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Summer Fun at Iowa's State Parks.

Photography by
Jerry Leonard.



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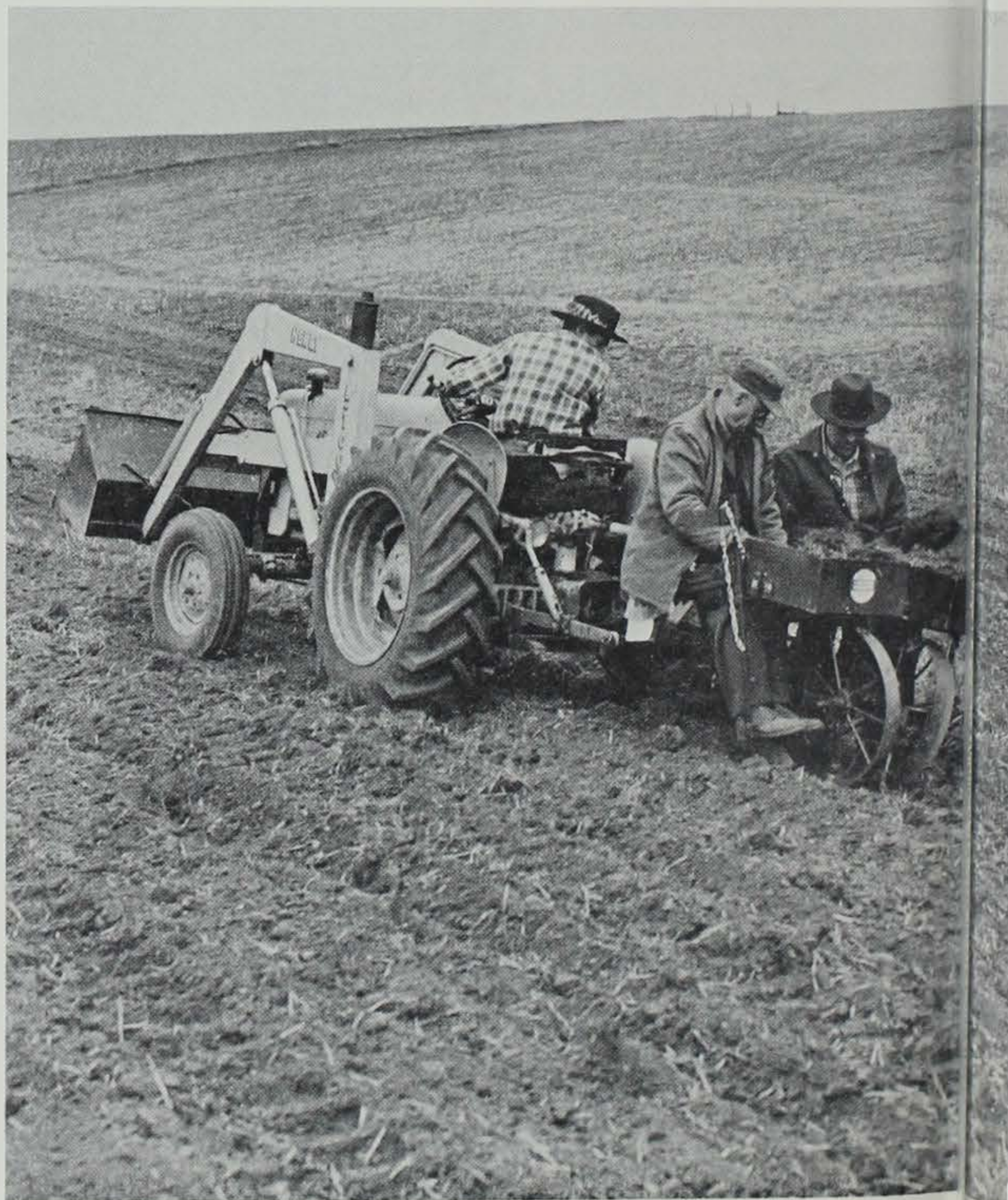
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A FARMER... and Wildlife

By Wendell Simonson
CONSERVATION OFFICER



IT WAS ONE OF THOSE COLD, drab "dirty-snow" days of late February, 1961. The hunting season was rapidly winding down, no fishing, and still too early for the geese to be migrating back to the north country. I'd been on patrol for several hours—actually prowling a bit to satisfy some restless urge. Stopping at the farm home of Dewey and Faye Elliott of near Oxford broke up the monotony of driving—besides, they were always good for a cup of coffee!



It was over that cup of coffee and a generous wedge of Faye's pie, that Dewey casually mentioned that he had "a few acres of land that was difficult to farm, and he allowed as to how it might make a good wildlife area." I advised Dewey that I would contact Tom Berkley the game section, and we'd take a look at the area he had in mind. Dewey also mentioned that his father and some of the "old-timers" used to say that an Indian trail ran along that same hillside, from Old Man's Creek to the south, north to Clear Creek and then the Iowa river.

By the time the first wavering "V" of geese came honking over the farm during the middle of March, we had checked and measured the hillside and had ordered the wildlife plantings from the State Forest Nursery at Ames. In April, Dewey had the ground ready and by the end of the month we were ready to go. We asked Conservation Officer Dan Nichols (now retired) of Muscatine to assist us—and we climbed onto the tractor and tree planter and went to work. We put in several kinds of conifers, some purple willow, a multiflora rose hedge, some honeysuckle and a variety of other plants. The area was fenced—and all we had to do then was hope for good weather for the transplants to catch and grow. Some additional plantings were contributed by the Oxford Conservation Club.

In only two or three years time you could see that several species of wildlife were beginning to take a liking to the area. A few more years, and several deer bounded out of the evergreens while we were checking them.

Dewey Elliott is now 78 years of age. A few days ago, he came to my residence to have me renew his combination hunting and fishing license. He said he still adds a bit here and there to the wildlife area and makes a brushpile or two for the rabbits in some remote area of the farm. I asked him why a man of his age, with no children, wanted to keep on doing something extra for wildlife. He answered simply "I've hunted a great deal, all my life—and wildlife has been good to me. I owe 'em something." Well put, by one fine old gentleman! □

Photo by Ken Formanek



More Open Spaces for Iowans

by James E. Scheffler
OUTDOOR RECREATION PLANNER

Photos by Jerry Leonard



North Cedar-Sny Magill area in Clayton County.

In July of 1973, Governor Ray signed into law the Open Space Land Acquisition Program. This legislation provided the Iowa Conservation Commission with \$2,000,000 for the acquisition of significant natural areas, including additional lands necessary for the optimum management of existing public facilities. Under the program, the Commission was granted authority to initiate land acquisition proceedings on a prompt, willing seller basis as desired tracts became available.

Results were not long in coming. Within six (6) months, over 7,328 acres of land in 17 counties were purchased or under option by the Commission. The eventual total of land acquired with the first "Open Space" appropriation was 7,868 acres, in 20 counties.

However, a large backlog of potential "Open Space" projects still remained. Accordingly, the Iowa Conservation Commission asked the Second Session of the 65th General Assembly for an additional \$1,000,000 appropriation for Open Space acquisition. To date, 1,302 acres of land have been purchased with the \$500,000 granted by that legislative session.

The Commission is presently negotiating for additional Open Space lands with funds (\$5,000,000) made available by the First Session of the 66th General Assembly. In total, 9,171 acres of land have been purchased under the Open Space Program. However, significant lands remain to be secured under public ownership if Iowa's future outdoor recreation and resource needs are to be met and a portion of its remaining natural area preserved.

The Conservation Commission is presently negotiating for additional Open Space lands. However, even with potential 50 percent cost-sharing through the United States Bureau of Outdoor Recreation, the amount of funding available is far exceeded by the number of possible projects which the Commission is aware of (it should be noted that Iowa's county conservation boards may also submit Open Space projects for funding consideration, as can the State Preserves Advisory Board and the State Historical Department).

For several years, the Commission has pursued the possibility of a standing Open Space appropriation. The Commission has other significant priorities, of course. These include, for example, the ongoing development of several major outdoor recreation areas,

the redevelopment or renovation of existing facilities, and the acquisition of significant fish and wildlife lands. Nevertheless, the Commission feels that the Open Space Program is of a parallel high priority. In the absence of an effective land use mechanism at the state (or national) level, coupled with the pressures being exerted on the state's remaining natural lands, public purchase represents the only sure method of guaranteeing the availability of some "Open Spaces" to future generations of Iowans.

North Cedar/Sny MaGill Creeks

Nearly ten miles of North Cedar-Sny MaGill trout stream were purchased with the Commission's initial \$2,000,000 Open Space appropriation. Yet, additional holdings remained to be acquired if public ownership was to be consolidated. Such consolidation is necessary to optimize recreation opportunities, facilitate the management program of both the streams and surrounding lands, and minimize the effects of inappropriate land use practices on the streams themselves.

The purchase of these 363 acres will do much to help meet these goals. The area purchased offers a diversity of habitat types and topography. It constitutes a major addition to the North Cedar-Sny MaGill area.

Little Turkey River - Ram Hollow Creek

This rugged, woodland area is bisected by over one-half mile of Ram Hollow Creek. This stream is fed by a number of cold water springs which help to produce a water environment suitable for trout. The area will accordingly be stocked and managed for trout fishing. The rugged topography and timber cover of the site will provide additional attractions for area visitors.

Matsell Bridge

This addition to the 1,072 acre Matsell Bridge area brings over two miles of Wapsipinicon River bottom into public ownership. The site is primarily composed of bottomland timber, with the remainder consisting of marginal agricultural land.

The area will be managed by the Linn County Conservation Board for wildlife and nature oriented activities such as hunting, fishing, nature study, and hiking. The site will no doubt also prove popular for canoeing.

