

IOWA CONSERVATIONIST

Volume 13

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Number 4

THE VELVET-COATED SODBUSTERS

COLD SPRINGS STATE PARK

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

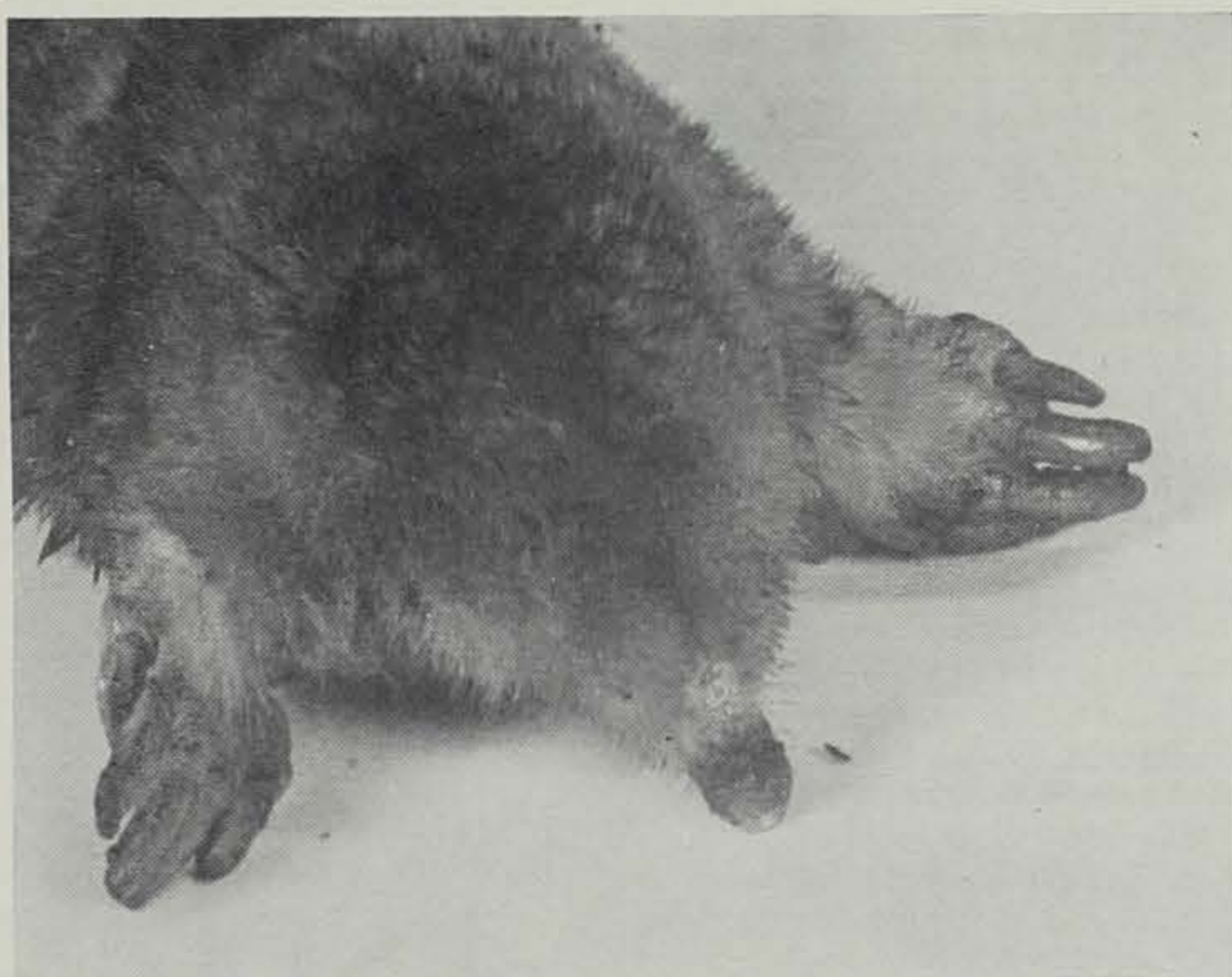
Cold Springs State Park is an area of about 60 acres a few miles south of Lewis in southwestern Cass County. The lake is rather small, but it is unique in that it is fed almost entirely by springs. A diversion dam in nearby Little Indian Creek, however, allows the stream to provide emergency water when needed. The lake basin, too, is rather unusual in that so much of the rim is artificial. Only on the south side, where the springs issue, was it unnecessary to construct a confining dam.

The springs at this locality have been known since earliest times. The water issues at the base of sandstone cliffs at the south side of the lake. The water fell as rain on the upland surface to the south. It penetrated the porous loess subsoil and the porous sandstone beneath. Both of these materials have continuous openings between the grains, so the water is able to move along. This porous and pervious loess and sandstone serve as reservoirs for the water.

The sandstone is underlain by a less permeable material, probably a shale, or a clay, through which the water will not readily pass. The water penetrates to this level, and then moves outward toward the surface at the base of the sandstone outcrop. Much of the water appears in this form of seeps, rather than of springs. Not much flow can be seen by the visitor but the mucky condition of the lake shore in the vicinity of the outcrop is evidence enough of the existence of the springs and seeps.

Many springs, all over the world, have a similar explanation. The water soaks into the ground, into porous and permeable materials like loess, sand, or gravel, until it comes to an impermeable material such as shale or clay. Then it passes along the contact between

(Continued on page 31)



Jim Sherman Photo.
The mole's powerful shoulders, strongly developed claws, tapered head ending in a drill-like nose, equip this creature ideally for his almost constant underground search for food.

MORE DOPE ON CARP FISHING

Fishermen are crusty, independent individuals who rarely agree on anything. Carp fishermen are just as bad as trout purists, for each has his own ideas on how to get the job done. But the majority of carp fishermen have one common meeting ground; that dough baits are the thing.

Like women, these baits may be sweet or salty, and are infinite in variety. The ancestral doughball was simply dark bread, slightly moistened and molded around a hook. It's a good carp bait, but not very durable.

The next step in dough bait evolution is a simple homemade type concocted by cooking yellow corn meal until it is quite stiff, and finally adding a little salt.

A more advanced recipe is one in which a pint of sweet milk is brought to a boil, and three heaping tablespoons of salt is added. This causes the milk to foam. Then add corn meal and stir until the mixture is thick and tough enough to be kneaded around a hook.

Another method is boiling yellow corn meal until it is the consistency of heavy mush, and then adding enough sugar or syrup to sweeten it, enough salt to keep it from souring, and a teaspoon of vanilla for flavoring. Then mix in some wheat flour to give it the right thickness. This bait stays on the hook pretty well and is attractive to carp.

