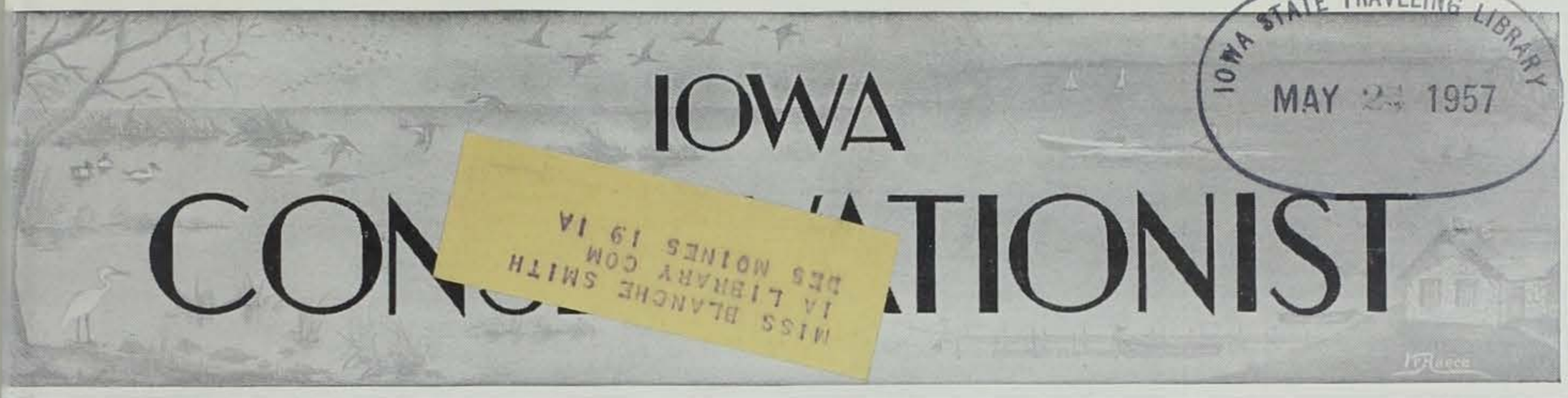

IOWA CONSERVATIONIST

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956 IOWA BOUNTY SUMMARY

LATHEAD CATFISH

By R. Jess Muncy

a Cooperative Fisheries Research Unit, Ames, Iowa

n recent years a lot has been itten about the channel cat-, but his big cousin, the flat-d catfish, has been neglected. ny popular ideas concerning this catfish of our Iowa rivers have n circulated, and a look at some head information recently col-ted on the Des Moines River y shed some light on the sub-t.

One idea that's often heard con-ns flathead migrations up Iowa ers from the Mississippi. This not impossible during flood ges, but dams on rivers such as Des Moines might prevent s movement at other times.

Actually, our information indi-es that all age groups of flat-d catfish are present in the s Moines River and that young n are actually being produced some areas. Young-of-the-year thead catfish measuring 3 to 5 hes total length were taken in autumns of 1955 and 1956. In dition, continued recapture of viously tagged flatheads re-aled their presence over a two-ar period (1955-1956) in the 7-le area between the Boone terworks Dam and the Fraser wer Dam. This indicates that theads were a permanent part the Des Moines River fish popu-ion, and not necessarily up-eam migrants.

How Many?

If flatheads are in the Des oines River at all times, what e the chances of catching one, d why aren't more taken by glers?

During the 2-year period of apping and electric shocking at e Boone YMCA Camp, only 239 thead catfish were captured, as mpared to 7,447 channel catfish. ese flatheads included all size oups from 3 inches to 40 inches,

(Continued on page 135)

Jim Sherman Photo,
Coyote bounties in 1956 totaled $13,479. Coyotes are numerous in parts of western and northern Iowa, but have evidently learned to keep their mouths shut.

Walleyes, Saugers Tagged in Mississippi

In a unique April fisheries survey, walleyes and saugers in the Mississippi River below Guttenberg were shocked into revealing more about their living habits and how they may better be caught by anglers.

Working with electric fish shockers in Pool 11 below Guttenberg in northeast Iowa, Conservation Commission biologists conducted tagging experiments of the pike in an effort to learn more of their movements, the size of the pike population, and the degree of angling success for pike.

A special crew under Robert Cleary, Commission fisheries biologist, stunned the pike with electric shockers, tagged them, and released them immediately. *During the first night of the operation, 141 pike were captured and tagged. Over 1,150 wallayes and saugers were marked during the 5-day study.*

The project was part of a joint effort of the Conservation Com-

(Continued on page 136)

Bounty payments last year showed a slight decline from the 1955 figures, but the '56 total still amounted to a lot of money. Total bounty fees paid by all counties during 1955 were $150,269.45, as compared to the 1956 total of $149,562.55.

Payments on red foxes continued to head the list with pocket gopher fees ranking second and furnishing thousands of Iowa farm boys with extra money. Total bounty payments for various species were:

Adult Wolf	$ 11,780.00
Wolf Cub	1,679.00
Red Fox	117,155.00
Grey Fox	738.00
Fox Cub	336.25
Pocket Gopher	13,641.60
Groundhog	959.85
Crow	1,906.55
Starling	866.60
Rattlesnake	446.50
Miscellaneous	53.20
Total bounties over all counties	$149,562.55

Under Iowa law, county auditors are required to pay bounties from the county treasuries for adult wolves, $10; wolf cubs, $4; wildcats, 50c; pocket gophers, 5c and red or grey fox, $2. If the county board of supervisors wishes, the following bounties **may** be paid: crow, 10c; groundhog, 25c; rattlesnake, 50c; European starling 5c; and for each pocket gopher, an additional bounty of 5c.

To collect such claims, the claimant must furnish 1) the whole skin of each wolf, wildcat or fox, 2) both front feet and claws of each gopher, 3) the head and feet of each crow, 4) the head or scalp of each groundhog, and 5) two inches of tail of each rattlesnake, with rattles attached.

By county, the following bounties were paid in Iowa during 1956:

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MINIATURE SPILLWAYS FOR TOMORROW'S LAKES

In a small frame building, half-hidden along the Skunk River just south of Ames, are being born some of Iowa's newest artificial lakes and marshes.

It's here that Conservation Commission engineers test spillways and dams long before they're built, working with small models carefully built to scale. With such model spillways engineers know just what to expect in the real thing, for the little structures show vestpocket results that may be almost identical with the final, full-scale project.

Innovations in Iowa lakebuilding, each spillway is an exact plastic and plywood miniature of the eventual concrete structure. Even parts of the lake basin and shoreline may be included, and fine sand and pebbles at the foot of a little spillway may be sized to simulate the larger rocks and sand at the future damsite. Nothing is left to chance; water flowage, carefully controlled, is also to scale.

The present studies are being carried on by the Commission's Engineering Design Section and are largely handled by Bill Randolph, a Commission engineer whose specialty is hydraulics and the design of water control structures. The first project in the Ames laboratory was designing a model of the Viking Lake spillway in January, 1956. Since then the engineers have built and tested models of the diversion channel into Lake Manawa, water control structures for the new Bay's Branch marsh near Panora, and revamped spillways for Lake of Three Fires and Mill Creek.

One Thirtieth Life Size

Randolph had just finished testing the Mill Creek spillway model when we visited him last month.

It was a sleek little job, built at a scale of one foot to thirty feet. It was complete from the plaster shoreline of the lake (carefully roughened) to the scaled end sill at the foot of the spillway. An electric pump fed water into the big tank above the spillway and a controlled tide filled the lake basin, overflowed, and cascaded down the little spillway.

Jim Sherman Photo.
Engineer Bill Randolph and one of his baby spillways. Smaller than life, such tiny structures give accurate forecasts of the real thing. This model is of the Mill Creek spillway —one-thirtieth life size.

