside surveys will have been run and a better handle will be had on this problem. For now there is no reason to expect that production suffered extensively.

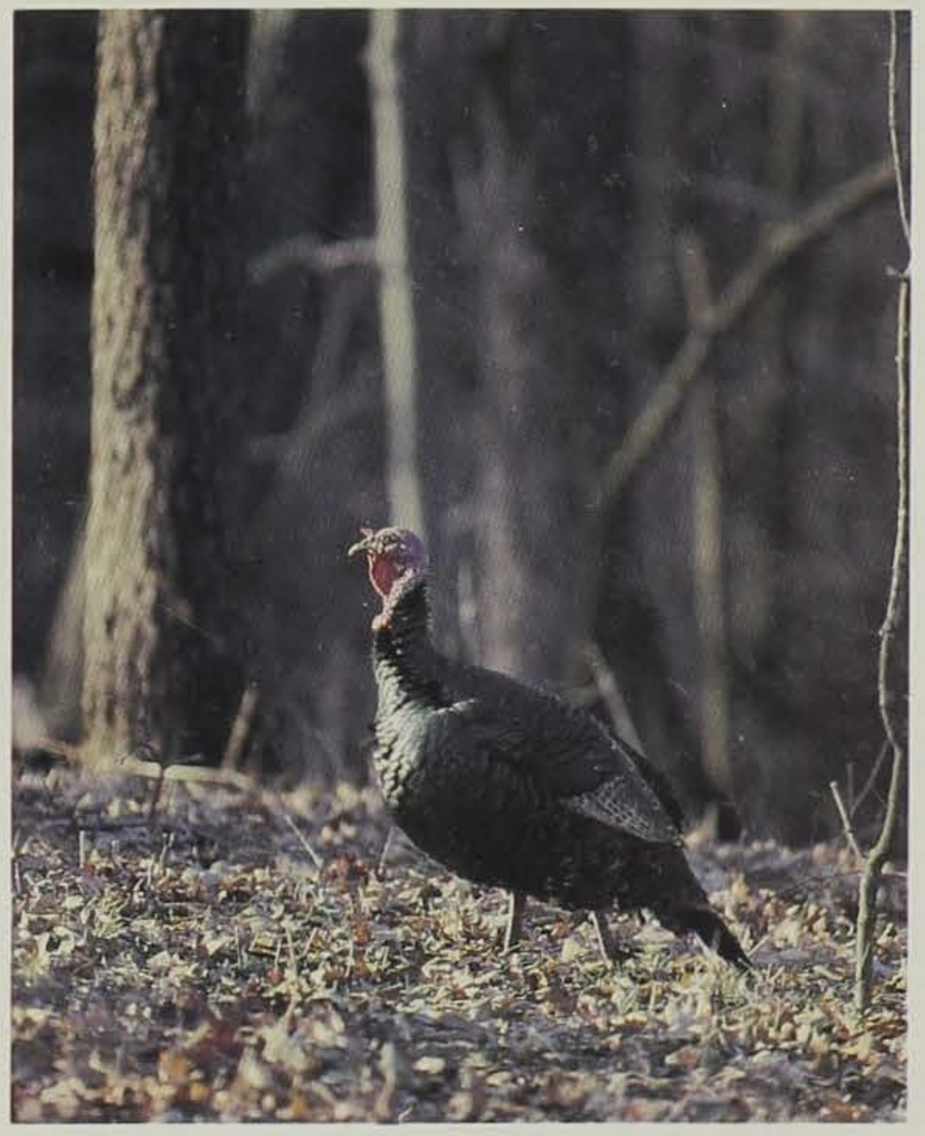
The situation for waterfowl is mostly positive and a better year than last is expected. Water conditions improved on the prairies of Canada and the U.S. last year and breeding populations of ducks responded with a 10 percent increase to the highest level since 1986. The result is a fall flight that will be about 11 percent above last year's. This small increase may not be especially noticeable to many hunters, but it marks the fifth year of a slow but steady recovery of duck populations from the low levels of the early1980s. Considering all species, duck breeding populations are just eight percent below the average for the 1955-91 period. Popular species like mallards (down 17 percent) and pintails (down 54 percent) are still substantially below average levels. Blue-winged teal are at or above average levels.

Canada goose hunting may be our fastest growing hunting sport at this time -- last fall hunters took a

Furbearers

1991: Lowest take of most furbearers in 20 years due to poor pelt prices and poor weather.

Outlook: Continued poor fur prices and low interest. Excellent numbers of most species available for the recreational trapper or hunter.



Wild Turkeys

1991: Hunters took 1,386 birds, down 70 percent due to limits on licenses following poor production.

Outlook: Licenses restricted to just 1,530 in northeast Iowa. Excellent hunting for those lucky enough to draw a license.

record 22,000 geese in spite of a season curtailed by weather. Production of Giant Canada geese in Iowa hit an all-time record of 16,000 goslings this year and the prospects for continued improvement are excellent. Local Giant flocks help stop migrating geese that nest in the Canadian Arctic and several goose restoration sites are developing fall flocks of Canadas that number in the thousands. Last fall more than 60,000 Canadas could be found in Iowa during the peak of migration. Geese that stay over at these new sites provided extended gunning for hunters throughout the fall. Although production of Arctic-nesting geese was poor this year because of heavy snows and ice on the breeding grounds, breeding populations were at near-record levels and a good fall flight is expected.

At this writing, Iowa's wetlands are in excellent shape. Mid–summer rains have kept water at desired levels, but have not been great enough to cause flooding in the major Corps of Engineers' flood-control reservoirs. If these conditions persist, excellent waterfowling should be available again this year.

White-tailed deer are least affected by weather of all our resident wildlife. Curtailing the doe harvest across most of the state last year should pay dividends in terms of more deer available in a very short time. Lack of snow made it difficult to conduct important post-season aerial deer counts, but other surveys suggest the deer herd is about at last year's level statewide. This year's season is designed to continue the conservative approach started last year, building deer herds across much of the northern half of the state and placing additional hunting pressure on stable to slowly increasing herds in southern Iowa. Hunters in all zones can take up to two deer, both of which could be bucks, if one was taken with a bow and one with a firearm. Hunters willing to travel to the southern two tiers of counties in Zones 4, 5 and 6 could take an additional antlerless deer with either a bow or firearm. Weather permitting, another excellent season is expected in 1992.

The outlook for furbearers basically remains unchanged from the past four years. Low pelt prices and excellent habitat in CRP fields have combined to allow populations of most furbearers to reach levels not seen in Iowa in three decades. Lack of interest in fur harvesting (the return from the sale of pelts is not worth the effort expended to the economically motivated fur harvester) means little hunting or trapping pressure has been applied to furbearer populations. Raccoons, foxes, coyotes and skunks are abundant in rural and urban areas and far exceed the ability of the recreationally motivated fur harvester to control their numbers. Replenished wetlands, following two years of normal rainfall, have even started muskrat numbers well on the road to recovery. Trappers and hunters should have a field day if conditions permit.

Small game -- rabbits, squirrels, woodcock, ruffed grouse, snipe, rails -- remain under-appreciated and under-utilized resources. Rabbits and squirrels have lost their place as highly prized game animals in the minds of most hunters. Although populations of both are excellent wherever appropriate habitat exists, fewer hunters are interested in their pursuit as more attractive hunting opportunities have developed. Because of the general lack of interest in all of these "minor" game animals, excellent hunting opportunities exist for those still interested or youngsters just developing an interest in hunting.

Overall, the forecast for the 1992 hunting season is excellent. Unless, of course, nature decides not to be kind again.

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

Rabbits/Squirrels

1991: Poor hunting conditions in November reduced take of squirrels 13 percent and rabbits 28 percent.

Outlook: Good-to-excellent hunting for hunters interested in pursuing these and other small game animals.

1992 Iowa Hunting and Trapping Regulations

The *1992 Iowa Hunting and Trapping Regulations* brochure and card will be available from license vendors in mid-September.

When Everything Old Is New Again

by Brian J. Tormey

So, you've sorted your bottles, newspapers, cans and plastic containers for either curbside pick-up or delivery to a drop-off bin in your community. (If you aren't doing this, you should be!) The satisfaction you feel is justified, but don't get carried away in self-adulation because the task of properly recycling these materials is only one-third of the way done.

The three arrows comprising the familiar recycling symbol represent specific interrelated steps that must be taken on the road to a successful recycling program. It involves more than simply separating and collecting materials -- recycling occurs when the collected materials are sold to manufacturers for either reuse or reprocessing into another usable product. Then it is returned to the marketplace to be purchased by government, business and the consumer. To be transformed from a discard to a resource, the material must be able to be pushed completely through the loop.

Thus, the impetus for a successful recycling program is developing markets to provide recyclables with an economically viable "second life." Until such arrangements exist, material collection efforts will result in nothing more than an expensive means for landfilling separated trash. It is simply a matter of supply-and-demand economics. The supply-side of the equation relies upon a dependable collection system for the discarded materials we generate as consumers. But as consumers, we can act as a catalyst to expand the demand for products derived from recovered materials. Practicing demand-side waste management is simply done through our buying practices, whereby we send signals to manufacturers about the types of products we are willing to purchase. By supporting markets for recyclables, we help to nurture economically feasible alternatives to landfilling these materials.

Though the power wielded by consumers cannot be underestimated, aggressive governmental purchasing programs that cover a wide range of recycled products have also played a major role in establishing markets. Because federal, state and local governments make up 20 percent of the nation's Gross National Product, they can set an example for industry by using their buying power to spur recycling markets.

At the federal level, the Environmental Protection Agency has developed guidelines for setting up buying programs aimed at products made with recycled materials. To date, the EPA has issued purchasing criteria for cement and concrete products containing fly ash (the air-borne residue from the burning of coal at power plants), retread tires, re-refined oil, building insulation and paper products. These guidelines apply to federal agencies and contractors using appropriated federal funds. The EPA has also established a procurement hotline -- (703) 941-4452 -- to answer questions and provide information to government agencies, manufacturers, vendors and the general public. The U.S. Congress created a national market for recycled scrap tires recently when it reauthorized the U.S. surface transportation bill and included a provision that mandates states use at least five percent rubber in asphalt pavement by 1994, 10 percent by 1995, 15 percent by 1996 and 20 percent by 1997.

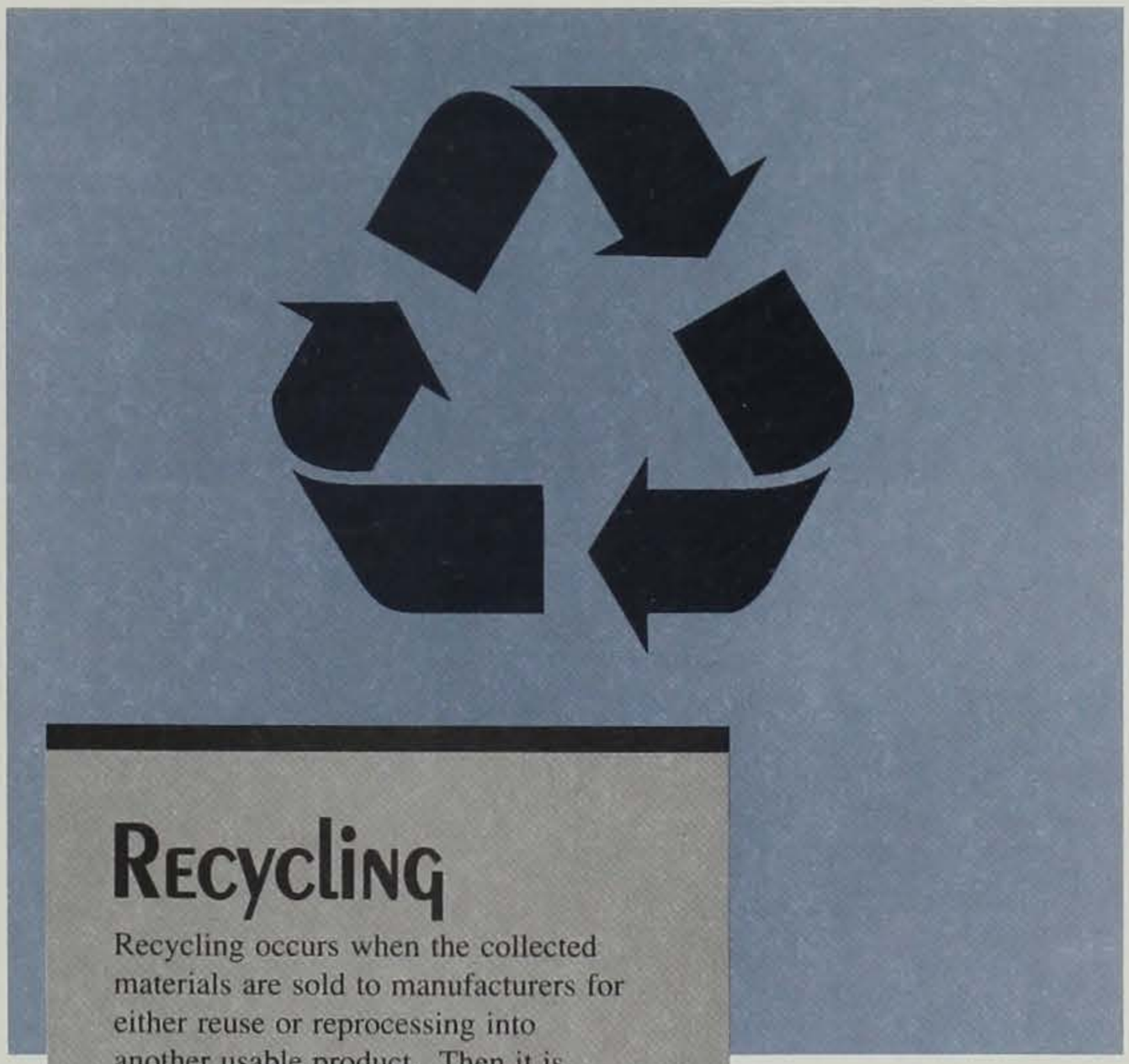
According to the magazine *Biocycle* in its "State of Garbage in America" survey, by the end of 1990, 37 states had some form of purchasing policy targeting recyclables. Early legislation focused exclusively on paper products, but recent trends show hori-

zons have been broadened to include other products such as plastics, compost, waste oil and tires. Iowa was one of the states at the forefront with its enactment of the Waste Reduction and Recycling Act in 1989. In part, this legislation mandated the Department of Natural Resources, in cooperation with the Department of General Services, develop a program to promote buying recycled products or products made from recovered materials. Related to this legislation was a requirement that recycled products make up at least 50 percent of the printing and writing paper purchased by state agencies by January 1, 1992, and 90 percent by the year 2000. The state has surpassed the 1992 goal, led by the DNR which attained 90 percent in 1989. In fact, the *Iowa Conservationist* was the first publication in the country to be printed on coated enamel, or glossy, recycled paper.

Iowa also used creatively designed financial incentives to heighten the demand for throwaways and even the economic playing field between recycled products and virgin products. The Waste Management Assistance Division of the DNR provides financial assistance for many such projects through the Landfill Alternatives Grant program, which was established in the 1987 Groundwater Protection Act. The DNR is currently formulating rules to implement a low-interest or no-interest loan program designed to help fund Iowa business and industry endeavors in these areas.

However, one marketing problem for recyclables yet to be addressed by state and federal governments is the often inconsistent labeling. There are no uniform standards for defining "recycled" and "recyclable" materials. Some products are marketed as containing recycled material, yet the percentage of the recycled content in the product may actually be quite minuscule. Or, if the manufacturer does claim a certain percentage of recycled material used in a product, the source of the reclaimed material is not often identified in terms of *pre-consumer* or *post-consumer* content. *Pre-consumer* material is the waste produced in the production process which can be easily reclaimed and reused at the production site. While reusing pre-consumer material does reduce the waste being generated at a particular source, it does not enhance the recycling process because the material never enters the general waste stream. *Post-consumer* material does enter the waste stream. It consists of the items we, the consumer, discard. By separating out this material for collection and reuse, we remove it from the waste stream and place it into the recycling loop. Therefore, it is preferable to purchase products made from post-consumer material whenever possible.

The term "recyclable" can be equally confusing to consumers. For example, many items found in the waste stream can be theoretically recycled. But if a secondary user of a material does not exist in your vicinity or the process for re-manufacturing a new product from the material is not economically feasible, the material will end up in a landfill.



Recycling

Recycling occurs when the collected materials are sold to manufacturers for either reuse or reprocessing into another usable product. Then it is returned to the marketplace to be purchased by government, business and the consumer. To be transformed from a discard to a resource, the material must be able to be pushed completely through the loop.

Home-grown Markets: Buying Recycled in Iowa

The list of products that are providing a second life for discards include many innovative ideas. The Landfill Alternatives Grant program, administered by the Waste Management Assistance Division of the DNR, provides Iowa entrepreneurs with the financial assistance to launch unique business ventures in the recycling market arena.

Plastics, particularly soda bottles (PET plastic), and milk jugs and detergent bottles (HDPE plastic), are quite versatile when it comes to reprocessing into new products. This has been demonstrated by several businesses awarded grants. NCS Plastics, in Cedar Rapids, processes recyclable plastic for resale to a variety of manufacturers. One market uses a fiber produced from PET plastic soda bottles to make a durable yarn which is tufted, dyed and woven into a variety of home carpet styles. The carpet is competitively priced with those produced from virgin material, but the added advantage of this carpet is it doesn't absorb moisture and is naturally stain resistant. After all, have you ever seen grape soda leave its mark in a plastic bottle?

Discarded HDPE plastic milk jugs and detergent bottles can reappear around your home in the form of outdoor furniture, landscape timber and building material. These lumber-like products are resistant to the moisture and insects which plague natural wood, thus making them very durable. For example, Iowa Plastics, Inc., of Sioux Center manufactures 4'x 8' plastic wallboard from post-consumer plastics for agricultural purposes, such as livestock buildings and confinements. The water-resistant nature of the wallboard allows for easy clean-up. A former grantee, Environmental Recycling Co. Inc., of Massena, not only collects and processes post-consumer plastic, but markets a variety of end products from 100-percent-recycled material. These not only include plastic lumber formed in various dimensions and colors that can be used to make benches and picnic tables, but also tool boxes, tool rack hangers and utility trays. A project of another grantee, Recycling Services Associates in Jefferson, combines recycled plastic and tires to manufacture landscape timbers, fence posts and dock construction material.

Secondary uses for discarded tires include the traditional retreaded tire, incineration for power production, road construction and playground equipment. But creativity can lend itself to more original uses, as demonstrated by Recycling Services Associates, and as shown by Mar-Rob Enterprises. This Webster County business is using grant funds to expand an existing operation that manufactures corn husking rollers from waste tires.

When you think of buying a paperproduct with a recycled content, the usual things that come to mind are printing and writing paper, newspapers and magazines. But two Iowa businesses that have received grant monies provide other avenues for recycling post-consumer paper. The Mason City Recycling Center processes collected paper for manufacturing cellulose insulation and animal bedding. In Tama, Packaging Corporation of America's paperboard mill recycles more than 41,000 tons of wastepaper each year to produce box board. The 100-percent-recycled paperboard is purchased by several nationally known companies for a variety of packaging and marketing uses including cereal and cake-mix boxes, and clothing tags.

As a consumer or purchaser for a business, always consider the availability of recycled products made in Iowa. The distance from the discard source to the processor is an important factor in market development. The transportation costs that are tacked onto a collected material can affect its demand to the point your separated recyclables may end up going to a landfill. Please support the establishment and growth of local markets for recyclables. For more information on these businesses and others within Iowa that market recycled products, call 1-800-DNR-1025.

--BJT

In an attempt to standardize the varied, and often conflicting, definitions currently being used by individual states and manufacturers, the EPA is examining several options. These include requiring a certain percentage of post-consumer content before a product can be labeled as being made from recycled material; having the label on the product state the recycling rate, based on a percentage of the population, for the material; having the product meet a minimum national recycling rate before being advertised as being recyclable; and, providing consumers some information as to the product's recyclability locally, such as, "This bottle is recyclable at facilities accepting PET plastic."

For now, a simple guideline to follow when "buying recycled" is that if

you know the material is being collected in your community, it's recyclable. Use it unless there's a reusable or less-wasteful alternative. Look for product packages that provide clear information on recycled post-consumer content. If the product claims to contain recycled material but doesn't offer any further information, contact the manufacturer for verification of the actual recycled content. When given a choice of several products made from recycled materials, look to see which ones may be recycled again. Most importantly, look for a product made from recyclables that has been produced in Iowa. Helping to support the establishment and growth of local markets for recyclables makes good sense not only from an environmental perspective, but also from an economic development standpoint.

Remember, before any material can be considered "recyclable," there must be an economically workable and widely available collection, processing and marketing system for it. The most effective way to ensure the closure of the recycling loop is to purchase products made with recycled material.

For more information and assistance in locating suppliers and vendors of recycled products, or if you have any questions about recycling in general, contact the Waste Management Assistance Division of the DNR at 1-800-DNR-1025.

Brian J. Tormey is an environmental specialist for the department's Waste Management Assistance Division in Des Moines.

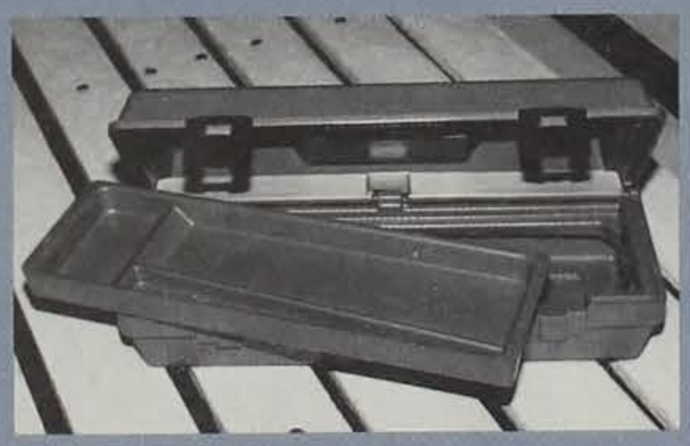
Making the Rounds of Recycling

▶ **The first step in recycling.**

Ron Johnson

Ron Johnson

▲ **Processing plastic containers to be reused in other products.**



Environmental Recycling Co., Inc.

▲ **Tool box made of recycled materials.**

Market Development

The impetus for a successful recycling program is developing markets to provide recyclables with an economically viable "second life." Until such arrangements exist, material collection efforts will result in nothing more than an expensive means for landfilling separated trash.

They're Not Just For Romantic Evenings Anymore

by Randy Martin

Fireplaces, in general, are inefficient home heating systems. By design, the fireplace loses most of its heat — and some of your home's heat — up the chimney as it burns. Large amounts of air are required to provide complete combustion and the fireplace draws this air, which is usually warm room air, up the chimney along with the bi-products of combustion. Older models often draw in even more cold air through cracks to replace the warm room air they send up the chimney. And when there isn't a fire going, warm room air is still going up the chimney, 24 hours a day.

Do we have to give up our fireplaces? Not necessarily. There are several things that can be done to improve your fireplace's efficiency. First, make sure the damper fits tightly when it's closed. Always keep the damper closed when there isn't a fire going. An effective way to stop air from going up your chimney when the fireplace is not in use is to install a top sealing damper that can be opened and closed by pulling a cable that runs down the chimney. A major drawback to the top sealing damper is that it could freeze down when the fireplace is needed most.

The next step is to install tight-sealing glass doors over the front of the fireplace. The doors should be kept closed at all times including when the fire is burning. Most doors have an adjustable air inlet grill along the bottom and top to allow control of the amount of air that gets to the fire.

To further reduce the amount of warm room air the fireplace consumes, install an insulated duct to bring in outside combustion air. The duct can often be connected to the ash pit of an older masonry fireplace which will allow the combustion air to come up through the ash dump. This takes a little work, but it will keep the fireplace from sucking your warm room air up the chimney.

To further increase an older fireplace's efficiency, fan-assisted fireplace grates that circulate air around the burning wood and then blow the heat out into the room are available. A more efficient, albeit more expensive, option is to install a fireplace insert. The fireplace insert is basically a wood-burning stove designed to fit into a standard masonry fireplace. Fireplace inserts can reach efficiencies of more than 50 percent, while retaining some of the fireplace charm.

If you're planning a new home, be selective with the fireplace. Ask for its efficiency rating. The most important consideration is selecting a fireplace that allows for outside combustion air. Newer homes, if built right, are quite tight and the fireplace is not likely to function properly without an adequate supply of combustion air.

To provide any amount of heat for your home, the fireplace should have an air circulation system. This usually means the fireplace has a second steel shell that allows for air to circulate around the firebox where a fan can then blow the heat out into the room.

If you're looking for a system to heat the entire house, there are some fireplaces that can be set up to operate like a central heating system, with ducts extending from the fireplace to other parts of the house. These systems can provide a large portion of a home's heating requirements.

Finally, when building a new house, make the house as energy efficient as possible and then size the fireplace so that it doesn't overheat the house. Unless you're really into chopping wood, it takes a lot fewer trees to heat an energy efficient house than a house full of holes.

Fireplaces are aesthetically pleasing. They're romantic. And if managed properly, fireplaces *can* supply a portion of your home's heating requirements.

Reprint from the *Iowa Energy Bulletin*, December 1991.

Randy Martin was a program planner with the department's energy bureau. He is currently with the U.S. Department of Energy in Denver, Colorado.

Courtesy of Superior Fireplace Company of Fullerton, California

1992 Iowa Record Deer Racks

This is a list of deer racks scored between October 1991 and July 1992.
New entries into the *All-Time Top 10 Racks* are designated by an asterisk (*).
See page 46 for the *All-Time Top 10 Racks*.