Jack Musgrave, in *Iowa Fish and Fishing*, describes the "Dumping Special." He mixes equal parts of yellow corn meal and white flour, plus enough water to give the mixture the consistency of biscuit dough. It is dropped into boiling water a spoonful at a time, much as in making dumplings, and allowed to cook for about five minutes or until it is cooked through. It can be tested by removing a good-sized lump and breaking it; when the doughball is yellow all the way through it is done and can be removed from the boiling water to cool. When it can be handled,

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By John Madson
Education Assistant

Most wild creatures are born to the sun, and spend their lives in the light and air of the world we know. There are others who never see the sun, and who live and die in dark tunnels beneath our feet.

These are the moles. Long ago they left the upper world to become diggers, and they made good. Their front feet became powerful spades armed with long, heavy claws, and their shoulders and front legs became strong and muscular. But they paid for their retreat to the underworld and grew morose, evil-tempered and blind.

If you haven't seen the moles themselves, you've seen where they have been. Tunneling through the grass roots they literally swim through the soil, leaving a trail of erupted sod and tempers.

The passageways that cause these ridges are not dug. The mole digs only a starting point, using his sensitive nose to find the easiest route. He begins with his front feet, pushing the dirt aside. Once started he drives himself along with his powerful front legs in a sort of subterranean breast stroke, using his heavy shoulders to push up the tunnel roof. As he moves ahead he may twist the front of his body sideways and pushes the soil upward with his powerful front feet. Because it is so close to the earth's surface it is not necessary to remove dirt, but only to displace it. It is this upheaved tunnel roof that is the wandering ridge on your lawn or golf course.

The mole is a furnace of energy, working day and night. His entire life is spent in a search for food. In a year he can consume over 40,000 earthworms, countless insects and grubs, and if he is forced to go without food for more than a day he will starve. Not even the pain of death can destroy his appetite, and moles have been known to eat while impaled on the prongs of mole traps.

His staple foods include grubs, cutworms, earthworms and centipedes. Earthworms are eaten like spaghetti. The mole draws the

(Continued on page 30)

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TEACHERS' SCHOLARSHIPS

The All-Iowa Conservation Council, in cooperation with the National Wildlife Federation, has awarded Iowa State Teachers College \$1,000 to be used for scholarships to the Teachers College Conservation Camp this summer. The announcement came from LeRoy Kruskop, president of the All-Iowa Conservation group.

The money will be divided into fifteen \$60 scholarships with \$100 set aside for administration of the fund. Local affiliates of the All-Iowa Conservation Council will choose the teachers who receive the grant. The local groups will add \$12.50 to each grant to make it an all-expense scholarship for one of the three sessions of the camp held each year at Springbrook State Park in Guthrie Center.

Any teacher in the Iowa elementary or secondary schools is eligible to receive an award if

CONSERVATION AND OUTDOOR EDUCATION IN THE SCHOOLS

By
Roberts Mann
And
Roland F. Eisenbeis

Given a favorable climate, two things make and keep a nation great: its people and its natural resources. The well-being of our nation depends upon the wise use of those resources. They provide our basic requirements — food, clothing and shelter. There is ample evidence that a very large portion of all teachers recognize the need for conservation and the importance of conservation education. Leading educators say that teachers realize the *why* of conservation but need help with the *what*, *when*, *where*, and *how*—how to teach the topic so that it hooks onto the personal lives of their students and is translated into behavior, how to bring conservation home to all pupils in terms of day-to-day living.

Teachers are key members in any solution of the problems of conservation. At all levels of instruction, beginning with the primary grades, they are vitally concerned as teachers and as citizens. Their job is especially difficult in this metropolitan area where so many people are comparatively strangers out-of-doors. Teaching of units of study in science should aim to provide understanding of

nominated by the local affiliate of the conservation group.

The first session is from June 6-26; second session from June 27-July 17 and the third session from July 18 through August 7.

The camp which is in its fifth year, is sponsored cooperatively by Teachers College, the State Conservation Commission and the State Department of Public Instruction.—*Iowa State Teachers College Bulletin.*

the fact that man and nature are inseparably bound in an intricate web of interrelationships and interdependencies. The objective should be to create background, knowledge and attitudes which will result in action, based upon a feeling of *personal* responsibility, on the part of every man, woman and child, to protect, maintain and prevent the waste of human and natural resources.

Educators agree that since curricula are already overburdened, and since conservation is a synthesis of subjects, its essential ideas and principles can best be taught by inclusion into a wide variety of existing courses, rather than as a new subject "tacked on". Further, for optimum result, conservation education must be based upon knowledge and first-hand experiences dealing with *local* realities easily understood. The individual should become familiar with his own locality and the factors that have entered into its growth. He should learn to *appreciate* nature; how to live in and enjoy the out-of-doors. That is Education, an effective tool in Conservation Education.

It is an accepted thesis in education that learning takes place faster and is more effective through direct experience. In the outdoors, seeing vitalizes the hearing process and doing makes the

learning process more meaningful, supplying a link between the classroom, the textbook, and things as they exist in nature. Further, something happens to individuals in their attitudes toward one another when they live and learn together in a natural environment out-of-doors: there comes a marked increase in friendliness between pupil and pupil; between pupil and teacher. Outdoor education means training in educational fundamentals—in scientific thinking, in citizenship, individual and community initiative, in tolerance, in courtesy, and in appreciation of natural resources and natural beauties. A conservation education program which succeeds in giving the child the "know how" to understand and enjoy the out-of-doors, makes him or her a better adjusted individual mentally, emotionally and physically.

We do not presume to say how schools may schedule field trips as part of their science studies; but we have found that nature appreciation, engendered by nature lore acquired firsthand, is the key to the door opening upon a concept of the broad field of conservation. A by-product for the individual is more profitable use of his leisure time and a fuller richer life.—*Forest Preserve District, Cook County Bulletin.*

IOWA TEACHERS' CONSERVATION CAMP at SPRINGBROOK



OFFERS...

FUN!---

INFORMAL CLOTHES, CLASSES, SWIMMING, FISHING, SQUARE DANCING, BOATING, HOBBIES AND HANDICRAFT—LEATHER, METAL, WOOD WORKING, PHOTOGRAPHY, NATURE STUDIES AND OTHERS!

3 SESSIONS
JUNE 6TH
JUNE 27TH
JULY 18TH

COLLEGE CREDIT---

5 QUARTER HOURS RESIDENCE CREDIT FOR EACH 3 WEEKS SESSION.
UNDERGRADUATE AND GRADUATE CREDIT.
COURSES MEET NATURAL SCIENCE REQUIREMENTS FOR CERTIFICATION.
COURSES--BIOLOGY 505-IOWA CONSERVATION PROBLEMS. OFFERED EACH SESSION.
BIOLOGY 105-CONSERVATION FOR ELEM. GRADES-A. OFFERED 1ST AND 3RD SESSION.
BIOLOGY 104-CONSERVATION FOR ELEM. GRADES-B. OFFERED 2ND SESSION.