Upper Iowa River

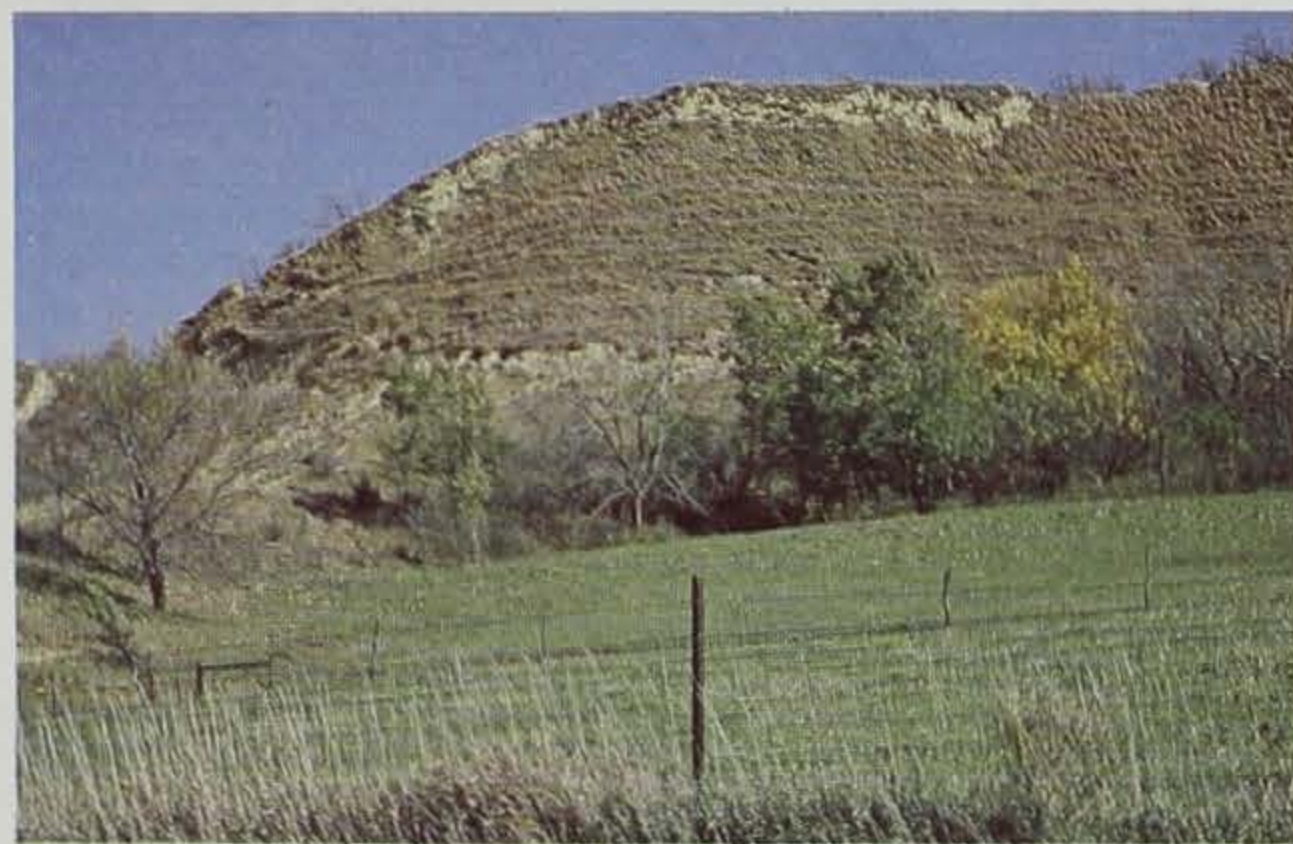
Because of its outstanding natural and recreational qualities, the Upper Iowa River has been for some time the object of an ongoing Conservation Commission land acquisition effort. Lands acquired along the river serve not only the boater and fisherman, but also the hunter, hiker, and nature enthusiast.

The area in question encompasses nearly one-half mile of river frontage. The tract is 100 percent timber covered, and includes a rugged bluffline which furnishes a sweeping view of the river. A county road bisects the area, affording excellent public access for its visitors.

Fish Farm Mounds

In 1935, the State of Iowa purchased the small Fish Farm Mound sites. The sites are located along a level terrace overlooking the Mississippi River floodplain. They contain 30 well preserved Indian mounds of the Hopewell Culture, dating from 200-500 A.D. In 1968, the Fish Farm Mounds were officially designated a state preserve.

The purchase of over 300 acres of surrounding land under the Open Space Program results in the creation of a significant public land holding; significant in regard to not only archaeology, but also natural and recreational qualities. The predominantly rugged, timbered area will be available to the hunter, hiker, nature enthusiast, and sight-seer. Its purchase will also create an effective buffer zone around the preserve site itself, thereby shielding it from possible inappropriate land use pressures.



Loess Hills in Monona County.

Malchow Mounds

The archaeological significance of Malchow Mounds has long been documented, but until its recent donation to the state by Mr. Charles Poisel, the site has remained in private hands.

The mound group contains a striking series of Hopewell Culture mounds. Public ownership and formal designation as a state preserve will make these available to organized groups and the general public on a regular basis. Their significance will be made further apparent through future interpretive efforts by the State Preserves Advisory Board.

Stephens State Forest

Iowa's already very small amount of forest cover is rapidly dwindling. The Open Space Program, therefore, places a high priority on its preservation.

The purchase of this 160 acre tract provides improved public access to the White Breast Unit of the Stephens State Forest. The area will be available for a variety of forest activities including horseback riding, hiking, hunting, and primitive camping.

The steep topography of a portion of it may also, in the future,

allow for the construction of a small impoundment. The existing timber cover of the area will be augmented by extensive plantings on presently non-timbered sites.

Pine Lake State Park

This purchase of three additional lots at Pine Lake State Park utilized funding made available through the supplemental \$500,000 Open Space appropriation by the 65th General Assembly.

The purchase will remove an inappropriate element from an existing outdoor recreation facility. In so doing, the natural, recreational, and operational integrity of the park will be greatly enhanced.

Lacey-Keosauqua State Park

The purchase of this predominantly timbered site will provide a southern access point to one of Iowa's oldest and most scenic state parks. The area will provide a pleasant setting for such activities as hiking, picnicking, and horseback riding. At the same time, public ownership will help to enhance the water quality of the park's 30 acre lake. Runoff from the agricultural portion of the site into the lake has been a continuing problem in the past.

Pioneer State Park

Pioneer State Park is a 14 acre facility, operated under management agreement by the Mitchell County Conservation Board. The park is located on a pleasantly wooded site, near the Little Cedar River. It primarily serves as a day-use area for county residents. Picnicking is probably the major activity enjoyed there.

The addition of 4.3 acres of timbered land to the 14 acre park is significant. Not only will it provide area for additional recreation use, but it will also square out the park's somewhat irregular boundaries and thereby enhance its management.

Green Island

This purchase made with supplemental Open Space Funds from the 65th General Assembly represents another step in the Conservation Commission's ongoing wildlife management program at Green island.

The smaller block of new land to the west is primarily flat agricultural ground. It will, along with existing and future lands, be utilized for the production of waterfowl food crops. The larger area to the south is, in contrast, rugged and predominantly wooded. It will be managed primarily for upland wildlife species.

Area Previously Purchased Under Open Spaces Program

Loess Hills	Clear Lake State Park
Indian Bluffs	Miami Lake
Starr Cave	Elk Grove
Stephens State Forest	Green Island
(White Breast Area)	Elk Creek
Stephens State Forest	North Cedar/Sny-McGill Creeks
Shimek State Forest	Big Mill Creek
Pine Lake State park	South Bear Creek
Walnut Woods State Park	Steamboat Rock Area
Springbrook State Park	Hickory Hills Park
Stone State Park	

Newly Acquired Areas

Upper Iowa River	Lacey-Keosauqua State Park
Fish Farm Mounds	Pioneer State Park
Malchow Mounds	Green Island *
Stephens State Forest	North Cedar/Sny-McGill Creeks *
(White Breast Area)	Little Turkey River-Ram
Stephens State Forest *	Hollow Creek
Pine Lake State Park *	Matsell Bridge

*(Supplemental Appropriation)

"July 15, Wednesday . . . The burials in Mound 38 seem to be in separate areas. The center of the mound contained a stone alignment consisting of a double row of limestone slabs which overlay a headless skeleton. In addition a child's skull, a skeleton of an adolescent, and scattered human bones were found. The only associated artifacts were 32 shell beads in the mouth of the adolescent. Beyond this, a cluster of 6 skeletons in a cramped burial pit was uncovered."

— From the expedition log of Marshall McKusick, 1964

The MOUND BUILDERS of NORTHEASTERN IOWA

By Gene Vaughan

FISHERY BIOLOGIST
BIG SPRING HATCHERY, ELKADER

Who were the "Mound Builders" and where did they originate? When were they inhabitants of what is now northeastern Iowa, why did they frequent this area, and of what significance are the mounds? For an explanation to these and related questions it is imperative that we first start where only conjecture can take us.

Archaeologists are as of yet unsure when North America was first settled, but generally the figure of 10,000 - 20,000 years B.C. seems to be an educated estimate. Presumably, people from Asia migrated to North America via the Bering Strait in Alaska sometime during the Wisconsin glaciation when lowered sea level created a land bridge linking Asia with North America. From Alaska they may have traveled southward along the Fraser River Valley into the Great Basin as some people believe; or ventured along the Yukon and MacKenzie Valleys until they reached the Great Plains as others theorize. The reason geologists feel these were the two major migration routes is that they were comparatively ice free, even as the Ice Age glaciers masked the upper Mississippi River Valley.