SHOTGUN TYPICAL

(Minimum Qualifying Score -- 150 points)

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Christine A. Weeks	Lorimor	Union	1991	185-4/8
Joe Roush	Lacona	Warren	1991	184-5/8
Darrell Walter	Stanton	Montgomery	1991	178-4/8
Doug Litterer	Greene	Jefferson	1991	178
Al Faber	Hopkinton	Dubuque	1991	178
Jim Champion	Sioux City	Boone	1991	175-3/8
Rick Canny	Bloomfield	Davis	1991	175-2/8
Jim Poock	Waterloo	Allamakee	1991	174-7/8
Stan DeHeer	Knoxville	Marion	1991	174-4/8
Donald Massman	West Union	Fayette	1991	174-1/8
Troy Underwood	Albia	Monroe	1991	173
Ed Miller	Creston	Ringgold	1991	172-6/8
Larry Petersen	Charter Oak	Monona	1990	172
George Boess, Jr.	Hawkeye	Allamakee	1964	171-3/8
Helen Hall	Dallas	Marion	1991	171
Charles Schott	West Union	Fayette	1982	170-6/8
Richard S. Hillard	Dubuque	Dubuque	1990	170-3/8
Lanny Caligiuri	Des Moines	Warren	1990	170-3/8
Pat Curtin	Waukon	Allamakee	1991	170-2/8
Jerry Foote	Stanton	Montgomery	1991	170
Larry D. Williamson	Des Moines	Henry	1991	169-4/8
Joe Vandermillen	Dubuque	Jackson	1991	169-2/8
Mike Egan	Monona	Allamakee	1991	168-7/8
Jay D. Rush	Buffalo Center	Warren	1991	168-7/8
Terry D. Perrott	Mt. Pleasant	Henry	1991	168-7/8
Steve Whitmore	Preston	Jackson	1991	168-3/8
F.J. Stajear	Udell	Appanoose	1991	167-7/8
Steven Leffler	Moravia	Appanoose	1991	167-6/8
William C. Busse	Osceola	Clarke	1991	167-5/8
Mike Smith	Missouri Valley	Pottawattamie	1965	167-5/8
Clint Poore	Mt. Ayr	Ringgold	1991	167-2/8
Howard Hall	Stratford	Webster	1981	167
John House	Hastings	Mills	1991	166
Bobby Harper	Missouri Valley	Pottawattamie	1990	165-6/8
Charles Brewster	Keosaqua	Van Buren	1984	165-2/8
Norman Higinbottham	Ottumwa	Wapello	1991	165-1/8
Don Bruch	Eddyville	Monroe	1991	165-1/8
Rich Gabrielson	Dubuque	Jackson	1991	165
Dan James	Larrabee	Cherokee	1991	164-1/8
Phil Guy	Brighton	Washington	1991	163-7/8
Mike Pasut	Albia	Monroe	1991	163-6/8
Paul Kemp	Wapello	Louisa	1991	163-5/8
Chuck Baetsle	Hartwick	Keokuk	1989	163-4/8
Ed Wilson	Urbandale	Taylor	1991	163-4/8
Dirk and Darren Paul	Stanton	Montgomery	1990	163-3/8
Bill Ogburn	Corning	Adams	1991	163-1/8
Jack Ulicki	Ft. Dodge	Webster	1991	162-7/8
Steve Wright	Cedar Rapids	Van Buren	1991	162-7/8
Barry Runyon	Des Moines	Van Buren	1991	162-5/8
Larry Young	Ottumwa	Wappello	1991	162-5/8
Todd Stanger	Davenport	Muscatine	1991	162-5/8
Paul Sundholm	Olin	Clayton	1991	162-3/8
Marion Conner	Millersburg	Iowa	1971	162-2/8
Ted Henderson	Bloomfield	Davis	1991	162
Richard Perry	Centerville	Appanoose	1991	161-7/8
Darrell Niemier	S. Amana	Iowa	1991	161-5/8
Earl W. Hamilton	Weldon	Clarke	1975	161-4/8
Dale Musfeldt	Carroll	Madison	1989	161-4/8
Edwin L. Johnson	Cherokee	Decatur	1966	161-2/8
Dale Weiland	Tama	Tama	1991	161-1/8
Jacob Phillips	Manchester	Lee	1991	161
Dean Lane	Earlham	Madison	1991	161
Stan Peterman	Villisca	Taylor	1991	160-7/8
Charles Wilson	Carlisle	Warren	1983	160-6/8
Tim Nuckolls	Shenandoah	Page	1988	160-6/8
Doug Richardson	Ottumwa	Monroe	1987	160-6/8
Randy Wittman	Edgewood	Clayton	1989	160
Greg Goldizen	Norwalk	Madison	1990	160
Joe Schollmeyer	Dubuque	Lee	1991	159-6/8
Bart Fisher	Parkersburg	Butler	1988	159-5/8
Ron Oberbroeckling	Dyersville	Dubuque	1990	159-5/8
Bruce Haht	Calumet	Cherokee	1987	159-5/8
Lee Harland	Wellman	Washington	1982	159-4/8
Elmer Kopaska	Guthrie Center	Guthrie	1990	159-2/8
Leland Starits	Tama	Tama	1987	159
Tom Laudon	Council Bluffs	Pottawattamie		158-3/8
Russ Lage	Holland	Monroe	1991	157-7/8
Bob DeBoef	Eddyville	Appanoose	1991	157-6/8
Jeff Fritz	Brighton	Jefferson	1991	157-4/8
Mike Reindel	Van Meter	Dallas	1991	157-4/8
Tom Barnes	Davenport	Monroe	1991	157-3/8
Mike Theobald	Oskaloosa	Appanoose	1991	157-2/8
John Heiple	Waterloo	Monona	1991	157
Loyed Hedges	Des Moines	Adams	1991	156-7/8
Al Dorothy	Ft. Dodge	Clarke	1991	156-6/8
Donald Cantonwine Sr.	Cedar Rapids	Allamakee	1960	156-5/8
Jim Prichard	Belle Plaine	Benton	1988	156-3/8
Darrin Piatt	Centerville	Appanoose	1991	156-2/8
William Wixom	Keokuk	Lee	1991	156-2/8
Rod Stumpf	Kalona	Washington	1991	156-2/8
Russell Pape	Ames	Clayton	1990	156-2/8
Walt Hatfield	Grand Junction	Greene	1991	156-1/8
Rich Rausch	Sutherland	Cherokee	1991	156-1/8
Jamie Hitt	Des Moines	Lucas	1991	155-6/8
Marlin Derby	Washington	Washington	1991	155-6/8
Mark Motsinger	Des Moines	Ringgold	1985	155-6/8
Darryl Blythe	Williamsburg	Monroe	1991	155-4/8
Val Gene Waiter	Stanton	Montgomery	1991	155-4/8
Michael Maher	Norwalk	Madison	1990	155-3/8
Jena Parks	Burlington	Henry	1991	155
Kevin Demery	Ft. Dodge	Wapello	1991	155
Reg Roberts	Corwith	Adair	1967	154-7/8
Mark Peitz	Burlington	Henry	1990	154-7/8
Larry Morris	Manchester	Delaware	1986	154-5/8
Bob Beitz	Hopkinton	Delaware	1991	154-5/8
Dave Haywood	Randolph	Fremont	1991	154-5/8

Tom Six	Tracy	Marion	1991	154-4/8
Joe Fannon	Edgewood	Clayton	1989	154-4/8
Jason Sanders	Houghton	Lee	1991	154-4/8
Willard D. Allison	Ottumwa	Appanoose	1990	154-3/8
Paul Rogers	Oxford	Madison	1989	154-1/8
Alan Kohlers	Washington	Henry	1988	153-7/8
Brad Van Baale	Monroe	Jasper	1977	153-5/8
Paul Rasmussen	Rowley	Warren	1991	153-2/8
Bill Joines	Larabee	Cherokee	1991	153-1/8
Paul Wilson	Gilmore City	Taylor	1991	152-7/8
John Chipp	Osceola	Clarke	1988	152-7/8
Rod Shelgren	Gilmore City	Taylor	1991	152-7/8
Tony Hofbauer	Ames	Guthrie	1991	152-6/8
Jim Hikins	Denison	Harrison	1989	152-5/8
Jeff Halferty	Osceola	Wayne	1990	152-4/8
Dave Drake	Bayard	Guthrie	1991	152-3/8
Steve Howard	Lisbon	Davis	1982	152-1/8
Robert Livingston	Guttenberg	Clayton	1990	152
Ron Hanus	Coralville	Howard	1991	151-7/8
William J. Clark	Davenport	Appanoose	1991	151-6/8
Logan Van Klootwyk	Knoxville	Marion	1991	151-6/8
Roger Campbell	Victor	Iowa	1990	151-6/8
Don Jarrard	Charles City	Floyd	1990	151-4/8
Troy Scogland	Bettendorf	Muscatine	1990	151-4/8
Matt Edwards	Pella	Marion	1991	151-3/8
Mike Schmitz	Greeley	Clayton	1991	151-1/8
Robert Clinton	Guttenburg	Clayton	1991	151
Merle Pope	Newton	Monroe	1989	151
Jamie Schmidt	Essex	Montgomery	1991	151
Michael Brenden	Whiting	Monona	1991	150-7/8
James C. Ronan	Lone Tree	Louisa	1991	150-7/8
Tom Birkenstock	Burlington	Des Moines	1991	150-7/8
Jeff Conger	Agency	Monroe	1991	150-6/8
Jaime Shelton	Cedar Rapids	Johnson	1990	150-6/8
Rob Ridnour	Glenwood	Mills	1991	150-5/8
Steve Meyer	West Union	Fayette	1985	150-5/8
Daniel Wenger	Wayland	Washington	1991	150-5/8
Andy Zinger	Blue Grass	Muscatine	1989	150-5/8
Kenneth Marshall	Cincinnati	Appanoose	1991	150-4/8
Mark Fite	Des Moines	Guthrie	1990	150-3/8
Jeff Telleen	Monroe	Lucas	1989	150-3/8
Bob Golick	Exline	Appanoose	1990	150-2/8
James D. Allen	Winterset	Madison	1981	150-2/8
Gary Hanchett	Deep River	Keokuk	1986	150-2/8
Jim McKenna	Salix	Woodbury	1981	150-1/8
Dan Johnson	Independence	Buchanan	1990	150-1/8
Charles Wilson	Carlisle	Warren	1976	150
Jim Morgan	Ottumwa	Wapello	1991	150

SHOTGUN NONTYPICAL

(Minimum Qualifying Score -- 170 points)

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
David Freihage	Logan	Monona	1991	224-1/8
Larry Walker	Mason City	Cerro Gordo	1991	218-4/8
Dean Grimm	Van Wert	Decatur	1988	214-6/8
Jim Spelman	Cedar Rapids	Harrison	1991	209-5/8
Mitch Hosler	Des Moines	Lucas	1991	208
William F. Bimgaman	Chariton	Lucas	1991	205-6/8
Rick Lewis	Murray	Union	1991	198-7/8
Arlo Ketelsen	Clinton	Clinton	1985	196-7/8
Jason Storm	Chariton	Lucas	1991	189-4/8
Mike Miller	Sioux City	Monona	1991	187
David Goodman	Malvern	Mills	1991	185-7/8
Carl Perkins	Lamoni	Wayne	1991	183-3/8
Robert Zenk	Dennison	Crawford	1990	183-2/8
Joseph M. Ruby	Mt. Pleasant	Henry	1991	183-1/8
Chad Hendrickson	Hornick	Woodbury	1991	181-4/8
Dale Prottsman	New London	Henry	1970	181-3/8
Don Stohr	Hazelton	Fayette	1987	180
Steve DeBruin	Prairie City		1990	178-7/8
Stanley Wood	Waterloo	Blackhawk	1990	177-3/8
Steve Hemmingstad	Sioux City	Monona	1991	177-2/8
Larry Hixson	Brighton	Jefferson	1991	177-1/8
Thomas Pins	New Vienna	Allamakee	1991	176
John D. Hershberger	Kalona	Van Buren	1991	175-5/8
Lee Allen Troester	Garnavillo	Clayton	1974	175-2/8
Mark Kinneer	Burlington	Des Moines	1991	173-5/8
Scott Perry	Albia	Appanoose	1991	173-3/8
Gene Moorman	Centerville	Appanoose	1991	173
John Probasco	Moulton	Appanoose	1990	171-7/8
Terry Boess	Hawkeye	Fayette	1991	171-7/8
Weston Laing	Chariton	Lucas	1991	171-2/8
Ronnie McHaugh	Magnolia	Harrison	1987	170-2/8
David J. Schultz	Sac City	Sac	1988	170-1/8

MUZZLELOADER TYPICAL

(Minimum Qualifying Score -- 150 points)

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Ron Scadden	Osceola	Decatur	1991	161-7/8
Doug Murray	Missouri Valley	Harrison	1991	160-2/8
Richard Beeson	Ottumwa	Wapello	1991	159-6/8
Fred Allen	Winterset	Madison	1991	153-6/8
Gary Bowen	Cedar Rapids	Johnson	1988	152-1/8
Kevin Marks	Tama	Adams	1992	151-4/8
Steve Smith	Urbandale	Dallas	1989	151-4/8
Dave House	West Union	Fayette	1991	150-6/8
Butch Caytor	Chariton	Lucas	1992	150-3/8

MUZZLELOADER NONTYPICAL

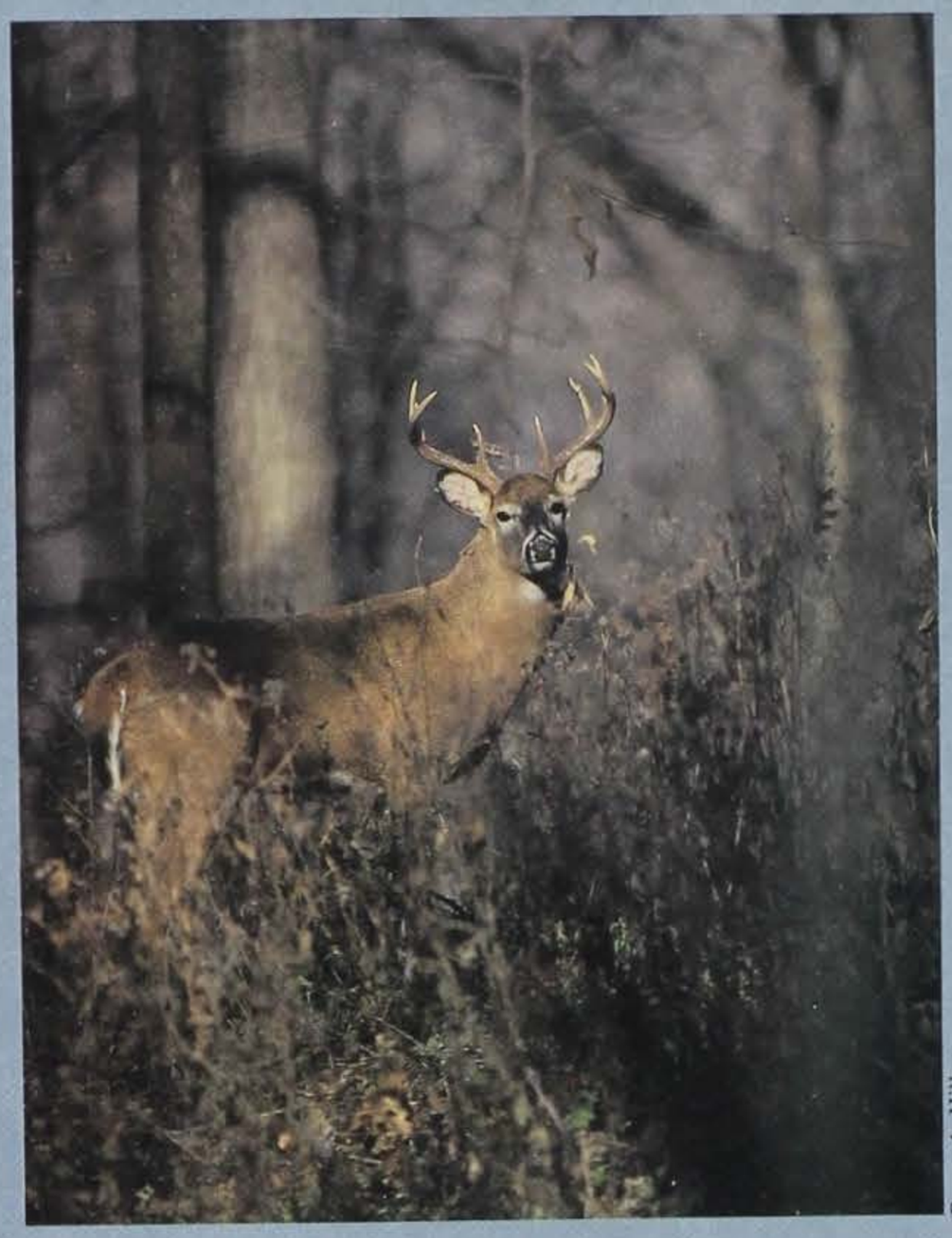
(Minimum Qualifying Score -- 170 points)

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
*Dean Beyer	Osage	Mitchell	1991	200-5/8
*Steve Mundell	Ottumwa	Monroe	1991	196
*James P. Parker	Clarinda	Taylor	1991	182-1/8
Roger Clark	Panora	Guthrie		175
Kirk Mabeus	Sioux City	Monona	1991	174-3/8

BOW TYPICAL

(Minimum Qualifying Score -- 135 points)

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
*John Kite	Farmington	Lee	1990	182-6/8
*Jeff L. Weigert	New London	Henry	1991	180-4/8
Jeffrey A. Getz	Peoria	Davis	1991	176-4/8
Dean Chandler	Chariton	Lucas	1991	175-5/8
Ed Willroth	Vail	Crawford	1991	173-6/8
Ted Smith	Oskaloosa	Mahaska	1991	173-1/8
Terry Travis	Thurman	Fremont	1991	172
Chuck Harris	Mason City	Cerro Gordo	1991	170-4/8
Clarence Mincks	Cresco	Howard	1991	170-3/8
Julian Toney	Lamoni	Decatur	1982	170-3/8
Steve Kesl	Elberon	Tama	1990	168-5/8
Chad Rucker	New Market	Taylor	1991	168-3/8
Tom Gossman	Cresco	Winneshiek	1990	167-4/8
Joe Dowell	Des Moines	Guthrie	1991	164-2/8
Ron Bryan	Richland	Washington	1991	164-1/8
Trenton Woods	Pulaski	Van Buren	1991	163-6/8
Dennis Sieverding	Bellevue	Jackson	1991	163-2/8
Gary Cobb	Osceola	Clarke	1988	163
Wally Boekhout	Spirit Lake	Dickinson	1977	163
Steve Brown	Centerville	Appanoose	1991	162-7/8
Greg Summers	Lehigh	Webster	1991	162-6/8
Jerry Daniels	Moulton	Appanoose	1991	161-5/8
Dwight T. Robuck	Knoxville	Marion	1991	161
James Asher	Pulaski	Van Buren	1991	160-6/8
Warren Woods	Waterloo	Allamakee	1991	160-5/8
Ed Abbott	Centerville	Appanoose	1991	160-4/8
Jim Parks	Spencer	Clay	1990	160-3/8
Wayne M. Lau	Colesburg	Clayton	1989	160-1/8
Ken Blezek	Glenwood	Mills	1991	160-1/8
Rebecca Gwaltney	Blakesburg	Wapello	1991	159-7/8
Kirk Christopher	Decorah	Winneshiek	1991	158-5/8
Tom Laudon	Council Bluffs	Pottawattamie		158-3/8
Virgil Marlette	Waverly	Bremer	1991	158
Chris Davies	Brighton	Washington	1991	157-5/8
Larry James West	Council Bluffs	Pottawattamie	1991	157-3/8
Jamie Hawk	Donnellson	Lee	1991	156-3/8
Owen Sandbulte	Rock Valley	Sioux	1991	156-3/8



Roger A. Hill

Daniel W. Wegener	New London	Des Moines	1991	154-6/8
Mark Sedlmayr	Creston	Warren	1991	154-4/8
Ronald L. Simmons	Ottumwa	Davis	1970	154-4/8
Gerald D. Diekman	Logan	Harrison	1991	154-1/8
Fred Allen	Winterset	Madison	1991	153-5/8
Scott Scales	Dubuque	Dubuque	1991	153-4/8
Craig Crist	Muscatine	Van Buren	1991	153-3/8
Ray Carter	Deep River	Iowa	1986	153
Barry O. Collett Sr.	Burlington	Des Moines	1991	152-7/8
Tom Lilly	Sioux City	Plymouth	1991	152-7/8
Randy Miller	Dubuque	Dubuque	1989	152-4/8
Leonard Ditch	Maquoketa	Jackson	1991	152-3/8
Ron Holthaus	Ossian	Winneshiek	1991	152-2/8
David G. Baumler	Calmar	Winneshiek	1991	152-2/8
Anthony Cantrell	Drakesville	Davis	1991	152
Douglas Phillips	Riverton	Fremont	1991	152
Larry Galliart	Dubuque	Lee	1991	151-5/8
Tim Vondersitt	Calmar	Winneshiek	1991	151-2/8
Joe Mayhew	Eddyville	Wapello	1991	150-6/8
Dave Dickman	Missouri Valley	Harrison	1991	150-6/8
John Hambleton	Guthrie Center	Guthrie	1989	150-1/8
Rodney Smed	Waukon	Allamakee	1991	150
Jim Schechinger	Harlan	Shelby	1991	149-5/8
Joseph C. Hinderman	Dubuque	Clayton	1991	149-4/8
Kevin Deets	Iowa City	Johnson	1989	149-3/8
Dave Hammes	Harper	Keokuk	1991	149-1/8
Orval Petty John	Hamilton	Marion	1990	148-7/8
Dan Mork	Council Bluffs	Warren	1991	148-4/8
Tony Giorgenti	Sioux City	Woodbury	1991	148-2/8
Thomas Schremser	Waterloo	Clayton	1991	148
Daniel Egbert	Centerville	Wayne	1990	147-7/8
Bud N. Vogelzang	Sioux Center	Sioux	1967	147-6/8
Dana Smith	Aurelia	Cherokee	1990	147-6/8
Curtis G. Steffen	Dubuque	Dubuque	1991	147-4/8
Kelly Gordon	Tracy	Monroe	1988	147
Roger Dekok	Kearney, NE	Keokuk	1991	146-7/8
Ron Marovec	Vinton	Benton	1991	146-5/8
Craig Corbett	Promise City	Appanoose	1990	146-5/8
Alfred Tille	Knoxville	Marion	1991	146-4/8
Robin Mann	Gilman	Marshall	1991	146-3/8
Cash N. Howe	Kingsley	Plymouth	1974	146-2/8
Scott Geno	Amana	Iowa	1991	145-7/8
Cash N. Howe	Kinglsey	Plymouth	1991	145-6/8
Phil Imboden	Earlham	Dallas	1990	145-6/8
Brian Burke	Waukon	Allamakee	1991	145-3/8
Charlie Feller	P. Du Chien, WI	Clayton	1981	145-2/8
Gene Miller	Ottumwa	Wappello	1991	144-5/8
Mark E. Raney	Carson	Pottawattamie	1991	144-4/8
Julian Toney	Lamoni	Decatur	1987	144-3/8
Ron Petersen	Tipton	Cedar	1991	144-1/8
Tim Macal	Denver	Allamakee	1990	144-1/8
Scott Creger	Winterset	Maddison	1991	143-4/8
Thomas Dvorak	Cedar Rapids	Iowa	1991	143-2/8
Lanny Caliguiri	Des Moines	Warren	1985	143-2/8
Robert Klein	Duncombe	Webster	1990	143-1/8
Duane R. Miller	Onawa	Monona	1991	143
Jeff Sindt	Davenport	Louisa	1991	142-5/8
Jeff Moorhouse	Salix	Woodbury	1989	142-4/8
Elmer Cooper	Mapleton	Monroe	1991	142-3/8
Bill Melchert	Monticello	Jones	1991	141-5/8
Kevin Kudart	Montezuma	Poweshiek	1991	141-2/8
Jeffrey J. Tobin	Worthington	Delaware	1991	141-2/8
Myron K. Phelps	Elkader	Clayton	1987	141-2/8
Cody Hawkins	Cedar Rapids	Allamakee	1991	141-1/8
Ed Ulicki	Lehigh	Webster	1991	141
John Hambleton	Guthrie Center	Guthrie	1990	141
George A. Parris	Audubon	Guthrie	1991	141
Greg Schmitz	Burlington	Des Moines	1991	140-4/8
Joseph R. Anderson	Norwalk	Warren	1991	140-2/8
Chris Pendroy	Monroe	Marion	1991	140-1/8
Greg Hacker	Tiffin	Johnson	1991	139-4/8
Russ Osbahr	Council Bluffs	Mills	1991	139-2/8
Dan Nelson	Adair	Adair	1986	139-1/8
Dan Damjanovic	Waterloo	Floyd	1991	139-1/8
Robert Klein	Duncombe	Webster	1988	139
Randy Schavn	Fonda	Calhoun	1991	139
Billy Custer	Soldier	Monona	1991	138-6/8
Dave Rodman	Sioux City	Woodbury	1992	138-5/8
Duane R. Miller	Onawa	Monona	1988	138-3/8
Bruce Elrod	Ankeny	Lucas	1991	138-1/8
Brent Graber	Kalona	Washington	1991	137-7/8
John Hambleton	Guthrie Center	Guthrie	1974	137-3/8
Kent McMillen	Urbandale	Madison	1991	137-2/8
Jason J. Dannenberg	Sioux City	Plymouth	1991	137
Jerry Purvis	Monroe	Monroe	1991	137
Paul Bazyn	Elkader	Clayton	1989	136-7/8
Mike Ford	Hastings	Mills	1991	136-3/8
Tim Michehl	Ft. Dodge	Webster	1991	136-3/8
Dick Dey	West Des Moines	Warren	1991	136-2/8
Matt Koenighain	Williamsburg	Iowa	1983	136-1/8
Mike Strader	Durango	Dubuque	1991	136-1/8
Rick E. Bauer	Bancroft	Kossuth	1991	136-1/8
Aaron Lincoln	Dubuque	Jackson	1991	136-1/8
George A. Parris	Audubon	Guthrie	1990	136
David Falke	Winterset	Madison	1991	135-4/8
Dave House	West Union	Clermont	1991	135-3/8
Randy Frazier	Dunlap	Monona	1991	135
Jim Baker	Des Moines	Warren	1991	135

BOW AND ARROW NONTYPICAL`

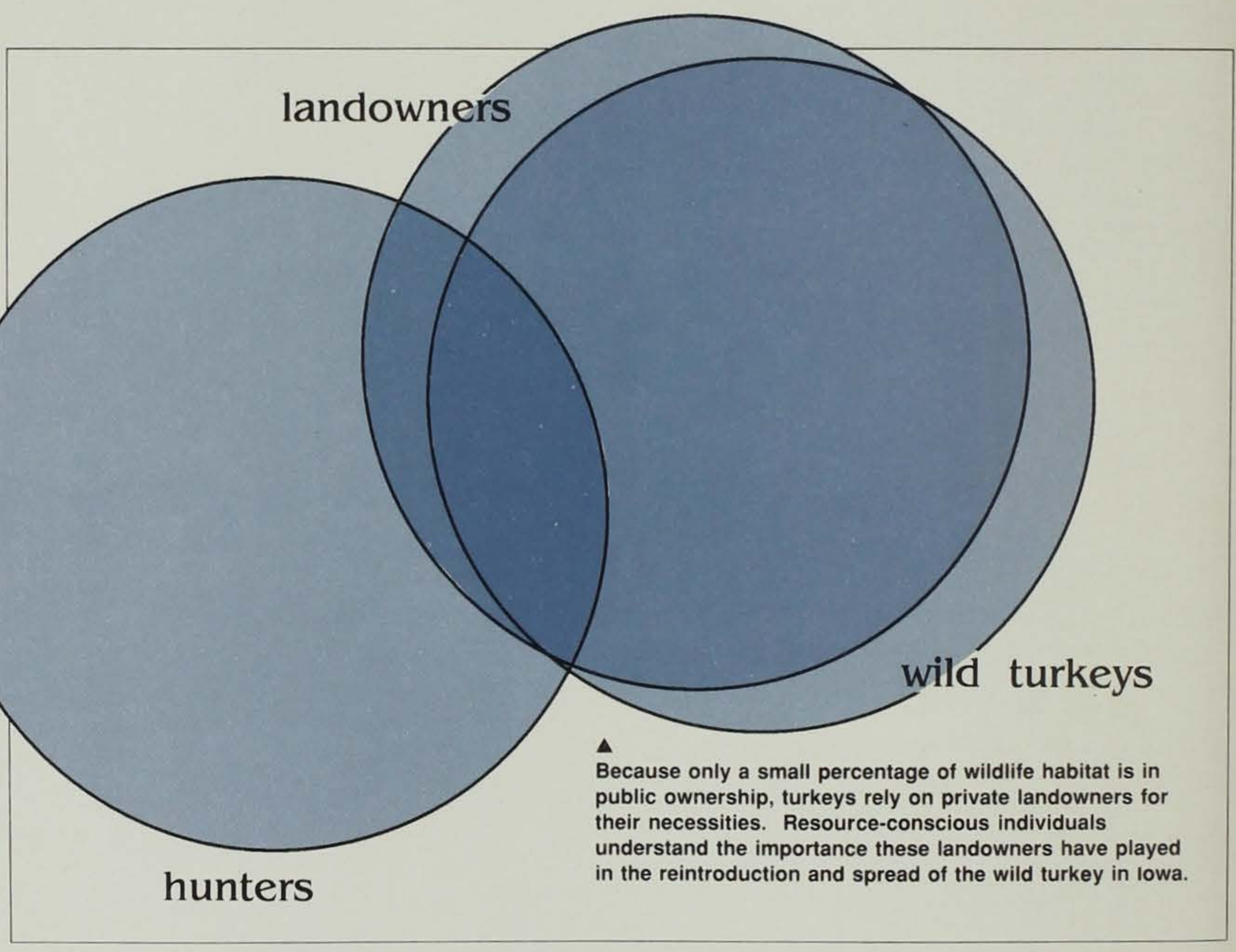
(Minimum Qualifying Score -- 155 points)

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Dan Patten	Earling	Shelby	1991	198-6/8
Julian Toney	Lamoni	Decatur	1991	198-2/8
Rod Stahlnecker	Council Bluffs	Pottawattamie	1991	196
Larry W. Bear	Lorimor	Ringgold	1991	184-2/8
Roger DeMoss	Knoxville	Marion	1990	181-7/8
Scott Niederhuth	Stockport	Van Buren	1991	176-2/8
Eugene Goos	Silver City	Mills	1991	170-7/8
Paul E. Love	Estherville	Emmet	1992	167-7/8
Curt Hoadley	Orient	Madison	1989	167-5/8
Gary Frost	Fort Madison	Lee	1991	165-2/8
Mike Philby	Red Oak	Montgomery	1991	163-6/8
Kelly Gordon	Tracy	Mahaska	1991	163-2/8
Lee C. Green	Sac City	Sac	1991	163-1/8
Mike Miller	Algona	Kossuth	1991	161-3/8
Dennis Rote	Dexter	Guthrie	1991	159
James E. Smith	Fayette	Fayette	1991	155-4/8

Are Turkeys Gobbling Up Landowners' Profits?