* * * * * * * * * * * *

It takes Randolph about a month to construct such a model, and another month to thoroughly test it. With pitot tubes he checks the velocity of water in the spillway chute at various locations and drops of purple dye fed into the "lake" indicate the exact lines of flow. On paper, such directions of flow would seem easily computed, but Randolph has found that water does things on a scale model that can't be forecast on the drafting table.

May Take Dam

Spillways and dams of large water areas can be complex affairs. By the figures they may seem well designed—until a 50-year flood comes along. Then the spillway may fail to contain the massive overflow of the lake and the surging waters may roar up over the thick sidewalls of the spillway, cut into the earthen dam, and even breach it.

Or poor design may result in severe erosion below the spillway, undercutting the slab until a small house could be hidden beneath it. Poor design may cause unequal stresses and energies and the spillway may simply fail mechanically, cracking and breaking its slab.

Those are the two greatest dreads of the designer: failure of the structure to contain heavy runoff, and severe erosion at the foot of the spillway.

The first may be checked by proper shape and design of the spillway. Curve of sidewalls, their height, distance between them and the degree of spillway slope are all critical. Randolph and his colleagues design their spillways with a "50-year flood" in mind. This is the greatest runoff of water that might be expected in a particular watershed during an average 50-year period.

Erosion of the sand and earth below the spillway is less dramatic but just as destructive. A few years ago the washout below the Bellevue Dam on the Mississippi was said to be nearly ninety feet deep. Below the spillway of even small artificial lakes such erosion and undercutting may create great cavities that cause the slab to break from its own weight and the incessant pounding of water.

Such erosion is prevented by "energy dissipators"—twin rows of staggered concrete blocks at the end of the spillway where the chute levels out to form the floor of the structure. Water sliding over the weir at the top of the spillway gains a tremendous kinetic energy by the time it reaches the spillway floor. At the end of the chute are the "chute blocks" that break the first impact of the swift water. Just below these are the "floor blocks" that are positioned alternately with the chute blocks. These two rows of concrete blocks break the water's velocity, creating a line of roaring, foaming water across the foot of the spillway. On Randolph's models, these are little wooden blocks —easily moved and shifted—that do exactly the same thing.

The water then flows, at a greatly reduced velocity, into the streambed below the spillway. In the models, Commission engineers use small pebbles and fine white sand for this streambed, roughly scaled to the silt, boulders and gravel of the real thing. Effects of water on this material can be studied and while the results are not in exact scale, they give good indications of what can be expected.

Sliderules and Hammers

Many things can go wrong in big construction. But by carefully creating a scale spillway in the laboratory and testing it under given volumes and velocities of water, these things may be minimized or even eliminated. Such models must be backed up by extensive computation; there's a lot of sliderule work before the engineers pick up their hammers and saws.

Hydraulic laboratories with scale models of dams and spillways are not new. According to Randolph, the classic example is at Vicksburg, Mississippi, where the Corps of Army Engineers has a 40-acre outdoor model of the entire Mississippi and Missouri rivers' watersheds, complete to the smallest detail.

"The thing is almost frightening," Randolph explains. "With this model they can predict almost any change in either watershed. For example, they can run a scaled flood down their model Floyd River into the model Missouri River and determine its effects on their model Kansas City, all in a few hours".

Most hydraulic labs in the country, however, carry on theoretical testing with no specific projects in mind. Each Iowa model is for a specific area, and all future dams and spillways built by the Conservation Commission will be carefully modeled before actual construction. Much of this will be for new artificial lakes and parks, but some of the work will also be marsh designs for fish and game purposes, and paid for by Federal Aid Program funds.

Hydraulically, it's a sound policy that results in better structures. Better design means less maintenance, longer structure life and lower cost.

But if the big spillways are built to last, the models aren't. After two months of building and testing one of his tiny structures—of watering it daily and checking its pulsebeats—Randolph must completely destroy it to make room for the next project.—J.M.

NEW HANDBOOK ON WESTERN BIRDS

An excellent new handbook on the land, water and game birds of western North America has been released by the National Audubon Society.

It is Richard H. Pough's "Audubon Western Bird Guide", a 316 page field reference work with 34 full-color plates by Don Eckelberry depicting 219 bird species.

The remarkable little book is a companion volume to the earlier "Audubon Bird Guide" which was concerned with eastern land birds. Unlike this earlier work, the new western bird guide contains material on a number of native game birds. It also has 138 black and

(Continued on page 136)

chief Ron Schultz of Monona gives Smokey the glad hand. Back in town, Smokey win Huinker, volunteer fireman. Such firefighters—with their rural trucks—help guard Iowa's biggest forests.

* * * * * * * * * * *

TLE SWITZERLAND'S "FIRE ARMY"

ain-wise, the forests and brush-ls of Iowa are in better shape spring than in the past two rs, but there's still danger of fires that can destroy valu- timber, sear soil and burn nsteads.

here'll probably be such fires in ern Iowa this spring and sum-, but chances are they'll have r teeth pulled before they can much damage. A vigilant net-k of firefighters is watching them, and major fires will have futures.

hasn't always been that way. ew years ago fires in timber-ls and other eastern Iowa areas e often in full stride before were resisted. And even then firefighting efforts were loosely anized and not too effective. Peterson, Area Forester of State Conservation Commis-, for eastern and northeastern a, had four fire calls in one day 1948, and he and his small of forest workers battled twenty major fires that year he wooded hills of northeast- Iowa. Other fires weren't even orted, but luckily ran their rses without great damage.

hat was enough of that. Milo bitter foe of anything that de-ys forests, and in 1949 he or-ized six townships in Allama- and Clayton counties into a Protection District. Every mer in these townships joined program, agreeing to fight s on his own farm and adjoin- farms. These landowners were ven into a tight network of fire-otters, each contacting his ghbors and calling Milo at the low River Forest station when laze was sighted. At headquar-s, Milo had fire-wise foresters a full list of volunteer fire fighters that could go into action at once.

Trucks Join

This worked pretty well, but something was lacking. There was no heavy, special equipment for fighting fires near roads and farm buildings, and so about six years ago dozens of fire departments also joined the program. County fire chiefs and the chiefs of local departments assigned special trucks to deal with rural forest and brush fires that were beyond manual firefighting methods.

Such rural fire trucks carry at least 500 gallons of water as well as special chemical equipment and fogging devices. They are especially valuable when a forest or brush fire threatens farm buildings.

There are many places where trucks can't go, however, and where special firefighting equipment may be needed. In such areas "fire caches" were set up—large red chests of special firefighting tools. These caches are near farmer fire wardens and enable the fire warden and his neighbors to battle a blaze before other help arrives. The caches contain swatters, special rakes for cutting firelanes, shovels, axes, and pack pumps for toting in small supplies of water. This water is often reinforced by special detergents that make it "wetter", breaking down the surface tension and allowing it to soak into stumps, leaves and other woodland debris.

Jammed Brake

So when a bad fire is reported by farmer firespotters there's quick action. The state foresters at McGregor are alerted and volunteer firefighters notified. Fire departments may be called in at once and if the fire is in a remote area a fire cache may be opened, men equipped, and the battle joined.

Five years ago, an isolated brush fire began sweeping the hills between Lansing and New Albin in Allamakee County. Before it was reported, almost a thousand acres had burned. Fire trucks from New Albin and Lansing arrived, and squads of volunteer firefighters. The blaze was put out in one day, and burned over only 500 more acres from the time it was first reported.

In 1954, the jammed brake of a freight car spread fire along several miles of right-of-way near Wexford, south of Lansing. Although the faulty wheel was almost as efficient as a platoon of flamethrowers, and over 500 acres of woods and brushland were burned the fire was checked in one afternoon and evening by rural trucks, foresters and farmer firefighters.