The first pre-historic people came into northeastern Iowa as hunters and gatherers and not tillers of the soil. The Asian home folks had apparently not as of yet developed the art of animal husbandry nor had they developed agricultural grains or surely these means of livelihood would have emigrated along to the new world.

These earliest people, termed Paleo-Indians, and the generations of descendents that followed hunted large animals such as giant sloths, camels, bison, and woolly elephants, all of which are now extinct. With the retreat in the great ice sheets from North America around 11,000 B.C., went the specialized plants and animals that were dependent on the ice age environment. This period of change must have complicated the Paleo-Indians' plight for survival in an already strange and hostile world. The oldest known evidence of these peoples in Iowa can be dated back to about 10,000 to 8,000 years before the birth of Christ.

Thousands of years later we see the emergence of the first mound building cultures in northeastern Iowa, inhabiting the river valleys and now gathering roots, berries, and seeds to supplement their still basic hunting economy. Now called the Archaic culture it lasted from about 8,000 to 1,000 B.C.

The period from 1,000 B.C. to 1,300 A.D. brought with it the Woodland Culture characterized by the tremendous diversity of religious mounds, a development presaged in the earlier Archaic period. These mounds were large, complex, and even today common. Larger habitation sites and the increase in burial mounds suggests that the semi-nomadic Woodland people increased in number possibly due to the advent of primitive agriculture.

Various Woodland religious cults practiced extremely interesting burial traits. One, the Hopewell religion, emphasized death and presumably life after death which is evidenced in their ceremonialism and elaborate burials of their dead. Another major cult, named Effigy Mound after the extremely characteristically shaped mounds, constructed reliefs to resemble bears, birds, lizards, and various other animals.

The reasons why many of these pre-historic cultures settled in the upper Midwest region (in particular northeastern Iowa, extreme eastern Minnesota, the southern one-half of Wisconsin, and extreme northern Illinois) may rest on a theory advanced even today in modern wildlife management practices. The idea of an ecotone, the area where two major plant communities meet and blend together, produces the greatest diversity of life as both plants and animals common to the communities on both sides colonize the transition area. Did the "Mound Builders" dwell in these upper Midwest regions because they recognized that the area where the western grassland prairie and the North American deciduous forests merged would provide more food than either the prairie or the forest? It is only supposition, but research by naturalists and botanists reveals that this ecotone area was particularly well suited to white-tailed deer and probably supported a deer population of from 20 to 50 per square mile, while north of the ecotone the deer numbers ranged from less than 10 to no more than 15 per square mile (Mallam, 1975).

What of the mounds themselves? What is their significance, what do they contain, and why were they constructed?

In northeastern Iowa along the Mississippi River Valley are many mounds in the shape of birds and animals called "effigies", and also long straight embankments (some 200 to 300' in length) which are termed "linears". Effigies are great cameos laid out on the ground. Some, for example one in the shape of an otter, measure 120 feet from head to tail. (The sub-embossed figures on these pages are representations of various Effigy Mound shapes. From Mallam, 1975). The third common mound form is a "conical" which is simply an area where dirt has been formed in a spherical configuration.

Even though mound excavation is minimized today and the function of the mounds partially clarified, the scientific work that has been done in the past adds to the mysticism of the "Mound Builders". The following passage is an extension of the opening passage of this article (McKusick, 1964).

"4 of the 6 skeletons were also headless. Several interesting artifacts were associated with the skeletons. One headless fellow had a limestone slab on his chest. Another had a very large

ceremonial blade, beautifully flaked in place of his missing skull. A third had a copper awl, or dagger, rammed into him from above and behind. It had cut into a neck vertebrae, split a rib, and protruded out the chest under the right collarbone. When this man was buried the Indians apparently left a complete spear thrower with him. No trace of wood remained, but a very large and perfect spearhead rested on his chest and beside it, partly covered by his left arm, was the perfectly fashioned stone weight originally attached to the spear thrower handle. The fourth headless skeleton may have died a violent death. A crudely fashioned projectile point appeared in the man's rib cage, the tip just barely poking out beyond the ribs as if it had been shot into him from behind."

The purpose of some mounds is obviously funerary. But, burial was probably only one of the many cultural and social activities carried out at the mound sites. It is conjectured that some mounds were possible meeting locations for different villages and served as a focus of contact between peoples which might otherwise become separated because of frequent travelings and relocations. The lack of trash such as broken artifacts, stone flakes, and animal bones almost certainly means the Indians never established villages at certain mound sites. Possibly the people made periodic migrations to the burial grounds and buried the remains of individuals who had died while these semi-nomadic Indians were elsewhere.

Originally Iowa possessed thousands of mounds and although they are more numerous along the bluffs of the Mississippi River, they also occur in many other parts of the state. It has been suggested (Keyes, 1928) that 10,000 mounds of several different forms would not be an unreasonable number for Iowa. Now perhaps only half that number remain due to the construction of new road rights of way, increased cultivation of more and more land, and the blatant pilfering of the mounds by artifact hounds. Unearthing of the mounds is now a violation of public law and even excavation by trained archaeologists is usually only undertaken when the mounds are threatened by the so called "advances of mankind."

What happened to the "Mound Builders"? Did they undergo a rapid extinction and become eliminated from the scene leaving only their mounds as evidence of a once flourishing cult? No. A lost race of mound builders is a bizarre myth. In 1894, Cyrus Thomas of the

Division of Mound Exploration destroyed the then accepted belief that the so called "vanished race" was a separate pre-historic population distinct from the American Indians. He demonstrated by comparing artifacts from the mounds with those of contemporary Indians that the Mound Builders were ancestors of the American Indian (Mallam, 1975). It was also shown that mound building was practiced well into the period of recorded history further providing a link between the present and past.

The Mound Builders by no means led a stable, steady state existence as is evidenced from the fact that from one mound in Clayton County came shell beads from the Gulf of Mexico, copper from Lake Superior, Knife River flint from South Dakota, and banded slate possibly from as far away as Ohio. The Mound Builders obviously traded with other peoples and in doing so influenced and were themselves influenced by other tribes.

So, as the Mound Builders neither suddenly appeared in the realm of human history, they did not just as suddenly vanish. Moreover, through the evolutionary process all organisms that are to survive change and adapt to their fluctuating environments. The Mound Builders were no exception. Whether we will ever understand the long standing complexities of their burial rituals, social interactions and life styles remains to be seen, but it indeed seems fitting that in the year of the bicentennial we should stop and reflect upon the true native Americans.