Article by
Steve Gabrey, Paul Vohs and DeWaine Jackson
Photos by Roger A. Hill

If you were given three similar-sized circles cut out of colored paper, one labeled wild turkeys, one landowners, and one hunters, and were asked to fit them together to "model" the interrelationship between these three groups, how would you place them in logical order? Does it seem obvious that the turkey and landowner circles would overlap almost 100 percent, while the hunter circle would be stuck on one side



▲
Because only a small percentage of wildlife habitat is in public ownership, turkeys rely on private landowners for their necessities. Resource-conscious individuals understand the importance these landowners have played in the reintroduction and spread of the wild turkey in Iowa.

with a 10 to 15 percent overlap? Wild turkeys sometimes spend their entire life on private landowners' property and occasionally landowners are hosts to turkey hunters. Resource-conscious individuals understand the special opportunity provided by landowners regarding the reintroduction and spread of wild turkeys, and are grateful for their gracious acceptance.

Not so well-known by most of us, however, is the perception of many Iowa farmers that wild turkeys are responsible for significant crop loss each year. According to Iowa Department of Natural Resources' biologists, there have been an increasing number of informal complaints of turkey crop depredation in Iowa, and in other midwestern states. Unfortunately, many of the complaints come several months after the actual damage has occurred, so the extent cannot be accurately assessed, nor can the guilt or innocence of the turkeys be proven.

Because 98 percent of Iowa is privately owned, turkeys (and the rest of Iowa's wildlife) are dependent upon these landowners for the vast majority of their habitat. If wildlife interests wish to maintain high wild turkey densities on these private lands, they must be aware of the concerns of the landowners. These concerns could, at the least, influence future management decisions regarding wild turkeys in Iowa's woodlands.

Look at some of the obvious benefits from having wild turkeys living freely again in our state. Turkey hunters in Iowa spend more than $3.5 million annually on their sport. This includes license fees, guns, gas, lodging, food and more. Consequently, many local merchants benefit, as does the state in general, through taxes on these products and services. This does not include money spent by non-consumptive users, such as birdwatchers. Also, turkeys trapped in Iowa have been traded to other states in exchange for wildlife species that have disappeared from Iowa. In past years, Iowa has received ruffed grouse, sharptailed

grouse, prairie chickens and river otters, as well as nearly $2 million to buy public turkey habitat (and in turn, habitat for other forest wildlife).

On the negative side, turkeys are accused of a variety of crop damage. Holes in newly planted fields (where the seed used to be), dug-up seeds/seedlings, flattened paths in oat and hay fields, and ears of corn on the ground or on the stalk but missing kernels, have been reported as the work of hungry turkeys. However, most of the evidence against turkeys is circumstantial -- based on the appearance of tracks, or turkeys themselves, in the fields.

Still, DNR biologists felt the potential for serious problems existed. With the support and funding of the National Wild Turkey Federation, the ISU Extension Service, the Iowa Cooperative Fish and Wildlife Research Unit, and the DNR, a two-year study of turkey damage began in 1989. This study looked at the problem in two ways: from the landowners' perspective through a questionnaire, and from actual crop loss estimates.

A SURVEY OF NORTHEASTERN IOWA FARMERS

A survey was mailed in February 1990 to 475 farmers in Winneshiek, Fayette, Clayton and Allamakee counties. This area was chosen because of the high density of wild turkeys in a mixed agriculture/forest area. Responses were received from 337 landowners.

More than 80 percent of the 337 respondents reported turkeys on their land. Of those with turkeys on their land, 65 percent reported some crop loss to turkeys. Corn was mentioned by 88 percent of those who suffered damage. Oats and hay damage were listed by 42 percent and 24 percent, respectively. Some farmers reported that turkeys damaged more than one crop type on their property.

Fifty-two percent of the 337 respondents reported no dollar losses due to wild turkey damage. Only five percent reported losses of more than $500. A similar survey in southwestern Wisconsin found that half of the respondents reported no losses to turkeys, while three percent suffered estimated crop losses greater than $500.

All respondents in Iowa were asked how they felt about the current numbers of turkeys -- 32 percent said there were too many, 62 percent said there was about the right number, and six percent said there were not enough.

Results of mail surveys in both Iowa and Wisconsin suggest that although many farmers perceive turkeys as a threat to crops and have suffered losses, severe economic loss to an individual farmer is rare.

FIELD STUDY

The field studies in northeastern Iowa brought some surprising evidence to light. Newly planted corn and oat fields were observed from blinds in the springs 1989 and 1990. Researchers were able to observe the wildlife species that used the fields and what each species did to the crops. Turkeys were seen in the fields, as well as white-tailed deer and gray squirrels. Researchers were able to determine that gray squirrels were responsible for many small holes and uprooted plants, while deer browsed on the tops of seedlings. More than 95 percent of the seedlings damaged by deer survived. Turkeys, which were present in the fields for as long as an hour at a time, were never seen to damage any plants. The crop seedlings held little interest for the turkeys. Instead, they were most likely searching for insects.

Wild turkeys are also accused of knocking down, or "tunneling," mature oat and hay fields. However, wind, rain and runoff may be the culprits in many cases. In fact, turkeys may be an advantage in some crop fields. A study in southwestern Wisconsin found that digestive tracts of five- to eight-week-old poults collected in oat and hay fields contained 87 percent animal matter (mostly grasshoppers), and very small amounts of vegetative material. Adult hen turkey digestive tracts contained higher amounts of oats and fewer insects, but the potential benefits of turkeys as insect eaters are clear.

Turkey damage to mature corn in the fall

◄ **Turkeys seem to be receiving the blame for crop damage caused by less-visible wildlife such as squirrels and deer.**

▶
Although turkeys do eat grain, nearly all they eat is already on the ground. The amount of standing crops they damage is small when compared to that lost to inefficient machinery.

also appears minimal. In northeastern Iowa, research showed that turkeys may have been responsible for damaging up to an average of one percent of all ears over the two-year period. This figure represents only the number of ears damaged, not the amount of damage to each ear. The entire ear is seldom damaged, and as much as two-thirds of the original kernels may still be harvestable. Also, turkey damage is not easily discernable from other bird damage, so actual turkey damage is likely a fraction of the one percent. This is much less than the five to eight percent lost to machinery during harvest.

Crops (storage pouches in the esophagus) of wild turkeys shot by hunters in fall 1989 in southwestern Wisconsin contained a wide variety of plant and animal matter. Although corn was the single most important item, more than 90 percent of the corn eaten by turkeys was either dirty or weathered, indicating it was waste grain found on the ground. Earlier studies in Iowa and Wisconsin showed that turkeys may select other habitat types over corn fields, and prefer waste corn over standing when both are available.

It is easy to see how turkeys have developed their bad reputation. Turkeys are large, travel in flocks, and are active during the day. A farmer working in his fields is likely to observe turkeys there at some time of the year. However, turkeys seem to be receiving the blame for crop damage caused by less-visible wildlife such as squirrels and deer, especially in the spring after planting. During the summer, turkeys may actually help farmers by reducing insect populations on crops. In the fall, however, turkeys are at least partially guilty. They do eat corn, though nearly all of it is grain already on the ground. The amount of standing corn they damage is small compared to the amount lost by inefficient machinery harvest.

While wild turkeys in Iowa are apparently not the "bad guys" they are reported to be, we want to offer assistance to landowners involved in an apparent turkey depredation. Contact your local DNR conservation officer, wildlife management biologist or request Iowa State University Extension Service publication Pm-1302f, *Managing Iowa Wildlife: Wild Turkeys*, from your county extension agent. This publication provides information on identifying wildlife damage and some suggestions for reducing it.

Steve Gabrey is a graduate student at Iowa State University.

Paul Vohs is the leader of the Iowa Cooperative Fish and Wildlife Research Unit at Iowa State University.

DeWaine Jackson is a forest wildlife research biologist for the department in Boone.

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Although turkeys do eat grain, nearly all they eat is already on the ground. The amount of standing crops they damage is small when compared to that lost to inefficient machinery.

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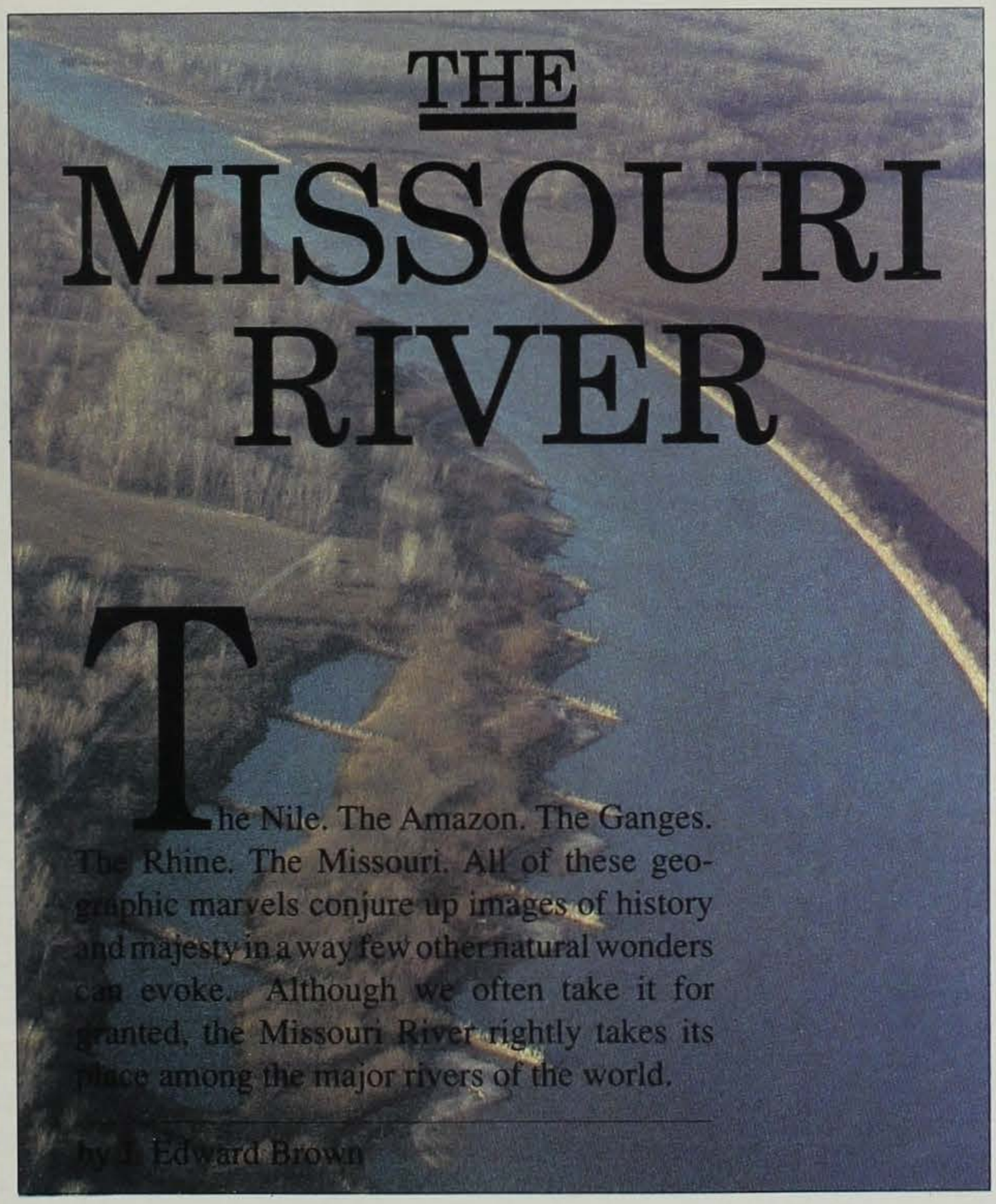
THE MISSOURI RIVER



The Nile. The Amazon. The Ganges. The Rhine. The Missouri. All of these geographic marvels conjure up images of history and majesty in a way few other natural wonders can evoke. Although we often take it for granted, the Missouri River rightly takes its place among the major rivers of the world.

by J. Edward Brown

DNR Photo

The early history of the Missouri basin was one of

NAVIGATION ■ For nearly 150 years, the Missouri River has been a prominent, commercial highway. In the early years, passengers, furs and bare-bone essential supplies were the cargo. The early vessels faced a treacherous and changing channel. Flooding and drought ruled the use of the river.

Today, commercial cargo carried on the river is typically about two million tons or more. About 30 percent is farm products -- fertilizer and other inputs upstream and grain going downstream. Another 45 to 50 percent is chemicals and petroleum products. A minimum depth of nine feet in the channel is generally maintained by well-timed releases from upstream reservoirs.

Since nearly the turn of the century, the Corps of Engineers has been at work to tailor the Missouri to the needs of commercial navigation, confining and deepening the channel. The Corps' efforts furthered development and economic expansion and was supported by Congress.

Those who oppose navigation on the Missouri note that it has not lived up to Corps predictions. The swift current and narrow channel limit navigators to small tows of three to six barges above Kansas City and require substantial power to make it upstream, as well as retain control going downstream. There are no locks and gently flowing lakes, such as the dozen along the Mississippi on Iowa's eastern border.

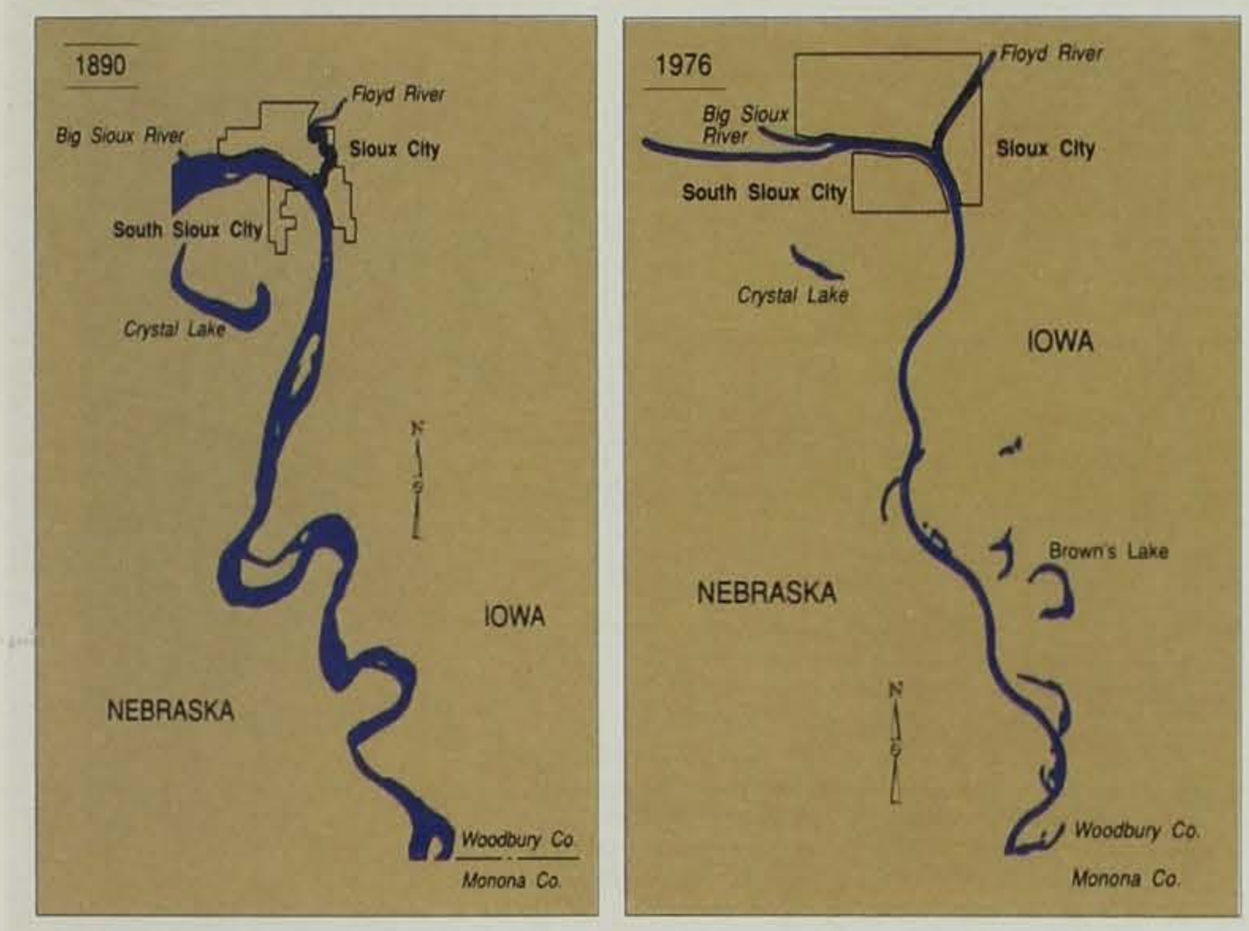
Those supporting navigation on the Missouri note that the price of rail trans-

Whether you view the Missouri as the "Big Muddy," as an engineered drainage ditch, or in some other fashion, it is likely that your vision is restricted to your specific interests in the river and the parts of it you have seen. But the very scope of the Missouri, winding more than 2,315 miles from its source in the western reaches of Montana, to its junction with the Mississippi in St. Louis, makes most of our views short-sighted. Draining one-sixth of the land area of the lower 48 states, and a portion of Canada, the uses of the river are as varied, and at times conflicting, as the river itself, from source to mouth.

The Missouri's colorful history gives us a better vantage to view the full picture of what the river is today. Better insight can be gained by a more detailed look at the primary uses of the river and how the U.S. Army Corps of Engineers manages the river system.

HISTORY ■ When Lewis and Clark returned in 1806 from their exploration of much of the Missouri River basin, the value of the territory first became apparent. They noted the abundance of fur-bearing animals, and the ready-

# of exploration and exploitation.



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The above illustrations show the dramatic change in the Missouri River in Woodbury County from 1890 to 1976.

made transportation network the river provided to help distribute the furs to the nation and the world. In the decades before their trek, England, Spain and France were all in competition with the United States for control of the territory and the identification of trade routes.

Keelboats were the first heavy-duty boats to ply the river. Fur traders were quick to follow Lewis and Clark up river to establish territories and trade agreements with native trappers. St. Louis or St. Charles, Missouri, were common starting points. It was tough work that required hearty souls to push loads of 10 tons of cargo by long pole against a relentless current. Sand bars, fallen trees and hostile encounters were regular fare.

The early history of the Missouri basin was one of exploration and exploitation. The rush to extract Rocky Mountain gold resulted in steamboat traffic pushing as far north as Ft. Benton, Montana. During high water, as many as seven small sternwheelers a day reached the docks at this bustling port in the 1860s.

As commercial traffic on the Missouri evolved, in about 1819, steamboats entered the Missouri but could not travel far up the river because of treacherportation is kept at a reduced level, due to competition with river traffic. There is a major capitol investment by companies along the river to operate terminals such as the Big Soo in Sioux City. Studies by the Missouri Department of Agriculture and elsewhere show a clear price advantage for farmers along the river due to rate competition.

During the current drought in the basin, navigation has suffered substantial losses, with a reduction of 42 percent as noted in a federal study. The Corps has shortened the season for full-service navigation by up to five weeks, primarily in the fall. Minimum flows have also been reduced by 6,000 cubic feet per second, requiring barges to carry lighter loads.

When downstream flows are reduced, navigation on the Mississippi River is also impacted. During the later parts of the summer, the Missouri may contribute up to 60 percent to the flow of the Mississippi River at St. Louis. Shipping on the Mississippi can be crippled if the Missouri flow is reduced. Because shipments along Iowa on the Mississippi were 42 million

DNR Photo

▲
Barge traffic is very dependent on adequate flows in the Missouri River. During drought, when flows are kept to a minimum, barge traffic and loads are greatly reduced.

Early work improved conditions for transportation with

tons in 1991, the economic impact on Iowa is substantial.

POWER PRODUCTION ■ Just as people can't live for long without water, a thriving industrial/technological-based society has a continual need for power. The Missouri River is the key to much of the power that Iowans use. Hydropower production was an important element in the design of the system of reservoirs. Every drop of water flowing into the upper end of the river serves to generate power every time it moves from a reservoir to the next river reach. While it is more than an incidental result, the amount of power produced is a function of the releases to serve other uses.

At times, such as a hot day in summer, peak power demands may result in higher releases to serve peaking demands of hydropower customers. Hydropower is very effective for this purpose because it can be turned on very quickly. This allows other plants such as the nuclear plants downstream to maintain a constant level of production.

Distribution of the power by the Western Area Power Administration (WAPA) requires contractual commitments. In times of drought, the commitments can't be met with hydropower, and power must be purchased to make up the difference. Purchased power is expensive and hydropower is cheap. Lower flows translate into less generation, so drought cuts power. Lower water levels behind the dams also reduce power produced. Currently annual

Robert Barratt

▲
Steamboats combined with the Missouri River to open the West. On hand were ample supplies of resources to fuel development, and western Iowa became the doorway to it all.

ous curves, sand bars and shallow channels. The adventurous might get as far as present-day Council Bluffs. An early traveler described the river as a spiral staircase, winding its way down from the mountains in Fort Benton Montana, 3,300 feet above sea level, to the mouth at St. Louis at 400 feet elevation.

In the 1860s, small stern wheelers, called mountain boats, which operated with three-foot draft or less, were able to navigate the upper river. During their peak operation in the 1850s and 60s, the mountain boat business was highly competitive. Sioux City became a prominent stopping point by the 1850s. The event-of-the-year was the arrival of the season's first steamboat, because it heralded the connection of the territory with the rest of the world after months of cold and isolation. With names like Spread Eagle, Emilie, Expansion, Honduras, Peoria City, Omaha and the Amazon, the boats reflected the colorful nature of the era.

The steamboat caused one of the first large-scale changes to the landscape along the river. Even the smallest boats consumed 20 to 40 cords of wood a day and needed to stop twice daily to take on fuel. As traffic increased, lots with 10,000 cords of wood or more for sale might be seen. The tree harvest created bare land to develop in the expanding towns along the river.

...without significantly reworking the nature of the river.

The period around 1859 marked the beginning of rail service crossing the river. For several years, river commerce and the railroad complemented each other, but competition for the almighty dollar soon forced changes. In 1890, the last steamboat left Ft. Benton marking the end of the steamboat's role in supplying the new territory. Diesel power replaced steam, and the vessels evolved eventually to today's barge tows, carrying bulk commodities of industry and agriculture.

As the territory matured in the late 1800s, the wheeler-dealers were replaced by legions of settlers who viewed the territory as a vast reservoir of land for livestock and crop production. On hand were ample supplies of lumber, coal and other natural resources to fuel development, and western Iowa became the doorway to it all.

The growth in commerce due to settlement and support for western migration provided the need for supplies and staging areas to base for river communities. Before the river was tamed by the marvels of engineering, the Missouri occupied a broad flood plain that remains today as the wide, flat land beside the channel. During low flows in these early years, the water course was a series of braided sinews, merging and splitting between sandbars and islands. In the spring, the melting snowpack on the eastern side of the Rockies surged downstream to scour the channel and devastate everything and anyone in its path.

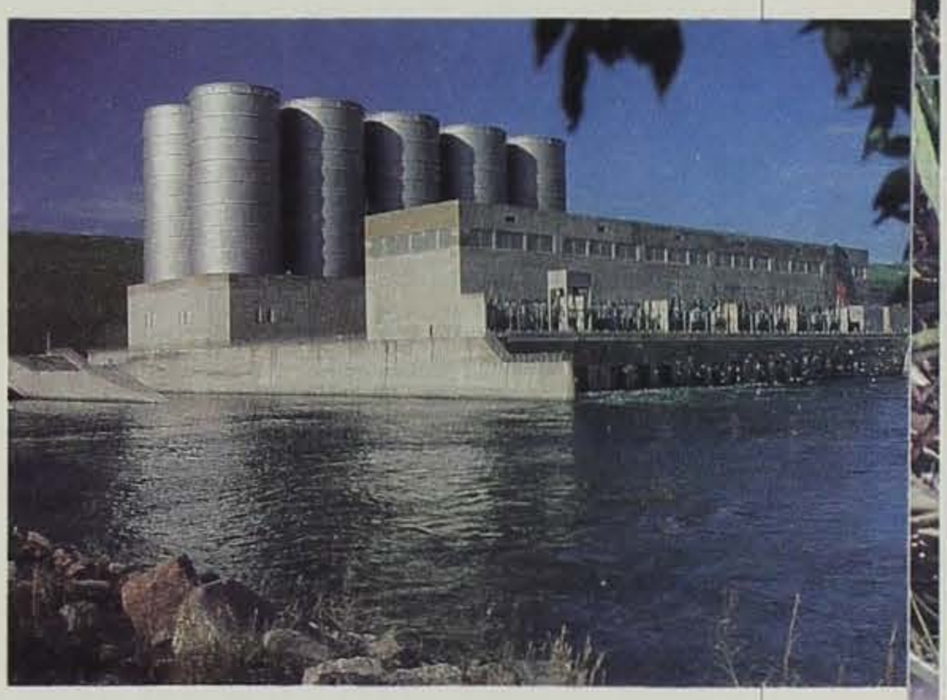
Often, when spring and summer flood water receded, the river channel might be miles from where it was before. Early riverboats had to contend with these changes in the channel and artfully pick the path that led safely upstream. The steamboat, Bertrand, encased in mud in 1865 until its salvage in 1969, with its cargo fully intact, provides testimony to the hazards that dogged the lives of those who traveled the Missouri. As more and more people lost family and friends in dramatic flooding, and as millions of dollars in investments were washed away, a powerful need was developing to bring the river under control.

Congressional action began in 1912 to pay for construction of wing dams and other structures to better control the channel for commercial navigation. This early work improved conditions for transportation without completely reworking the nature of the river. These changes began to impact on other river interests but the pressure for development far outweighed concern for fish and wildlife. As financial interests in the river grew, so did the involvement by the federal government. Following the drought of the 1930s and the floods of the 1940s, irrigation and flood control became as important as navigation in the Missouri basin. To address these emerging river issues, two competing plans

hydropower generation is only about 70 percent of what is was before the onset of the drought.

There is a lot of power produced along the open river as well. Both fossil fuel and nuclear power generators are located on the river and rely on the water for cooling. In total, Iowa power companies rely on cooling water from the Missouri River to generate about 2,700 megawatts or about 38 percent of the state's generating capacity As is discussed elsewhere in this article, the ability to generate this power is a function of water. Winter interruptions for lack of flow or ice jams can force shutdowns. Summer heating can reduce condensor efficiency and the thermal discharge can stress fish trying to survive in an already hostile environment.