TRAVEL---

1000 MILES OF CONSERVATION. DAILY FIELD TRIPS TO **SEE** NATURAL RESOURCES AND CONSERVATION PRACTICES. LEADER—SHIP BY SPECIALISTS.

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\$ 72.50 PAYS TUITION, FEES, BOARD, ROOM FOR ONE SESSION. MANY SCHOLARSHIPS AVAILABLE.



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SOIL, WATER, FORESTS, WILDLIFE, BALANCE IN NATURE, SOIL NUTRIENTS. WHAT TO TEACH—HOW TO TEACH IT. NEW TEACHING AIDS AND TECHNIQUES!

COMFORTABLE OUTDOOR LIVING—MODERN FACILITIES, SUPERB FOOD!

WRITE: DR. H. SEYMOUR FOWLER, CAMP DIRECTOR, IOWA STATE TEACHERS COLLEGE, CEDAR FALLS, FOR FURTHER INFORMATION.



One of the finest conservation projects for a sportsman's club is sponsorship of a teacher at the Conservation Camp.

George Worley Photo.

TAKE A BOY FISHING

At long last I've discovered a chap who I believe is going to become the ideal fishing partner. He is John Hart, son of "Bill" and Erin Hart, of Hopkinton. John is a husky, sturdy, robust lad of some thirteen years and his flair is for outdoor life—yet he isn't a killer. He has a deep affection for a gun, and I think he knows the fundamentals of gunnery very well. He loves fishing, and cares not for the killing of fish. We had along discussion of the 1954 program, came to a most happy understanding—could be some of you will see quite a little of Johnny and yours truly around northeast Iowa this summer.

We expect to be out overnight on most of our projects. We'll pitch a camp where we get permission (it is our agreement that we trespass nowhere). We'll turn the vast majority of our fish loose, after taking some pictures of the more worthy specimens. Our activities will be confined mostly to Iowa, although we may foray into Minnesota, Nebraska and Wisconsin, and, could be, a little of Missouri.

John is a lad a-feared of nothing, yet the essence of caution. He's as quiet as an Indian, and just as patient. He can, and does, sleep outdoors in any weather, and he can, and will, make a hearty meal on flapjacks, eggs, beans and bacon. He's learning, too, how to handle a fishing rod, and he has a considerable knowledge of boats. He can swim as easily as a mink.

So it is my anticipation for a season of delightful experiences with John. We'll be right on top of the catfish season opening close to home where the channels are big and full of fight. We expect to open the walleye season on Storm Lake. When the black bass season rolls 'round, I think we'll be somewhere in the vicinity of New Albin on the Mississippi sloughs—maybe in the vicinity of the Lynxville federal dam.

So, if you see an old, dented 1946

IT'S ONLY A BROKEN BONE: LET'S GO FISHING!

It takes a lot to stop an inveterate fisherman.

Ted Williams, the great home run hitter of the Boston Red Sox, broke his collarbone this winter in a Florida practice game. In his *Des Moines Register* column, Sec Taylor reported from Florida:

"There are those here who assert that Joe Cronin, the Boston general manager, sent his star to Boston for the operation in which the collarbone was spliced to hasten recovery, for no other reason than that he feared Williams would begin fishing, casting with his good arm, if he remained in Florida."

The cedar waxwing is named for the small beads of red wax on the tips of some of its wingfeathers. The function of these wax beads is not known.—J. M.

Ford with a long lean Thompson boat a-top or behind, and a good-looking blond lad with blue eyes and a crew haircut and a weazened old man tottering along, that's us. Please don't sic the dog on us and don't pull down on us with a gun. We promise to do no harm—and if you want them, maybe we can catch you a mess of good fish.

One of the trips I mean to do, the Lord willing, is a Mississippi boat trip from Lansing to Muscatine. That's just a whimsy of mine, and I think John will go for it. On such a float we'd see a lot and maybe tangle with some fish worth battling. Nope, there's no more danger in it than bicycling along an Iowa highway.

Why don't some of you other fellows get you a boy for the fishing season? Not so much that the boy needs you—you need the boy. We need the spirit of boys—their vitality, their courage, their honesty, their bright-eyed anticipation, and their loyalty to everything decent and good. If you want to be young again, get a boy to show you how.—*Manchester Democrat*.



If you want to be young again, get a boy to show you how.

Jim Sherman Photo.

IOWA FISH AND FISHING



State Conservation Commission

Less than four thousand copies of "Iowa Fish and Fishing" are left. Get your copy of the "fisherman's Bible" before the supply is gone.

FREE DOG

Still have a guest dog at our place we'd be glad to peddle for free. Can't guarantee his farm manners but he knows how to behave in town. Specs.: Medium size, reddish brown coat, dark eyes, black muzzle, pointed ears, and a single raccoon ring on his tail; a cross-bred with what appears to be golden retriever and maybe some chow ancestry; long-haired; fanatically loyal and would be to anyone who gave him a home.

Resourceful, unused to coddling, makes his own bed outdoors, balls up and lets the snow fall, and he's there in the morning to greet you with a waving flag.

A friend of man and grateful for all favors; no barker, a quiet character, no door jumper or pawer; an ear licker but not slobbery; not a snapper or growler except when other dogs come near his pan, and if he isn't then he isn't much of a dog.

We have been feeding him now for awhile, can't bear not to and yet can't keep him either, having a dog of our own. Hate to think of "putting away" so much devotion and brains.

We have known a lot of dogs and we like all of 'em. We can say this for our friend, whom we call "Stray", "Ringtail", "Brownie" (how original!) or anything else handy we think of, he has a cer-

FISH BOOK COPIES STILL AVAILABLE

With a new fishing season just getting underway, Iowa fishermen are reminded that *their* fishing book, *Iowa Fish and Fishing*, is still available in limited quantities.

The book is a must for midwestern anglers, and contains 235 information-packed pages of Iowa fish, where and how to catch them, and even a complete key for their identification.