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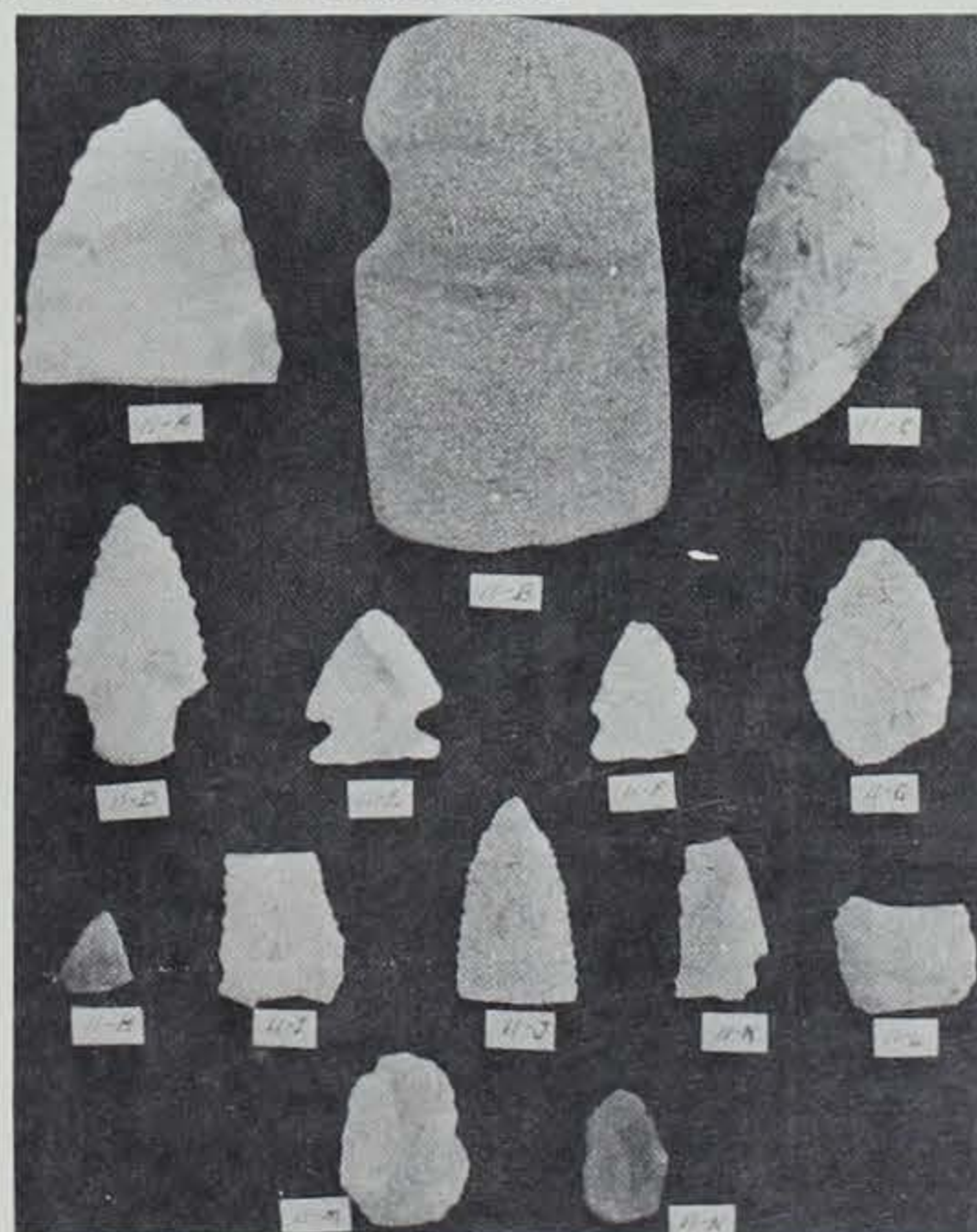
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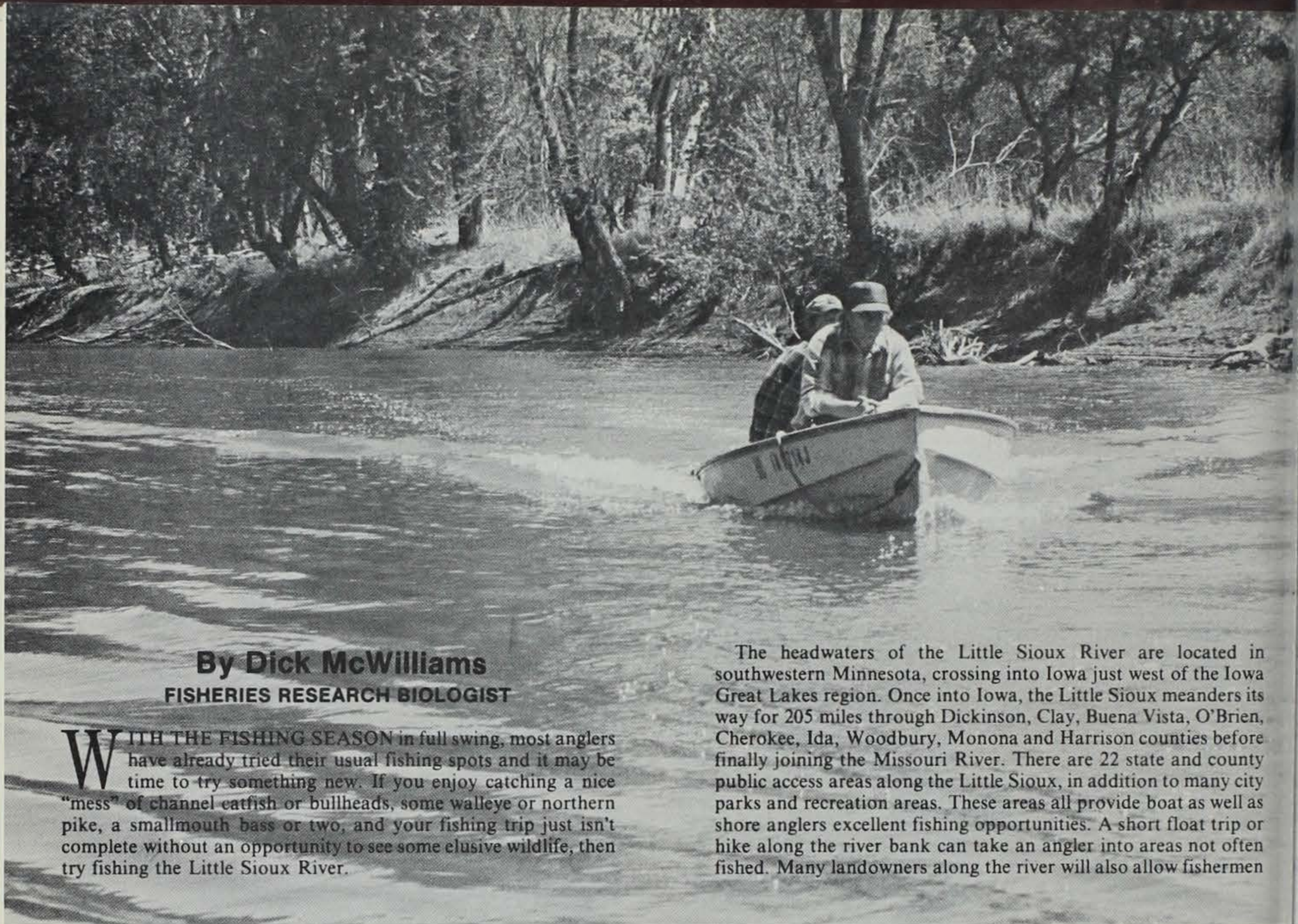
Photo Courtesy of Arnold Roggman, Garnavillo.

Artifacts from Iowa's past.

Arrowhead collection of M. Hoffman of Manchester.



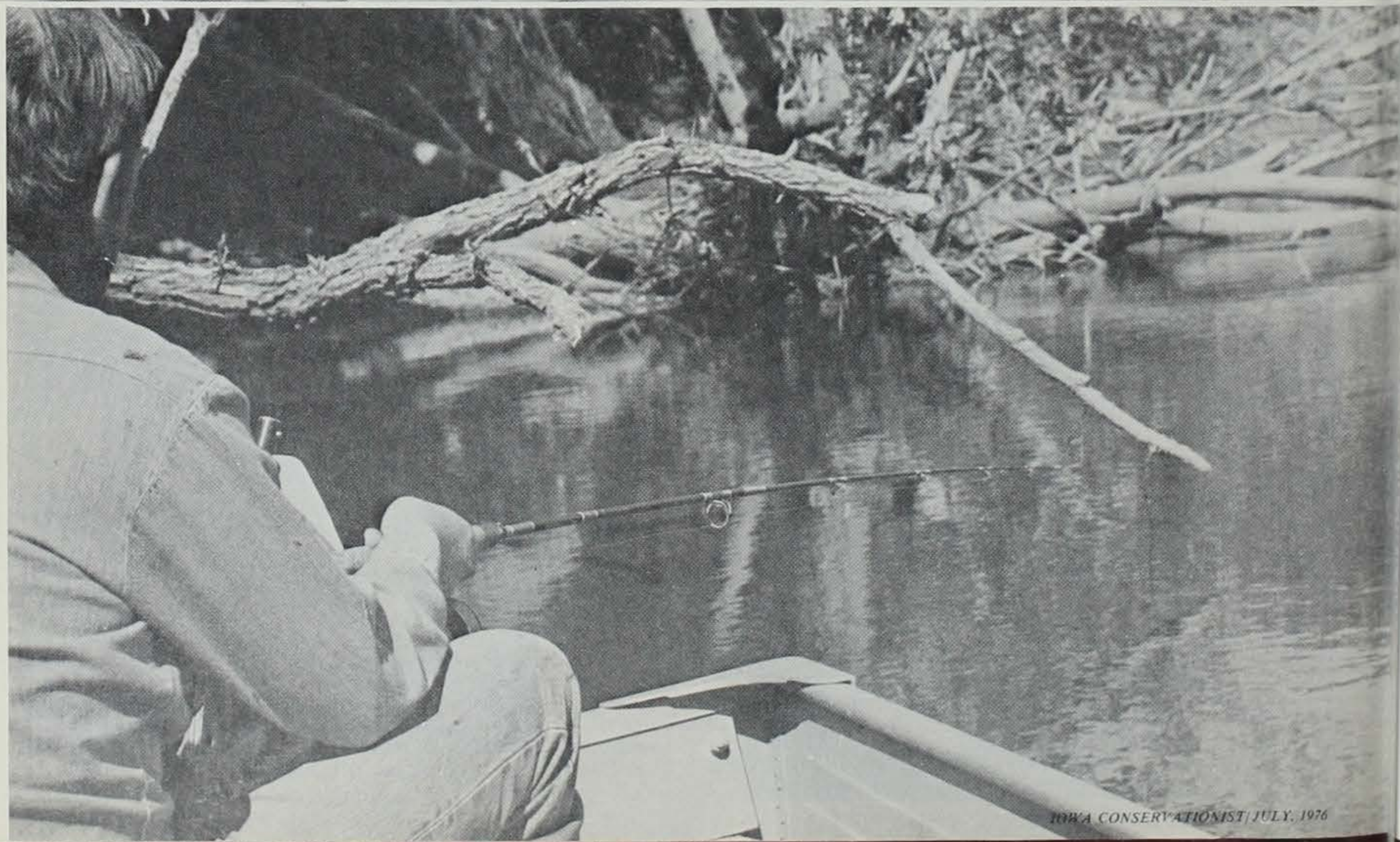
Various points & axe heads found in Clayton and Delaware counties.



By Dick McWilliams
FISHERIES RESEARCH BIOLOGIST

WITH THE FISHING SEASON in full swing, most anglers have already tried their usual fishing spots and it may be time to try something new. If you enjoy catching a nice "mess" of channel catfish or bullheads, some walleye or northern pike, a smallmouth bass or two, and your fishing trip just isn't complete without an opportunity to see some elusive wildlife, then try fishing the Little Sioux River.

The headwaters of the Little Sioux River are located in southwestern Minnesota, crossing into Iowa just west of the Iowa Great Lakes region. Once into Iowa, the Little Sioux meanders its way for 205 miles through Dickinson, Clay, Buena Vista, O'Brien, Cherokee, Ida, Woodbury, Monona and Harrison counties before finally joining the Missouri River. There are 22 state and county public access areas along the Little Sioux, in addition to many city parks and recreation areas. These areas all provide boat as well as shore anglers excellent fishing opportunities. A short float trip or hike along the river bank can take an angler into areas not often fished. Many landowners along the river will also allow fishermen





Another favorite species, generally ranked second in importance, is walleye. Sauger, a close relative of the walleye, are also present, but generally found in the lower reaches of the river. As most walleye anglers know, the best areas for seeking walleye and sauger are below major obstructions, such as the Linn Grove Dam, or major brush piles and snags. Other good areas are around riffles, or rocky areas adjacent to deeper holes. Leadhead lures are used almost exclusively for these species, and are most often baited with minnows or small chubs. Northern pike are also found in the same areas as walleye and sauger, with the highest populations generally in the upper half of the river. Spinners and metal spoons are used extensively in fishing for northerns, with chubs and frogs also used occasionally, particularly when seeking trophy sized fish. The best seasons for fishing for walleye, sauger and northern pike are spring and fall. Walleye and sauger fishing is generally better during the fall, with northern pike fishing normally best during the spring.