Disruption of power for lack of water can be critical to Iowa. In either winter or summer, these events could occur when there is a peak demand for energy. While hydropower can rise to meet peak demand quickly, its overall capability is diminished by the period of drought that we have experienced. In addition, Iowa power companies would find themselves trying to purchase power when it was being bought by



DNR Photo

▲ **The Garrison Dam Powerhouse in North Dakota.**

The Pick-Sloan Plan offered a blueprint altering

U.S. Army Corps of Engineers

▲
The drought of the 1930s focused early interest in irrigation from the Missouri.

U.S. Army Corps of Engineers

▶
Pick (right) and Sloan were the architects of the Missouri River Basin.

others as well as WAPA to meet their own shortages -- a situation which could lead to power shortage.

WATER SUPPLY ■ Flows in the Missouri serve the needs of many river communities. Sioux City and Council Bluffs, for example, rely on adequate river flows to provide the water on which their continued prosperity depends. Sioux City takes at least half of its water from shallow wells along the river. It has no direct intake in the river channel, but it still relies on adequate flows. There is a direct link through the water table and groundwater recharge.

Reduced flows of the Missouri in recent summers have resulted in declining levels of these wells, requiring higher pumping costs and a concern for adequate volumes. These costs are estimated to be $200,000 per year. This drop in well levels, in addition to hopes for future expansion, caused Sioux City to expend $3.5 million to construct improvements to their system which will allow it to maintain an adequate water supply. This also yields an added $50,000 per year treatment cost because of reduced water quality.

Council Bluffs constructed a well as an emergency alternative to its direct intake from the river. The well cost the city about $100,000, again paid for by the water users. Other cities on the lower river have had to spend millions to alter their intake structures to handle lower winter flows.

In the sometimes fierce competition were devised, both of them counting on the construction of large reservoirs on the Missouri, mostly in the Dakotas and Montana.

The Corps of Engineers, headed by Major General Lewis A. Pick, developed the flood control plan. The Bureau of Reclamation, under William Glenn Sloan, took on the irrigation plan. Congress forced the blending of the two approaches with the resulting Pick-Sloan Plan offering a blueprint that would alter the fundamental nature of the river to serve society's immediate purposes. Six large reservoirs were constructed on the main stem of the river to control spring flooding and to store this water until it was needed later for other uses. Three of these reservoirs are the largest Corps of Engineers projects in the nation -- Ft. Peck in Montana, Garrison in North Dakota and Oahe, primarily

the fundamental nature of the river.

Special Collections/Des Moines

◄
A tributary to the Missouri in Sioux City, the Floyd River in 1892 runs through Sioux City's businesses and homes, waiting for the Missouri to go down so it can, too.

State Historical Society of Iowa
Special Collections/Des Moines

▲
A Missouri River dike broke 10 miles north of Hamburg on April 20, 1952, flooding half the town and making the valley look like the channel of old during high water.

in South Dakota. To illustrate the relative size of these reservoirs, Ft. Peck has a total storage capacity of 19.6 million acre feet with an annual storage of 18.7 million acre feet. In comparison, all four Corps reservoirs in Iowa -- Rathbun, Red Rock, Saylorville, Coralville -- with 3.2 million acre feet at flood capacity, have a total storage capacity of about 10 percent of Fort Peck.

Stored floodwater then became available to serve the needs in the summer and fall for navigation, public water supply and yet another developing river use -- recreation for the area from Sioux City to St. Louis. For years, Montana and the Dakotas focused on benefits from irrigation. It wasn't until very recently, however, that recreation interests in the upper basin, which developed as a result of these large reservoirs, were claimed as an important economic interest by these states.

It is the tension created by competitive uses of water that yields a legacy between water users, public water supply does not require summer flows that even approach those for other purposes. In winter, however, the Corps does have to control the Missouri River system to assure minimum flows for water supply service. In extremely cold periods, the Corps may have to release 12,000 to 15,000 cubic feet per second (cfs) to prevent ice from blocking the flow of water to the supply intakes. Releases above 9,000 cfs in the winter take away from stored water that would otherwise have been available to support summer recreation in the upstream reservoirs, or navigation downstream.

In addition to municipal water supply, power production requires water to condense steam after it passes through the turbines. These plants were built to rely on about the same minimum flows as cities, but they need higher flows in summer to deal with water quality problems.

Water supplies are affected by another aspect of the channelized river. In a process known as stream bed degradation, the bottom of the river is scoured by the swift moving current. As this occurs, the level of the stream bed goes down -- six to 10 feet in the Sioux City area, for example. This loss of river level, as well as the low flows due to drought, severely hinders water intake systems. The Port Neal power station had to modify its intake several years ago at a cost of millions of dollars.

WATER QUALITY ■ When Marquette first encountered the confluence of the Missouri and Mississippi rivers in June 1673, he was amazed by the boiling, muddy torrent of the Missouri. The Missouri has never been a pristine stream.

Along with its natural trait to be muddy, the water quality of the Missouri has also been greatly influenced by civilization. Cities along it became concentrated sources of waste from both residential and commercial activities. Tributaries carrying runoff from agricultural

The river has been changed so dramatically that it

lands add their doses of sediment, farm chemicals and livestock wastes.

In Iowa, concern for water pollution began with the passage of the 1923 Stream and Lake Pollution Law. This act and others that followed were based on a view that it was wrong for a river to run red. In the early years of Iowa's livestock processing industry, large amounts of blood and body parts were directly flushed into waters of the state, creating fish kills and putrid conditions. But, it was not until 1951 that Iowa included its border rivers under laws to protect them from such discharges.

This new law caused Sioux City and Council Bluffs to plan for new water treatment works, but they were slow in turning plans into actual projects. Federal interest began stirring the pot for improved pollution control on border rivers, and so did the state, resulting in the 1965 Iowa Water Pollution Control Act. In 1972 the federal government increased its grant program to cities, giving them 75 percent of the costs for water treatment works, and Iowa gave an additional five percent. This generous financial assistance led to a spirit of cooperation with river cities and elsewhere, leading to a construction boom that lasted through the 1980s.

Today, although less government assistance is available, most of the traditional pollutants like solids and organic material that depletes oxygen in the water are treated adequately. Unfortunately, we have begun to recognize the harm that

Missouri Department of Conservation

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▲
Indian Cave Bend in Missouri, top, in 1935 with new wing dams in place. Bottom, 12 years later, as planned silt has filled in behind the wing dams, narrowing the channel.

of controversy and litigation over rights to use water from the Missouri. Lawsuits have become increasingly common as states, cities, various industries and others attempt to ensure their best interests are not compromised by the action of the federal government or another state. The extent to which the Missouri's waters can be controlled ensures that conflicts among all the interests in the basin are likely to continue for some time. One thing seems certain: The river has been changed so dramatically -- much more than the people who rely on it -- that it cannot revert to its former condition.

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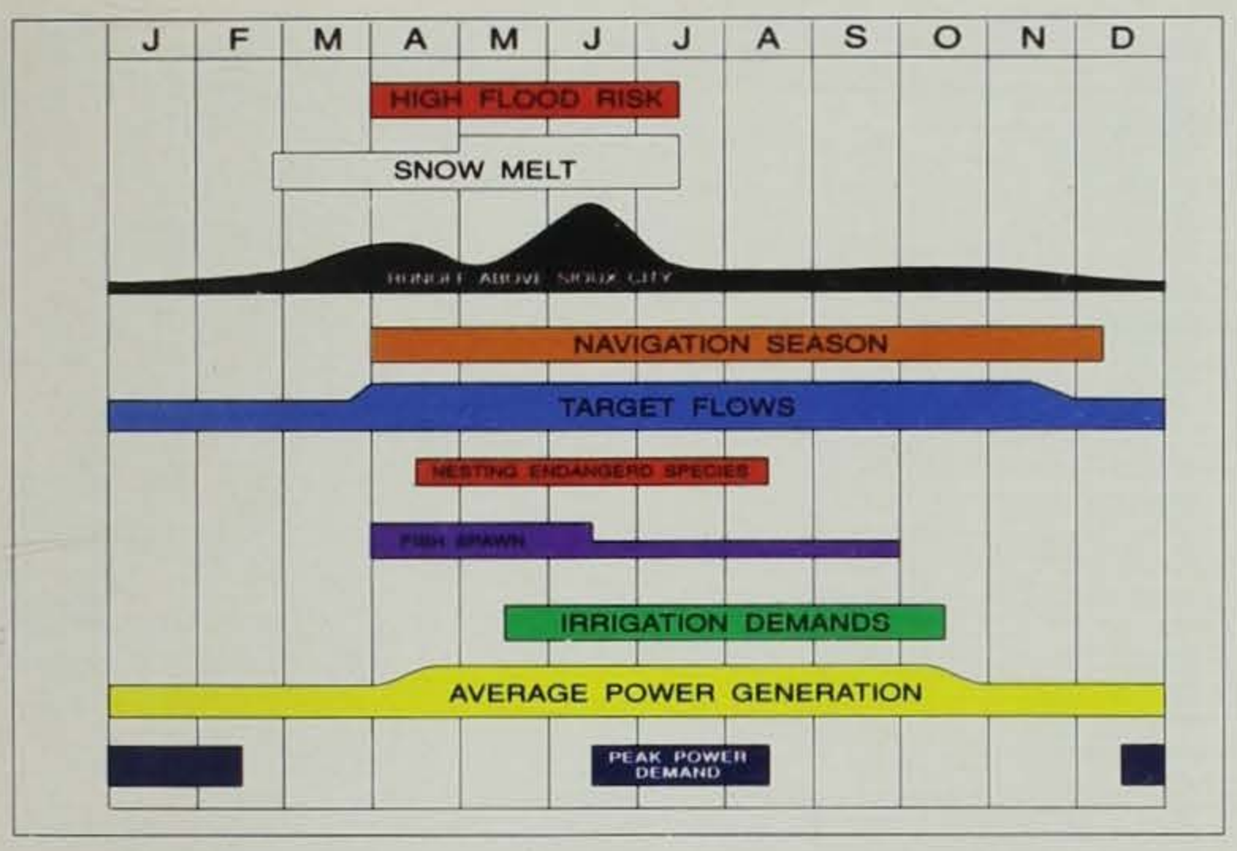

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Key features of the Missouri River system's annual operation, show the timing of major flows into upstream reservoirs, and the competition for water after it has been released. Water released for navigation purposes also yields water for electrical power generation, water supply, recreation and fish and wildlife. Peak electrical demands for heating and cooling place additional strains on the system.

THE MISSOURI RIVER -- HOW THE SYSTEM WORKS AND WHO WORKS IT ■ A simplistic view of how the Corps of Engineers operates the Missouri River system is that its six upstream reservoirs retain flood waters in the spring, to make sustained and controlled releases when the water is needed. In reality, operation of the system is far more complicated.

Weather, system design and maximizing benefits through support for competitive uses for water are factors that govern how the Corps manages the storage and release of the lifeblood of the basin.

Most of the water that is stored in the upstream reservoirs comes from snow melt and spring rains from March through June. It is during this season that the basin is at its greatest risk of flooding.

The rate at which water is released from the reservoirs is based on several criteria -- the conditions downstream and demands for flows for navigation, public drinking water supply, downstream power generation and reservoir hydropower, fish and wildlife, recreation and other uses. The Corps monitors traces of metals, pesticides and other synthetic organic compounds can cause the environment. The Missouri is no exception. Of particular concern might be a condition during low flow where runoff from a tributary highly contaminated by non-point sources could impact the fishery.

A recent study by Morningside College of bioaccumulation of metals included assessment of water samples as well as fish and other organisms. The results were encouraging in that levels of lead and zinc were lower than samples taken in 1984-85. While levels of other metals were identified as potential areas for further assessment, none appear to represent a clear threat to aquatic life.

Sioux City remains concerned about what revised standards, such as more restrictive ammonia limits adopted in recent years, will have on their cost of treatment.

There are several power plants, both coal fired and nuclear, which take water from the river to condense steam and then return the heated water. In the summer, the river water is already warm. The added heat can violate water quality standards if flows are not high enough to assimilate it. The result is fish stressed by the high temperature and low oxygen levels. This problem alone requires flows nearly equal to those for navigation.

FISH AND WILDLIFE -- LOSSES ARE ON THE MEND ■ It takes just a quick glance at the Missouri River through most of its stretch in Iowa and Missouri to recognize the amazing lack of fish and wildlife resources. Biologists view the river as a fast-flowing drainage ditch, devoid of most of the habitat in the channel and along its banks that once made the river a fish and wildlife paradise.

In one of the world's great examples of engineering and public works construction, the Corps of Engineers has basically eliminated flooding in downstream states, except from tributary flows, and have provided a

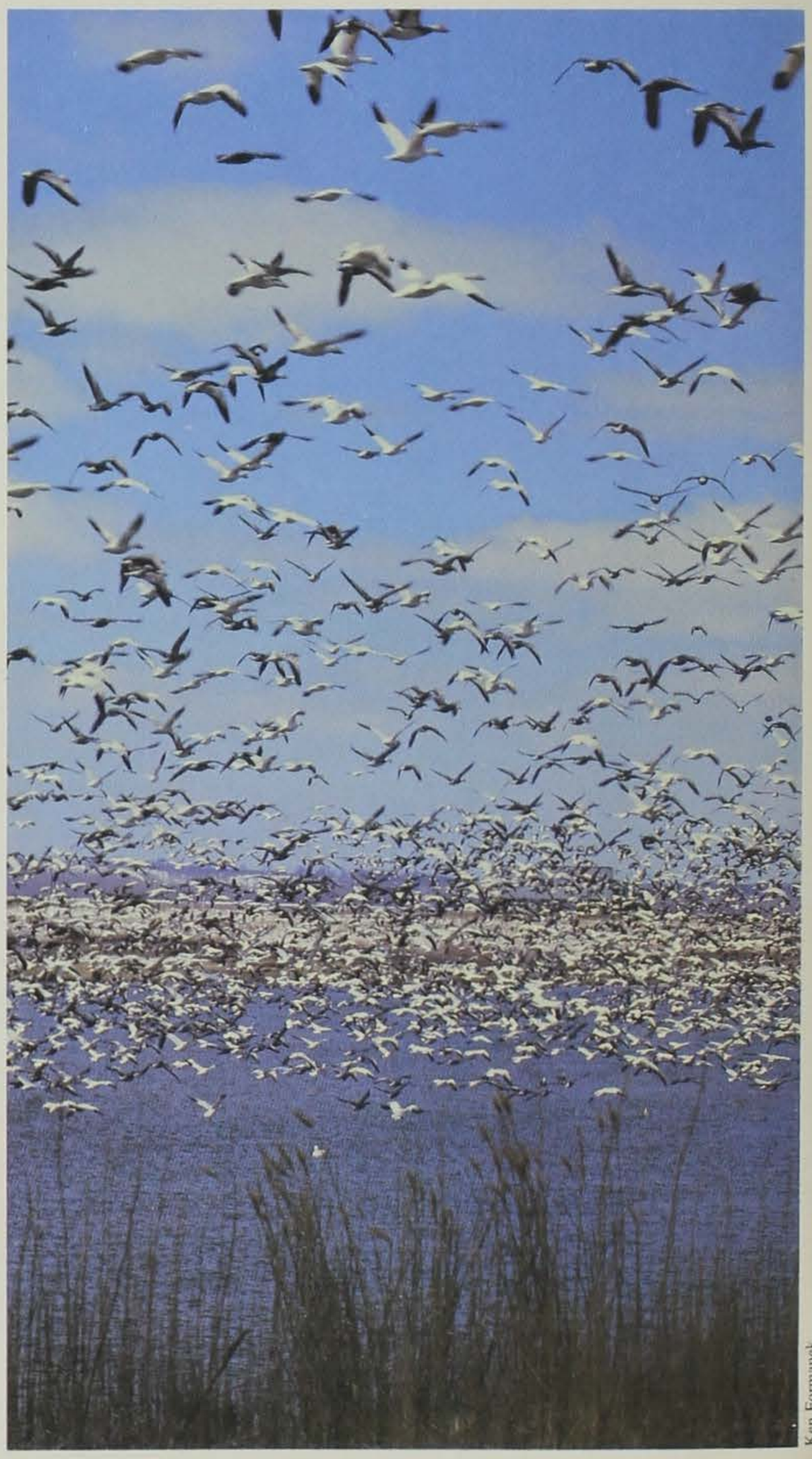
Demands for water govern how the Corps manages the s

navigation channel which more dependably supports barge traffic from St. Louis to Sioux City. They have done this with large upstream reservoirs that hold back the flood waters, and by building hundreds of wing dams and revetments that force the current into a narrow channel. Horseshoe curves were eliminated by new channels cutting miles off the river's path.

The nine-foot channel was completed in 1980 at a cost of more than $400 million, but the economic cost did not include the loss of much of the fish and wildlife habitat that once was part of the Missouri. Instead of a broad and braided stream flowing gently through a channel with numerous islands, sandbars and brushpiles, occasionally cutting off oxbows that became nurseries for game fish, waterfowl and furbearers, the Missouri's course is now straight and narrow, with gentle curves, fast and uncluttered.

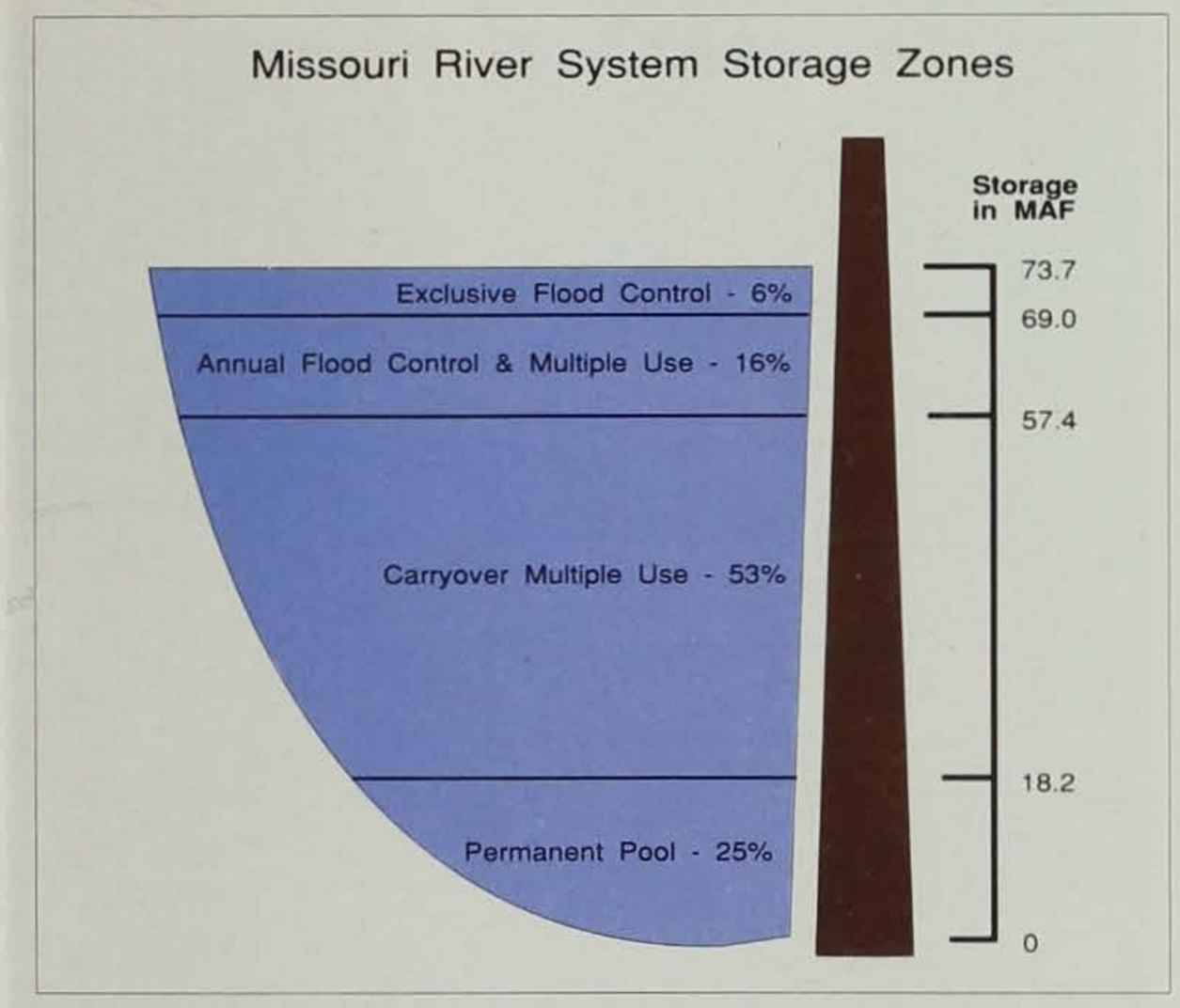
While there were many who lauded the protection from floods and provision of a dependable navigation channel, there were others who fought hard to stop the relentless destruction of fish and wildlife habitat. Recognition of their work came with passage of the 1958 Fish and Wildlife Act. This act required that damage to habitat caused by major federal projects be compensated for or mitigated by restoration or replacement of the affected areas. Any federal construction project that was less than 60 percent completed at the time the act became effective would qualify. Fortunately, the Missouri River bank stabilization and navigation project fit this rule.

In 1980, the U.S. Fish and Wildlife



Ken Formanek

he storage and release of the lifeblood of the basin.



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Imagine all of the water stored in all six reservoirs as existing in just one big pool. The upper storage level is strictly to retain high flood waters. The second level is used to support sustained releases during non-flooding times for navigation, fish and wildlife, and other purposes. Water is not released from the carryover multiple-use storage unless drought conditions require it. The intention is to never release water from the permanent pool storage. Release from the permanent pool is limited to critical needs, such as public water supply. The storage capacity above is expressed in million acre feet.

inflow from tributaries to the Missouri, and several times annually check storage levels to decide whether they can fully support downstream uses.

During normal or wet years, after the major threat of flooding passes, releases are made to reduce the reservoir storage to the carryover multiple-use level. Usually these releases meet the needs of the lower river and prepares the system to receive the next spring's bounty. Carryover multiple-use storage amounts to about half of the total storage in the system. Carryover storage is reserved to get the system through periods of drought, so in most years, it is not tapped. With the continued drought from the late 1980s through the early 1990s, the Corps has been releasing water from within the carryover storage.

Usually, if enough water is released to meet target flows from Sioux City

Service determined that about 100,000 acres of aquatic and 374,000 acres of terrestrial habitat had been lost along the river in Nebraska, Iowa, Kansas and Missouri. An example of the major losses in Iowa are the oxbow lakes, such as Snyder, Winnebago, Tieville and Louisville bends. An oxbow is created when an old portion of the channel is cut off from the main channel and water is trapped there, virtually making a lake free of the river current, although it may be connected to the river at its outlet. Three factors have caused these waters to be converted to dry land.

First, when the upstream flood waters reach the reservoirs, silt settles out in the quiet waters. When water is released from these reservoirs, it begins its rapid flow again, but now it is not carrying silt. As a result, the discharged water has the capacity to pick up new particles as it cascades down the channel and it scours out the bed of the river like a garden hose held on a mud pile. With 40 years of reservoir releases, the Missouri bed has been gouged deeper and deeper. It has now degraded six to 10 feet at Sioux City.

As the river level has dropped, so has the water table in the floodplain, and therefore, the support for oxbow lakes. Snyder Lake has been restored by the diversion of cooling water from the Port Neal power plant at Sioux City, but the other oxbows have not been as fortunate. Louisville Bend, near Onawa, for example, which was largely open water when it was first cut off from the main channel has been reduced to a few acres of open water.

Siltation of the oxbows has been another factor in the loss of water area within the oxbows. Floodwaters slow down as they spread over the area and deposit their sediment load. Foot by foot, the sediment layer rises to choke out remaining depressions that could hold water as the flood recedes.

Finally, the drought in the basin

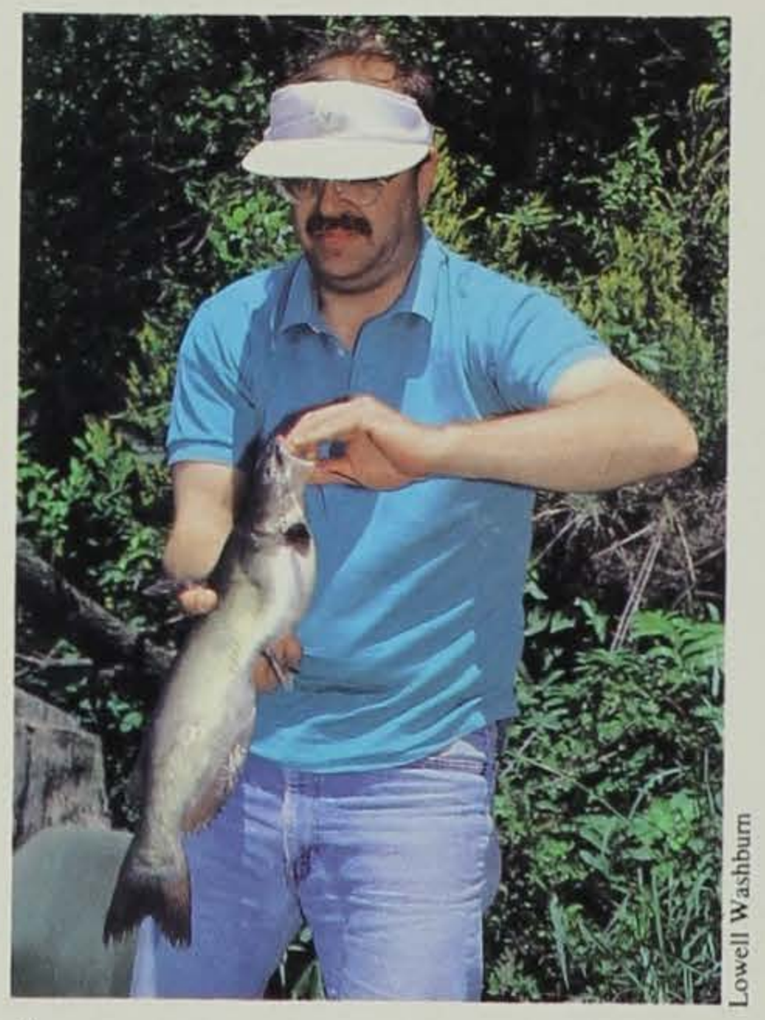
In early 1993 an environmental impact statement will

requires lower releases. In the degraded channel these releases yield an even lower level. As a result, water drains from wetlands and oxbows through porous sands and gravels to the lower channel.

In 1986, Congress passed the Water Resources Development Act that authorized the Corps to spend $51.9 million for projects that would restore or replace lost habitat in the four downstream states. In 1993, Louisville Bend will become the first site in Iowa where habitat will be restored. A project in Missouri is already underway. Although these projects may seem small compared to what was lost, they do provide very high quality habitat.