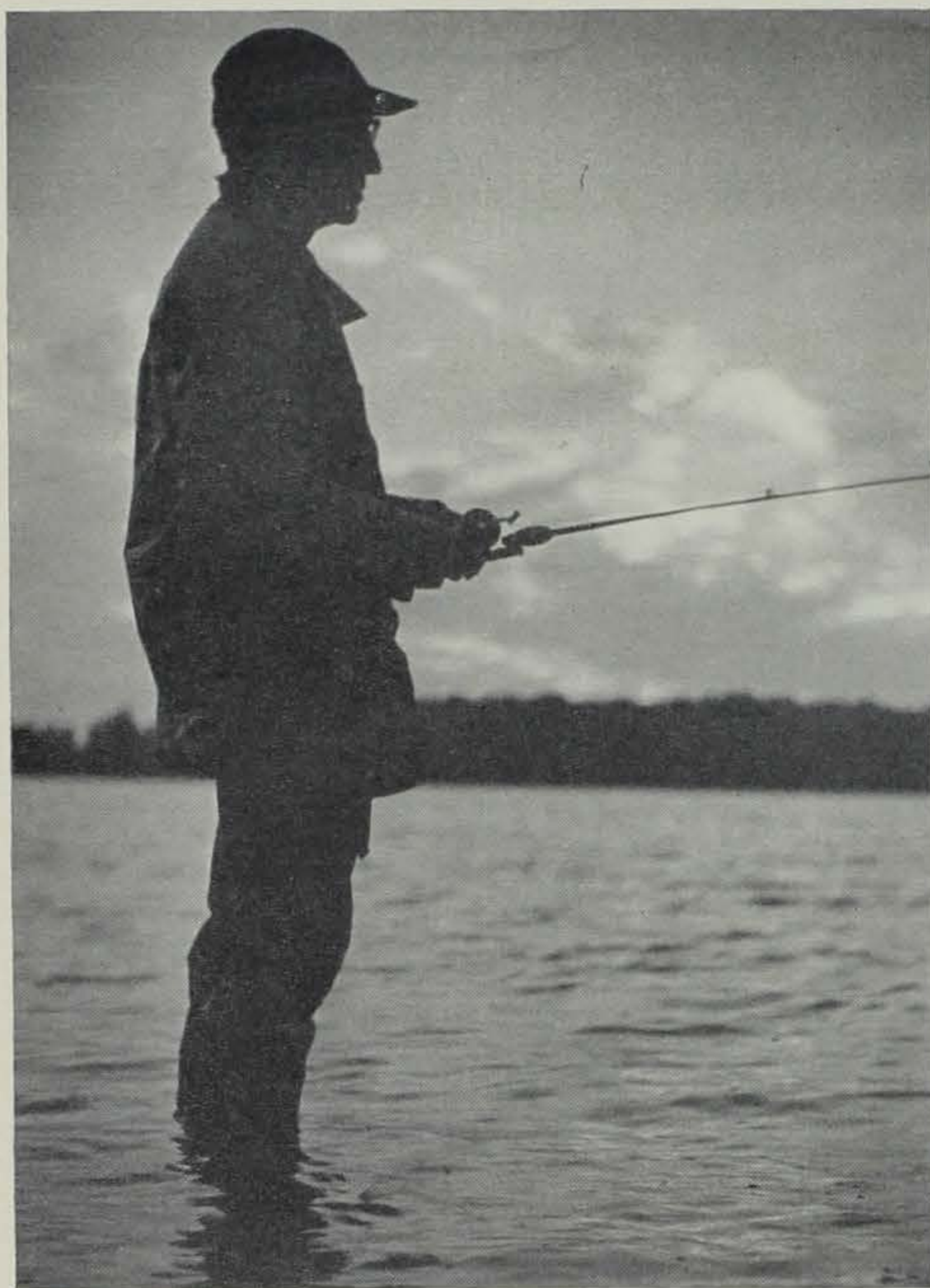
First published in 1951 by the Conservation Commission, over 16,000 of the 20,000 copies printed have been sold. It contains 24 superb color illustrations by artist Maynard Reece and numerous photographs of other fish and minnows. Also included is a chapter of food insects of fishes and a complete section on how to find and catch catfish, largemouth bass, panfish, smallmouth bass, carp, trout and walleyed pike.

The book is cloth-bound and costs \$2. Send cash, check or money order to the State Conservation Commission in Des Moines. The book can also be obtained from any state conservation officer.

tain poise and strength of canine character most dogs don't have, purebred or crossbred.

He has friends who visit him off and on during a week and he seems

(Continued on page 32)



Another memory picture that remains is the evening when a doe and fawn walked down to the river for a drink.

Something of Interest: Something of Beauty

By John Garwood

With 14 inches of snow on the ground there is little to do about fishin' but to just sit and think... and sometimes that is good! It's sorta relaxing and those memories of last year along the valley of the Iowa come in pretty filling. You kinda wonder how the Hustons are making out on their big farm on the bend of the river below Union... they have been very kind to both fishermen and hunters who like to work that area and half the fun of fishing up thataway was the good visits we have had with that family. There is a certain big cottonwood tree that has fallen into the stream in that reach of river... it offers some pretty tricky fishing, especially when a lunker smallmouth takes hold and dives for protection of hidden limbs. Wonder if it will be there next season?

Between the Marietta bridge and the Soldiers Home a couple of choice spots bring pleasant memories of late Fall 1953... just happened to make them when the tenant smallmouths were in a frisky mood... and were willing to jab at any lure offered them. Near the railroad bridge a family or two of beavers had applied their industry

and many willow and other trees of good dimension had been felled by these sharp-toothed flat tailed critters.

Another memory picture of that area too remains, when a doe and fawn walked down to the river for a drink. Evidently they took our fishing stand in midstream for just another log... and paid us no attention.

There was that Sunday afternoon the sprout and myself were at Three Bridges, and we watched Gene Peak give a demonstration as to how not to land a big Northern... much to his disgust and the amusement of a flock of bank superintendents.

And that afternoon on Gladbrook lake with Ed Mack who spent more time trying to get that outboard running than he did in fishing.

Another outstanding outdoor event in our 1953 living was the visit to Kenny Dann's beautiful Timber-Lane, high above the Iowa, to the north of Steamboat Rock. The salt box at the river's edge and hundreds of deer tracks where the pretties had wandered in to whet their appetites. The beauty of this hidden spot is one we will long remember.

That warm afternoon down at Ray Hollingsworth's at Gilman opening day of pheasant season... watching a slightly tipsy gent in his shirt sleeves knock down pheasant with abandon... then the 4:30 coffee clutch in the expansive Hollingsworth kitchen where more birds were killed than afield.

Of course we trekked to the big cottonwoods, west of Forest Park, and there, just as the crappies were starting to take hold, our favorite minnow bucket slipped overboard and settled down into a deep and rooty hole.

Below the railroad bridge at Steamboat we discovered where quite a few smallmouths were lurking... a tiny island slashed the stream... and fast water bounded it on both sides beneath heavily low-branched trees. Working the east side one evening at dusk, we were intent upon our project when a wandering beaver slapped his tail on the water a few feet back of where we were standing. We both jumped a mile.

Then there was that one and only spot below the Secor bridge... a massive tree stump extending out into a long channel "sand-barred" up on both sides. It was always good for one bass and he was usually a gent of expansive proportions. Fishing for the second strike was just a waste of time... but that first one was usually worth WADING for.