Since landowners and local fire departments have joined the program, rural fires have dwindled. In the past two years, Peterson and his woodsmen have had practically no fire calls. A growing awareness of forest fire prevention has killed many fires before they were kindled or shortly after.

Landowners in many rugged areas have become fire-conscious and as local fire departments have spread the word there has been increased town interest in forest fire prevention. Peterson attributes much of the fire decline to local departments who have taken sharp interest in forest fire prevention and regularly join in programs for schools and other groups. During one week last fall when Milo held "Smokey Bear" programs for 10,000 school children in eastern and northeastern Iowa, he was joined in every program by local firemen.

50% Less

Ron Schultz, chief of the Monona Volunteer Fire Department west of McGregor, believes that such fire prevention programs "have really paid off" in his area. He notes that last year, grass, brush and forest fires were reduced 50% in the Monona vicinity. This—in spite of one of the driest years on record.

The Monona setup is typical of many northeastern towns. There are two fire trucks, manned by volunteers. One has been designated a rural truck and if a fire is reported in an accessible area, Schultz drops his spanner wrench at the local garage and heads for the smoke. Joined by Adrian and Irwin Huinker, Ralph Doolittle and other Monona volunteers, short work is made of any fire where a truck can be driven.

Organized effort is vital in firefighting. Lack of such effort—plus a dry landscape and stiff winds—is believed responsible for the shocking loss of life and property in the southern California fires last winter. Many small bonfires had gotten out of hand on a wide scale, and trained, organized effort was lacking to nip the fire in the bud. By the time the experts arrived, it was too late.

(Continued on page 135)

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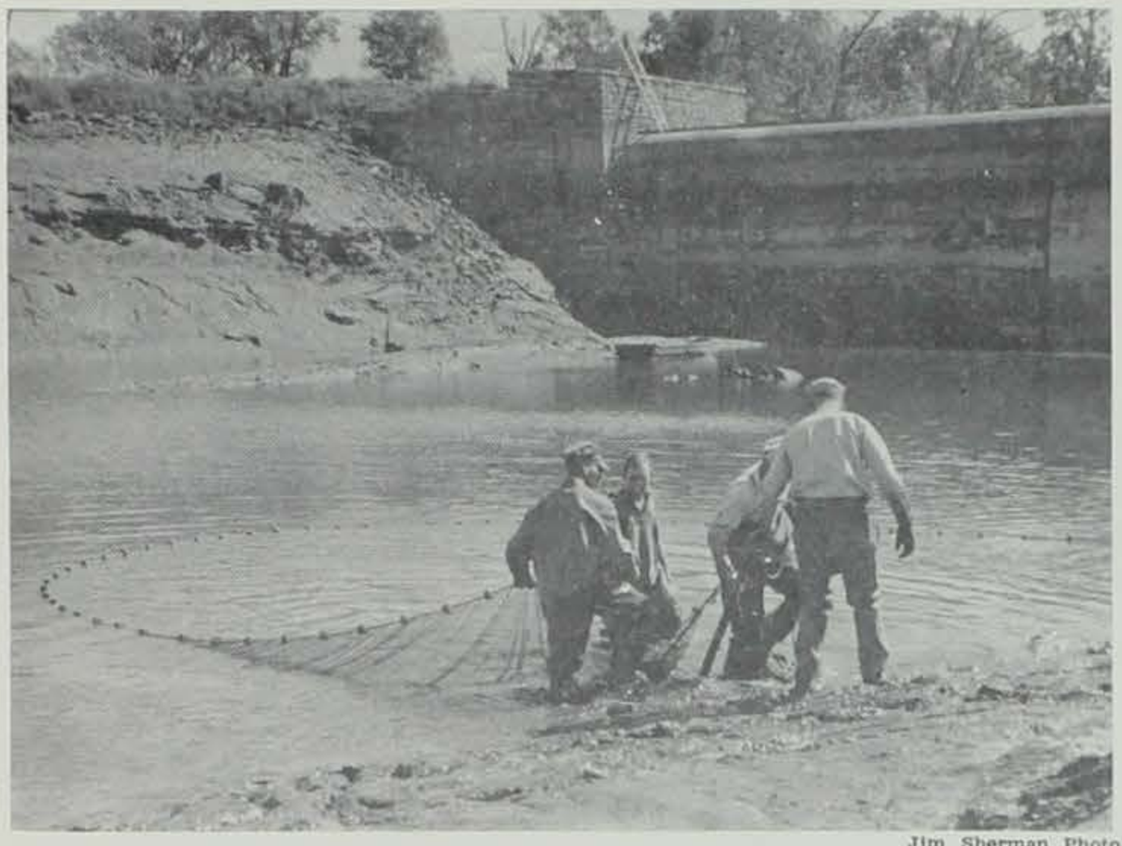
Located in remote areas, fire caches hold special firefighting tools. Forester Milo Peterson says the caches have never been broken into or damaged by thieves.



Jim Sherman Photo.
Beed's Lake, shown here during the 1946 drainage, is fairly deep (35 feet) for an artificial lake. Note the outcroppings on the opposite bank.

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BEEDS LAKE STATE PARK

By Charles S. Gwynne
Professor, Department of Geology
Iowa State College

Beeds Lake State Park is in central Franklin County a few miles northwest of Hampton, a 300-acre park of which 120 acres are lake. The lake is artificial, made by the damming up of Spring Creek.

The park and the lake have an interesting geologic setting. Four or five miles west of the lake is the hilly country of the terminal or end moraine deposits of the Mankato glacier. It extends north and south through this part of northern Iowa. The lake itself and the country to the east is in an area called "ground moraine" of the Iowan glacier. Here the land is more rolling, with gentle slopes.

The Iowan and the Mankato glaciers were both of the Wisconsin glacial stage. The Iowan was the first, the Mankato was the last of four advances of the Wisconsin ice sheet. In the Iowan area the country is only rather thinly mantled with drift. The topography which existed before the advent of the Iowan, made principally by running water, shows through to the present surface.

Margin of Glacier

The area of the Mankato terminal moraine is one of irregularly distributed hills and intervening undrained depressions developed at the margin of the glacial ice. Here the ice front wavered back and forth, while ice within the glacier was slowly moving forward. More and more glacial debris was dumped by the glacier until finally this belt of rugged, hummocky country was left. Spring Creek winds its way through the hills of the terminal moraine onto the Iowan area. The lake is just outside of the terminal border.

The materials of the two areas are rather alike, composed almost entirely of unstratified drift. There is also some drift which is stratified. All sizes of particles make up these two soil and subsoil materials. The Iowan drift surface extending far to the east is notable for the occurrence of granite boulders, some the size of a small house. The Mankato terminal moraine has more stratified drift, sand and gravel, and also a large number of smaller boulders.

Wind-Borne

A material called loess is distributed over the Iowan drift surface. This is silt and clay, deposited from the wind. Most of it was blown from the barren Iowan drift surfaces. There is none on the Mankato moraine.

The boulders of the two drifts are of many kinds. Since they differ from the bedrock underlying the soil and subsoil, they are said to be "erratic". These glacial erratics formed part of the bedrock of the country over which the glacier moved. Most of them are crystalline rocks like granite and gneiss. These were both formed from molten material, within the earth's crust, early in earth history. Uplift of the crust and erosion finally brought the rock of which they were a part to the surface. They were freed by weathering, and then picked up by the glacier.

To see these boulders along the fence rows or stream channels one would never suspect their true character. The shelter house here at the park has a fascinating display of these glacial erratics, showing an abundance of the minerals quartz and feldspar.