Although not numerous, hard fighting smallmouth bass are found in portions of the Little Sioux. The highest populations and best fishing areas are located in Cherokee County. These hardy battlers generally inhabit deep holes adjacent to riffle areas, or below major snags. River bass anglers prefer to use small metal spinners and shallow running flat plugs to avoid hooking rocks and brush piles. Crayfish are also used by smallmouth bass fishermen, both in combination with lures, and as a bait by itself.

Two other fish species should also be mentioned. Bullheads, an important member of the catfish family, are common in the river, with the majority caught between May and mid-September. Although not regarded as highly as the channel catfish, a stringer full of bullheads frying over an open fire is an enjoyable way to end a summer's day. This pugnacious species is generally located in the slower moving backwater, although they are also found in nearly all types of habitats. Nightcrawlers, fish worms and sour baits will entice bullheads to bite. Another fish not usually considered by anglers is the common carp. Although considered an undesirable fish by many anglers, the carp is a wily, hard fighting fish species and a worthy opponent on the other end of the line. Some of the more experienced carp fishermen prepare a variety of tasty dishes, from deep fat frying to broiling steaks. Or, for a different taste treat, try some of the recipes listed in the December, 1975 issue of the Iowa Conservationist.

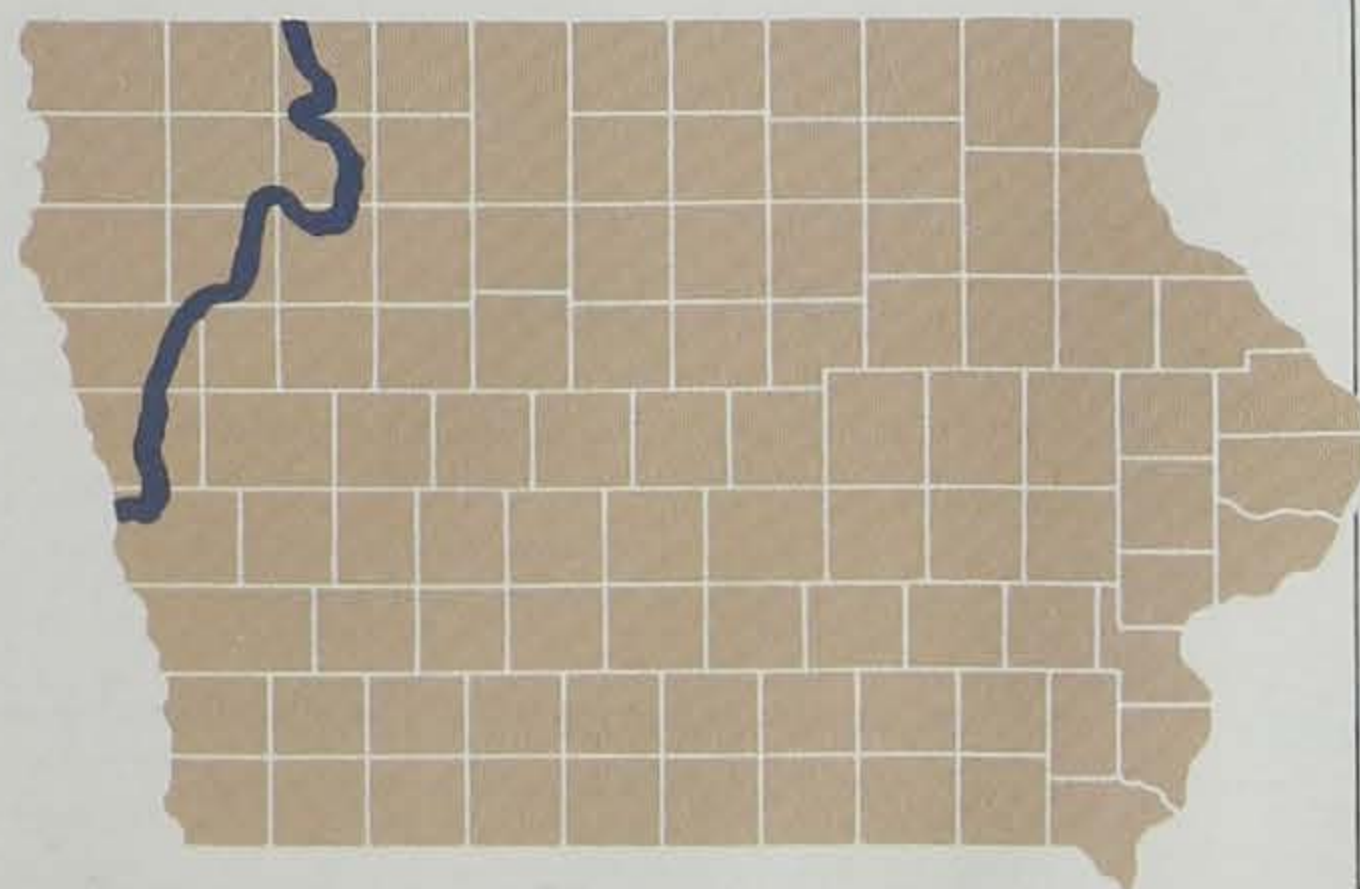
However you prefer to fish, wading, or laying along the river bank or just lazily floating down the river enjoying the outdoors or spying some wildlife, the Little Sioux River provides the opportunity. So pack your gear and let's try fishing.

If you would like further information concerning public access areas, or local conditions, contact the area Conservation Officer, or the Fisheries Biologist located at the Spirit Lake Fish Hatchery, Spirit Lake, or at the Lake View Fish Management Station, Lake View. □

access across their fields, and may point out a local hot spot or two.

Where and how to fish the Little Sioux River depends to a great extent upon the fish species sought, season of the year and whether you're float fishing or fishing from shore. The "king" of the river is the channel catfish. Catfish range from the delicious pan-sized fryers to trophy sized battlers. The best areas for seeking catfish are around the larger brush piles or snags. Other productive areas are along cut banks, and in the mouths of smaller tributary creeks and streams. Catfish are caught throughout the open water season. The best fishing success is associated with rising water, as when the spring runoff begins, or shortly after a soaking rain. Favorite catfish baits include cheese baits, cut baits, chubs, frogs, and the sour baits. Sour baits are among the best and are easily prepared at home. Simply mix cut baits (pieces of carp or other fish or river "clams"), corn meal and milk into the desired consistency, let the mixture mellow for a day or two and it's ready for use.

FISHING THE LITTLE SIOUX RIVER



The Little Sioux River

Area	Location	County
Horseshoe Bend	3½ mi SW Milford	Dickinson
Kindlespire Park	1 mi E Cornell	Clay
Riverside-Little Sioux Access	1 mi W Peterson	Clay
Little Sioux Wildlife Area	2 mi NW Gilette Grove	Clay
Linn Grove Park	Linn Grove	Buena Vista
Barnes-Little Sioux Access	5 mi NE Cherokee	Cherokee
Martin-Little Sioux Access	4 mi E, ¼ mi S Larrabee	Cherokee
Nelson-Little Sioux Access	4 mi E Larrabee	Cherokee
Pearse-Little Sioux Access	2 mi NE Quimby	Cherokee
Ranney Knob Area	½ mi SW Washta	Cherokee
Ritts Access	N edge Washta	Cherokee
Silver Sioux Rec. Area	6 mi SW Cherokee	Cherokee
Stieneke Access	3 mi NE Washta	Cherokee
Soo Access	5 mi NE Larrabee	Cherokee
Washta Access	1 mi W Washta	Cherokee
Washta Access	1 mi S Washta	Ia
Little Sioux Park	2 mi SW Correctionville	Woodbury
Little Sioux River Green Belt	1 mi SW Correctionville	Woodbury
Little Sioux Delta	1 mi W Little Sioux	Harrison
Little Sioux River-Control Structure	3 mi N Little Sioux	Harrison
Three Rivers Area	1 mi NW River Sioux	Harrison