A couple of early morning and late-evening fishing jaunts in Backbone park should be a must for every fisherman... with an encore up Bloody Run, the trout stream that dives into the Mississippi River at Marquette. Rippling bouncing streams of clear cold water knifing between high stone tree-studded walls you find nature at its best.

Then there was that afternoon with Don Davis of Liscomb. He took me to one of his "best" spots... and he has some doozies... the river was low and we waded up to a long tree trunk that right-angled the stream. You could walk right up to it... but on the downstream side it was deep and fast. Don gave me the honors... and I had a big bass take hold not less than six times... and I failed. To heck with him I thought, and backed away. Don slipped a lure in and before I could bat an eye he had the monster on and landed him. Guess I was fishing on the wrong side of the boat!

Yep, it was a pretty good fishing year... with lots of entertainment in our own backyard... no tediously long drives... and plenty of fishing plus a lot of relaxing outdoor living after office hours and on week-ends. Got "skunked" lots of times... but those "good" days made it all worthwhile.

Catch the point? There are lots and lots of interesting spots right here in central Iowa. Take a backroad or two adjoining the river. Follow it down... it may be a dead-end. Then get on Shanks

Mare and keep agoing... you'll come upon something of beauty and interest nine times out of ten even if you don't fish!—*Marshalltown Times Republican*.

Bats are the only mammals which possess the power of true flight. Other so-called "flying" animals, such as flying squirrels, only glide.

APRIL CATFISHING...

may not produce heavy catches, but it's worth trying. Most experts recommend "natural" baits such as angleworms, crayfish, minnows and any other foods that might be expected to wash into streams during spring floods. Angleworms are usually preferred to night-crawlers for early fishing, and are used in large gobs. Frogs may not be legally used for bait until May 12.

If the streams are running high, the best catfishing will be out of the swift channels in quieter water, often on the edge of the channel. Place your bait there by still fishing from the bank and casting into the channel, letting the current wash your bait downstream. It will come to rest in the first quiet water it reaches, and there's often a big catfish resting there, too.

Some early catfishermen like to fish areas of extremely shallow water, as in the foot or so of water over a flooded mud bar. They believe the sun warms this shallow water more rapidly and that fish will feed more heavily there.

Catfish appetites increase with water temperature. Biologists have found that catfish do almost no feeding in water temperatures around 40 degrees, but will feed heavily at 70 degrees. It is during these higher water temperatures of summer that "stink" and blood baits come into their own and catfishing is at its peak.

The 1954 Iowa catfish season opened April 15 and will extend through November 30. The daily catch limit is eight and the possession limit is 16. There is no size limit.



Probably more lowans fish for "king cat" than any other species.

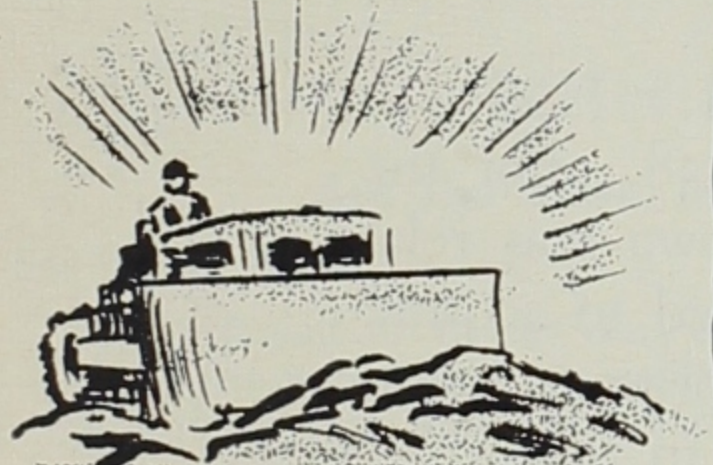
SUPPLEMENT TO THE APRIL, 1954 IOWA CONSERVATIONIST