Shattered

The bedrock which underlies the park and a large part of Franklin County outcrops on the side of Spring Creek valley, just below the spillway. It has been badly shattered by weathering, and the fragments lie almost everywhere. This is a sedimentary rock, deposited as a sediment in the ancient seas of this part of the world. It is in layers, a result of the way the sediment was deposited. Also, it is a limestone. The limey material was deposited from the sea water and subsequently hardened to a rock. The rock is brown in color because of a content of the numeral limonite, much like iron rust.

This rock is part of the Hampton formation, named from the location of its occurrence. The formation in turn is part of the Kinderhook series of formations, named from early studies of the series at Kinderhook in Pike County, Illinois. The Kinderhook series is one of those making up the Mississippian system of rocks, widespread in the Mississippi valley.

The Mississippian sea, in which were deposited the sediments of these formations and series, fluctuated widely over our continental area for about 40,000,000 years. It ended some 270,000,000 years ago. The sediments of the Hampton formation were laid down near the beginning of the period. The formation has a thickness of about 60 feet and is almost all limestone.

Ancient Animals

Although this rock is of marine origin no fossils were noted by the writer in the outcrops below the dam. However, the masonry of the spillway is from a Hampton formation quarry at Chapin, not far away, and this is seen to contain many fossil fragments. Small rounded objects, fragments of crinoid stalks, are numerous. Lengths of these stalks, looking like the backbone of vertabrates, were also noted. Crinoids are marine invertebrate animals which live in a small boxlike arrangement attached to the sea bottom by a jointed stalk.

Below the dam the water rushes along, carrying away fine material, and creating more fine material by rubbing sand and coarser fragments against the rocks. Material is washed down the sides of the valley. Thus is disclosed the origin of the valley in which the lake lies—it was made by running water aided by weathering. Construction of the dam completed the basin in which the lake now lies. The water at the dam is about 35 feet deep, unusual for artificial lakes in Iowa. It is, of course, a reflection of the height of the dam and the depth of the valley.

There is but little evidence of the wear of waves on the shore of Beeds Lake as there is on so many Iowa lakes, natural and artificial. However, a low bluff has begun to develop on the north shore. This means sediment is being washed into the lake. Some must also be brought in by the water of Spring Creek, although there is a settling basin above. Silting, however, has not thus far been a problem. Nevertheless, left uncontrolled it could slowly destroy the lake.

In the meanwhile weathering and the tumbling water take their toll at the spillway. Gradually this too would be destroyed. One day, left to itself, the lake would be gone, and Spring Creek would continue, as it did earlier, to widen and deepen its valley.

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C. S. Gwynne Photo
A long way from "home," glacial erratics have been used for the fireplace in the Beed Lake shelter house. Freshly broken, they glint with quartz and feldspar.

THE LIFE SPAN OF ANIMALS

By David H. Thompson and Roberts Mann

Signs of senility, or extreme old ge, are seldom seen in the wild. nimals living under natural con-itions rarely approach their max-num possible age because of very igh death rates due to infant ıortality, diseases, predators, bad eather, accidents, or competition or food and shelter. For this rea-on, most of the reliable informa-on about the length of the life pan comes from zoos, where ac-urate records are kept and ani-als live under conditions almost ieally suited to prolong life. A ıouse whose life is measured in ıonths in the wild can survive ears of captivity.

Large animals tend to live ›nger than their smaller rela-ives—but there are many excep-ions. For example, man is longer-ved than any other mammal. ıfter him, in age, comes the ele-›hant, hippopotamus, horse, rhi-ıoceros, the bears, the big cats and nany others which are larger in ize. In general, birds live longer han mammals, and certain rep-iles the longest of all. A giant ortoise is known to have lived 152 ears on the island of Mauritius nd then was killed accidentally ›r it might have lived a century onger. Even our common box urtle rather frequently reaches he 50-year mark. It is an inter-sting sidelight that there seems o have been no change in the life pan of dogs, cats, horses and ows under thousands of years of lomestication by man.

The following examples of ex-reme old age have been chosen rom the reliable records of zoos nd aquariums all over the world.

Mammals	Years
Elephant	69
Horse	50
Hippopotamus	49
Chimpanzee	40
Grizzly Bear	32
Bison	30
Lion	30
Tiger	25
Elk	22
Mountain Lion	20
Beaver	19
Wolf	16
Squirrel	16
Chipmunk	12
Cottontail	10
House Mouse	4

Birds	Years
Turkey Buzzard	118
Swan	102
Parrot	80
Great Horned Owl	68
Eagle	55
English Sparrow	23
Canary	22
Humming Bird	8

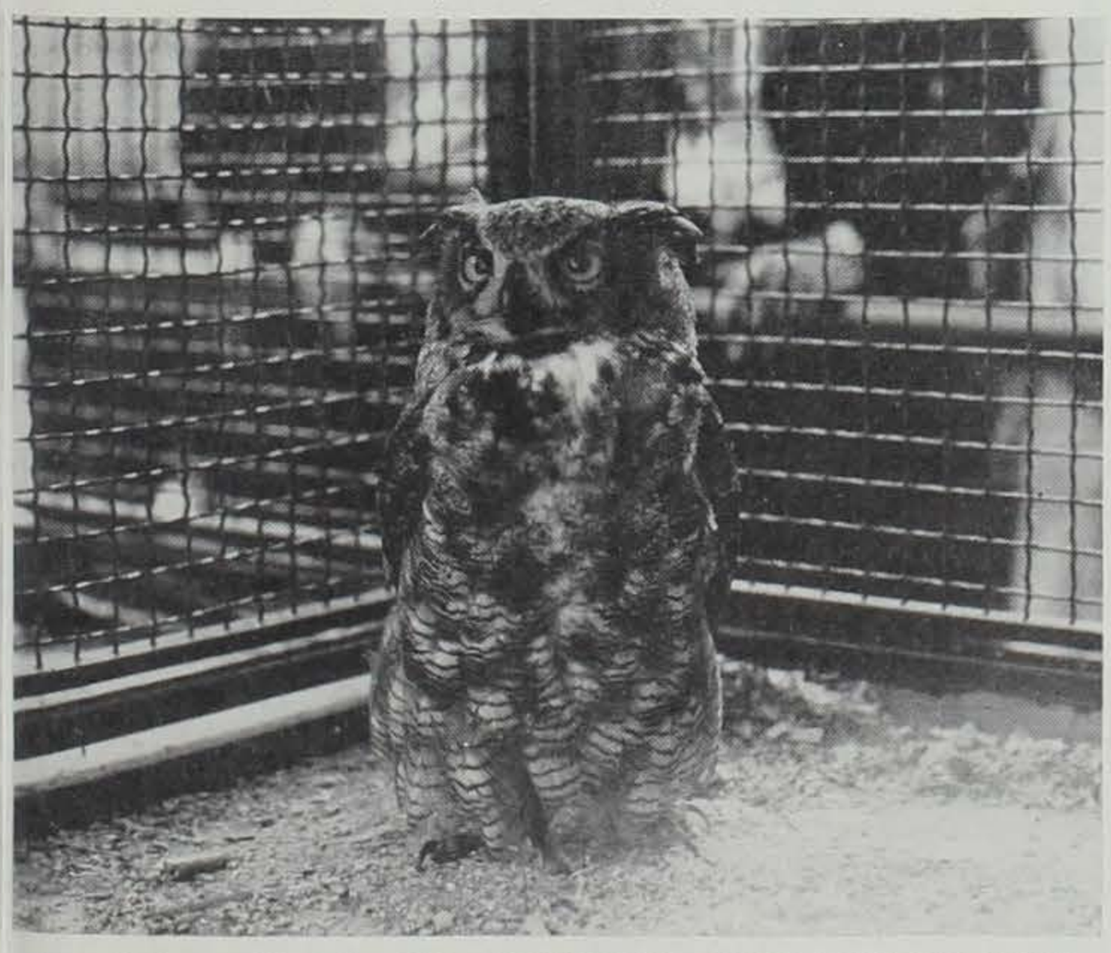
Reptiles	Years
Giant Tortoise	152
Box Turtle	123
Alligator	68
Snapping Turtle	57
Cobra	28
Cottonmouth	21