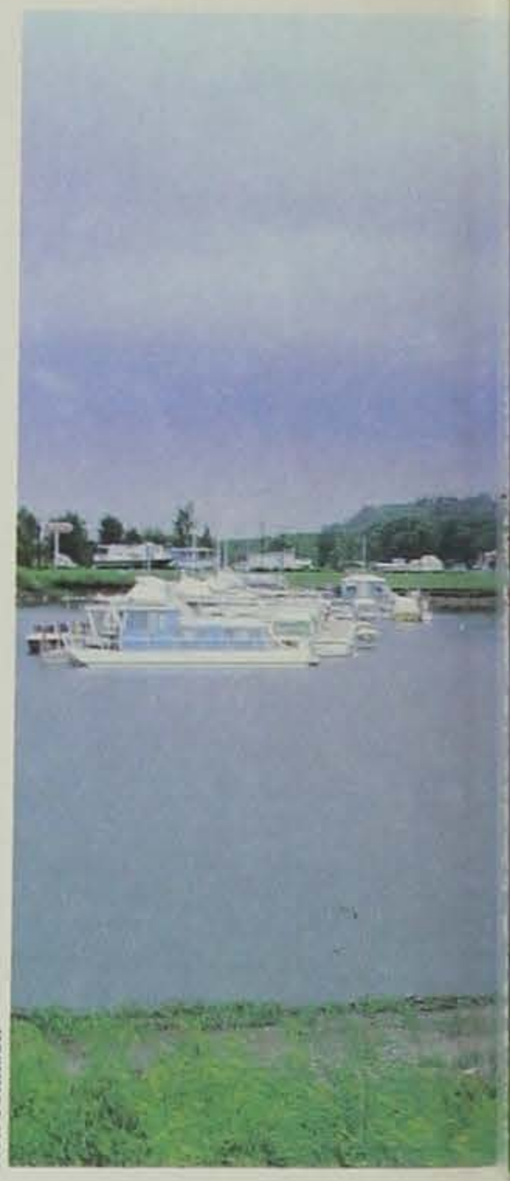
Other mitigation projects are planned, such as creating new channels to connect cutoffs with a new water supply, pumping water to maintain oxbow lake levels and dredging areas to improve over-wintering of fish. Levees and water control structures can divert river flows that carry high sediment loads while allowing areas serving as fish nurseries to connect with the river when water quality is better. Over the next 10 years, more projects should begin to change the look of several areas along the river in Iowa. Most will be on state-owned land. In some cases, land will have to be purchased, but willing sellers will be the only source.

RECREATION ■ Recreation can be a serious business. As it relates to making federal policy on the Missouri River, the large, upstream reservoirs support hundreds of thousands of recreation days for boating, fishing, hunting and other outdoor



Lowell Washburn

▲ **Commercial catfishing harvest is gone -- another victim of the loss of habitat. With time, sport fishing may improve.**



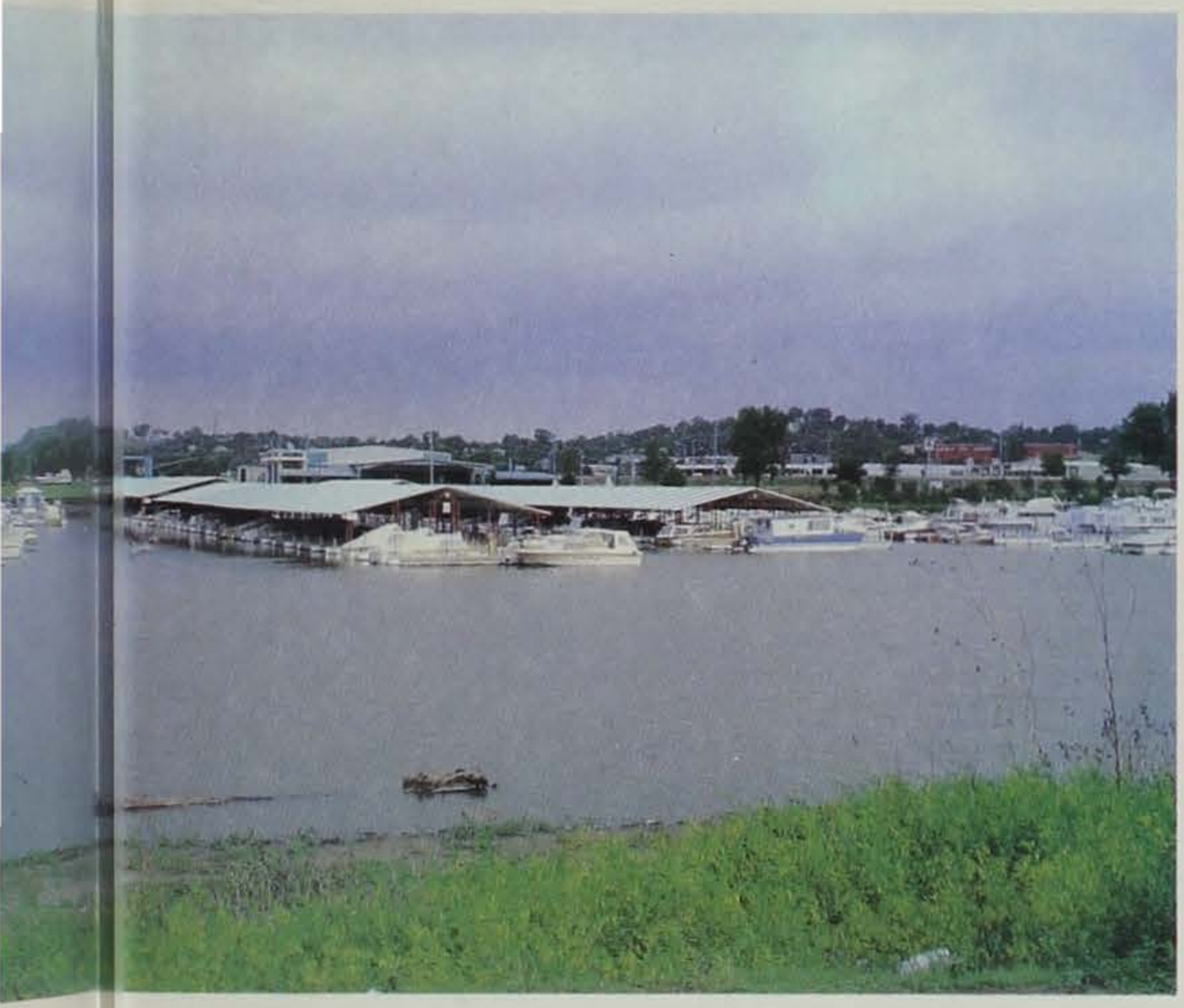
Ron Johnson

on down the river to serve navigation, the flow is adequate to serve other downstream needs as well.

In winter the Corps releases just enough water to meet water supply needs. To do so requires close contact with cities and power companies, a close eye on the weather, and the right instincts for when to increase releases to avoid icing. If a cold spell comes up, it could take several days for added water to reach the key spot in the river. Miscalculation could lead to emergency water rationing, loss of power plant capacity and public criticism. Hydropower generation is reduced because of the low winter releases, but the Corps generates added power by moving water from the upper reservoirs into Lake Oahe.

Recently, endangered species have become a controlling factor. The least tern and piping plover nest close to the water's edge. Once the nest is established, it would be washed away if higher releases were needed. To reduce chances of nesting site losses, the Corps fluctuates releases from one day to the next to encourage birds to nest at higher elevations. This allows for

ment will become available for the public to respond to.



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Cimmarina Harbor in Sioux City is one of many major investments in downstream recreation.

some higher releases if they are needed before the young leave the nest.

The Corps has a "Master Manual" that was developed to provide long-term guidance on managing this complex river system. An Annual Operating Plan is prepared each year by applying Master Manual operating criteria to the system storage conditions and uses for the coming year. Twice a year the Corps talks with the public about the Annual Operating Plan and system conditions. Any interested person can attend these meetings and make comments.

With the drought beginning in the late 1980s, upper basin states dissatisfied with Corps operating plans began to ask that the blueprint in the Master Manual be reviewed to see if it dealt appropriately with current uses. They argued that their economic reliance on reservoir recreation was important and not given enough weight in system operation. Iowa and the other downstream states have argued that their own recreation and all other uses should not be

pursuits. That translates into millions of dollars in tourism.

The downstream basin states, Nebraska, Iowa, Kansas and Missouri, do not have the large reservoirs. However, the higher populations of these states result in river-based recreation interests far exceeding what would be expected, considering the quality of the resource. From Sioux City to St. Louis many smaller parks, oxbow lakes and wooded areas can be found that are associated with the river, as well as in-channel boating, fishing and other water sports. In-channel recreation opportunities are limited by the rapid current, narrow channel, and the lowering of the channel water level from streambed degradation. As referenced earlier, lowering the water level in the channel has also resulted in lower water levels in nearby lakes and wetlands.

Boating on the lower river to fish or recreate is still big business. Cimmarina Harbor in Sioux City is home for scores of large boats from cabin cruisers to high-powered fishing boats. In total, 5,000 boats are registered in Woodbury County. Overall the City of Sioux City estimates a $30-45 million impact from tourism and is in the process of building a nine-mile park along the Missouri River at a cost of $10 million. Several marinas in the Council Bluffs/ Omaha area and a similar emphasis on riverfront development demonstrate dependence on adequate flows in the river.

Downstream recreation, just like navigation, can become very dependent on releases of water from upstream reservoirs, particularly in low-flow seasonal periods, or in longer periods of drought. But in such periods of low water supply, releasing water from the reservoirs hurts their recreational opportunities. It follows, then, that when water in the mainstem of the Missouri is scarce, recreation is just one more source of conflict between upstream and downstream users.

Many conservationists in the lower

Two policy sources have become prominent in the imp

basin have attacked the Corps for years for the construction and maintenance of the navigation channel because of the negative impact that it has historically had on the natural areas along the river. Upper basin interests have characterized the conflict for water during drought as upstream recreation versus downstream navigation. Ironically lower basin users have come to realize that all of them are dependent on adequate flows. Old adversaries have become partners.

Equally ironic is the contrast of conflicts between the states at different times. In the mid-1980s, when water was plentiful, the upper basin states sought opportunities to sell water. During negotiations of governor's representatives, Iowa argued the need for water for fish and wildlife and recreation. However, upper basin states claimed that the ability to use or sell water without interference was more critical. Fortunately, we stood firm.

The dramatic decline in the channel catfish population of the river along Iowa's border is a good example of resource loss. The Iowa DNR, last year, finally called an end to commercial fishing for catfish on the Missouri. Because of the lack of habitat for catfish reproduction, only sport fishing is allowed, now. Another era, gone.

As recently as 1972, phenomenal mallard hunting occurred in areas like Louisville Bend near Blencoe. But in addition to the declining population of mallards throughout their flyway, Louisville Bend suffered from the channelization project which destroyed habitat attractive to migrating waterfowl. The channel project caused harmed in an attempt to provide new benefits to one use, especially because the drawdown of the reservoirs has always been an integral part of drought management.

In early 1993, the Corps is expected to release an Environmental Impact Statement for public review and comment. The EIS documents a three-year effort to assess options to enhance benefits to system uses during drought or to verify that current management is appropriate.

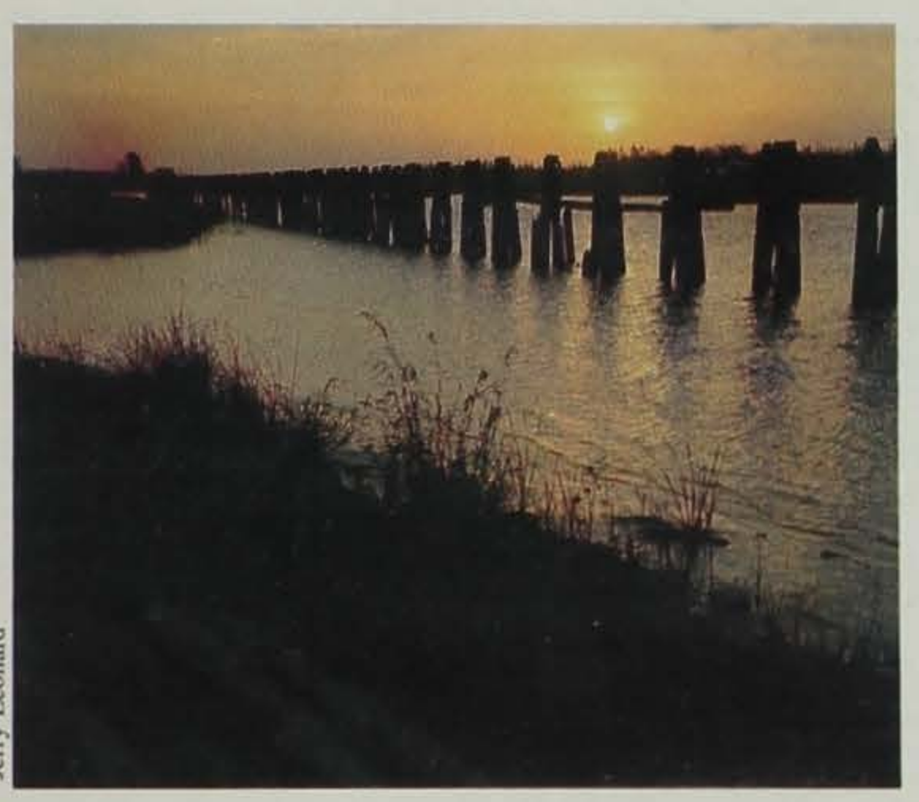
The Reservoir Control Center is in Omaha at the Missouri River Division's headquarters. It is electronically linked to the reservoirs and stream gauging stations throughout the basin. They are responsible for day-to-day operations. Policy level questions often end up in the Pentagon office of the Assistant Secretary for Civil Works in the Defense Department.

In recent years, two other decision makers have been asked to make policy on the management of the river -- the Courts and Congress. Lawsuits initiated by basin states have become common. Members of Congress have introduced bills to alter system operations and who controls them. Currently all eyes are on the Master Manual review.

Lawsuits have been started by states at both ends of the basin. Lower basin

n the mpact on the Missouri River -- the Courts and Congress.

Ron Johnson



Jerry Leonard

◄ **Blue Lake, a Missouri River oxbow, is the primary feature of Lewis and Clark State Park near Onawa.**

states sued the federal government to halt the sale of water to be used in a coal slurry pipeline project and their views on the law prevailed. In 1988, The Dakotas and Montana asked for an injunction to prevent the Corps from making spring navigation releases which would lower reservoir levels. They stated that the drop in water level would devastate the year's fish spawn by exposing unhatched eggs laid along the shore just below the water. The State of Iowa saw the lower flows as harming its own spawning season and reducing the benefits to all other uses. The injunction was granted in district court, but overturned on appeal. A second suit by upper basin states asks the court to rule on several legal issues related to the operation of the system and the Corps' determination of priority uses. Most recently, the state of Missouri filed a suit asking the court primarily to tell the Corps to follow the current Master Manual. The result of the last two lawsuits is yet to be determined.

J. Edward Brown is Iowa's representative on the Missouri Basin States Association, an interstate organization established by the governors to aid communication and give states a voice in how the river is managed.

silt to deposit in the oxbow lake isolated at Decatur Bend near Onawa which resulted in the conversion of a large area of water to corn ground between 1972 and 1981.

Several lakes along the river still provide a reasonable chance for fishing because pumps are employed to maintain their level against the draining action of the lowered water level of the Missouri. Lake Manawa, near Council Bluffs, Blue Lake at Lewis and Clarke State Park, near Onawa, and Snyder and Brown's lakes in the Sioux City area have all lost their surface water connection to the river. As a result, they cannot provide the fish nursery benefits to the river they once did, and recreationalists cannot move freely between river and oxbow. The water supply for Brown's and Snyder lakes comes from the cooling water of Neal 4 Generating Station of Iowa Public Service Company, just south of Sioux City.

In 1991, state parks along the Missouri in Iowa attracted 1.2 million visitors, the most popular site being the 600-acre Lake Manawa. This amount exceeds the use of at least two of the upper basin reservoirs. Given the fewer number of people in the upper basin and the dramatically different water-based recreation opportunities, however, comparisons are difficult. It should be noted that in addition to these parks, there are county facilities and numerous access points and wildlife areas which support boating, hiking, hunting and fishing on or along the river itself.

With the passing of old timers, fewer and fewer people are around today who knew the Missouri before it was transformed by engineering. Photos and written accounts document the recreational paradise that used to be there, although in those times, activities such as fishing and hunting were considered more necessary to fill the larder than they were recreation. Certainly, if today the river fit its description of 75 years ago, it would dwarf the outdoor recreational resources of the rest of the state.

--EJB

THE MISSOURI RIVER

YOU CAN HELP ■ Like it or not, the limitations of the system in drought become more apparent to all as competition for the resource increases with population and use. To meet any request for service, the Corps must take away from some other existing use. A change could benefit Iowa at the expense of the Dakotas or the reverse could be true. Change could also harm one Iowa interest while helping another.

While the Corps has its hand on the wheel, it is not free to do as it pleases. It has no end of masters beyond the Master Manual. Small changes can be made without major consequence. Large alterations require the approval or consent of Congress.

Those of us involved in representing the state's interests in technical meetings and at hearings have attempted to accurately portray the needs of our state along the river. But now we are moving closer to a time when the Corps must reveal what changes, if any, it may be considering and information that supports the best options as well as a favored option. All of this information will come to us by the time the Draft Environmental Impact Statement (Draft EIS) is released.

We need your help. The Corps has a responsibility to consider all impacts. We have tried our best to tell them about our uses of the river and our concerns for any reduction in service. If we may have missed some element that is important to you, we need to know about it.

Similarly, the Corps faces a legal obligation to fully assess the impact of change. They cannot, for example, simply change their manual to retain more water in the reservoirs to forestall harm to recreation in Montana and the Dakotas at the expense of our own recreation. In addition, the Corps must do its very best to identify what other interests are harmed by such an action.

When the Draft EIS is released, we are going to need help in deciding how well the Corps has done its homework. The draft will not be light reading. It will be a complex technical report. But there will be summaries and other means to help you understand the technical language. In addition, two public meetings will be held this fall in Sioux City and Council Bluffs to provide you with additional information. The times and locations of the meetings will be announced soon. If you cannot attend either meeting, there are still other resources that can help you to become involved in the future. You can start receiving information from the Corps as it is available by getting on a mailing list. To do so, write to Larry Cieslik, Project Manager, 12565 W. Center Road, Omaha, ME 68144 or call (402)221-7360.

To receive information from the department about the Corps activities, contact J. Edward Brown, Department of Natural Resources,Wallace State Office Building, Des Moines, Iowa 50319-0034, or call (515)281-8941.

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IOWA'S OUTDOOR COOKBOOK

by Julie Sparks and Tammra K. Pavlicek

The holiday season is just around the corner, and with the season comes delicious holiday cooking and baking.

Try one -- or all -- of these recipes for your family this holiday season. They are sure to become family favorites.

Do you have a favorite outdoor recipe you would like to share with our readers? Send to "The Outdoor Cookbook," *Iowa Conservationist*, Wallace State Office Building, Des Moines, Iowa 50319-0034. We regret that we cannot acknowledge receipt of recipes or return recipes. We will print as many as space allows.

Barbecued Quail

8 quail
1/4 cup butter
1/4 cup onion, chopped
1/4 cup green pepper, chopped
1/4 cup water
1/4 cup ketchup
1/2 tsp. dry mustard
Worcestershire sauce, to taste
salt and pepper
softened butter
hot rice, buttered
parsley sprigs or greens

Split quail. To make sauce, fry onion and green pepper in butter in a frying pan over medium heat for 5 minutes. Add the rest of the ingredients and simmer for 10 minutes. Butter a large baking dish. Arrange quail skin-side up. Brush butter on quail and spread some barbecue sauce on each quail piece.

Bake in a 450-degree oven for 25 minutes, basting the quail occasionally. Serve on hot buttered rice. Ladle pan juices over rice and add parsley.

--Warden's Cookbook

Scalloped Wild Turkey or Pheasant

2 cups cooked turkey or pheasant
1/2 lb. Velveeta cheese
1 pint broth or milk
1 small onion, chopped
2 cups uncooked macaroni
4 hard-boiled eggs
1 can cream of mushroom soup
1 can cream of celery soup
1 8-oz. can sliced water chestnuts, optional
salt and pepper

Mix all ingredients together and refrigerate overnight in a 9x13-inch pan.

Bake at 325 degrees for 1-1/2 hours.

--Warden's Cookbook

Candied Duck

2 large apples
1 cup brown sugar
4 large ducks
2 cups flour
1 tsp. salt
1 tsp. pepper

Slice the 2 large apples; place slices on a cookie sheet and sprinkle with brown sugar. Let stand for 1 hour or until the juice from the apple turns the brown sugar to syrup.

Remove bone from the duck breasts; slice the meat in strips. Roll in flour with salt and pepper mixed in.

Fry as you would chicken until almost done. Pour the apples and brown sugar mixture into the frying pan with the meat. Cover pan; simmer for 15-20 minutes. Makes 3-4 servings.

--Warden's Cookbook

Aunt Elaine's Pheasant

4 pheasant breasts, halved and boned
8 slices bacon (fry until half done)
1-1/2 cups sour cream
2 cans cream of mushroom soup, undiluted
6 slices chipped beef, pull apart
1/2 lb. mushrooms, raw
1/4 cup butter
2-3 T fresh parsley

Wrap bacon around each pheasant breast, place in shallow casserole. Shred chipped beef over top of each.

Combine sour cream and soup in small bowl; mix well and pour over pheasant.

Cook uncovered in 200 degree oven for 4 hours.

Saute mushrooms and butter; spoon over each breast, scatter on top.

--Elaine Sohner, Wauwatosa, Wisconsin

Salami

2 lbs. ground venison or beef
2 tbs. Morton Tender Quick
1 tsp. garlic or onion salt
1 tsp. salt
1 tsp. coarse pepper
1 tsp. mustard seed
1 cup water

Mix all ingredients together, cover and refrigerate overnight. Make into small rolls.

Bake at 350 degrees for 1-1/2 hours.

Nut Stuffing for Game Birds

5	cups toasted bread cubes or or stale bread
2/3	cup chopped onion
2/3	cup celery, chopped with leaves
1/2	tsp. sage
1/2	tsp. thyme
1	egg, beaten
2	cups chopped nuts
1	cup chicken broth
1/4	cup margarine
1	tsp. salt
1	tsp. chopped chives

Saute onions, celery and nuts until onions and celery are tender but not browned. Add remaining ingredients. Moisten with stock.

Stuff fowl loosely and truss (bind tightly). Brush with butter and bake.

--Warden's Cookbook

Game Warden Stew

3-4	lb. meat (deer, elk, moose, antelope or beef), cut in 1-inch cubes
4	potatoes, cut into large chunks
4-5	carrots, 1-inch slices
3	onions, cut as desired
1	small can mushrooms
1	tsp. salt
1/2	tsp. basil
1	tsp. paprika
1-1/2	tsp. flour
1	tsp. chopped parsley
2	cans of tomato soup and two cans of water (more water if needed)

Brown meat. Put in roasting pan. Add remaining ingredients.

Bake at 250 degrees for 4-5 hours.

--Warden's Cookbook

Date Nut Harvest Bread

1	cup butter
1-1/2	cups sugar
4	eggs
2	cups canned pumpkin
3	cups flour
1	tsp. salt
2	tsp. baking powder
1/2	tsp. soda
2	tsp. cinnamon
1	8-oz. pkg. chopped dates
1/2	cup raisins
1	cup pecans, chopped

Cream butter and sugar. Add eggs one at a time, beating after each addition. Add pumpkin and mix well.

Sift flour, salt, baking powder, soda and cinnamon. Add to pumpkin mixture and beat well. Add dates, raisins and pecans. Mix until well coated and dispersed through mixture.

Pour batter into 2 greased 5x9-inch loaf pans. Fill containers 3/4 full and bake at 375 degrees for 60-75 minutes or until bread tests done.

Cranberry Salad

1	lb. cranberries, ground raw
2	cups sugar
2	cups seedless grapes
2	cups pecan pieces
1/2	pint whipped cream

Mix cranberries and sugar. Let stand in refrigerator 24 hours. Drain.

Add grapes and pecans. Add whipped cream just before serving.

Warden's Cookbook

Warden's Cookbook can be purchased for $10 plus $2 shipping and handling by writing to Fish and Game Officer Association, George Hemmen, Rte. 2, Box 259, Guthrie Center, Iowa 50115. A supplement is also available for $5.

Molasses-Sorghum Cake

2-1/2	cups flour
1	tsp. ginger
1	tsp. cinnamon
1/4	tsp. salt
1/2	cup shortening
1/2	cup sugar
1/2	cup molasses
1/2	cup sorghum
2	tsp. instant coffee
1	tsp. baking soda
1	cup hot water

Cream shortening; gradually beat in sugar and continue beating until light and fluffy. Stir in molasses and sorghum.

Sift flour with ginger, cinnamon and salt.

Dissolve baking soda and coffee in water; add alternately with flour mixture to batter, beating after each addition until smooth.

Pour into 9x9x2-inch square pan lined on the bottom with waxed paper.

Bake in 350 degree oven 45-50 minutes or until top springs back when lightly pressed. Cool in pan 15 minutes; remove to wire rack.

Black Walnut Pie

1	cup sugar
6	T flour
1/4	tsp. salt
2	egg yolks, well beaten
2	cups milk
1	tsp. vanilla
2	tsp. butter, softened
1	cup chopped black walnut meats
1	unbaked 9-inch pie crust

Sift together sugar, flour and salt. Blend in milk and egg yolks. Cook over boiling water until thickened; cool. Add walnuts, vanilla and butter. Pour into pie crust.

Bake at 450 degrees for 10 minutes; then reduce heat to 325 degrees and bake for an additional 30 minutes.

CONSERVATION UPDATE

by Kathryn Stangl

TREE FARMER OF THE YEAR REHABILITATES ABUSED FARMLAND

Profitable and Environmentally Sound Land Use Revives Area

Marion farmer Gene Frye has been named the Iowa 1992 Outstanding Tree Farmer for the contributions he has made in rehabilitating badly abused Iowa farmland. Frye was selected from candidates throughout the state because of his work on his multi-purpose farm, which he calls Ganderhawk Forest.

The American Tree Farm System dedicated the first tree farm June 12, 1941 in Washington state. In the 51 years since that first dedication the program has gone national in scope. Iowa joined the program in 1955.

The program gives public recognition to those private woodland owners who are doing outstanding jobs in the management of their forest lands. The basic aim of the program is to place more of Iowa's woodland under management practices that will bring continuing benefits to the owner and provide better, forests, services and products for the public.

As of March 1992, Iowa has 789 designated tree farms covering 59,700 acres. The Iowa program is cosponsored by the DNR, the ISU cooperative extension service and wood-using industries.

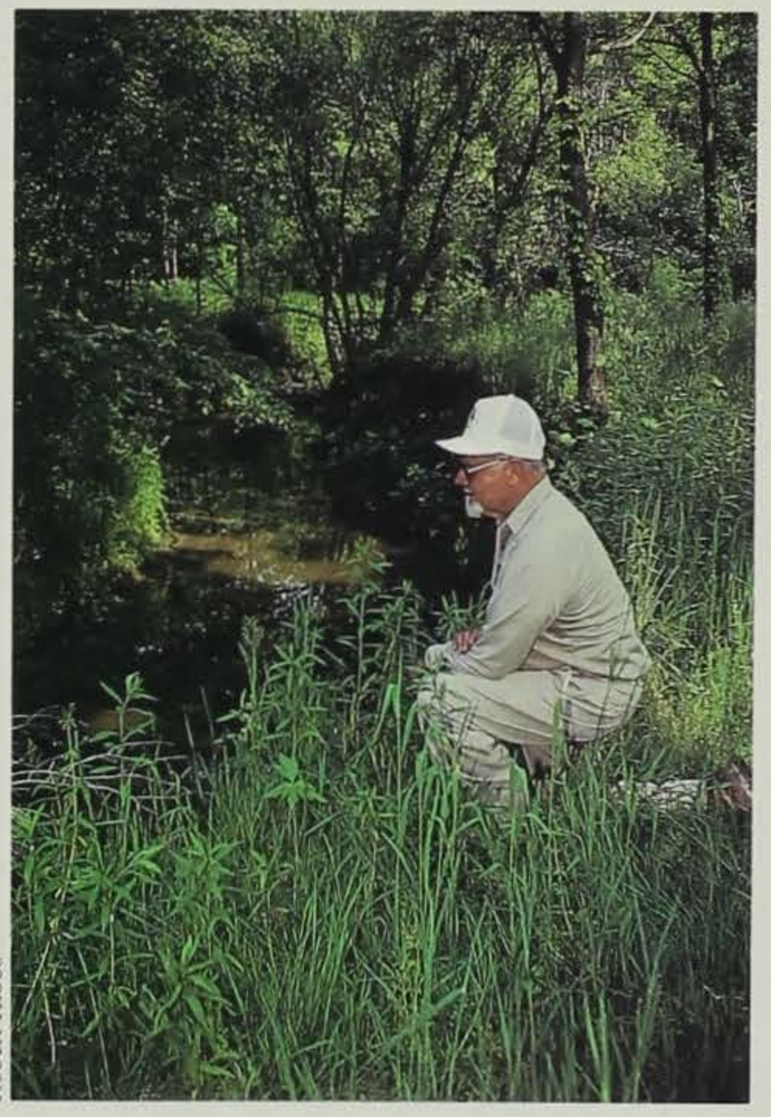
When Frye bought the 100-acre property in 1969 there was an extensive erosion problem. About half the land was in low-quality, abused timber and the rest was in an overused, highly erodible, row crop situation.