FISH AND WILDLIFE RESTORATION IN IOWA

Under The Federal Aid Program



SURVEYING



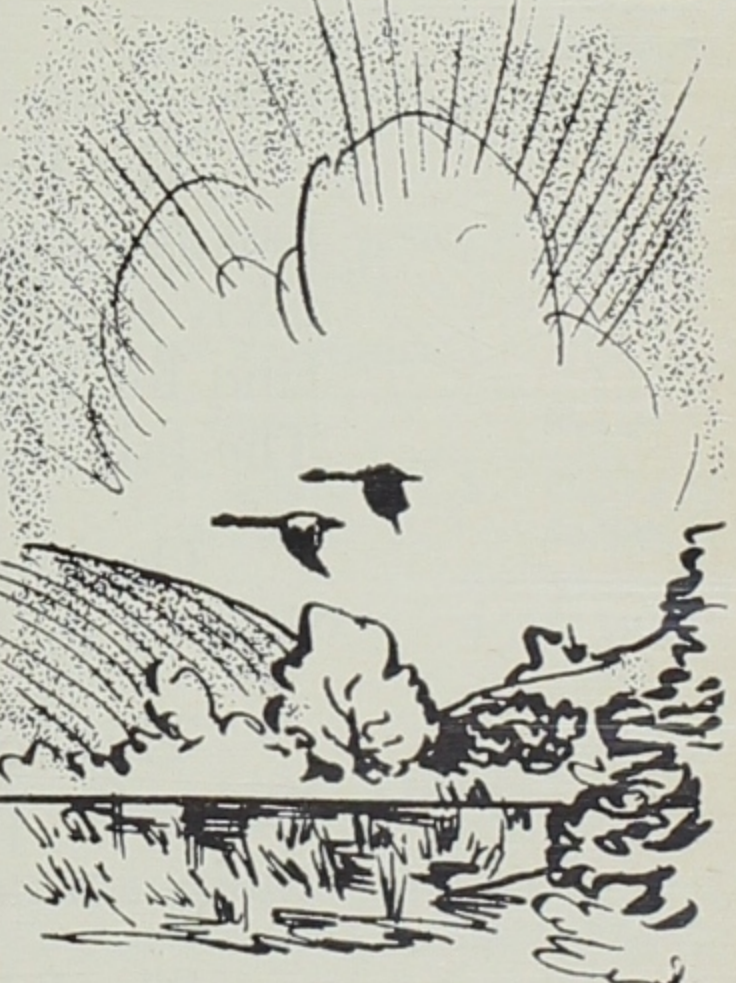
CONSTRUCTION



WATER CONTROL



RESEARCH



WILD LIFE
RESTORATION



SEEDING



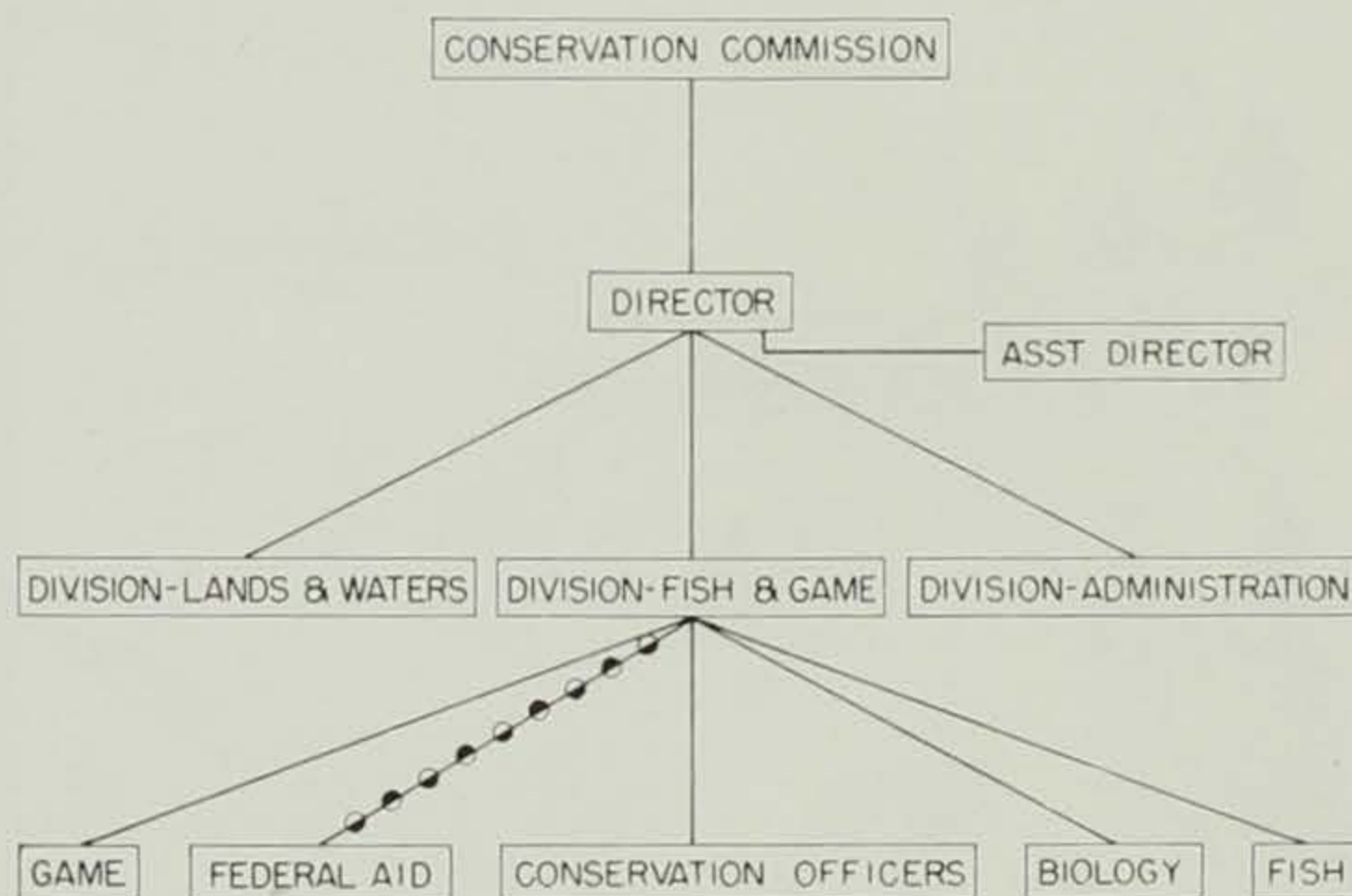
TREE PLANTING

FISH AND WILDLIFE RESTORATION IN IOWA

Under The Federal Aid Program

by

LESTER F. FABER
Superintendent, Federal Aid



The Federal Aid in Wildlife Restoration Program began in 1938. For the first ten years or up to 1948, the amount of money available to Iowa was relatively small. During this 10 year period, most of the funds were used to acquire land for wildlife purposes. Two development projects were started prior to 1948. The fish restoration program was assigned to the Federal Aid Section in 1951.

On July 1, 1948, the Federal Aid Section was established as one of five sections of the Fish and Game Division of the Iowa Conservation Commission.

This section is assigned the responsibility of carrying out fish and wildlife restoration programs using funds obtained from a tax on sport fishing and hunting equipment and from state hunting and fishing license revenue.

The following report sets out the background of the laws which make these programs possible. You will find information on when these laws were passed, their provisions and the amount of money made available to Iowa.

Fish and wildlife restoration includes activities such as buying land and building marsh areas for waterfowl and planting trees and shrubs for food and cover for upland game such as pheasants, quail, and rabbits. In this report, you will find an account of the kinds and amounts of such work activities.

Included in this report are descriptions of some of the operational procedures used by the Federal Aid Section and tables listing fish and wildlife areas assigned to the Section for administration.

It is hoped that the following report will give all interested persons a picture of what and how fish and wildlife restoration work is done under the Federal Aid program.

THE WILDLIFE RESTORATION PROGRAM

(Usually called the Pittman-Robertson or P-R Program)

Is Based on a Law

Passed by Congress: September, 1937

Which

Sets a 11 per cent tax on sporting guns and ammunition,

To Be Used

To aid the states in carrying out programs in which game is benefited.

The Funds Are Distributed

Fifty per cent on the basis of land area of each state in relation to the land area of all the states

And

Fifty per cent on the basis of the number of paid hunting licenses sold in each state in relation to the number sold in all the states.

THE FISHERIES RESTORATION PROGRAM

(Usually called the Dingell-Johnson or D-J Program)

Is Based on a Law

Passed by Congress: August, 1950

Which

Sets a 10 per cent tax on fishing rods, creels, reels, artificial lures, baits, and flies,

To Be Used

To aid the states in carrying out fisheries programs.

The Funds Are Distributed

Forty per cent on the basis of land area of each state in relation to the land area of all the states,

And

Sixty per cent on the basis of the number of paid fishing licenses sold in each state in relation to the number in all states.

BOTH LAWS

Are The Same, In That Each Law:

PROVIDES FOR:

The payment of 75 per cent of the cost of an approved project while the state pays the remaining 25 per cent. (In Iowa, this is paid by Fish and Game Funds.)

REQUIRES:

State Legislative assent to the provisions of the laws.
Passed in Iowa for P-R—1939
Passed in Iowa for D-J—1951

PROVIDES THAT:

Funds from these taxes may be used for acquisition of land in the name of the state for Fish and/or Wildlife purposes; for necessary construction or other development; for maintenance of such projects and for needed research.