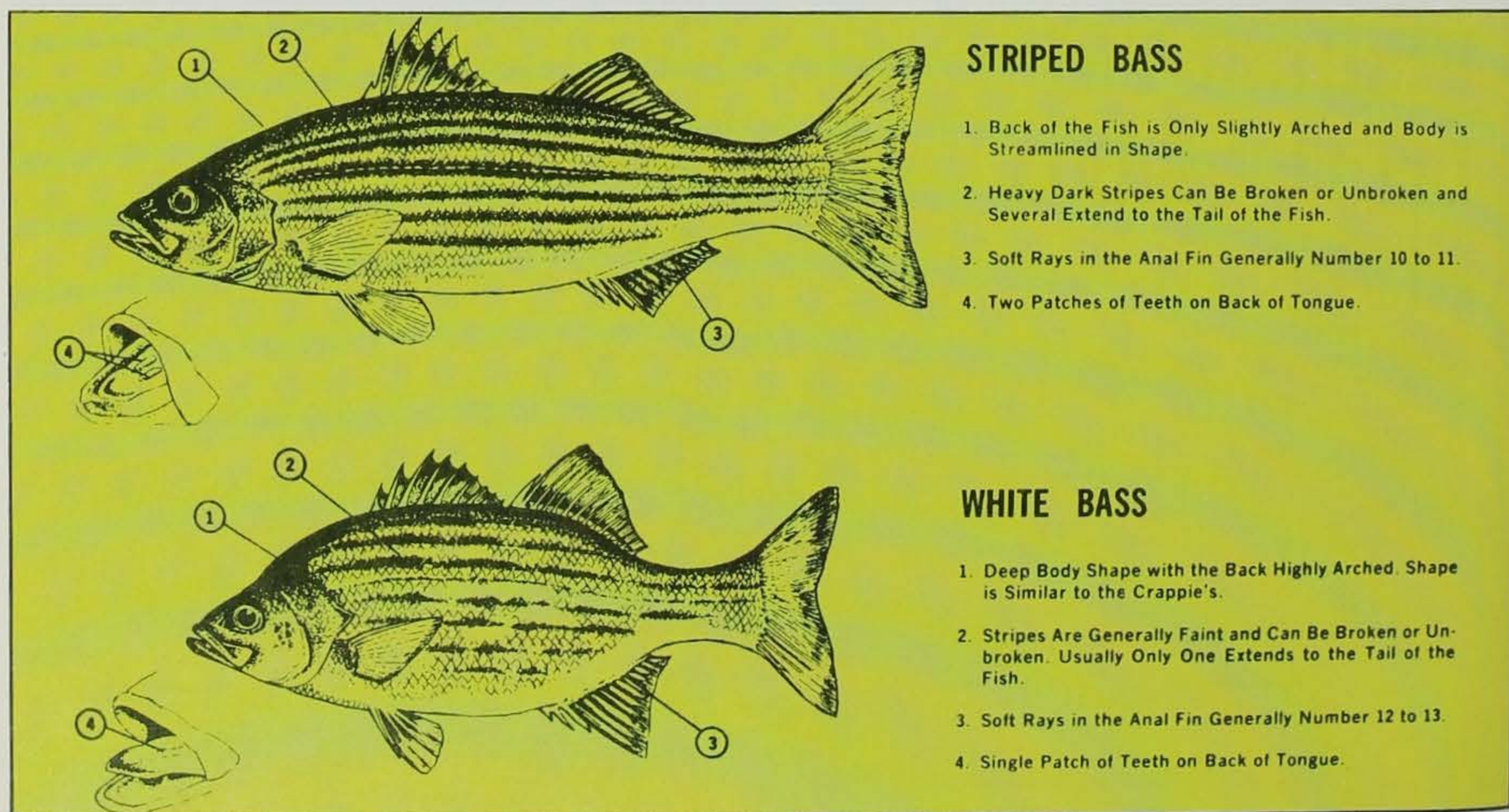
Iowa's Striped Bass Program

By Vernon Spykerman
FISHERIES BIOLOGIST

ONE OF THE NEWEST FISH to be released in Iowa's waters is the striped bass. *Morone saxatilis*, is a saltwater fish native to the Atlantic seacoast which has a long history of introductions throughout the United States. The first transplant of these fish from their native habitat occurred in the nineteenth century when the striped bass was successfully introduced into the Pacific Ocean. Then about 25 years ago, it was discovered quite by accident that the species was capable of thriving in freshwater. In 1950, dams in South Carolina created a series of impoundments on a river flowing into the ocean. Because the striped bass normally migrates from the ocean to freshwater streams to spawn, the bass became trapped in the new impoundments. Later fisheries biologists learned that the bass were thriving and reproducing while entirely landlocked. This discovery led to stripers being stocked in inland reservoirs throughout the United States. Also, methods for propagating them in hatcheries were developed.

The striped bass belongs to the sea bass family and is closely related to our native white bass. When small, the striper is easily confused with the white bass. An accompanying photograph shows identification characteristics used to separate the striped bass from the white bass. One characteristic not listed is that the striped bass has two razor-sharp points on each gill cover, while the white bass has only one point on each gill cover. Of course, there is no problem distinguishing between older fish, as the striper grows to a much larger size. The world record striped bass caught on hook and line weighed 73 pounds and was 60 inches long. In contrast the world record, sport-caught white bass weighed 5 pounds, 2 ounces. Striped bass in the 10 to 20 pound range are fairly common in reservoirs with established populations.

The Iowa Conservation Commission first became interested in the species as a trophy fish for Rathbun Reservoir. Also, if other Iowa reservoirs are to be stocked in the future, we must develop our own source for eggs. The Rathbun fish could be used for this purpose.



STRIPED BASS

1. Back of the Fish is Only Slightly Arched and Body is Streamlined in Shape.
2. Heavy Dark Stripes Can Be Broken or Unbroken and Several Extend to the Tail of the Fish.
3. Soft Rays in the Anal Fin Generally Number 10 to 11.
4. Two Patches of Teeth on Back of Tongue.

WHITE BASS

1. Deep Body Shape with the Back Highly Arched. Shape is Similar to the Crappie's.
2. Stripes Are Generally Faint and Can Be Broken or Unbroken. Usually Only One Extends to the Tail of the Fish.
3. Soft Rays in the Anal Fin Generally Number 12 to 13.
4. Single Patch of Teeth on Back of Tongue.

Hatchery Production

At present, the striped bass used in Iowa come from the state of Virginia. We receive the stripers as 2 to 4 day old fry in May. At the Mt. Ayr Hatchery the fry are placed in rearing troughs which have a constant water flow through them. The young bass are fed live brine shrimp every two hours throughout the day and night for a period of two weeks. The brine shrimp are hatched (in an incubator) from commercially purchased eggs.

After two weeks in the rearing troughs, the fry, now approximately 1/2-inch long, are moved to earthen ponds on the hatchery grounds. Prior to arrival of the fry, the ponds were prepared to receive fish. This preparation included fertilization and chemically treating the ponds for control of aquatic weeds. Fertilization of the pond is of the utmost importance because it is the fertilizer which promotes the growth of the insect life which the young bass feed on. The ponds are usually fertilized with alfalfa pellets and superphosphate.

After about one month in the ponds, the bass will measure 1.5 to 2 inches in length. The stripers are then harvested from the ponds and either stocked in Rathbun Reservoir or transferred to Rathbun Hatchery. If a larger sized fish is desired, the bass are moved to Rathbun Hatchery where they are trained to accept commercially manufactured fish food instead of natural foods such as insects and small fish. Through this process, larger fish in the 3 to 5 inch range can be produced.

The training process begins by crowding the stripers together in a relatively small tank and constantly offering fish food pellets to them. In about one week, the majority of the fish learn to accept the offered food. The bass are then moved to a larger concrete circulating pond and fed fish food routinely throughout the remainder of the summer. In the fall the stripers are released in Rathbun Reservoir.

Lake Management

The Iowa Conservation Commission has been stocking Rathbun Reservoir with striped bass since 1971. The usual stocking rate calls for five, five-inch bass per acre, or a total of 55,000 stripers per year. Stocking of 4 to 5 day old fry has been tried in the past, but it is felt that fingerling stockings are much more suitable.

The success of the stockings in Rathbun Reservoir is one big question mark for our fisheries biologists. After the young bass are stocked in the late summer, they can be found in sample nettings extending into late fall. However, the following spring, sample netting fails to collect any stripers. To this date, no yearling striped bass have been captured in Rathbun Reservoir. The big question is whether all of the fish stocked the previous summer perished during the winter or whether the type of sample netting being done is not adequate to catch the older fish. It seems logical to assume the latter, as striped bass are open water fish. That is, when the stripers approach one year of age, they move from the shoreline areas to the open water areas. Here they remain feeding on schools of young shad. These open water areas of the lake are very difficult if not impossible to sample with nets.

What does the future hold for striped bass in Iowa? Present plans call for continued stocking of the stripers in Rathbun Reservoir. If, after a few more years, no striped bass are captured the program will probably be discontinued. However, if the bass are there now and continue to exist in the future, they will allow expansion of striped bass stockings to other large reservoirs in Iowa and possibly the Mississippi River.

If there are catchable size striped bass in Rathbun Reservoir, angling during the summer of 1976 should produce some fish. It has been five years since the first stocking and a fishable population of stripers should exist. If any fisherman catches what he believes to be a striped bass, fisheries biologists at Rathbun Fish Hatchery would appreciate the opportunity to examine the fish. Rathbun Fish Hatchery is located directly below the Rathbun Reservoir Dam.



From Top to Bottom: Striper Fry from Virginia are placed in rearing troughs. Shortly thereafter they are stocked in rearing ponds (right). Fry can be raised to larger sizes by hand feeding: a diet of special pellets (below). This fingerling striper (bottom) may someday reach 40 lb. in Iowa waters.



Restoration of the Wild Turkey to Iowa

"Dear Sir:

I used to have lots of pheasants on my farm but the hunters shot them all and I would like the Conservation Commission to stock pheasants on my place to replace them."

"Dear Wildlife Biologist:

I have 25 acres of timber in northcentral Iowa and I would like to put turkeys there. Can you tell me where I can buy some turkey eggs?"

"Dear Conservation Commission:

I was reading about these Chukar Partridge that live in the mountains in the West and I think they would be fun to hunt in Iowa. Why don't you raise some of them here?"