Now, instead of being grazed up to the banks there is a filter strip adjacent to the stream running through his property. The four pre-1969 crop fields and portions of timber adjacent to the fields would now be hard to recognize. Today the area is a maze of wildlife habitat and erosion is almost nonexistent. The creek that runs through the farm is again running clear, with fish returning. Wildlife abounds with deer and turkey, a side stream supports turtles, wood ducks use the area and Frye has regularly seen herons.

Trees, shrubs and native wildflowers have replaced the poorly maintained pasture, but that has not been the only change. In addition to annual firewood harvests of low-quality trees, Frye has harvested 26,000 board feet of lumber since 1978, enough to construct two and one-half, three-bedroom ranch style homes. Harvest products have included veneer, lumber and railroad ties.

"This illustrates what can be done to change a nonproductive parcel of farmland to more appropriate, environmentally sound and profitable uses," Frye says.

"A large portion of the farm's success is due to the availability of the accurate, technical information provided by the DNR district foresters and ISU extension personnel. They not only saved me from some big mistakes but were there for me whenever I had

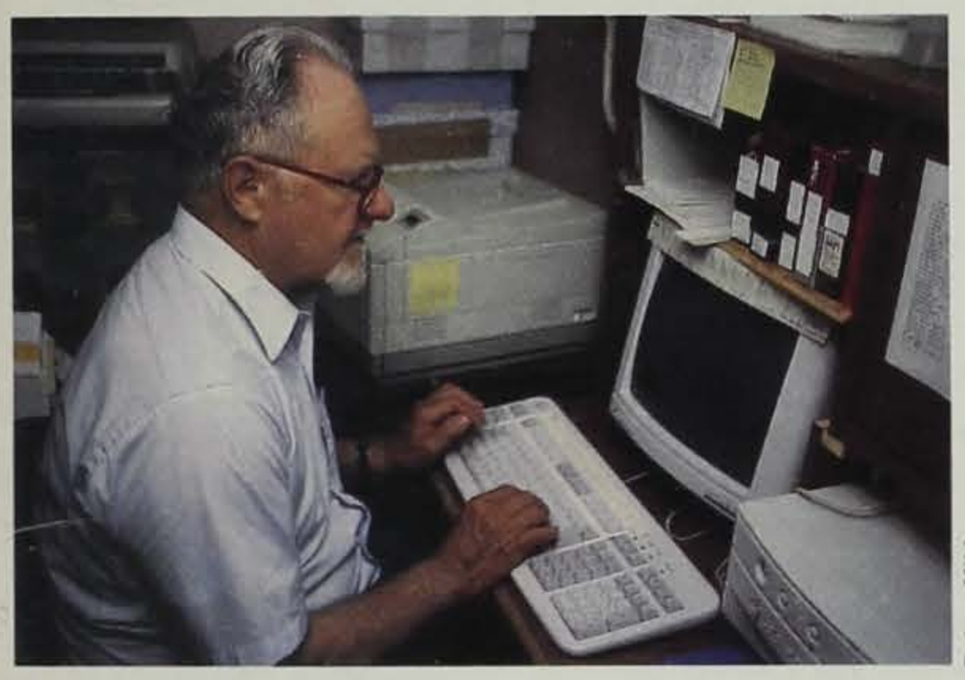


Robert Hibbs

◄ Outstanding Tree Farmer of the Year for 1992, Gene Frye, notes that tree plantings have improved water quality and habitat along the adjacent stream corridor. Trees, shrubs and native plants now cover the area.

Gene Frye

▲ 1969 photo of poorly maintained pasture



Robert Hibbs

▲
Future tree farmers will benefit from the computerized information Frye keeps regarding inventory, growth and financial records.

questions," Fyre notes. "That makes a critical difference in making management choices."

"Quite a few generations of my family have been in woodland occupations and environmentally aware, so this is always something I have wanted to do. One grandfather ran a sawmill, another had award-winning fruit trees and my father was an active conservationist beginning in the 1920s," Frye says. Frye's current work in returning the land to environmentally sound uses, rehabilitating its productive capacity, continues this tradition.

The key requirement for Tree Farm certification is a management plan that includes the production of trees as a repeated crop. Other major objectives include watershed protection, recreation, wildlife habitat and the appearance of the land. Tree Farm land must be privately owned and there are no fees, costs or dues to participate in the program.

Future tree farmers will benefit from the computerized information Frye keeps regarding, inventory, growth and financial records. That combination of current technology, respect for the land and environmental values makes for an award winning combination.

REAP and Three Additional DNR Programs Receive National *Renew America* Awards

Iowa's Resource Enhancement and Protection Program (REAP) has been selected to receive the *Renew America* Environmental Achievement Award. This prestigious award is the only national award presented by the environmental community and is bestowed on environmental programs for their success in protecting the environment, inspiring others to take environmental actions and reaching community goals.

Since its inception in 1989, REAP has allocated $45 million for land acquisition, conservation education and soil and water conservation projects throughout Iowa. Drawing from the state's general fund and from lottery profits, this 10-year legislative initiative represents one of the nation's most ambitious, state-sponsored efforts to protect local natural resources.

"Iowa's REAP Program established Iowa as a national leader in the movement to retain our country's rich base of ecological resources," says Tina Hobson, executive director for *Renew America*. "This program sets a positive example for the rest of the nation to follow."

Three other DNR program areas received national recognition by *Renew America* in obtaining its Certificate of Environmental Achievement. These programs are:

- the public awareness program called "Iowa Needs a Cleaner Planet," in cooperation with the Des Moines Advertising Professionals, the Iowa Newspaper Association, and the Iowa Recycling Association;
- the Iowa Motor Vehicle Fuel Reduction Program; and
- the 85 percent Ethanol Car Demonstration Project.

Based in Washington, D.C., *Renew America* is a nonprofit organization committed to restoring our nation's communities through environmental action. According to a *Renew America* spokeperson the organization "seeks out working programs around the nation, whether large or small scale that effectively protect, restore or enhance the environment -- programs that prevent pollution, protect wildlife species and threatened habitat, enable citizens and industries to recycle wastes or use energy more wisely or ensure the safety of food or drinking water supplies."

CONSERVATION UPDATE

Energetic Organizations Win Awards

For the fourth year, the DNR will present the Iowa Energy Leadership Awards. This year's winners include the following leaders in energy efficiency and renewable energy resources.

The City of Iowa City. Since 1978, Iowa City has employed an energy coordinator to save energy in both city facilities and throughout the community. Outreach and education efforts have included "energy fairs," compact fluorescent light bulb giveaways, energy videos on cable TV and poster contests.

Over the past 10 years, the city has saved close to $2 million in energy costs. According to James Schoenfelder, Iowa City energy coordinator, any city government in Iowa that spends at least $175,000 on energy bills in its buildings can't afford NOT to hire at least a part-time energy professional.

Geo Metro Ethanol Challenge. For the past two years, on the eve of the Ruan Greater Des Moines Grand Prix, a race of a different kind has taken place. The winners succeed not on speed, but on fuel efficiency. The Geo Metro Ethanol Challenge promotes efficient and safe driving as well as the use of a renewable fuel -- 10 percent ethanol-blended fuel.

Teams made up of high school students and local media and other celebrities drive Geo Metros provided by Central Iowa Chevy dealers. The winners are determined by the miles per gallon achieved over the 100-mile course.

Sponsors include Central Iowa Chevy/Geo dealers, the Chevrolet Geo Motor division, the Iowa Corn Promotion Board, the Ruan Greater Des Moines Grand Prix, Pizza Hut and Kum and Go stores.

IE Branching Out Program. Starting in one small city, community tree-planting programs have "branched out" across the state, thanks to a program launched by Trees Forever and Iowa Electric Light and Power. In late 1989, a pilot project was started in Belmond, Iowa. That community's reaction was so positive that the Branching Out program was created to plant trees statewide.

In 1991, 36 communities worked with Trees Forever to recruit 2,000 volunteers, planting nearly 5,000 trees and 21,000 seedlings. Iowa Electric has committed to providing $1 million over the next five years to "branch out" into even more communities.

Properly placed trees save energy by shading buildings from summer sun and sheltering them from winter wind. Urban tree planting also provides other benefits such as soil stabilization, wildlife food and habitat and noise absorption. Tree leaves also filter pollutants such as carbon dioxide and through evapotranspiration can actually help cool the air in the summer.

National Energy Consultants. This Cedar Rapids company was the first business in Iowa to provide comprehensive energy management services to businesses, churches, non-profit facilities and homes. By not just representing one manufacturer or one product line, this company helps its clients choose the appropriate product from dozens of manufacturers, whether it's an energy management system or lighting, or a new appliance.

Their broad-based methods include a thorough analysis of a building's energy usage and energy bills. The resulting report includes suggestions for taking advantage of lower rates offered by utilities, specific energy-efficient equipment and advice on how to operate a facility more efficiently.

National Energy Consultants was the guiding force behind the energy management efforts that won Iowa Energy Leadership Awards in previous years for the Indian Creek Nature Center and the Cedar Rapids Bus Department.

Waverly Light and Power. A small municipal utility, Waverly Light and Power, is taking the lead on three fronts -- energy efficiency, renewable energy and tree-planting. Energy efficiency efforts include hiring a full-time energy advisor to work with customers, builders and contractors; addressing future energy needs with integrated resource planning; replacing all street lighting with efficient, high-pressure sodium lamps; and working with local service organizations to promote compact fluorescent lighting.

Waverly Light and Power has operated three hydroelectric generators since 1923. A new effort in renewable energy involves studying the possibility of installing wind generators.

The utility has Iowa's largest municipal utility tree-planting program, developed with Trees Forever.

Wood Crest Custom Homes. Developing energy efficient, passive solar homes is a family affair for Wood Crest Custom Homes of Bettendorf. Members of the Prochaska family design and supervise the energy-efficient construction of the homes, decorate and choose appliances with efficiency in mind, and market the homes.

A recent project was a 3,600-foot custom ranch house that will cost less than $250 per year to heat and require only one watt per square foot for lighting.

Many of the energy-efficiency features of the homes are unseen by the buyers, but the Prochaskas insist on adding quality and comfort. Their motto is "We strive to do 100 things one percent better every day." Their commitment shows in the state of the art technologies and knowledge incorporated into the homes they build.

October Is National Energy Awareness Month

the theme *"Energy Technology for a Competitive America"*

Telephone Appointment System For Toxic Cleanup Days

The Toxic Cleanup Day (TCD) "call for an appointment" system allows you to dispose of your hazardous wastes during the collection day and provides an opportunity for education on alternatives to disposal or in some cases proper disposal management in the home. If you are stumped about what to do with unusable chemicals in your home, watch for the next TCD in your county.

Complete an inventory of the toxic materials you have in your home. Check out any products used for cleaning, lawn and garden, automobiles and hobbies. If they have warnings on their labels, they are hazardous. The more warnings you see, such as "Keep away from children," "Do not get on your skin," "Wear goggles," "Danger," "Flammable" or "Caution," the more dangerous the product is.

Next, decide which items you can use up, recycle or give away. Call your local TCD telephone assistance line which will be staffed a week or two before the event. Read to them the list of materials you will bring to the TCD. They have been trained by the DNR to help you, and may even save you a trip to the event. For example, they may give you instructions on how to safely dry out your unusable latex paint so it can be disposed of in your regular trash. Or, if you have used oil, you may receive the address of a convenient local collection site.

If you have items that you do not want, TCD telephone volunteers may find a home for them with someone who can use them. For example, a volunteer found a home for a gallon of floor wax that a senior citizen center was glad to receive. They used it up and saved on their budget and consequently some costs of the TCD disposal were reduced.

If you find anything unusual, the volunteer will help tackle the problem by providing options. The DNR or the Iowa Fertilizer and Chemical Association will assist the volunteer with answers to questions on unusual products or farm chemicals. If you have waste that needs to be dropped off, the telephone volunteer will schedule an appointment. Your TCD appointment will last no more than five minutes and you can be on your way to other Saturday activities.

Besides speedy service, other advantages of the "call for an appointment" TCDs are:

-- You will know who can be contacted locally for assistance.

-- Instead of the "quick fix" solution -- bringing in all toxic chemicals -- your personal assistance call will help you properly manage much of your toxic waste.

-- If you do happen to forget an appointment, volunteers can call and remind you.

-- If you are a farmer with seasonal farming commitments or have commitments tying you up on the Saturday of the TCD, you can make arrangements for delivery of your wastes by others if needed.

-- You will be able to receive written household hazardous material information to help you in the future.

All in all, telephone TCDs add up to an efficient way to serve the citizens of Iowa with proper management of household hazardous waste. They provide education as well as safe disposal of toxic chemicals from the home at lower disposal costs.

Dates and locations for the fall toxic waste cleanup days are:

- Sept. 12, Cerro Gordo County, Cerro Gordo County Fairgrounds, Mason City
- Sept. 12, Monona County, Monona County Recycling and Transfer Station, Highway 37 E, Turin
- Sept. 12, Plymouth County, Plymouth County Maintenance Building, LeMars
- Sept. 19, Allamakee County, Allamakee County Fairgrounds, Waukon
- Sept. 19, Winnebago County, Forest City Maintenance Building, Forest City
- Sept. 19, Palo Alto County, Palo Alto County Fairgrounds, Emmetsburg
- Sept. 26, Shelby County, Shelby County Fairgrounds, Harlan
- Sept. 26, Cass County, Cass County Fairgrounds, Atlantic
- Sept. 26, Sac County, Sac County Fairgrounds, Sac City
- Oct. 3, Jones County, Jones County Fairgrounds, Monticello
- Oct. 3, Cedar County, Cedar County Fairgrounds, Tipton
- Oct. 3, Howard County, Howard County Fairgrounds, Cresco

Watch local newspapers for phone numbers to call for appointments.

Rember to store household hazardous materials safely until the events are held.

CONSERVATION UPDATE

Upcoming NRC, EPC and Preserves Board Meetings

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

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

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

Natural Resource Commission:
--October 1, Manchester
--November 5, Keosauqua
--December 3, Des Moines

Environmental Protection Commission:
--September 21, Des Moines
--October 19, Des Moines
--November 16, Des Moines

State Preserves Advisory Board:
--September 9, O'Brien County

Iowa Trophy Deer Records

Deer hunters who successfully bagged a deer with trophy-sized deer antlers are encouraged to enter the rack in Iowa's big game record registry.

In order to qualify for an award, however, a rack must be measured and scored by an official scorer for the Boone and Crockett (firearms) or Pope and Young (archery) clubs, or by a wildlife biologist, conservation officer or other individual certified by the DNR. The scoring system used for Iowa records is identical to that used by the Boone and Crockett or Pope and Young clubs.

Award certificates will be presented in six classes. The classes, with minimum scores for each are: **Shotgun**, Typical — 150 points, Non-typical — 170 points; **Muzzleloader**, Typical — 150 points, Nontypical — 170 points; and **Archery**, Typical — 135 points, Nontypical — 155 points.

Deer hunters possessing trophy racks which have not been officially measured may contact the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034, (515)281-5145.

Because of shrinkage in varying degrees, racks taken during the recent hunting season cannot be measured for at least 60 days in order for the antlers to dry properly.

All-Time Top 10 Racks

See page 18 for the *1992 Iowa Record Deer Racks*

SHOTGUN TYPICAL

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Harold Dickman	Woodbine	Harrison	1964	200-2/8
Wayne A. Bills	Des Moines	Hamilton	1974	199-5/8
Kenneth Tilford	Lamoni	Decatur	1985	198-1/8
Michael R. Edle	Danville	Des Moines	1989	195-4/8
George L. Ross	Ottumwa	Wapello	1969	195-1/8
Forest N. Richardson	New Virginia	Warren	1989	194-3/8
Dan Bush	Winterset	Madison	1987	190-3/8
Monty Stark	Mt. Pleasant	Henry	1984	189-3/8
Gregg Redlin	Iowa City	Johnson	1983	187-6/8
Dennis Vaudt	Storm Lake	Cherokee	1974	187-5/8

SHOTGUN NONTYPICAL

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Larry Raveling	Emmetsburg	Clay	1973	282
Carroll Johnson	Moorhead	Monona	1968	256-5/8
David Mandersheid	Welton	Jackson	1977	253-3/8
Larry J. Caldwell	Des Moines	Warren	1990	250-2/8
Carl Wenke	Cedar Rapids	Lee	1972	245
Wendell Prottsman	Mt. Pleasant	Henry	1988	238-1/8
Edgar Shields	Grand River	Decatur	1986	229-6/8
Bob Harding	Pleasantville	Wapello	1985	229-3/8
Duane Fick	Des Moines	Madison	1972	228-2/8
Ed Stivard	Burlington	Des Moines	1990	227-6/8

MUZZLELOADER TYPICAL

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Jerry Conover	Sioux City	Monona	1990	182-7/8
Patrick Burkle	Earlville	Clayton	1990	170-2/8
Steve Carter	Washington	Henry	1987	167
David Hammel	Dorchester	Allamakee	1990	166-1/8
Jeff Kauzlarich	Rathbun	Appanoose	1989	165-5/8
Larry Cutkomp	Donnellson	Van Buren	1989	164-6/8
Ron Murray	Missouri Valley	Harrison	1987	164-5/8
Ron Hansen	Hampton	Franklin	1989	164-3/8
Dale Clayton	Glenwood	Mills	1990	164-1/8
Kevin McDonald	Amana	Iowa	1990	164

MUZZLELOADER NONTYPICAL

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Mike Moody	Hamburg	Fremont	1990	210-2/8
Vince Jauron	Harlan	Monona	1990	209-1/8
*Dean Beyer	Osage	Mitchell		200-5/8
Daniel Kaufman	Wapello	Louisa	1984	197-5/8
*Steve Mundell	Ottumwa	Monroe	1991	196
Dick Paul	Red Oak	Montgomery	1988	189-4/8
Nathan Giddings	Morrison	Jackson	1990	188-1/8
*James P. Parker	Clarinda	Taylor	1991	182-1/8
Pete Sanford	Osceola	Clarke	1990	181
Craig Cretsinger	Spencer	Clay	1990	174-7/8

BOW AND ARROW TYPICAL

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Lloyd Goad	Knoxville	Monroe	1962	197-6/8
Robert Miller	Wyoming	Jones	1977	194-2/8
Richard Swim	Des Moines	Warren	1981	190-5/8
Kevin Peterson	Mediapolis	Des Moines	1989	188-1/8
*John Kite	Farmington	Lee	1990	182-6/8
*Jeff L. Weigert	New London	Henry	1991	180-4/8
Vern Backstrom	Des Moines	Polk	1986	180-1/8
Rodney Hommer	Woodburn	Clarke	1990	179-4/8
Robert McDowell	Ottumwa	Wapello	1985	179
Glen Thompson	W. Burlington	Des Moines	1987	179

BOW AND ARROW NONTYPICAL

NAME	CITY	COUNTY TAKEN	YEAR	TOTAL SCORE
Jerry M. Monson	Clear Lake	Cerro Gordo	1977	222-1/8
David Propst	Duncombe	Webster	1987	219-3/8
Blaine Salzkorn	Sutherland	Clay	1970	218-1/8
Chris Hackney	Allerton	Wayne	1983	215-5/8
Joe Rettenmeier	Dubuque	Dubuque	1987	204-1/8
Phillip M. Collier	Burlington	Des Moines	1978	203-6/8
Ted Miller	New Virginia	Warren	1986	203-5/8
Bill Erwin	Sioux City	Woodbury	1966	202-5/8
Denny Baum	Ottumwa	Wapello	1990	202-1/8
Dorrance Arnold	Oelwein	Clayton	1977	200-5/8

CLASSROOM CORNER

by Don Sievers

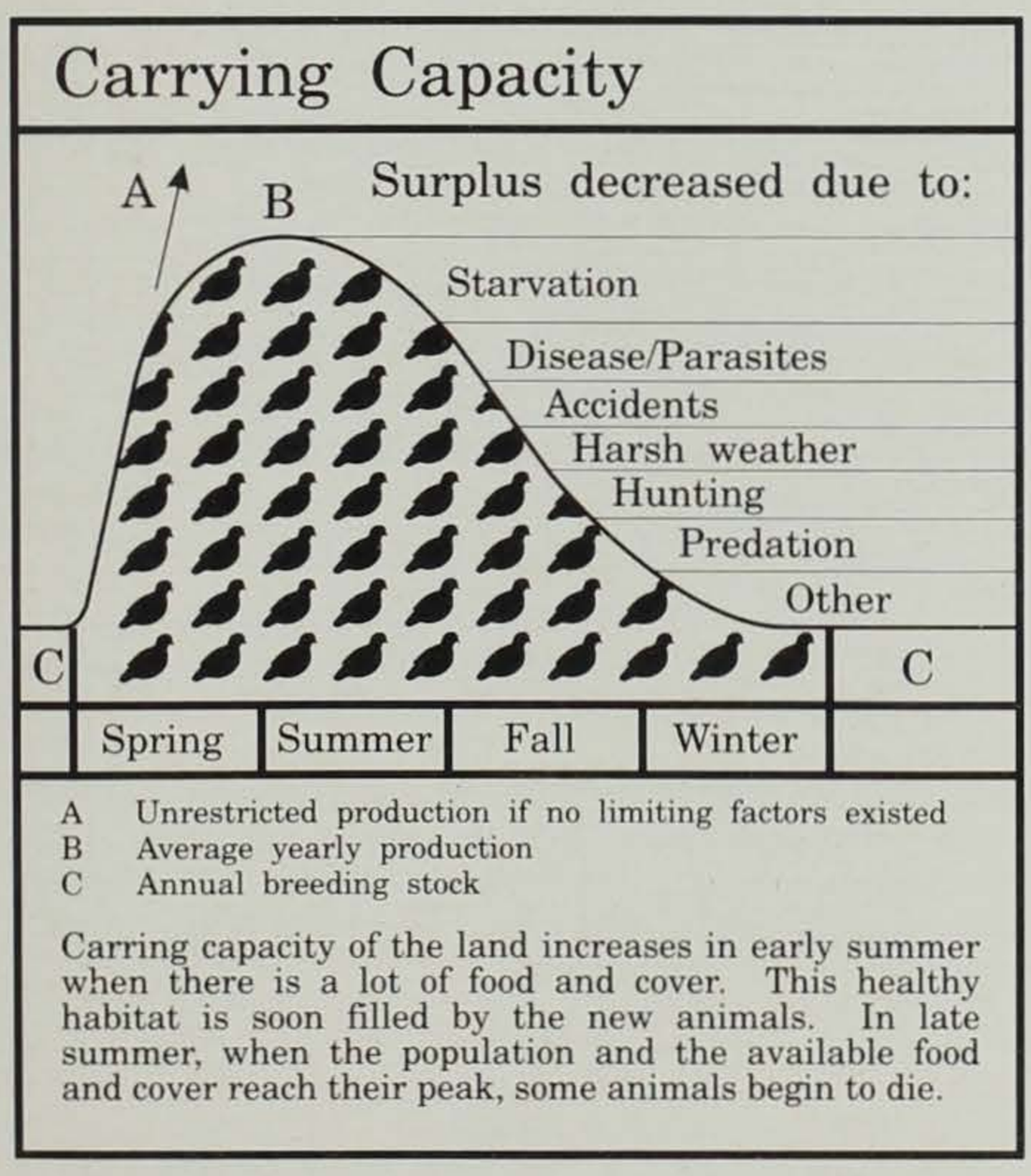
How Many Can Come To Dinner

Background

Wildlife populations can fluctuate dramatically within a given year. Wildlife numbers are directly related to the quantity and quality of available habitat. The number of animals that can be supported throughout the year is known as the ***carrying capacity***.

All wildlife have certain requirements for survival. These include food, shelter, water and living space. The carrying capacity is determined by the availability and arrangement of these requirements. When people alter the environment so that one or more of these requirements are reduced or eliminated, wildlife numbers will decrease or disappear. One role of the wildlife manager is to develop and implement plans that will allow for wise use of available habitat by people and wildlife.

Many wildlife species have young in the spring of the year, taking advantage of the increased amount of food that is being produced within the habitat. Populations increase until their food supplies begin to decline. Throughout the fall and winter, food supplies continue to decline and the competition for food increases. Many wildlife populations reach their lowest numbers during the winter when food supplies are at their lowest and climatic conditions are most severe.



A Unrestricted production if no limiting factors existed
B Average yearly production
C Annual breeding stock

Carring capacity of the land increases in early summer when there is a lot of food and cover. This healthy habitat is soon filled by the new animals. In late summer, when the population and the available food and cover reach their peak, some animals begin to die.

Age

Grades 3-6

Objectives

Students will be able to:

1. identify the carrying capacity of a simulated habitat for coyotes based on food as a limiting factor; and

2. identify ways that people alter the carrying capacity by changing the habitat.

Method

Students role play as ***predators*** to determine the carrying capacity for ***coyotes*** in a simulated habitat.

Materials

One sheet of paper and pencil per student, one blindfold and 200 paper cups to simulate ***prey*** animals eaten by coyotes are needed. Cups should be labeled as follows: 90 with **R** for rabbits, 40 with **M** for mice, 40 with **C** for carrion (dead animals), 20 with **S** for squirrels, and 10 with **P** for pheasants. You may want to add cups following the same ratio for larger groups of students. The above numbers work best with a group of 12 to 15 students.

Extensions

1. Graph the total numbers of each prey species to show five of the most common animal foods eaten by coyotes in Iowa.

2. Have students identify local concerns that reduce wildlife habitat and complete a project that would increase the habitat for wildlife.

Examples include planting shrubs for songbirds on the school ground, or constructing and placing bluebird or wood duck houses in suitable habitats.

Resource Materials

The Wild Mammals of Missouri; Schwartz, Charles W. and Schwartz, Elizabeth R, University of Missouri Press, Missouri Dept. of Conservation; 1981

Population Parameters of Iowa Coyotes, An Analysis of Reported Livestock Losses; Boggess, Keith, Masters Thesis, ISU; 1975

Roger A. Hill

Don Sievers is a training officer with the department's Conservation Education Center in Guthrie County.

Procedure

1. Prior to beginning the activity distribute the ***prey*** randomly over an available ***habitat***.

2. Explain the concept of carrying capacity to the students. A gallon can with a nail hole at one-inch intervals up the side is an excellent teaching aide. The can represents a ***habitat***. The holes represent ***limiting factors*** (food, water, shelter and space) that prevent the can (***habitat***) from holding the maximum volume (***carrying capacity***) of water. Pour water into the can. The holes (***requirements***) must be plugged before the can (***habitat***) can hold its volume of water (***carrying capacity***).

3. Each student should write their name on their sheet of paper and place it along the boundary of the habitat area to identify their ***den site***.

4. Choose some of the students and assign disabilities to them. For example, one coyote was kicked by a white-tailed doe while trying to prey on her fawn. The coyote has a broken leg and limps. Another is blind as a result of being hit by a car and is blindfolded (have someone accompany this student to prevent injury). A third coyote must provide food for itself and two pups.

5. Students are to role play as coyotes trying to obtain enough food to survive for one month. Adult coyotes will require 45 pounds of food to survive while pups require 15 pounds each. Each student walks into the habitat (coyotes stalk their prey). When a student finds a prey they pick it up and deposit it back at their den. The students continue to repeat the process until the game is over, picking up only one prey per trip.