Amphibians	Years
Giant Salamander	55
Toad	36
Bullfrog	30
Mud Puppy	23
Green Frog	10
Newt	7

Fish	Years
Catfish	60
Eel	55
Carp	47
Mosquitofish	2

Insects	Years
Cicada	17
Ant (queen)	15

Locally, in the Lincoln Park Zoo, for instance, the Indian elephant, "Judy", is 47 years old; the chimpanzee, "Heinie I", is 36; and the polar bear, "Icicle", is 25. "Bushman", the famous gorilla, died there at 23 years and a pelican at 52. When the Shedd Aquarium was under construction in 1929 workmen, for a joke, stocked the central pool with carp. Now, 28 years later, three or four of them still survive. Among the native wildlife in our Trailside Museum a gray squirrel has lived 16 years, a barred owl 15, a blue jay and a chipmunk each 12 years. At the Brookfield Zoo, the pair of chimps, "Mike" and "Sally" are 35 and 34 years old, respectively. They still have the same Kodiak bear, the original pair of hippos, and ten kinds of birds with which they opened in 1934. Dozens of birds have lived 18 to 20 years and hundreds 8 to 15 years. A spitting cobra died last December after 23 years in the zoo.—*Nature Bulletin Forest Preserve District.*



In captivity, great horned owls have lived for nearly 70 years. To a healthy buzzard, this is only the beginning.

MEET THE CHAMP

Of all the critters that hang out in Iowa woods and waters, none can hold a candle to the mudpuppy.

It's the all-time Ugly Champion of the state, hands down. The average woman will flip at the sight of one and you can hardly blame her. The average fisherman, fighting to keep his manly aplomb, will tell you that he's not really afraid of it but that it must be poisonous or painful or something. Not that it is—it just looks as if it should be.

Dame Nature is a tricky one. To the coral snake, for example, she imparted vivid beauty and a venom that could petrify an oak post. To the mudpuppy she gave an aura of pure, ethereal, breathtaking ugliness but made it the most harmless little brute around.

The mudpuppy is a thing that gets up to about twelve inches long, but has been reported at fifteen inches. It's built like a lizard that's been badly sprained and has swole up. It has a grayish-brown skin with leprous blotches here and there. This wet, rubbery skin makes the animal a positive dream to handle, and the effect is heightened by three sets of bushy red external gills on each side of the neck.

Mudpuppies are sometimes caught by lucky anglers fishing in slow streams, ponds and lakes. They're often taken while fishing for bullheads with worms, for a mudpuppy loves his worms. A fisherman who catches one is the center of attention for a while, and when a mudpuppy is landed on a crowded dock where ladies are taking the sun, things pick up.

Mudpuppies are salamanders, and salamanders are amphibians related to the frogs and toads. Like all salamanders, mudpuppies have long tails and small hind legs. They can't hop or jump. Their legs and pelvic girdles are in direct linkage so they just sort of hitch themselves along scrounchwise, never making much time. Time's something they have plenty of, though, so it doesn't make much difference.

Mudpuppies mate in May or early June in the water. Captive mudpuppies have been observed to perform a simple courtship dance, a honeymoon waltz that usually results in another 140 mudpuppies being added to the world.

Mudpuppies eat almost anything in the water that's small enough and alive: crawdads, insects and larvae, fish and small worms. Experts claim that they don't harm fish populations, though.

Most other salamanders have external gills while young, but shed them when they become adults and leave the water for a part time life on land. The mudpuppy lives its entire life in water, and isn't missed ashore.

It never loses its external gills, either, but clings to them as Linus clings to his baby blanket. You might say that a mudpuppy never really grows up. And considering what it might grow up to be, you might say that it's a good thing. —J.M.

15,000,000,000,000,000 is a sizeable figure and is said to represent the precipitation the United States receives each season in gallons.—*J.S.*

Although mudpuppies are completely harmless, many anglers would rather cut their lines than unhook the unloved salamanders.

1956 Iowa Bounty Summary . . . (Continued from page 129)

1956 BOUNTY REPORT BY COUNTY

County	Coyote or Wolves	Coyote, Wolf Cubs	Red & Grey Fox	Gopher	Groundhog (woodchuck)	Crow	Starling	Rattlesnake
Adair	34	12	316	1262				
Adams	33	11	342	321	11	45		
Allamakee			1613	667C	498			303
Appanoose	2		784	4	1	3	134	
Audubon	3	1	440	2518	23			
Benton	2		301	2430		61		
Black Hawk			420	1039		381		
Boone			513	53		938		
Bremer			328	841				
Buchanan			667	1096		924		
Buena Vista			417	917		492		
Butler	1		327	859		320		
Calhoun	1		372	57		68		
Carroll	7	6	569	3686		67		
Cass	15		542		1			
Cedar			337	699	52	84½		
Cerro Gordo			382	762		3377		
Cherokee	9		350	1319	2	111		
Chickasaw			459	1552		230		16
Clarke	3	2	997	28	15			
Clay	4		270	807		114	2014	
Clayton			1601	8031				40
Clinton			476	172	15	11		
Crawford	68	15	728	3828		17	705	
Dallas	5		584	5				
Davis			700					
Decatur	6	13	935					
Delaware	1		922	4686				
Des Moines	2		436	14				
Dickinson			264	150		72	710	
Dubuque	8	2	1466	5612	281	42		149
Emmet			169	86		263	3013	
Fayette			908	7162				19
Floyd			274	807				
Franklin			281	1342	15	956		
Fremont	33	15	841	338	4	887		
Greene	3	6	493	35		43	74	
Grundy			254	1540	3	2501		
Guthrie	32	55	505	1087	112			
Hamilton			390	208		53		
Hancock	1		293	766		282		
Hardin			445	345		56		
Harrison	120	83	631	1995	9			
Henry	1		310	61	57			1
Howard			336	2227		261		
Humboldt			274	33		134		
Ida	13		344	1595½		107	2564	
Iowa	1		335	455		39		
Jackson	2		1281	831				
Jasper			586	475		5		
Jefferson			6C8	47	37	1		

1956 BOUNTY REPORT BY COUNTY

County	Coyote or Wolves	Coyote, Wolf Cubs	Red & Grey Fox	Gopher	Groundhog (woodchuck)	Crow	Starling	Rattlesnake
Johnson			531	834		38		
Jones			697	5948		136		27
Keokuk			1028	175	193	27		
Kossuth	1		679	1696		345		
Lee	11		682		602			6
Linn			739	1081	1	65		
Louisa	1		347	29	714			
Lucas	10		1096	24		25		
Lyon	14		360	2179		154		
Madison	22	9	712	181				161
Mahaska	1		1503					
Marion	2		875	82	85	13		
Marshall			365	1365				
Mills	59	2	476		1			
Mitchell			205	2891		190		
Monona	172	56	526	4034	12			
Monroe	8		1043	134				1
Montgomery	5		542	176				
Muscatine			405	8	197	185		
O'Brien	7	1	210	2945		1065	2530	
Osceola			2C9	1977		283	905	
Page	13		943	11	17	45		
Palo Alto			300	89		65		
Plymouth	27		415	2972		106½		
Pocahontas			352	137	1	395	1670	
Polk	6		609	63				
Pottawattamie	162	15	1221	3476	6			
Poweshiek			334	1724		36		
Ringgold	9	39	984	52				
Sac		2	334	932		248		
Scott	1		355	661		353		
Shelby	18	10	792	7812				
Sioux	1		383	4764		1155		
Story	2		585	65				
Tama			432	1944	107	486		
Taylor	25	5	743	72	74	38		
Union	13		679	169	64			
Van Buren			601					
Wapello	2		1852					4
Warren	1	1	944	58	61			
Washington			531	197	503	48		
Wayne	8	7	1035					
Webster			563	60				
Winnebago			223	1045				
Winneshiek			1173	13965				166
Woodbury	167	51	748	968				
Worth			150	476				
Wright			236	156		627		
TOTALS:	1178	419	59163	13848C½	3774	19074	14319	893

Miscellaneous—Winneshiek—513 moles.
Miscellaneous—Franklin—$1.90 (did not specify what animal).