By Terry Little

FOREST WILDLIFE BIOLOGIST

Part I: Decline and Restoration of the Wild Turkey in the United States

The questions come in several forms, but they always have one thing in common. Someone would like the Iowa Conservation Commission to raise and release in the wild an animal which is declining in abundance or which has never been found in the state. Wildlife biologists and administrators may spend as much time answering this type question as any other single item brought to their attention by well-meaning individuals concerned about the disappearance of wildlife from a landscape increasingly dominated by intensive agriculture. Unfortunately, the response of wildlife professionals to these requests is nearly always negative. Experience has shown that stocking programs aimed at increasing populations of native game species have nearly always failed, and that introducing new species will also fail unless certain conditions exist. Most native game animals are found wherever suitable habitat provides for their year-around food and shelter needs, and the absence of some essential habitat requirement usually explains their absence or disappearance from an area. Furthermore, controlled hunting can seldom eliminate most game animals from adequate habitat. Decreasing populations of pheasants in northern Iowa, for example, can be traced to the disappearance of

suitable nesting and winter cover as more land is converted to row crops and fall plowing becomes increasingly common. Restocking pheasants in that part of the state will not increase pheasant populations unless suitable habitat can be restored. Likewise, introduction of a species into areas beyond its original range will succeed only if all of its habitat requirements are present in the new area. The chukar partridge, a bird normally living on steep, rocky, arid mountain slopes, would be unlikely to do well in the flat, humid, agricultural environment found in Iowa.

There are some situations, however, in which stocking programs can yield positive results. If an animal is prevented from moving into areas where suitable habitat exists, or if it has been eliminated from its native range for reasons other than habitat loss, or if the trend to loss of habitat has been reversed and formerly inhabited areas are once again suitable, stocking can be a valuable tool in the hands of properly trained wildlife managers. The wild turkey falls into all 3 of these categories, and its restoration to much of its former range in the east, midwest and southwest United States is one of the prime examples of the intelligent use of a wildlife stocking program in existence today.

The wild turkey was once an extremely abundant bird inhabiting much of the United States and Mexico. Populations at the time of the first immigration of the white man to this continent were estimated at 10 million birds divided into 3 major groups: (Figure 1). The eastern wild turkey was found in the hardwood and pine-hardwood forests of the eastern half of the United States and in wooded stream bottoms extending into the eastern Great Plains; the Rio Grande wild turkey inhabited the river breaks and scrub brushlands of the arid southern Great Plains; and the Merriam's wild turkey occupied the montane woodlands of the southern Rocky Mountains. The eastern strain, native to Iowa, was especially abundant in the hardwood forests of the Ohio River Valley. Production of acorns, nuts, berries and other seeds which make up the largest proportion of a turkey's diet must have been extremely high in the mature forests found in that region at the advent of the first white settlers. Densities of 70 turkeys per section were reported in the best areas, with 10 turkeys per section probably an average density over their entire range. "Turkey shoots," in which several hunters surrounded a large timber stand and drove turkeys toward the middle shooting as they went, were common and often produced several hundred birds for the table or market in one day's time.

This unrestrained and non-selective hunting, combined with loss of habitat, made it impossible for turkeys to persist over much of their ancestral range. Clearing of forests for agriculture and timber production, uncontrolled burning, heavy



Figure 1. Original distributional limits and 1948 occupied range of the wild turkey in the United States (Walker 1949, Mosby 1949).



Figure 2. Areas where the wild turkey has been established or reestablished as a huntable population since 1938.



Figure 3. Original range of the wild turkey in the United States and Canada.

grazing of the remaining timber stands by cattle and hogs, and shooting of hens and juvenile birds took a heavy toll in the late 19th century. Turkeys began decreasing in their eastern ranges by the 1850's and in the southwest a decade or so later. By 1920, only 17 eastern and 11 western states had any native wild flocks remaining, all greatly reduced in numbers and several in jeopardy of extinction. By 1949, only 300,000 eastern wild turkeys were thought to survive, and they inhabited only 12 percent of their native range (Figure 2).

Efforts to restore wild turkeys began in the 1920's as many states began forming their own counterparts to our Conservation Commission and developing game farms. Initially, all of the turkeys used in release programs were obtained by one of two methods: Semi-domestic turkeys were used as brood stock, or wild gobblers were allowed to fly in and mate with semi-domestic hens kept in open-topped pens. In both cases the eggs were collected and incubated artificially, and poults were raised in game farm pens until they were released during their first fall or winter.

Results using these methods were uniformly discouraging. Although more than 30 states undertook releases of game farm turkeys, none were able to re-establish truly wild populations without some form of protection from human and natural enemies. Simply stated, game farm birds were not wild enough to survive in a natural environment. They were not wary, were easily poached and were susceptible to natural predators. Survival of poults was low because neither the hens nor their young exhibited proper responses when presented with danger in the form of poachers or natural predators. Years of domestication had created a docile, unwary turkey capable of living and breeding in captivity, but incapable of surviving in the wild. Semi-domestic game farm birds transmitted these traits to wild flocks in areas where they were released, as well as domestic poultry diseases against which wild birds had no natural immunities. For these reasons, stocking programs occasionally resulted in a decrease in wild turkey populations, not the desired increase. Wild turkeys, on the other hand, were too wild and temperamental to keep as brood stock in game farms. They neither survived nor reproduced well in captivity.

In spite of discouraging results, many states kept attempting to re-establish turkey populations with game farm birds, since no techniques were available to capture wild birds in sufficient numbers for transplanting. Regrowth of cut-over forests, fire protection and curtailment of grazing, abandonment of marginal farmland, creation of state and natural forests, improved law enforcement, stricter hunting regulations and education of the public to the desirability of restoring turkey populations all created a favorable environment for turkeys if adequate stock for release could be found.

In the early 1950's, the Missouri Department of Conservation first adapted the cannon net technique, previously used

for waterfowl, to capture wild turkeys. Turkeys were baited into a trap site with corn or grain and captured with a net propelled by a projectile shot from a cannon. As the birds ate the bait, observers hidden in a nearby blind, shot off the cannons, hurling projectiles attached to a net over the backs of the turkeys. The net then fell over the birds and secured them until they could be removed and transported to a release site. This imaginative technique revolutionized turkey stocking programs. For the first time large numbers of wild birds became available and nearly all states with turkey habitat began trapping and transplanting their own birds, or obtained release stock from other states.

The results of these release programs were phenomenal. Transplanted turkeys established viable populations and began increasing wherever suitable habitat remained throughout their native range. And several western states successfully introduced turkeys in areas far beyond their ancestral limits but where suitable habitat was available. Montana, Wyoming, North and South Dakota, Colorado, Oregon and California were able to establish turkeys in areas that were previously unavailable to the birds because intervening deserts and open grasslands served as ecological barriers and restricted their movements. By 1974, there were an estimated 1.3 million turkeys nationwide, a four-fold increase in just 20 years, and 42 states had re-established turkeys in formerly inhabited areas (Figure 3). Thirty-nine states now allow some form of turkey hunting and approximately 160,000 birds were taken by turkey hunters in 1975.

Photos by Jack Coffey



Three factors, restriction of turkey hunting to allowable levels, a reversal in the trend toward habitat loss, and an intelligent and well-managed re-stocking program completely changed the outlook for wild turkey populations over a period of just 20 years. A bird that disappeared from much of its native habitat and was on the verge of extinction in many other areas is now widely distributed and doing well over much of the remaining timbered habitats in the east, midwest and southwest United States. Permanent loss of much of the woodlands in these areas means that wild turkeys will probably never reach their former abundance, but sustainable populations at somewhat reduced levels certainly appears possible.

Restoration of the wild turkey, then, fits all 3 categories listed previously in which a restocking program can be successful. They have been established in areas they were prevented from reaching by ecological barriers they could not cross, and they have been re-established in some areas where hunting was a major factor in their demise and in others where a trend toward habitat destruction has been reversed. Unless these conditions existed, even the most expensive and well-conceived stocking program would have failed. Professional wildlifers point with pride to this restoration program as an example of wildlife management at its best, yet they caution the uniformed spectator that only very special circumstances have made it possible.

Next month, in Part II, I will describe similar circumstances that occurred in Iowa and present in some detail the objectives and results of Iowa's turkey restoration program.

REGENERATION- New Life After Harvest

By Bruce Plum

DISTRICT FORESTER

Photos by Jerry Leonard

THE BEAUTIFUL STANDS OF OAK TIMBER in southern Iowa are a result of clear cutting. The early part of this century saw the clearing of large areas of forest land in this area for the production of mine props. This denuding with accompanying debris would bring a cry of horror to present day "ecologists". However, bulldozers and extensive cow herds were not as common then, so this land was not converted to other uses after logging. It was left alone and by nature's magic the forest was renewed.

Between seedlings and stump sprouts this new forest was soon on its way to making valuable oak stands to be admired and used by a future generation. Left alone after a severe cutting, natural processes most always ensure regeneration of the forest in a way that all except the greedy and ill-informed will appreciate.

A forest of seed bearing age produces enough seed to regenerate itself a thousand times each year. Many of the seeds are pilfered by birds and mammals of the forest. The animals help scatter seeds such as acorns and nuts so it becomes an accommodation between the trees and the animals where one depends upon the other for survival. Many of the seeds are consumed or do not germinate for other reasons. The few that do finally germinate produce enough trees to make a new forest several times over every year or so.

Oak and hickory seedlings will not grow into large trees unless they have adequate sunlight. In fact, most seedlings die from lack of sunlight making it necessary that the renewal process be repeated year after year. This insures adequate reproduction when an opening does occur as a result of natural disaster or man made causes.

Many of the seedlings while waiting for an opening to occur are destroyed thru browsing, insects, disease, fire or logging. If the root is not destroyed at the time the top has been damaged a new sprout will issue forth and make an even stronger plant than before. If this stronger plant appears at the time an opening occurs in the forest it will have a better chance of making a mature tree than a neighboring seedling in its first year. The older root system will boost the new tree up above its neighbor and eventually crowd it out.