REQUIRES:

That all projects must be submitted to the Secretary of the Interior for approval (through the Federal Fish and Wildlife Service).

PROVIDES THAT:

These funds may be used only where fish and/or wildlife is benefited primarily.

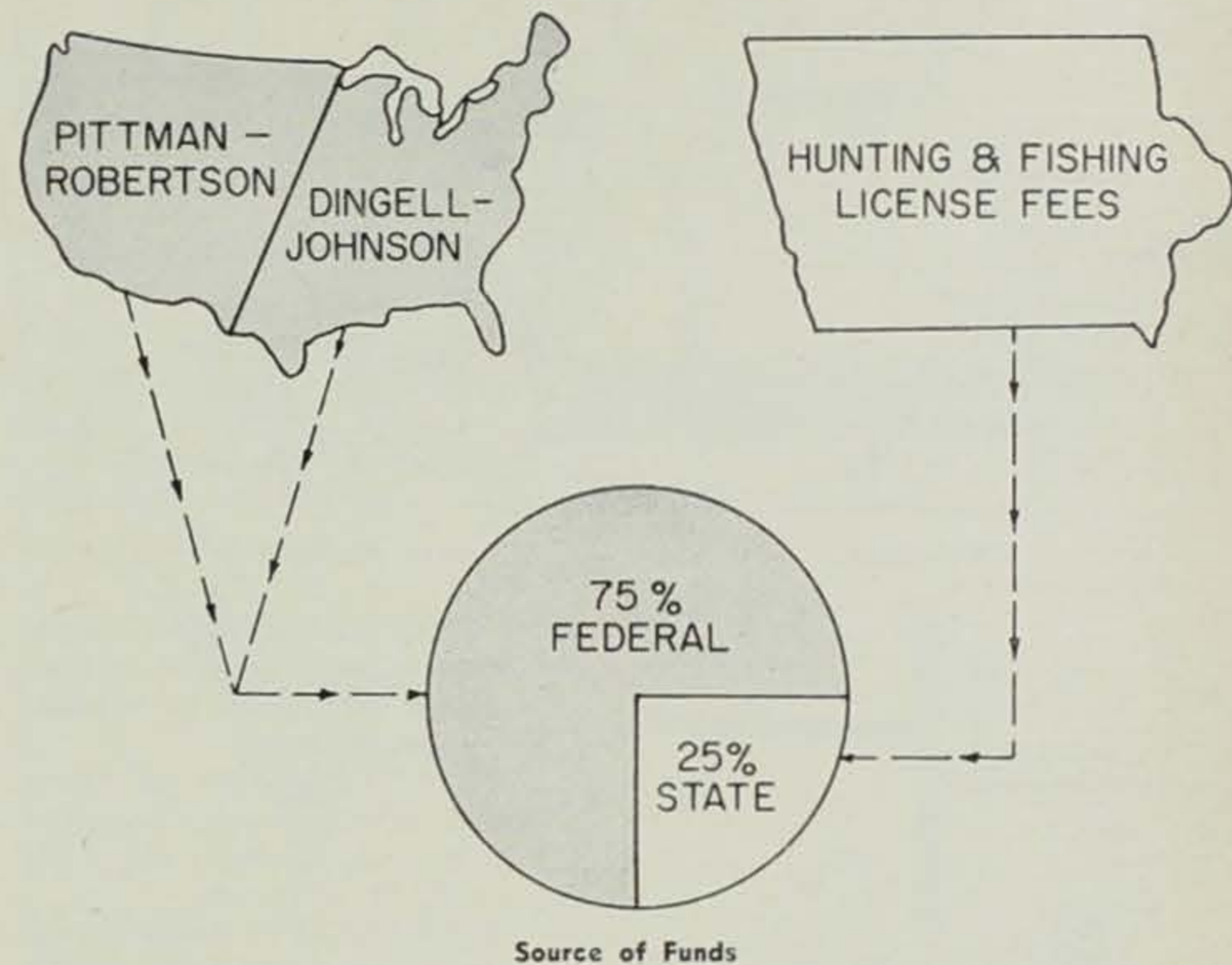
REQUIRES:

That any state wishing to participate in these programs shall have passed laws prohibiting the use of state fish and game funds for any other purpose than the administration of the State Fish and Game Department.

PROVIDES THAT:

Funds from these funds must be obligated for approved projects within two years of receipt by the states. Any balances revert to the Fish and Wildlife Service to carry out the provisions of the Migratory Bird Treaty Act.

OPERATIONAL BUDGETS



PITTMAN-ROBERTSON (PR)

Money Received For Wildlife Programs

Fiscal Year	Federal	State	Total
1947 - 1948*	\$ 201,525.79	\$ 67,175.26	\$ 268,701.05
1948 - 1949	231,119.29	77,039.76	308,159.05
1949 - 1950	207,716.20	69,238.73	276,954.93
1950 - 1951	197,389.53	65,796.51	263,186.04
1951 - 1952	389,799.27	129,933.09	519,732.36
1952 - 1953	223,522.35	74,507.45	298,029.80

TOTALS \$1,451,072.43 \$483,690.80 \$1,934,763.23

*Money received July 1st, 1947, was spent during 1948 so is included.

DINGELL-JOHNSON (D-J)

Money Received For Fisheries Programs

Fiscal Year	Federal	State	Total
1951 - 1952	\$ 52,284.29	\$ 17,428.10	\$ 69,712.34
1952 - 1953	49,411.85	16,470.62	65,882.47

TOTALS \$ 101,696.14 \$ 33,898.72 \$ 135,594.81

HOW THE MONEY CAN BE USED

Both the Federal Aid to Wildlife Restoration Act and the Federal Aid to Fisheries Act provide that money can be used for the following purposes:

1. LAND ACQUISITION of land that may be made suitable for the good of wildlife and/or fisheries.



Land Acquisition



Development



Maintenance



Research



Coordination

2. DEVELOPMENT of lands for the improvement of conditions beneficial to wildlife and/or fisheries.
3. MAINTENANCE of lands and developments acquired or developed under the Federal Aid Program.
4. RESEARCH in fields necessary to provide information to carry out a good wildlife and/or fisheries restoration program.
5. FISH AND WILDLIFE MANAGEMENT COORDINATION which provides funds for the State Administration of the Federal Aid Program.

Three major types of programs are carried out in Iowa:

1. Projects designed to benefit wildlife primarily are financed from Pittman-Robertson funds.
2. Projects designed to benefit fisheries primarily are financed from Dingell-Johnson funds.
3. Projects which will benefit both wildlife and fisheries are financed from both funds on a percentage based on benefits. These are called Combination Projects.