Jim Sherman Photo.

The pocket gopher—cash crop for the small farm boy. A nickel isn't much, but $13,641 is.

The skins and scales of the gar fishes are extremely tough and hard. In old Louisiana, the scaly hides of the alligator gar were used to face wooden plowshares.

The "lucky bones" of buffalo fish are the *otoliths* that occur in the ear chambers. These limy concretions are thought to be lucky by many anglers.

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WANT A FREE LIST OF FISHING ACCESS AREAS?

The newest item for your tackle-box—and one of the most useful—is a detailed leaflet listing all of Iowa's state-owned fishing access areas.

The leaflet may be obtained free of charge from the State Conservation Commission, and contains the names, descriptions and locations of 206 public access areas to Iowa's major rivers, streams, lakes and marshes.

Some of the listings are river and lake access areas that have been acquired for that purpose; others are game areas or park areas that offer access to adjoining waters.

Included in the leaflet is a map showing the rough locations of the various access areas; a more detailed list summarizes the features of the area and gives its location in relation to the nearest town.

It is one of the most complete lists ever compiled of public places from which boats may be launched or fishermen may enter public waters.

Copies of list—entitled "Iowa State-Owned Public Fishing Access Areas"—are available from local state conservation officers or from the State Conservation Commission, East 7th and Court, Des Moines.

NORD NAMED HEAD OF MISSISSIPPI RIVER STUDY GROUP

The appointment of Robert C. Nord to the new U. S. Fish and Wildlife Service position of Survey Director for the Upper Mississippi River Conservation Committee has been announced by Robert Burwell, the Service's Regional Director for Region III.

Nord was appointed to a new position in the Fishery Management Section of the Branch of Game, Fish and Hatcheries. He will be responsible for coordinating the fishery management work of the five member states in the Upper

(Continued on page 136)

lathead catfish are more common in Iowa rivers than many anglers think. They grow ast, live long, and may reach a hundred pounds in some waters. To most Iowa fishermen, they're the ultimate.

Flathead Catfish . . .

(Continued from page 129)

vith the majority (199) in the size ange below 20 inches total length.

Thus, flathead catfish do not ap- ear to be nearly as numerous as hannel cats. A second reason for he low angler take is the places in vhich flatheads are usually found. arge flatheads were often taken vith electric shocker from under r near large brushpiles or rocks. he angler is at a definite disad- antage trying to work in a 20 or 0-pounder on hook and line from uch areas.

We can't say how many large latheads may be present in a mile f the Des Moines River. Results f trapping and shocking reveal hat several large flathead catfish vere present in the deeper pools hroughout the summer, but these veren't always the same fish. In- tead, there seemed to be a normal hifting of the fish from pool to pool. In seven trials using an electric shocker in combination with a trammel net around brushpiles, 21 flathead catfish were taken. Only one of these seven trials failed to produce a single flathead. Four of the seven trials were made on the same brushpile, and 11 flatheads over 20 inches long were taken. So, it appears that some spots are generally occupied by these larger fish. Since such cover areas in the deep pools are not too numerous, random fishing along the river will not catch many big flatheads. But careful fishing at selected places should increase the chance of hooking a good-sized flathead.

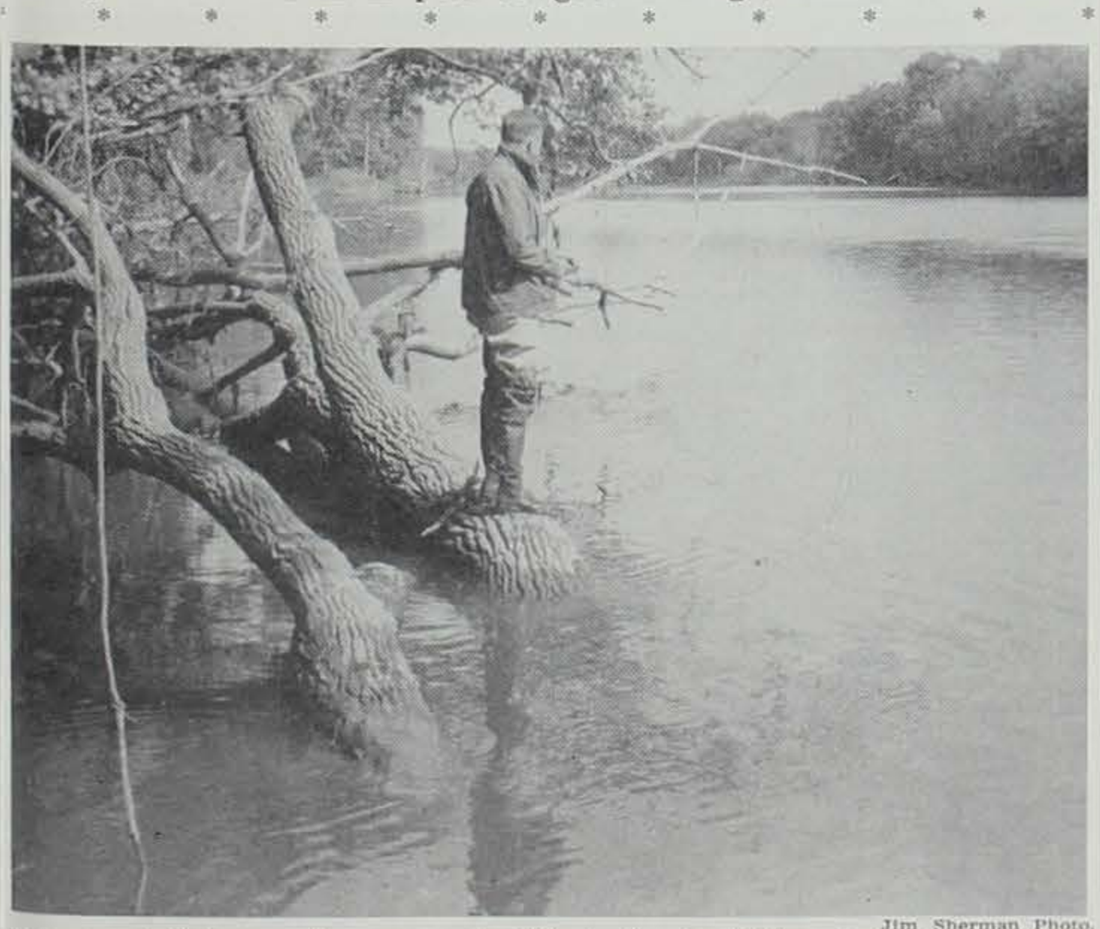
Big and Old

When you do hook a big flathead, you may wonder how long that fish has been living in the river. The cross-section of such a fish's fin spine shows annual growth rings, similar to those in a tree. By cutting and polishing these spines, a microscopic study can give an approximation of the age. A series of such "spine slices" revealed that 4 years were required for flatheads to reach a length of 12 or more inches; 20-inch fish were 5 to 7 years old, and the monsters of 30 inches or longer were from 8 to 13 years old, or even older. This growth rate is much faster than that indicated by spine cross-sections of channel cats taken from the same waters. Channel catfish required 5 years to reach 12 inches, and from 7 to 9 years to reach 20 inches total length.