6. When all the prey have been gathered, the game is over. Each student should tally up the total weight of their captured prey to see if they survived. The weights of the ***prey*** animals are: rabbit -- three pounds; pheasant -- three pounds; squirrel -- two pounds; carrion -- one and a half pounds; and mice -- one ounce. Do not tell the students how much the animals weigh until you are at this stage or students will select for heavier animals during the game.

7. Discuss the following:

- How many coyotes survived? Was there enough food for all? If not, how many coyotes can live in this habitat? (The total weight of prey captured, divided by the pounds of food needed to survive equals the maximum carrying capacity.)
- How much food did the injured coyotes obtain? How much food did the coyote with pups obtain? If the coyote captured less food than was needed for both itself and the pups, who will survive? (The adult will survive.)
- In real situations how would coyotes react to a food shortage? (In the real world coyotes would use other foods that are available, compete with other coyotes for existing food by fighting or move to more suitable habitat.)
- If they were unable to find additional food what might happen to the coyote? (The coyotes would suffer from disease and/or starvation.)

8. Ask the students to identify ways people impact wildlife habitat. Would these impacts lead to an increase or decrease in the carrying capacity?

BANKING ON QUALITY STREAMS

Article by Kimberly K. Coulter
Photos by Ken Formanek

Iowa's stream restoration programs are not only providing good fishing but they are also helping to clean-up northeast Iowa's coldwater streams. These streams are heavily used by trout anglers — approximately 25,000 trout stamps are purchased from the DNR each year.

Through the years, the quality of these streams has been degraded by intensive agriculture. The goal of coldwater stream restoration is to provide for sport fishing while protecting and enhancing the habitat and water quality of these streams.

Stream degradation presents a challenge to fisheries biologists in maintaining suitable habitat for trout. The survival, growth and reproduction of trout requires shelter from predators, clean water, sufficient living space, favorable water temperature, and gravel stream beds for spawning.

Bill Kalishek, fisheries management biologist with the DNR in Manchester, has been involved with several stream improvement projects and feels that soil erosion from cropland and damage from livestock access and waste are the main problems. "It's a toss-up," Kalishek says. "Both are concerns that need to be dealt with in northeast Iowa."

Livestock use the streams not only for drinking water and relief from the summer heat, they also feed on the lush vegetation along the streambanks. They deplete the stream vegetation, and heavy concentrations of livestock trample streambanks, leaving the soil unprotected and subject to erosion.

As the banks collapse and recede, deep holes within the streams fill with sediment and the streams become shallow and wide eliminating places for trout to hide. In addition, they absorb more heat than narrower, deeper, faster stream channels. The warming effect is increased as water current velocity becomes slower with stream widening.

Sedimention from soil erosion is a significant nonpoint source pollution problem that can change the stream bottom configuration and destroy fish habitat. Slow-flowing waters cause sand and silt to be deposited on the stream beds, covering the gravel used by trout

▲
Iowa has 106 coldwater streams totaling 307 miles -- only 42 of these miles have been restored and protected. The banks along this stretch of Spring Branch in Delaware County have been protected with riprap and bank hides.

for spawning. Trout need clean, well-aerated gravel beds found in swift-flowing coldwater streams.

Runoff from cropland is a significant source of contamination to coldwater streams in Iowa. Runoff may contain pesticides, fertilizers and animal wastes at levels which affect aquatic life. Excessive growth (or blooms) of algae occur when excess nutrients from fertilizers and animal waste enter into streams or lakes. When the algae eventually die, the decaying process consumes the oxygen needed by fish.

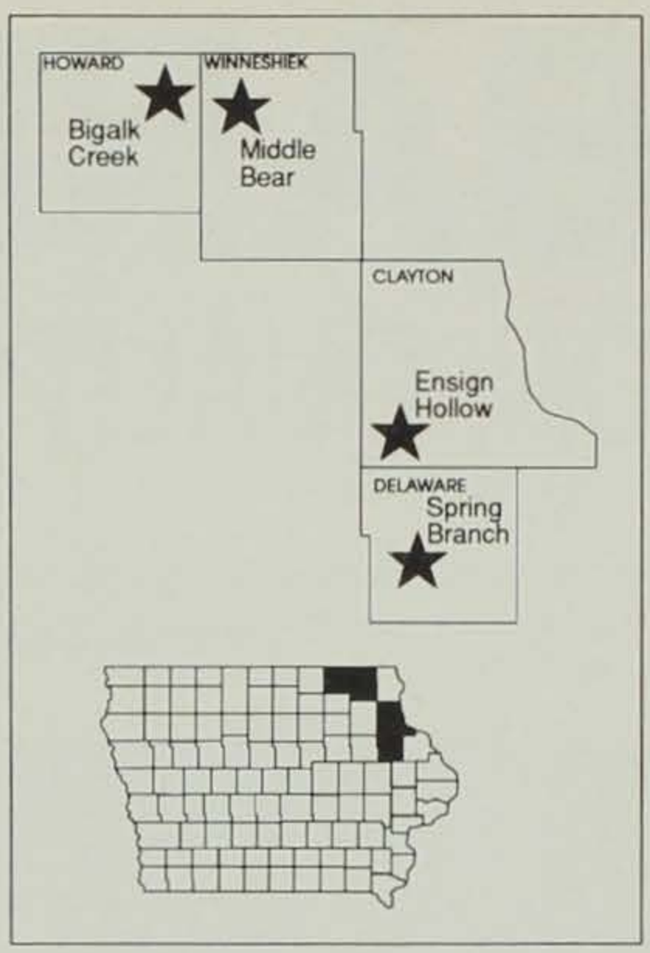
Livestock access to streams also increases the amount of fecal matter and bacteria in the water. Livestock that drink contaminated stream water may ingest waterborne pathogens, increasing the risk of diseases such as bovine leptospirosis, mastitis and other ailments.

DNR Projects

The DNR has limited cost-share funds available for coldwater stream restoration and trout stream habitat improvement projects to state-owned land in northeast Iowa. Privately owned streambank protection projects are generally done voluntarily by landowners.

The DNR conducts an active trout stream land acquisition program. According to Kalishek, ''Land is purchased by the state for stream restoration projects from willing sellers below or at appraised value. Best management practices are then applied to these state lands to reduce soil erosion in the watershed and on stream banks.'' Two of the projects that Kalishek is involved in -- Ensign Hollow and Spring Branch -- are part of this program.

The area known as **Ensign Hollow** is located at the junction of Ensign Creek, a coldwater stream, and Hewitt Creek, a warmwater stream. Ensign Creek is in Clayton County and at one time was a naturally reproducing trout stream. ''Reproduction of the trout,'' Kalishek describes, ''has dropped so dramatically that it is not enough to repopulate the stream. Since 1991, we've had to restock it twice to keep up the population of the trout.''



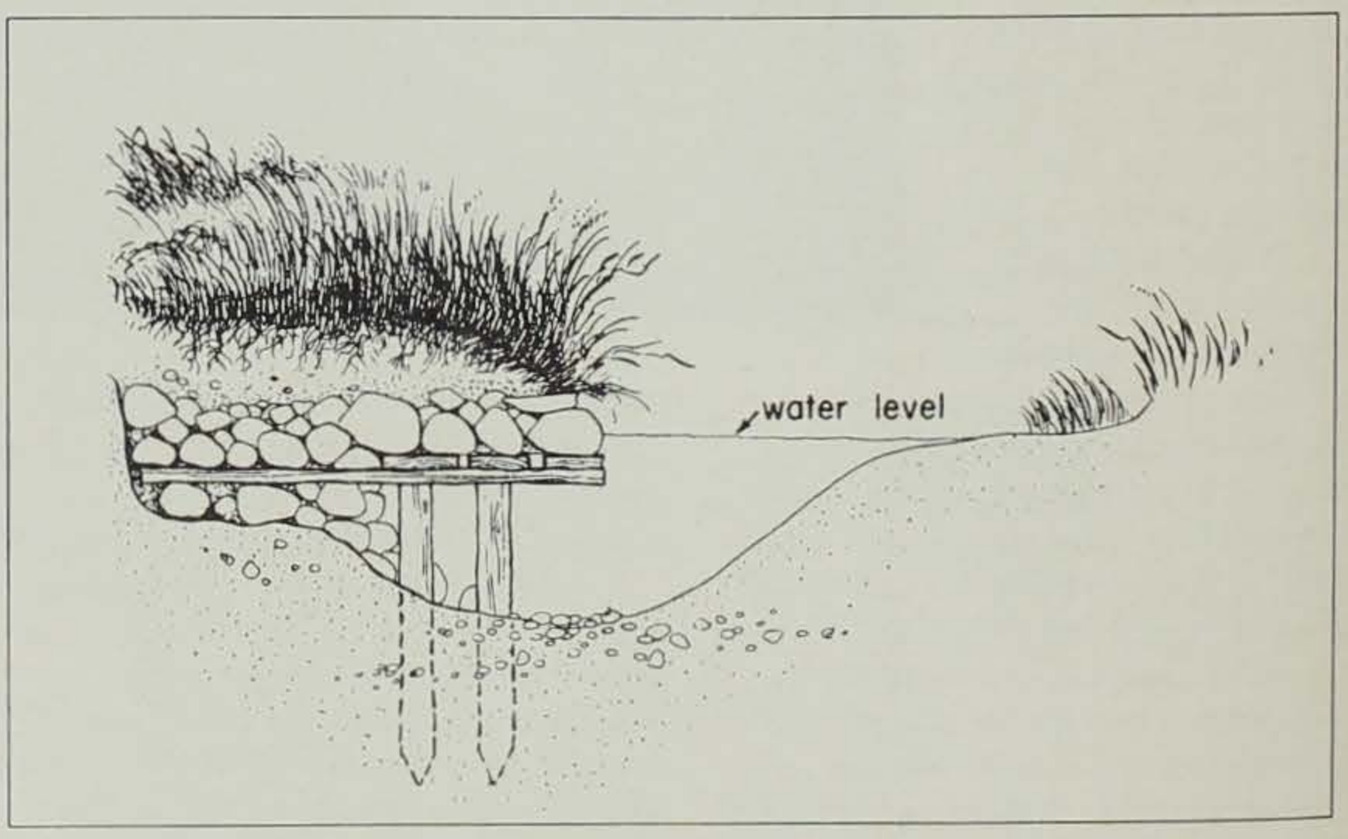
In 1986, a coldwater stream committee was formed consisting of a group of individuals representing the DNR, private organizations and industry. Their goal is to protect and preserve the remaining naturally reproducing trout streams in Iowa.

The committee contacted landowners along Ensign Creek and purchased a parcel of land containing more than one-half mile of stream length. Management of this land was then turned over to the DNR.

DNR fisheries personnel try to keep the stream channel as natural as possible. Natural coldwater streams typically have shallow, fast-flowing riffles followed by deep, calm pools. Trout survive best in this riffle-pool habitat. In-stream evaluations and feasibility studies of various habitat improvements are then implemented on the state-owned section of the stream. Unfortunately, habitat improvements cannot be made on most privately owned lands through this program.

Techniques used to stabilize Ensign Hollow included riprap, fencing and planting of long-stem prairie grasses. ''These are inexpensive ways of letting nature take its own course to improve trout habitat,'' Kalishek says. Covering the bank with riprap 'armors' the bank from the fast flowing water decreasing erosion and creating hiding places for various sizes of trout. ''By fencing, a buffer zone of vegetation will eventually grow between the fence and the stream, reducing erosion of the stream bank,'' he adds.

Habitat improvements for trout at Ensign Hollow included intallation of 95 bank hides between 1990 and 1991.



▶ **Bankhides are artificial, overhanging ledges, at the outside of bends where the current sweeps along the bank. They make ideal hiding places for trout. A properly constucted hide should remain under water year round. The water acts as a wood preservative.**

Bank hides are artifical, overhanging ledges, constructed at the outside bends where the current sweeps along the bank. The submerged wooden structures are topped with rocks and sod and provide shelter for trout.

Restoration of the publicly owned portion of Ensign Hollow improved habitat tremendously. However, privately owned reaches of Ensign Creek also need protection, especially in areas of known trout reproduction. The Clayton County Soil and Water Conservation District designed a water quality protection project for Ensign Creek, which is funded through the Resource Enhancement and Protection (REAP) program. The amount of silt and nutrients entering Ensign Hollow will be reduced through a combination of soil erosion control methods in the watershed.

Another DNR land acquisition project is **Spring Branch**, located below the Manchester Hatchery in Delaware County. Three springs, with a combined flow of 5,000 gallons per minute, feed Spring Branch. Currently one-half mile of corridor protection has been established on Spring Branch. Areas along the creek have been fenced off for five to 10 years, but livestock still have limited access to water for drinking. Grasses have been planted and the approximately 90 bank hides are two to 10 years old.

These stream protection and trout habitat improvements began 10 years ago and have increased the trout population in the stream from 30 pounds per acre in 1977 to 300 pounds per acre in 1987.

Although state purchase and restoration of coldwater streams is possible, Kalishek reminds that voluntary actions by landowners is more desirable. The Section 319 Nonpoint Source Management program, of the 1987 Clean Water Act, is a federally funded program that assists landowners in establishing water quality best management practices (BMPs). The U.S. Environmental Protection Agency (EPA) awards grants for 319 projects and the program is administered by the DNR.

One of the Section 319 projects in Iowa is to establish protected corridors along cold-water stream segments where livestock access or animal wastes are causing a negative impact. Gaige Wunder, fisheries management biologist from Decorah, says the goal of the project is to protect the waterway while maintaining the economic viability of the livestock operation.

In the northeast corner of Howard County, near Creso, lies **Bigalk Creek**, a spring-fed tributary of the Upper Iowa River. The lower part of the stream is managed as a put-and-take trout fishery by the DNR, where rainbow trout are stocked regularly from April through October.

Wunder says results of habitat evaluations in 1991 indicated that Bigalk was lacking in pool habitat and in-stream cover for rainbow trout. "Problems on Bigalk are attributed to livestock over-grazing, stream channelization and sedimentation," according to Wunder. "Restoration work is scheduled to begin this fall," he says.

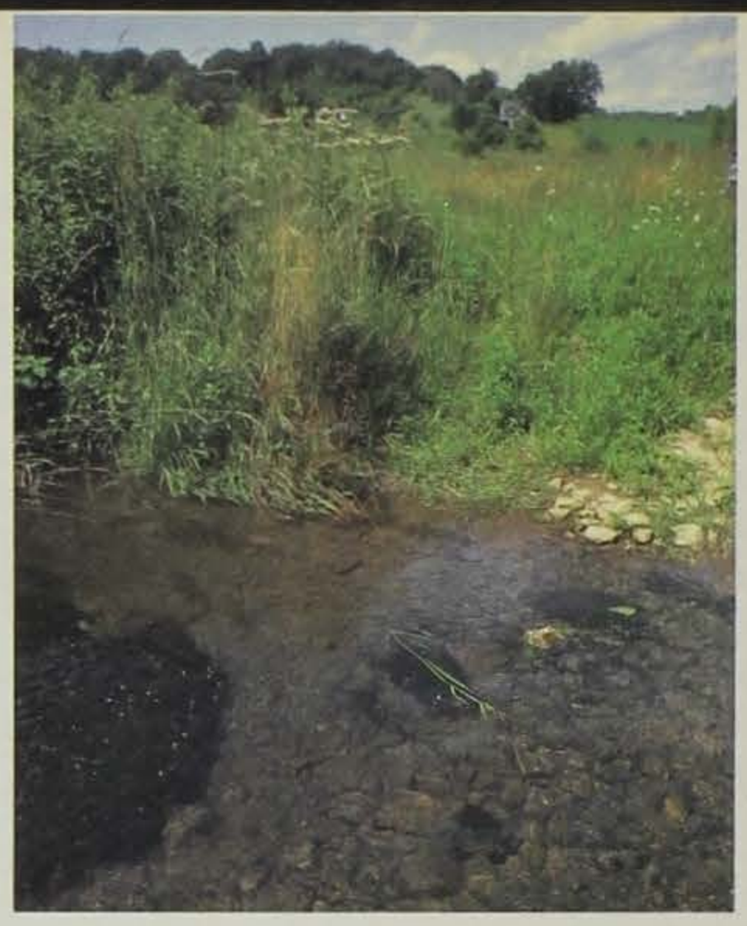
The stream restoration measures being considered include fencing, streambank stabilization, stream-bed reshaping, corridor revegetation, tree planting and installation of in-stream habitat structures. After these changes have been made, the quality of the stream habitat will be monitored to document the improvements in stream quality due to the installed practices.

Best Management Practices Help Save Iowa's Coldwater Streams

By implementing best management practices (BMPs) on your land, you can minimize soil erosion of streams. Here are a few BMPs to get you started:

- Limiting livestock access to streambanks allows banks to revegetate and soils to stabilize.
- Fencing allows revegetation of streambanks, reduces erosion and can be a first step in developing a more productive pasture management system. Landowners should refrain from farming within 20 feet of the bank, which requires the protection of permanent vegetation to stabilize the soil.
- Developing off-stream watering systems such as springs, wells or ponds with watering troughs prevent damage by livestock using the stream for drinking.
- Armoring streambanks with riprap is one of the most effective and popular methods of controlling bank erosion, it is easy to install and repair, has a natural appearance, and adjusts itself to the shape of the bank.
- Junk, such as appliances, bed springs, car bodies, plaster and wallboard, should never be used for erosion control along stream banks. Junk is aesthetically unpleasant and seepage of chemicals from abandoned materials may be hazardous to the environment and toxic to fish.
- Back-sloping and seeding of cutbanks stabilizes eroding streambanks. Cutbanks occur where the water is eroding the streambank at the outside of stream bends. Usually the seeding is done with long-stem prairie grasses which stabilize the cutbank and also provide shade to the stream and overhead cover for trout.
- Planting streamside vegetation, such as grasses, low shrubs and trees is a low-cost erosion control method that stabilizes the soil, slows the rate of runoff, filters out sediment and nutrients, and creates shade to cool open sections of streams.
- Installing in-stream structures such as bank hides or covers provides protective cover and create holes for trout to hide in.
- Installing rock and log deflector points creates narrow streams and deflects the water flow. They form deep pools on the back sides of the points and increase the velocity of the water, deepening the stream, flushing out silt and exposing the underlying gravel and rock rubble.

Before you begin any streambank protection project, check with your county and local government about their requirements. For help with these and other BMPs, contact Bill Kalishek at the Manchester Fish Hatchery at (319) 927-3276.



Tom Oswald

▲
Bill Kalishek on top of a bank hide at the Ensign Hollow project in Clayton County. Riprap and long-stemmed native prairie grasses were used to shelter the stream.

BMPs to be installed include fencing of the stream corridor to limit livestock access to a rock/gravel crossing that can be used by both livestock and machinery.

At Bigalk Creek, cattle have easy access to the stream.

Another Section 319 project Wunder is involved in is located on **Middle Bear Creek** in the northwest corner of Winneshiek County. The property is privately owned, and fencing and bank stabilization will be among the first practices to be implemented. Federal agencies and private organizations involved in this project are designing corridor exclusion fences and providing funding for backsloping, riprapping and seeding native prairie grasses. Planning has been completed and construction of the fences will begin this year.

Volunteer efforts

The majority of Iowa's trout streams (85 percent) are privately owned. State, federal and private conservation groups have formed partnerships to demonstrate and implement improved stream conservation practices on more than 13 coldwater stream watersheds in northeast Iowa.

Carl Nuss, a farmer and stream corridor landowner from Arlington, is currently participating in an Ensign Creek project. He originally started stream preservation by voluntarily taking some of his cropland out of production through the Conservation Reserve Program. "The next year, I took the cattle out of the pasture near Ensign and discontinued the grazing," Nuss explains. "I let nature take its course."

Since then, Nuss has installed terraces and sediment-control basins with REAP funds and is getting cost-share asssistance for timber stand improvement. "I also cleaned up the trash in the stream," says Nuss. "People thought it was a dump -- you know it was common practice back then." The Clayton County Soil and Water Conservation District has worked closely with Nuss assisting him in applying for REAP funds. "From a landowner's point of view," says Nuss, "the land I pay on contract must economically pay for itself." Without the REAP funds, he says he couldn't have done it. "REAP is important to the preservation of the natural resources in Iowa," said Nuss.

"Landowners need to realize that coldwater stream restoration starts with them," says Kalishek. "By limiting livestock access to stream banks and applying BMPs, landowners are reestablishing the natural system. Let nature call the shots. The needs of the trout and the characteristics of the stream itself will be the truest guides to good management."

Kimberly K. Coulter is a nonpoint source information specialist for the department in Des Moines.

Roger A Hill

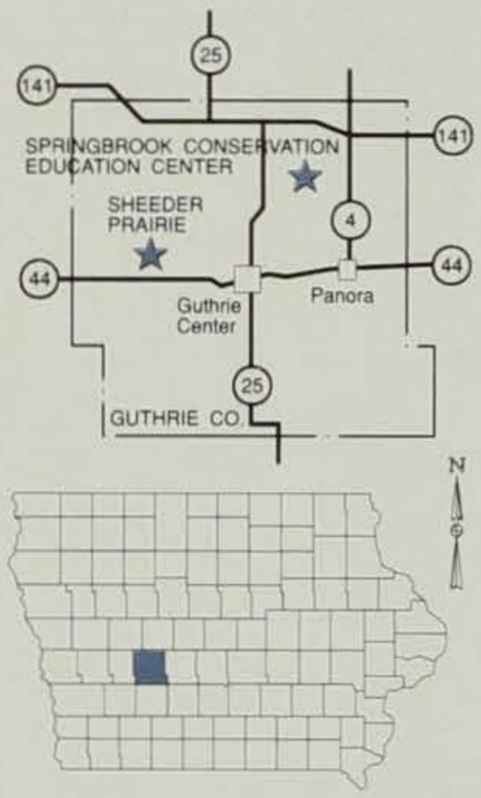
SHEEDER PRAIRIE: a "people pasture"

by John Pearson

Roger A. Hill

"Fire!" someone shouted, *"Fire in the hayfield!"*

Oscar and Clara Sheeder glanced up to see flames racing across the newly mown grass, heading directly toward the bales which they had just harvested. Some of the stacks were already blazing. Despite their frantic efforts during the minutes that followed, the Sheeder family fought unsuccessfully to stop the fire from destroying more than a thousand bales and three large stacks -- their entire hay crop for the year 1946. Injury was added to insult when Clara's arms and hands were severely burned while fighting the wildfire, which had been accidently started by a discarded cigarette. This loss and injury prompted the Sheeder Family to suspend their own intentional burning program, in which they had previously conducted controlled burns every third year since about 1890 to stimulate the productivity



of their native grass hayfield. After the 1946 tragedy, more than a quarter of a century and a change in ownership would occur before controlled fire would once again be used on Sheeder Prairie, this time under the direction of state park rangers with the intention of preserving the plants and animals of this remnant tallgrass prairie.

Today, Sheeder Prairie is a 25-acre state preserve located in Guthrie County, four miles west of Guthrie Center and one mile north of Highway 44. It has been owned by the Iowa Department of Natural Resources since 1961 and was dedicated as a state preserve in 1968. Most of the preserve consists of well-drained loamy soils on a generally west-facing slope. It is dissected by several small drainageways and contains a seep about midway up one of the hillsides. A total of 174 native and 20 alien plant species occur in the prairie. The rich flora of Sheeder Prairie was preserved by its unique history as a native grass hayfield which was repeatedly burned while privately owned by the Sheeder family. Rest and renewed burning during DNR ownership have maintained this diversity. The concept of what constitutes the "best" management for the preserve has evolved in the face of new findings and changing attitudes about conservation, a process which continues even today.

The vegetation of Sheeder Prairie was studied by two graduate students from Iowa State University. In 1969, Robert Kennedy described the flora and general vegetation of the new preserve, interviewed Oscar Sheeder about its history, and made several recommendations for its management. He determined that big and little bluestem were the dominant grasses, that heath aster, false indigo and rattlesnake master were the most abundant forbs, and that leadplant and New Jersey tea were the most common prairie-inhabiting shrubs.

In 1983, Jon White conducted a detailed study of the vegetation. He found that it was mostly "dry-mesic" (moderately dry) prairie, similar to parts of the Stinson, Freda Haffner and Cayler prairie preserves in northwest Iowa, but that it also contained some mesic (moist) prairie in drainageways.

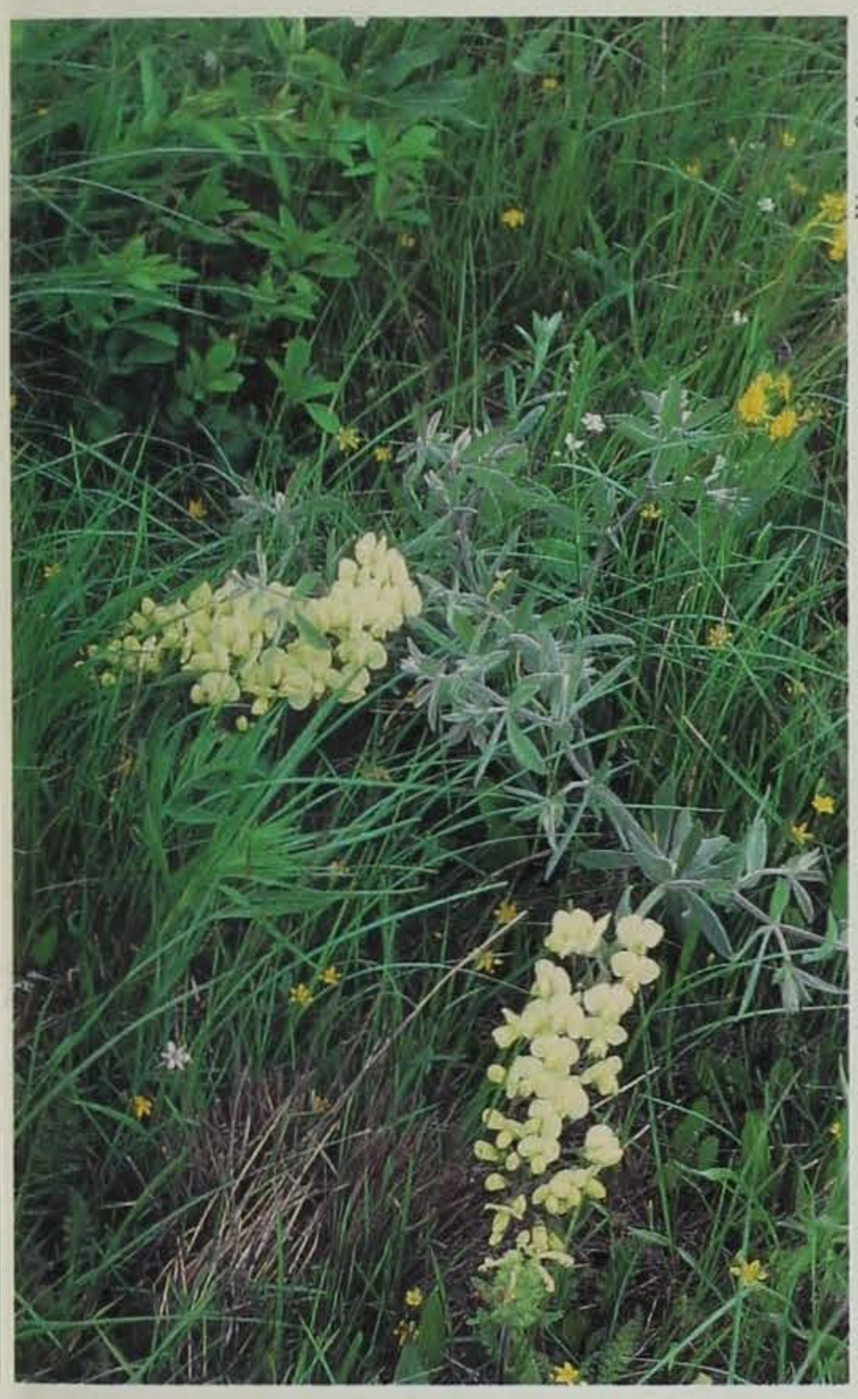
At the time of Kennedy's study, the prairie had not been burned for more than 20 years and woody vegetation (mostly black willow, boxelder and wild plum) had become well established in the drainageways of the preserve. Kennedy recommended that large trees not be removed, but that small trees and shrubs be controlled with fire. His recommendations formed the basis for the management plan followed by the DNR between 1973 and 1989. Under it, the prairie was divided into north and south halves which were individually burned every two to five years. However, the areas of dense woody cover that had become established between 1946 and 1973, with a 27-year "head start" on renewed fire management, did not burn readily. After several burn cycles, it also became evident that younger trees and shrubs could recover and even surpass their former cover between burns of this frequency. The result was that, despite renewed burning, woody vegetation on the preserve slowly increased.