An ungrazed clear cut area may have several thousand seedlings per acre while a mature forest may have 30 - 50 trees per acre. The crowns of the former make a complete canopy in much the same way that the crowns of the large trees make a complete canopy. The difference, of course, is in the size of the trees. As a tree becomes larger it requires more growing space. It obtains this space at the expense of its slower growing neighbors. The struggle for survival is never over. After the first 20 years the number of trees in the original clear cut area may be reduced to 600 - 1,000 per acre. At the end of 50 years it may be down to 200 or less per acre. All of this depends upon species, soil, available moisture, aspect and climate.

Once the trees reach about the maximum size they can attain because of genetic traits and site, the competition with each other is essentially over and an intensifying struggle with insects and disease carries on. Eventually this old stand passes out of the picture from natural causes or logging. It is then replaced by the new trees that have been waiting for the right amount of sunlight to reach them. Then the competitive struggle for dominance among their peers begins.



Man may enter any phase of this struggle and adjust the spacing of these trees to give advantage to the better quality trees. The trees cut can usually be used for products. If man does the cutting wisely, nature will be accommodating and reward him with high quality fast growing trees. At the same time she will allow man all the fringe benefits such as wildlife, esthetics, outdoor recreation and watershed protection.

A forest cannot be destroyed by simply cutting it. Nature has regeneration powers that transcend the axe and saw. It takes further interference by man to accomplish complete destruction. The regenerative powers of the forest are overwhelmed by snorting bulldozers and the trampling hoofs of livestock.

Only where man plays the complete fool does he foul his nest. Converting steep land to other uses lays the subsoil bosom of Mother Earth bare which clogs streams with silt, encourages dust storms and eliminates the creatures of the wild which help keep a semblance of balance in natural processes that even agriculture used to depend upon.

We're in the process of crossing up Ms. Nature. She doesn't look kindly upon our usurping her domain in such a way that destroys in one year what she laboriously created over thousands of years. The early complaints are subtle. At first it is a rill which later becomes a gully, reduced crop yields, reduced wildlife numbers, no more whispering of the wind in the trees. Have you noticed stronger winds lately? □

CLASSROOM CORNER

by Robert Rye

Administrator, Conservation Education Center

WHAT WOULD YOU CONSIDER to be the main tools used by the Iowa Conservation Commission in conserving Iowa's natural resources? They must apply to all Conservation Commission involvements, fish, wildlife, law enforcement, parks, forestry, waters and even soils.

You probably have thought of many devices such as licenses, laws, or cars which one or more sections may use. But they all use observation, data gathering, and predictive experiences.

These tools require involvement and often some specialized tools (such as a camera, tree borer, or nets), knowledge or techniques.

Your Iowa Conservation Commission uses all of these tools to determine hunting seasons, bag limits, minimum fish lengths, tree harvesting numbers and other matters pertaining to your natural resources. We at the Conservation Education Center use many similar experiences to alert Center visitors to the importance of observation, data gathering and predictions.

You may use animals or plants as objects of your classroom activities. Weather also works extremely well and is a useful resource — it's always there and you can get immediate results to your predictions.

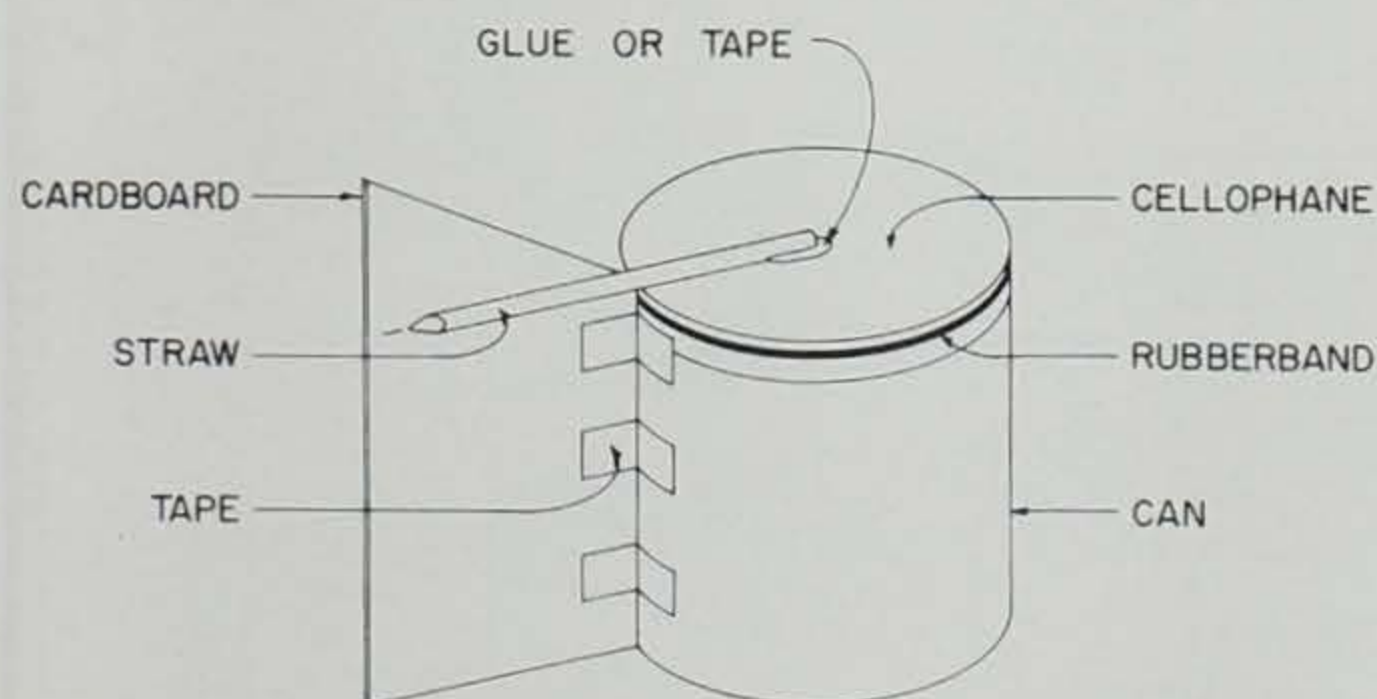
Weather contains several conditions to be observed and measured — temperature, barometric pressure, precipitation, wind direction and speed, relative humidity, cloud type and cover.

Some weather conditions such as barometric pressure and temperature can be readily observed and measured. Expensive or simple equipment may be used to measure these. Others such as cloud types and cover are less subject to measurement. Observers have to make their own judgements when recording these conditions.

Children of all ages can become actively involved in all parts of conservation of natural resources. They can make their own set of recorded observations. They then are ready for converting the data recorded on an hourly or daily basis to long term generalizations or descriptions. This provides many indoor understandings about weather, graph construction, basic statistics, and other physical sciences.

Students doing a weather project must first obtain a thermometer, a barometer can easily be made. Take a number 10 can or a coffee can and cut a piece of cellophane or clear plastic wrap to fit over the top of the top of the empty tin. Secure this with a rubberband. Tape a cardboard section to the outside of the can.

Glue or tape a soda straw to the top of the cover. Mark on the cardboard where the straw now rests. Mark "high" and "low" on either side of this mark (See illustration)



What you are measuring is changes in air pressure on the outside of your cellophane. More pressure will push the cellophane down and cause the pointer end of the straw to rise. Less pressure will allow the

FROM THE

Warden's diary

By Rex Emerson

Law Enforcement Supervisor

A HOT JULY WEEKEND really brings out the recreators. Today we took the big river boat down to Lake Odessa in Louisa County. This is an area the Wildlife Section manages as a duck marsh. It is also an area used by the pleasure boaters, water skiers and fishermen. The fishing in Lake Odessa is good. They catch bass, catfish and a lot of good sized crappies. But a nice Sunday afternoon in July is not the best time to try the sport of fishing here—at least not in the main part of the lake. The power boats pulling skiers had the water stirred up to a froth. We were glad we had taken the big boat.

Shortly after we launched our boat we issued citations to a couple of the boaters we observed using excessive speed too close to shore. By that time they all knew we were out there and most of them started operating their boats in a safer manner.

A lone fisherman in a little twelve foot, flat bottomed boat tied to a shoreline tree saw us and started to wave with both arms for us to come over to his boat. We were going over to check his fishing license anyway, because that was really why we were out there. However, we do enforce all laws. He was about as angry as any fisherman I have ever come across. It seems that earlier in the afternoon he had been anchored out in the lake trying to catch a fish. He heard a boat coming real close and looked around just in time to duck a ski rope as the boat went on one side of him and the skier on the other side. It all happened so quickly he didn't get the boat number and there were so many boats out there he didn't know which one it was. Now this was a dumb thing for the boater and skier to do. I would have liked very much to have caught them and sent them to court. But, for some reason, it also struck me as being funny. Maybe it was the wild way this poor fisherman told about it, standing up in the boat waving his arms and cursing those "hot rodders". However, when I laughed he got angry again, not at the boaters, but at me. Then I told him about a fisherman I knew from Kimballton, Iowa who had good luck keeping the water skiers away. He used a slingshot and some little green apples. He always said, "If I can hit them with a green apple, they are too close!" However, I wouldn't really suggest doing this, as it would make the skier angry.

The fisherman calmed down and with a suspicious smile on his face, cranked up his motor and headed for the boat landing. We will probably hear about him again if he finds some green apples. We may have to smoke him out from under some irate water skier who got whacked in the rear with a little green apple.

Seriously, water safety regulations need to be obeyed. Such laws were made to try to protect lives. If we could legislate common sense we wouldn't need so many laws. □

air inside the can to push the cellophane up and cause the pointer end of the straw to drop.

Have the students do some "book research". What does air pressure have to do with weather? What does rising air pressure indicate? What does lowering air pressure indicate?

Books can also provide pictures of cloud types for students to make comparisons with their observations.

Children can feel and directly experience and the conditions they measure. They can make their predictions based on their observations and data, and test their accuracy in a short or long period of time.