Of the 239 flathead catfish taken during the two-year study only one fish weighed over 30 pounds. On the other hand, 20-pound fish were not nearly as rare.

Although flathead catfish aren't nearly as numerous as other Des Moines River fish species, don't get the idea that they aren't being caught. Some fishermen have made a specialty of catching these big flatheads. In general, these anglers concentrate their efforts on special cover areas that exist in the deep pools. They often fish in late afternoon or at night with large chubs.

If you want to catch the big ones, flathead catfish may be just what you're looking for. Best of all, he's right in your own backyard.



Jim Sherman Photo.

Muncy found that many big snags and drifts in the Des Moines River harbor catfish. Some fishermen specialize in flathead fishing, using big baits, big hooks, strong lines and infinite patience.

COMMISSION NAMES NEW PUBLIC RELATIONS HEAD AND CONSERVATIONIST EDITOR

The Iowa Conservation Commission in its April meeting announced the appointment of Wayne Sanders of Ankeny as Superintendent of Public Relations for the Commission. The appointment was effective April 16.

"Sandy" has a broad background in Iowa fish and game work and in public relations. He served as state conservation officer in Wapello and Davis counties from 1950 to 1953, and in Woodbury County from 1953 until August, 1956, when he was appointed Public Relations Officer and moved to Ankeny.

He will be stationed in Des Moines, and will be in charge of all public relations and information work for the Commission. Sanders replaces George Worley, former public relations head who resigned in August, 1956.

The Commission also announced the appointment of Keith Sutherland of Des Moines as Public Relations Officer, effective May 1. Sutherland will serve as editor of the IOWA CONSERVATIONIST, and newswriter for the department.

He was formerly director of the Drake University news bureau, and was previously employed by the Waukon *Republican Standard* and the Audubon *Advocate Republican*.

Sutherland replaces John Madson, former editor of the IOWA CONSERVATIONIST, who resigned from the Commission April 29 to join the staff of the *Des Moines Register*.

Fire Army . . .

(Continued from page 131)

Plan of Action

Under proper conditions, something approaching this California holocust might occur somewhere in Iowa. Recently, a statewide plan for fighting fires was set up.

Under this plan, the governor declares a disaster and the state civil defense enters the picture. The civil defense office makes funds and personnel available for evacuation, traffic control and other emergency measures.

The State Fire Marshal then directs all fire control under civil defense. Each county fire chief takes charge of his area and brings rural and municipal firefighting resources together. As set forth in the plan recently signed by Governor Loveless, the "Rural fire defense plan has been prepared as part of the state's civil defense to provide recognized lines of authority and responsibility and the necessary organization for control of vegetative fires during civil defense emergencies".

Lacking broad, unbroken fastnesses of conifer forests, Iowa will never be a "fire state" like Oregon, Idaho or Montana. But there is always danger to land and property by wild fires, and Peterson points out that some of our greatest fire danger exists during May. Last year's dead grasses along roads, not yet fully greened by new growth, are waiting tinder. Landowners burning off fields, or spring motorists tossing matches and cigarettes from cars, add to the danger.

For spring fire prevention and sensible use of fire as a tool, Peterson offers these tips:

1. Burn trash and brush on quiet days; don't do it during brisk winds.

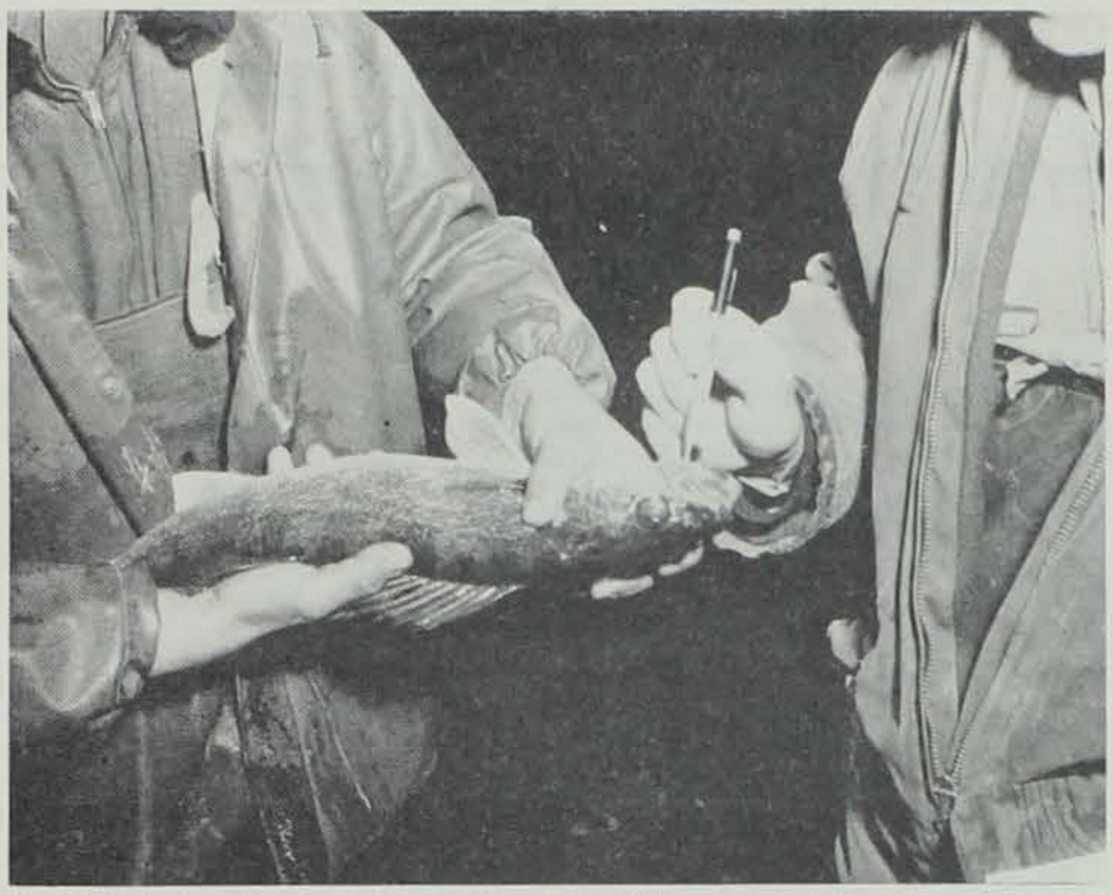
2. Burn a little at a time, and have plenty of help. Have some simple firefighting equipment—rakes and swatters—at hand.

3. Never leave outdoor fires unattended; make sure they're out before leaving them.

4. Use the ash tray in your car.

5. If you see an unattended fire in a field or along a road, report it at the nearest farm house.—J.M.

The first of our introduced game, the European or Hungarian partridge, was released in New Jersey in 1790.—*J.S.*



The Mississippi walleyes and saugers were carefully measured before receiving their aluminum jaw tags. Fishermen between Guttenberg and Dubuque are urged to be on the lookout for these fish.

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Walleyes, Saugers . . .

(Continued from page 129)

mission and the Upper Mississippi River Conservation Committee, which is making detailed studies of the sport fishing potential of the river, and when, where and how the best fishing takes place. The April pike study was the first ever made with electric shockers in the Mississippi by Iowa biologists.

Cleary said that "large numbers of pike were turned up" by the shocker in the vicinity of Channel dam 10 at Guttenberg. He noted that the majority of the pike were taken within a few hundred yards of the dam, and that few pike occurred in their survey in waters more than 1,000 yards below the dam. Most of the pike were captured in relatively shallow waters during late evening.

Most Mississippi walleye and sauger fishing is done short distances below the big dams where the water is deep, highly aerated, and teeming with small food fishes. Fishing in the Upper Mississippi this spring has been excellent, with walleyes weighing 9 pounds and more being reported.