Between 1980 and 1982, the birds of Sheeder Prairie were studied by Rene Laubach of the Des Moines Center of Science and Industry. She found that of 64 species of birds observed in the preserve at one time or another, 25 actually nested there. The most common nesting species were yellowthroats, house wrens, field sparrows, yellow warblers, gray catbirds and goldfinches. Nearly three-fourths of the nesting species were woodland birds which were attracted to the preserve by the presence of woody vegetation. Only two species dependent on grasslands -- dickcissels and grasshopper sparrows -- sporadically nested in Sheeder Prairie. Apparently there was not enough open grassland in this "prairie" preserve to suit the needs of these prairie birds! The relative benefits of managing the preserve for wide diversity of bird species -- by permitting woody vegetation to remain -- versus managing it to preserve rare prairie vegetation (by reducing woody cover) were actively debated among Iowa naturalists during the 1980s.

In 1989, the management plan for Sheeder Prairie was revised in favor of maintaining and expanding prairie vegetation. In an effort to restore prairie vegetation invaded by trees and shrubs, the new plan includes rotationally burning parts of the prairie for two consecutive years, followed by rest from fire for two years, as well as manual cutting of Siberian elm and thickets of gray dogwood. This cycle would be followed by applications of small quantities of non-persistent herbicide on cut stems in order to prevent resprouting. A study of the effects on spring burning on rare plant species has been recently initiated by Dr. John Pleasants of Iowa State University.

Sheeder Prairie is frequently used by groups of students and teachers visiting the Springbrook Conservation Education Center nearby. It also serves as what naturalist John Madson calls a "people pasture," a place where you can go simply to appreciate natural beauty in a grassland setting. The preserve is yours to enjoy. Pay it a visit on your next trip through central Iowa.

John Pearson is a plant ecologist with the department's preserves and ecological services bureau in Des Moines.



Wayne Schennum

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False indigo is one of the more abundant forbes found on Sheeder Prairie.

▼
Sheeder Prairie consists of well-drained loamy soils on a generally west-facing slope. It is dissected by several small drainageways and contains a total of 174 native plant species.

Robert Howe

Roger A. Hill

Celebrate

PRAIRIE HERITAGE WEEK Sept. 6-12

Jim Farnsworth

PIKES PEAK STATE PARK

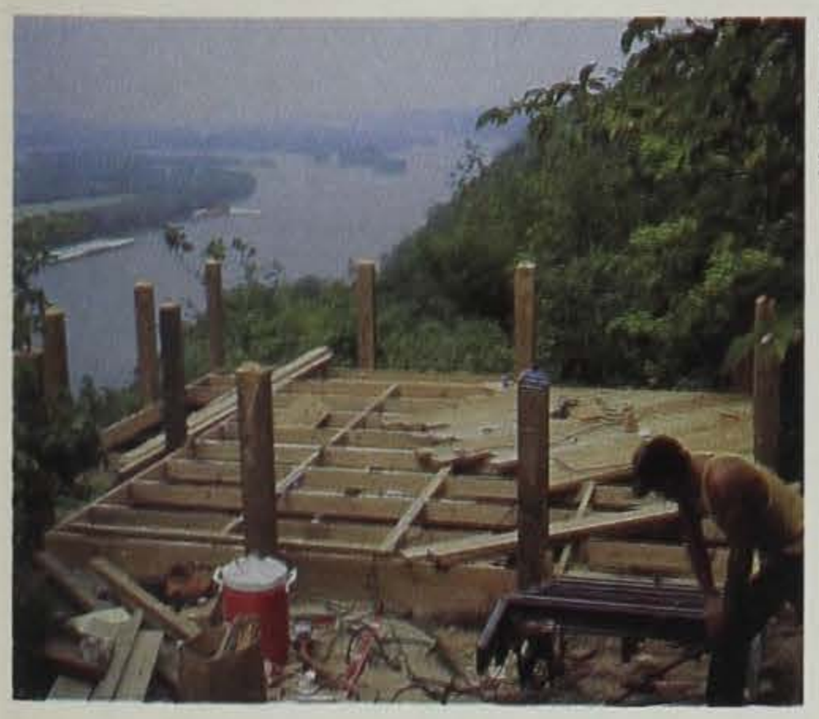
by Angela Corio

Rising 500 feet above the confluence of the Wisconsin and Mississippi rivers, Pikes Peak State Park provides breath-taking views of the nearly four-mile-wide river valley. The park's rugged landscape of exposed rock, high bluffs, deeply carved stream valleys, waterfalls, seeps, caves and crevices provides timeless charm and vivid beauty. Adding to its appeal are lush vegetation, abundant wildlife and numerous archeological features such as Native American burial and "effigy" mounds. All of this beauty is located in the aptly named "Little Switzerland" area of northeast Iowa.

Pikes Peak was dedicated as a state park in 1937 and now encompasses 970 acres. Until recently, few improvements had been made in the park since the 1930s when the Civilian Conservation Corps constructed many park facilities. Over the years, increasing use and visitation began to have increasing impacts on the park's fragile natural resources. In many places, for example, the shallow soil on the trails was worn away to bare rock and with it the original vegetation. Facilities such as rest rooms and shower buildings were old and deteriorated and beyond the point of "repair." Plans for redevelopment began in 1980 and construction in 1990 with funds from REAP, the Resource Enhancement and Protection Fund and the Land and Water Conservation Fund of the National Park Service.

Mark Edwards

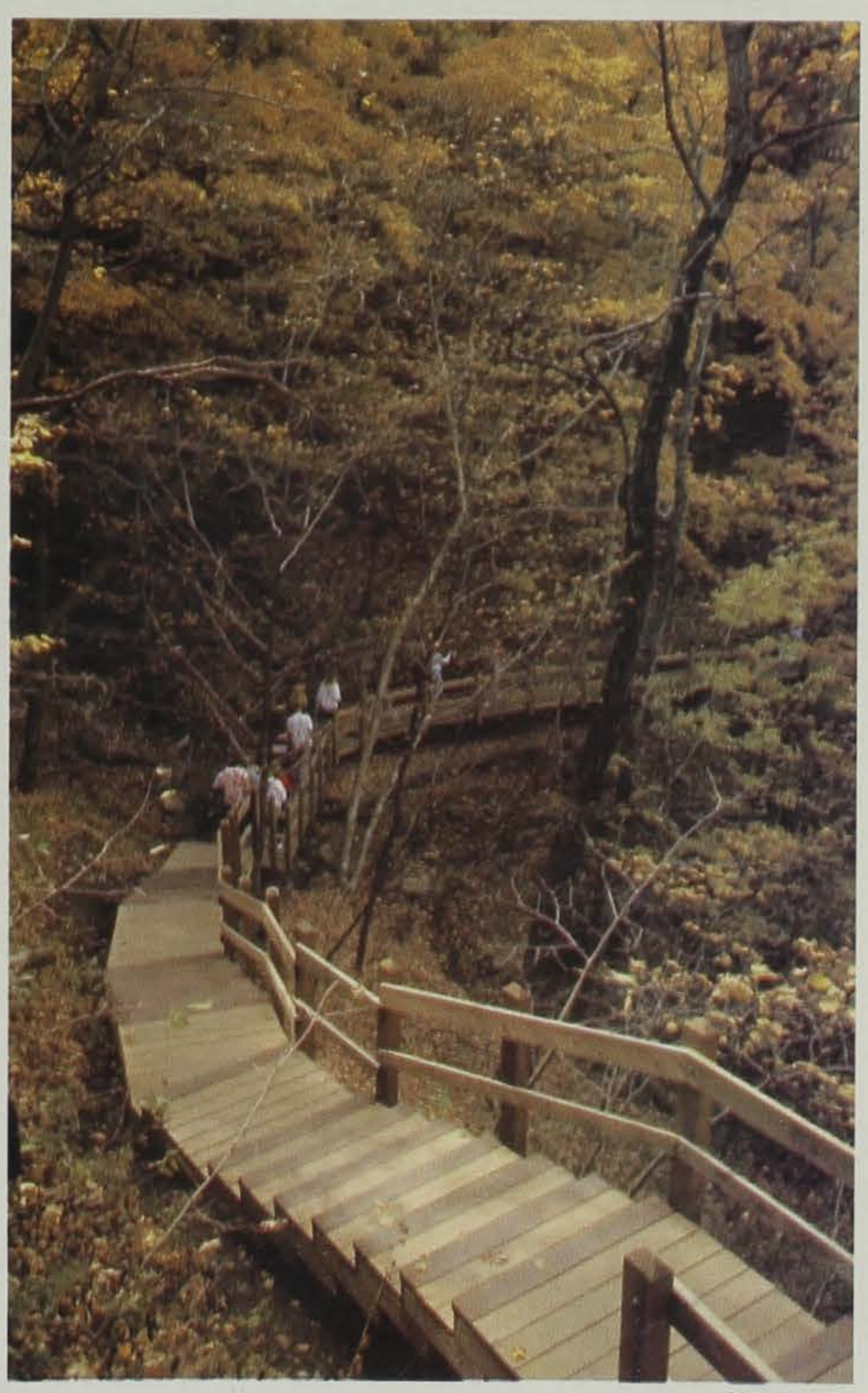
Mark Edwards



Mark Edwards

Mark Edwards

A major trail renovation effort was completed using a wood and steel decking system to provide a safe trail surface, while minimizing erosion and protecting the resources. A DNR trail renovation crew accomplished the project.



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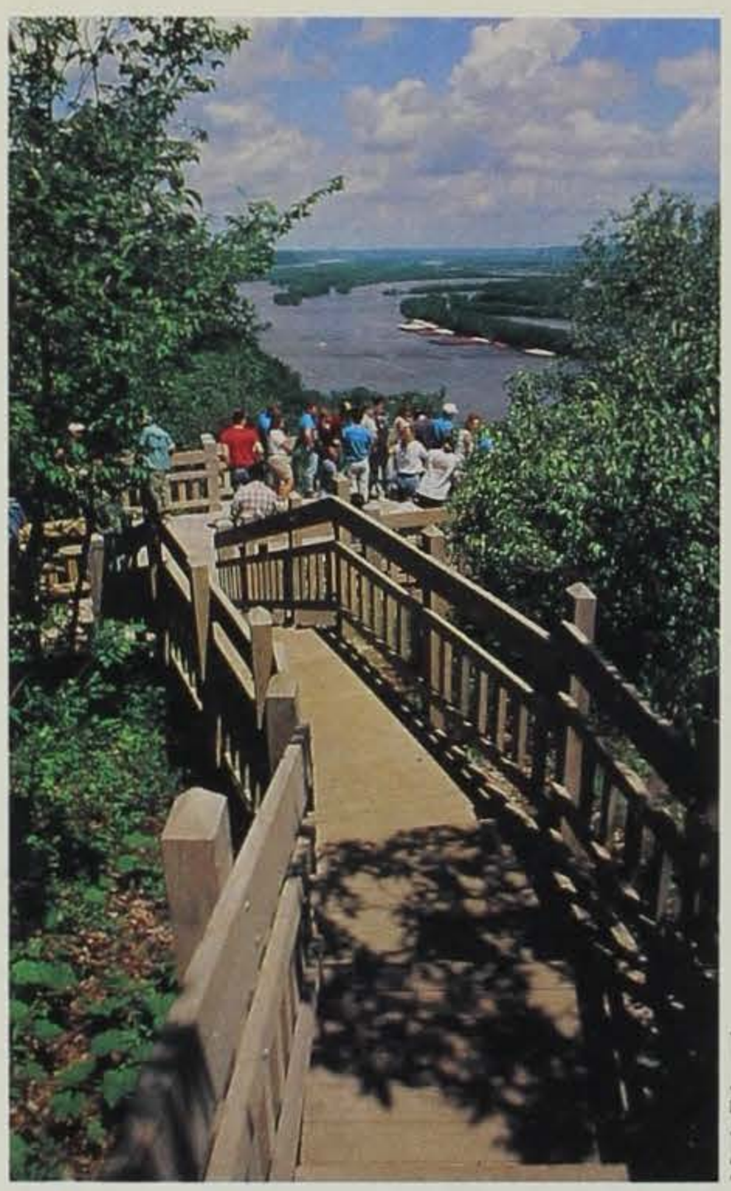

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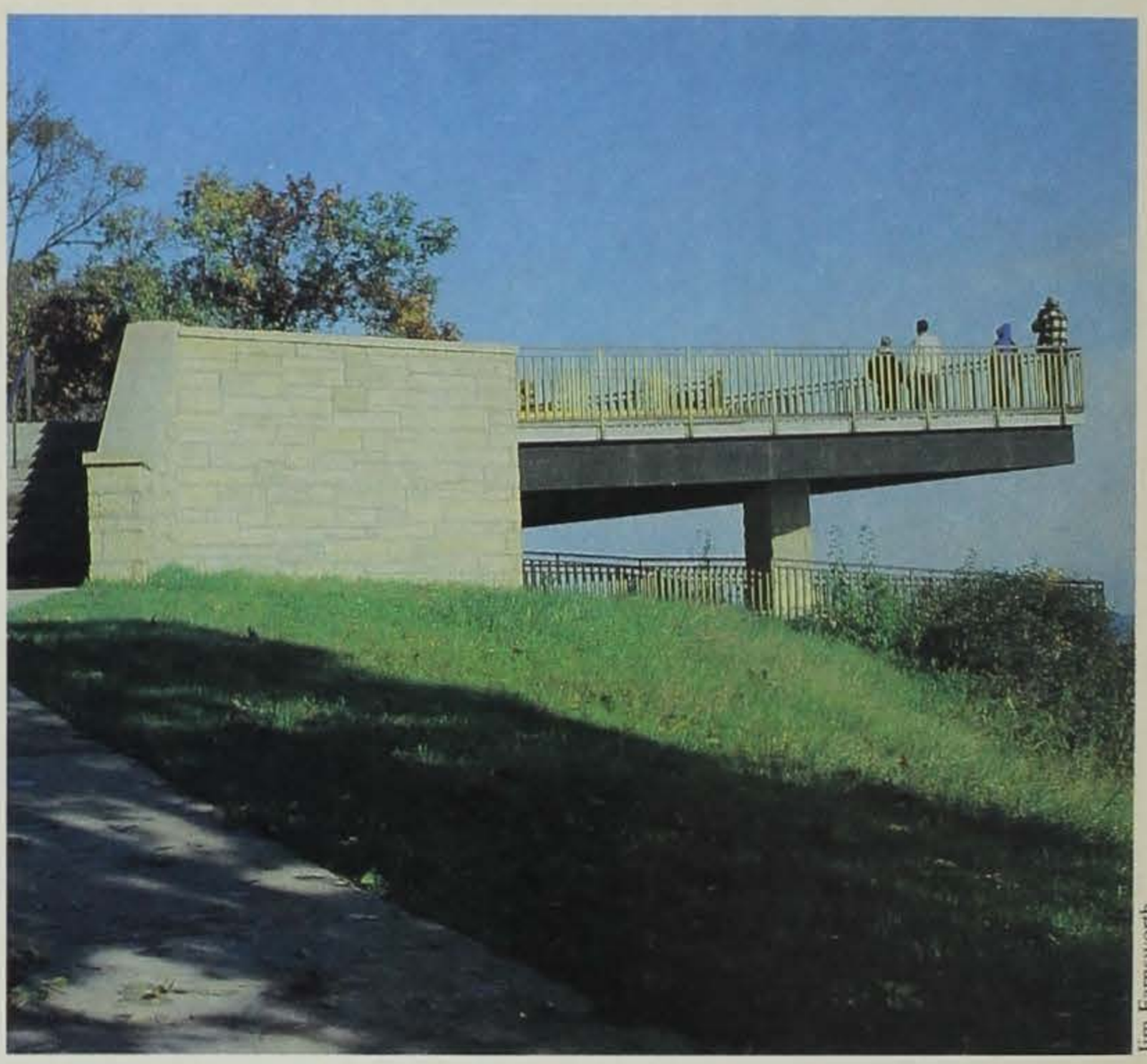

Jim Farnsworth

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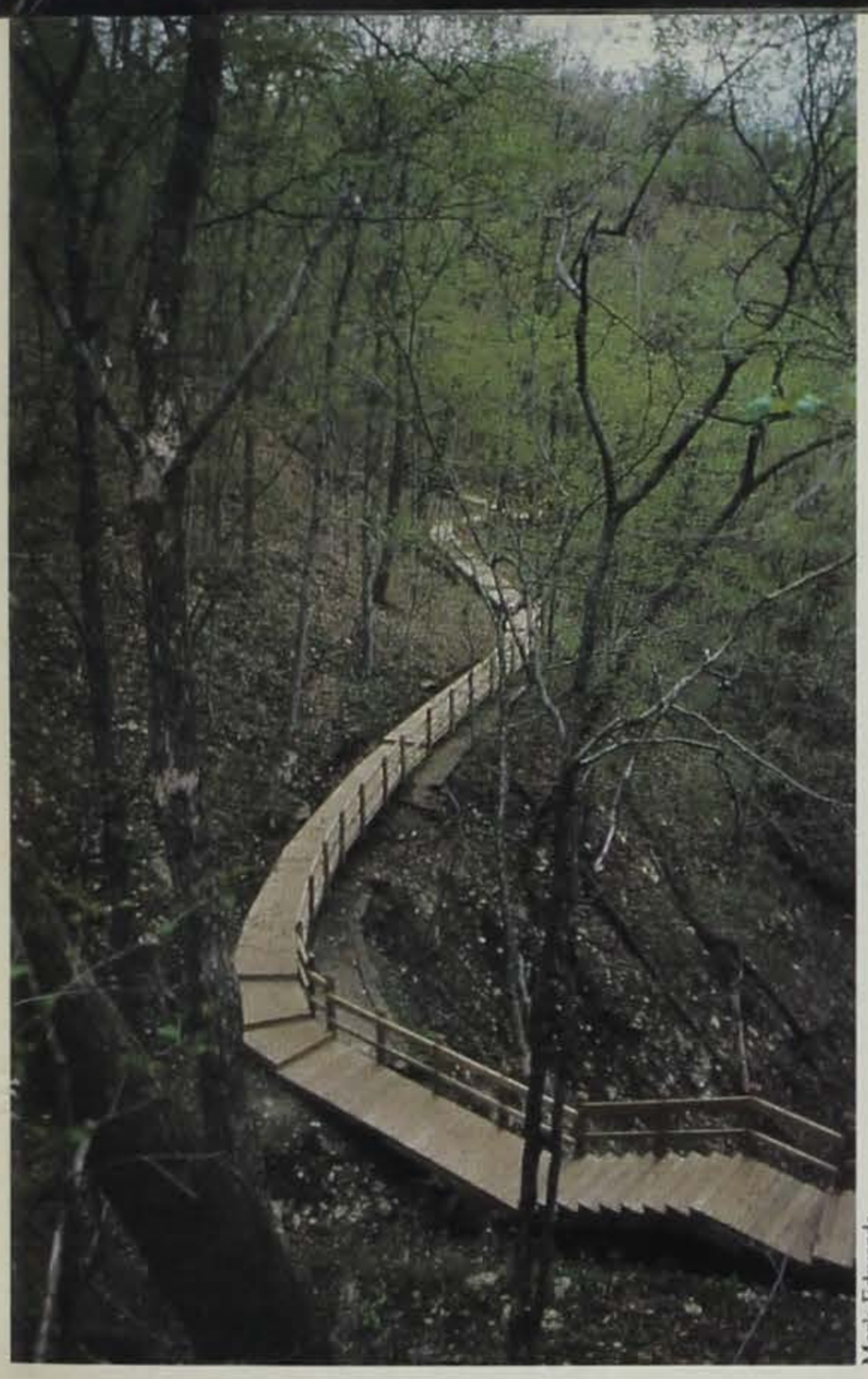
Numerous overlooks were developed to provide all visitors full and safe enjoyment of spectacular vistas. Every effort was made to use stone and wood to complement the other park structures built by the Civilian Conservation Corps.

Jim Farnsworth



Mark Edwards

The park's rugged landscape of exposed rock, high bluffs, deeply carved stream valleys, waterfalls, seeps, caves and crevices provides timeless charm and vivid beauty.

Mark Edwards

Jim Farnsworth

Additional facilities include a modern rest room in the picnic/overlook area; a childrens' play structure; an information bulletin board; enlarged paved pedestrian area with seating near the enclosed picnic shelter; two additional small picnic "gazebos"; and a shower/rest room building in the campground.

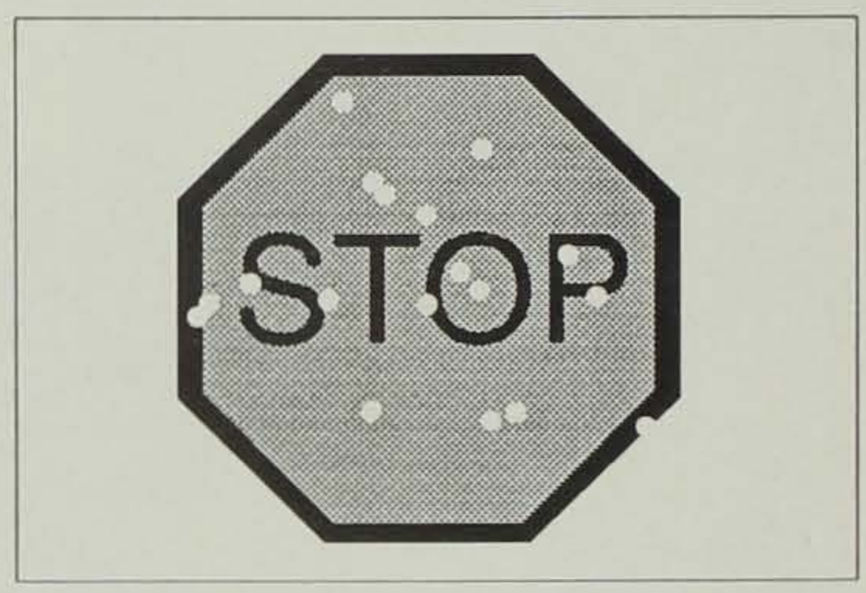
Jim Farnsworth

Jim Farnsworth

WARDEN'S DIARY

by Chuck Humeston

Six Steps Guaranteed to Ruin Your Sport



Rrrrring. "Hello?"

"You the game warden?"

"Yes."

"I've got people trespassing out here . . ."

Rrrrring. "Hello?"

"Someone just shot a pheasant in the grove next to my house . . ."

Rrrrring. "Hello?"

"I've found a bunch of deer hides thrown under a bridge . . ."

Rrrrring "Hello?"

"Yeah, I just saw someone driving by my place with a gun sticking out the car window . . ."

These are just a sampling of some of the calls we get at home. When we follow up on the calls, can you guess what opinions the callers have formed about hunters?

Some people seem to go out of their way to ruin the sport for others. Sure, I realize the majority of hunters do a good job of obeying laws and ethics. I'll talk about them in another column. But for now, I want you to consider just six actions. These six actions and their continuing abuse are guaranteed to ruin your sport in the eyes of the public. Notice, that's *your* sport. We, as officers, can't protect it for you. There are too few of us. The future of hunting is your responsibility and depends on how you conduct yourself as a hunter. Just take this sampling of six, and then think, "Do I see myself?"

Trespassing.

This has to be the ultimate in arrogance. Oh, it's tempting to run in quickly. No one will see. But it closes more doors to hunting every year. People have a fundamental right to be secure in their property. Asking permission and handling a denial respectfully is just common courtesy. Trespassing violations are the number one complaint I hear about hunters.

Shooting next to a house or livestock.

Iowa law requires you to be at least 200 yards away unless you have permission. How would you feel to hear shots bouncing off your house? How would you feel with your family in the yard?

Shooting from a vehicle.

Of course it's illegal. Yes, it makes that shot at the pheasant or deer in the ditch easier. But, how does it display you as a hunter? Are you too lazy to walk? It violates not only the law but also the very essence of the sport.

Disrespect for wildlife.

In some countries, the hunt is treated with great ceremony and the game with reverence. Here, we often treat the game as a commodity.

One day I got a call from a *very* upset person about a deer which had been legally shot, but had been suspended frozen over the stair railing of a business like a Christmas reindeer. My phone started ringing off the wall with persons who failed to see any humor in the situation.

Is not our treatment of the game itself possibly a reflection of how we perceive our natural resources in general? Do you dispose of those hides and skins properly or toss them off the nearest bridge for all to see?

Shooting at signs or any other property for target practice.

This is an act of vandalism. But anyone who sees that sign, usually thinks, "Hunters did that."

Careless gun handling.

On one occasion I hunted with a person who started twirling his shotgun like a baton. I never hunted with him again. What about taking that shot when you can't see the target background? Or are you guilty of occasionally leaning that loaded gun against the car? Or maybe your "habit" is forgetting to unload the gun?

It only takes a momentary mental lapse to cause an accident. Unsafe gun handling is not only unethical, it kills.

This is just a list of a few things. I'm not intending to be judgmental. I'm just telling you what I see and hear.

Yes, sometimes I am outraged. More importantly, if you as a hunter, a *sportsperson*, see these occurring, you should be too.

Every time you take to the field you are an ambassador for yourself, your sport and other hunters.

1993 Iowa Stamp Designs

Reece on Waterfowl

"Landing-Mallards"

1993 State Waterfowl Stamp

Iowa legend Maynard Reece, five-time winner of the federal duck stamp design, has created Iowa's 1993 state waterfowl stamp. Iowa Ducks Unlimited coordinates the development of the design. Because of DU's involvement, there are two ways to buy the art print. Iowa DU provides the print to all *donor members* who contribute $200. For more information, contact your local DU chapter, or state president John Kruse at (712)732-4370. Or, the Maynard Reece Gallery has published 600 signed and numbered prints that sell for $125 each. Christmas delivery is guaranteed. The gallery is located at 3512 Ingersoll, Des Moines, IA 50312; (515)274-1880. The image size of the print measures 6-1/2" x 11". Add $5 if you wish to buy a regular state duck stamp with your print.

New Poster Concept by Wignall

1993 Habitat and Trout Stamps

Former Iowa artist Brian Wignall, previous winner of the Iowa trout stamp contest and two-time winner of the Pheasants Forever Print of the Year, has created the 1993 habitat and trout stamp designs. Brian now resides in Las Vegas, Nevada, as art director for the Las Vegas Natural History Museum. He has created a painting titled "Streamside Grouse" that both the habitat and trout stamp designs will be taken from. Posters of the trout and habitat design measure 17" x 29" with an actual image size of 12" x 24". The cost of the poster is $35 plus $5 for shipping and handling. Orders will be taken until the cutoff date of October 15 to determine the quantity to be printed. Christmas delivery is guaranteed. To order, send check or money order to: Wild Things by Brian Wignall, P.O. Box 27474, Las Vegas, NV 89126-1474; (702)258-8484. Add $5 for the habitat stamp and $10 for the trout stamp if you wish to purchase them with your poster. Please indicate with your order if you would like your stamps signed by the artist.

"Stream Side Grouse"


Larry Zach © 1992