Anglers in Pool 11 between Guttenberg and Dubuque are being urged by Commission officials to be on the lookout for pike bearing small aluminum tags in their lower jaws. It is expected that some of the fish will also move through the locks into other pools.

These tags may be turned in to local conservation officers, the creel census clerks who question anglers, the Commission offices in Des Moines, or any commercial boat livery on Pool 11.

Information needed with the tags will include date and location of the catches.

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Jim Sherman Photo.
Biologist Cleary: In Old Man River, a new kind of current.

New Handbook . . .

(Continued from page 130)

white drawings by T. M. Shortt, the illustrator of "Ducks, Geese and Swans of North America."

The new book includes the birds of the western two-fifths of North America from Mexico to the Bering Strait and Arctic Ocean.

Although necessarily brief, it is an excellent field and library reference for the bird student, and a must for the Iowa naturalist who plans a western vacation. It should also be of interest to the armchair naturalist, for it depicts and describes a variety of North American birds that will be completely unknown to the average midwesterner.

Published by Doubleday and Company of New York, the new book costs $4.95. It completes Pough's series on the birds of North America.

NEW OUTDOOR TV SERIES TO BE RELEASED

The first in a new series of Iowa outdoor television programs entitled "Outdoor Talk" will be released May 1 to Iowa television stations, the State Conservation Commission said today.

Thirteen 15-minute programs on fishing, parks, birds, wildflowers, camping and other outdoor subjects are being made available to all Iowa stations and out-of-state stations with Iowa audiences.

The programs will be released weekly, and have been requested by eight Iowa stations and five stations in adjacent states.

The first program will be "Spring Waterfowl", and has been scheduled as follows:

KGLO-TV, Mason City—Saturday, May 11, Preceding CBS "Game of the Week"

WMT-TV, Cedar Rapids—Saturday, May 4, Preceding CBS "Game of the Week"

WOC-TV, Davenport—Thursday, May 2, 10:45 p.m.

WHO-TV, Des Moines — Sundays, 11:00 a.m.

WOI-TV, Ames—Saturday, May 4, Preceding NBC "Game of the Week"

KV-TV, Sioux City — Sunday, June 23, Noon

KTVO - TV, Ottumwa — Saturdays, Preceding CBS "Game of the Week"

KMMT-TV, Austin, Minnesota—Saturday, May 4, 4:45 p.m.

KFEQ-TV, St. Joseph, Missouri —Thursday, May 9, 8:30 a.m.

WKBT-TV, LaCrosse, Wisconsin —Saturday, May 4, 12:30 p.m.

KM-TV, Omaha, Nebraska — Sunday, May 5, See local listings for time.

KHQA-TV, Quincy, Illinois—See local listings for time.

Consult local listings for other station schedules and program changes.

The new programs will be released in order, and include: "Spring Birds", "Spring Flowers", "State Park Playgrounds", "State Park Camping", "A Study In Catfish", "Live Bait Hunting", "Propagation of Northern Pike", "Fishing Equipment", Des Moines River Canoeing", "Carp: The Problem Fish", "Federal Aid For Game Production", and "Winter Seining".

The series is the fourth produced by the Conservation Commission since 1954. Filmed in black and white, the programs include material photographed in the field and studio interviews of guest experts.

Some of the previous series have been rerun as many as three times. These older programs are available for showings at sportsmen's clubs, schools and other groups, and a complete film listing may be obtained from the State Conservation Commission in Des Moines.

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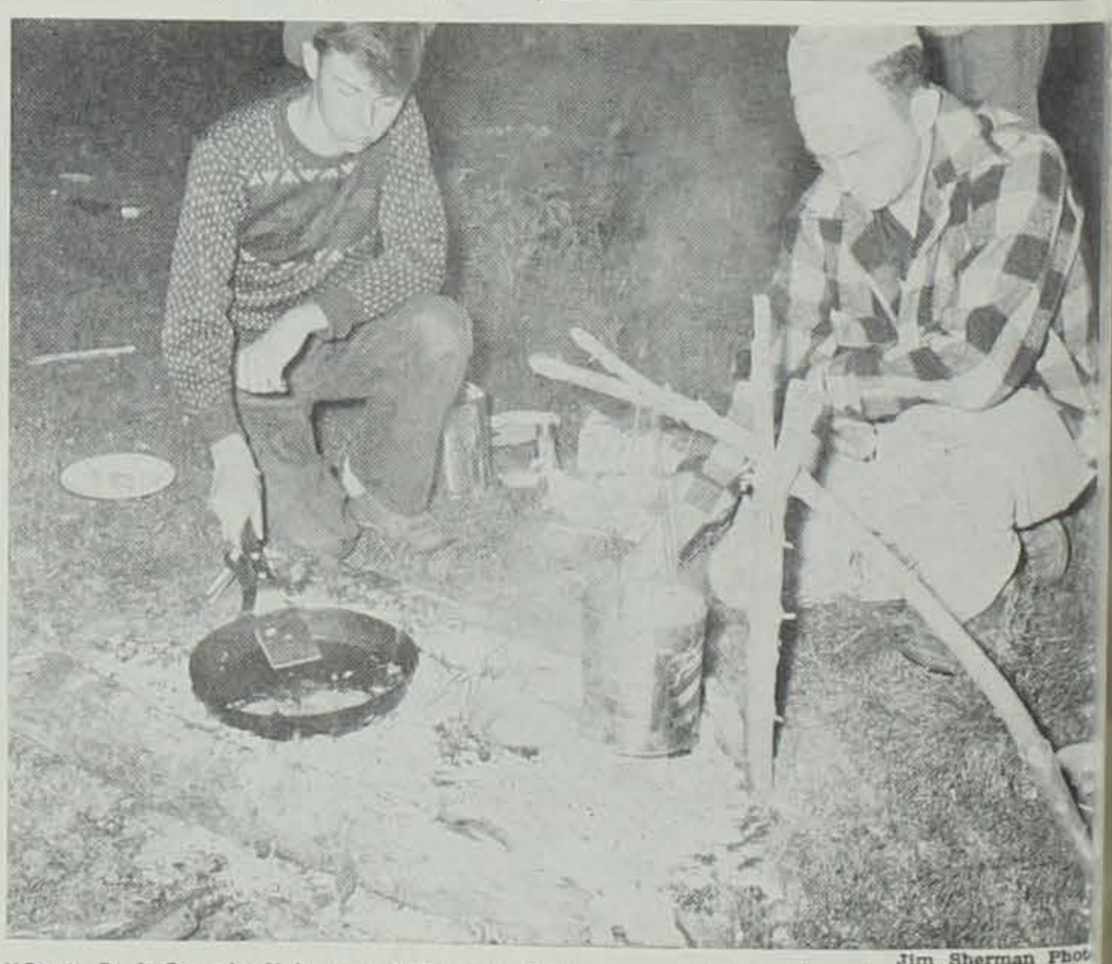
Nord . . .

(Continued from page 134)

Mississippi River Conservation Committee. These states are Minnesota, Iowa, Wisconsin, Illinois and Missouri. The five states joined in 1946 in studying the fisheries resources of their 700 miles of Mississippi River.

Nord will be stationed at the U. S. Fish Hatchery at LaCrosse, Wisconsin. He had formerly served as fishery management biologist at Atlanta, Georgia and Albuquerque, New Mexico. Before joining the U. S. Fish and Wildlife Service, Nord was employed with the Minnesota Bureau of Fisheries. He is a veteran of World War II, spending five years in the Army Air Corps and achieving the rank of major.

Born in Minnesota, Nord received his B.S. and M.S. degrees from the University of Minnesota. He is married, and will live in La Crosse.



Jim Sherman Photo.
"State Park Camping" is one of the new TV films soon to be released. Such camping has soared in popularity as an end in itself, and as a "shakedown" for more extensive trips