EXPENDITURE OF FUNDS

A. Amounts:

PITTMAN-ROBERTSON (P-R) For Wildlife Programs

Fiscal Year	Federal	State	Total
1948 - 1949.....	\$ 175,833.19	\$ 58,611.06	\$ 234,444.25
1949 - 1950.....	365,385.02	121,795.01	487,180.03
1950 - 1951.....	145,716.41	48,572.14	194,288.55
1951 - 1952.....	187,616.73	62,538.91	250,155.64
1952 - 1953.....	467,505.80	155,835.26	623,341.06
TOTALS	\$1,342,057.15	\$447,352.38	\$1,789,409.53

DINGELL-JOHNSON (D-J) For Fisheries Programs

Fiscal Year	Federal	State	Total
1951 - 1952.....	\$ 7,989.75	\$ 2,663.25	\$ 10,653.00
1952 - 1953.....	51,961.24	17,320.41	69,281.65
TOTALS	\$ 59,950.99	\$ 19,983.66	\$ 79,934.65

B. How Money was used in percent. (Obligated)

PITTMAN-ROBERTSON (P-R)

Fiscal Year	Amount	Coordination	Land Acquisition	Development	Maintenance	Research
1948 - 1949	\$ 234,444.25	13.07%	41.47%	45.19%		.27%
1949 - 1950	487,180.03	3.24	15.05	81.71		
1950 - 1951	194,288.55	10.38	16.72	72.90		
1951 - 1952	250,155.64	7.84	60.20	18.63	13.33%	
1952 - 1953	623,341.06	2.48	36.77	55.80	4.95	
5 yr. total and avge.	\$1,789,409.53	5.68%	32.57%	58.12%	3.59%	.04%

DINGELL-JOHNSON (D-J)

Fiscal Year	Amount	Coordination	Land Acquisition	Development	Maintenance	Research
1951 - 1952	\$ 10,653.00	100.00%				
1952 - 1953	69,281.65	6.60	70.40%	23.00%		
2 yr. total and avge.	\$ 79,934.65	19.05%	61.02%	19.93%		

LAND ACQUISITION

PITTMAN-ROBERTSON PROGRAM (P-R)

A total of 7,617 acres of land was acquired during the five-year period, ending June 30, 1953, at an average cost of \$67.00 per acre.

Land was purchased on 19 different wildlife areas in Iowa. Options were taken for 890 acres to complete the acquisition on six areas started before July 1, 1948. The remainder was purchased to acquire 6,727 acres to create 13 new areas. Land purchases are listed by area in the appendix to this report.

Ninety options were taken to buy the 7,617 acres or an average of about 85 acres per landowner.

DINGELL-JOHNSON (D-J)

A total of 273 acres of land was acquired. See appendix for purchases by area.

Land was purchased on 4 areas. One of these areas was a natural spawning area near a major fishing lake, one a public access to a public lake, one an access to a major fishing stream and one a railroad reservoir to be developed for a public fishing area.

Seven options were taken to buy the 273 acres or an average of 39 acres per landowner.

COMBINATION—P-R AND D-J PROGRAM

A total of 733 acres of abandoned strip coal mines was purchased using both D-J and P-R funds. These areas were paid on a fifty-fifty basis. The areas will be developed for both fish and game. Thirteen options were taken to complete these purchases. Average cost per acre was \$33.00. See appendix for purchases by area.

TOTALS

Land purchased with P-R funds	7,617 acres
Land purchased with D-J funds	273 acres
Land purchased with P-R and D-J funds	733 acres
Total	8,623 acres

Buying land to develop for wildlife purposes is the most difficult and time consuming phase of work of the Section. To set out the steps that must be taken in setting up a new area and complete the acquisition, a chart has been prepared. This chart takes an imaginary area and sets out all the procedures that must be taken according to time required. Time required as shown here is average. Some projects take more time—some less.

"WHAT MUST BE DONE TO BUY A NEW AREA"

SEPTEMBER

10

INITIAL VISUAL INSPECTION BY FEDERAL AID SECTION PERSONNEL—Site is visited to determine whether or not the area has the basic requirements.

SEPTEMBER

21

FORMAL REQUEST TO THE CONSERVATION COMMISSION FOR PERMISSION TO PROCEED WITH FIELD STUDIES. On a new area, permission is needed for the expenditure of funds for reconnaissance surveys.

SEPTEMBER

25

REQUEST FOR ENGINEERING SURVEYS. Certain basic field surveys are required to determine feasibility. Request is placed on Engineer's Work Schedule.

NOVEMBER

16

SURVEYS ARE BEGUN.

JANUARY

16

SURVEYS ARE COMPLETED.



Field Surveys



Design and Drafting

MARCH

4

PRELIMINARY ENGINEERING REPORT IS PREPARED AND SUBMITTED TO FEDERAL AID SECTION. This report is incorporated into a Preliminary Project Statement which sets out basic plans for the area, number landowners, watershed and related data. This document is submitted to Federal Fish and Wildlife Service for approval.

JUNE

10

LAND IS APPRAISED BY THE FISH AND WILDLIFE SERVICE. Unless a special case is involved, new areas are appraised about 3 or 4 months after approval is granted.

JULY

6

APPRAISAL FIGURES ARE SUPPLIED TO THE STATE FOR GUIDANCE. Contacts with landowners are begun. Surveys for details of construction are also started at this time.

DECEMBER

15

LAND IS ACQUIRED IF EVERYTHING GOES WELL. Each option taken must be approved by the Conservation Commission and the Fish and Wildlife Service.

DECEMBER

15

SURVEYS ARE MADE TO DETERMINE EXACT ACREAGE OF LAND ACQUIRED. If tract is irregular in shape or is a subdivision of a regular land description.

JANUARY

15

ABSTRACTS ARE EXAMINED, PROPERTY PLATS AND VOUCHERS FOR PAYMENT ARE PREPARED AND PAYMENT MADE.

Depending on the season of the year that acquisition is completed, plans for construction and development are put into operation.

All the above steps must be taken. All the good and bad points of the new area are discussed.

Many times, delays in the actual purchase of lands extend the six month period shown above.

FISH AND WILDLIFE HABITAT DEVELOPMENT

Wildlife Habitat Development includes many activities that are carried out to improve food and cover conditions for game fish, waterfowl, pheasants, quail, squirrels, rabbits and furbearers. Among these activities are:

1. Engineering surveys and construction to create new marshes for ducks and furbearers, improve old ones, erect buildings, build roads and earthen dikes.
2. Planting of trees, shrubs, vines, grasses and food crops for pheasants, quail and rabbits.
3. Building fences, putting up signs and boundary markers.
4. Making maps showing soil types, water, grass and timber and keeping other records.



Construction



Planting



Field Work



Mapping



Interviewing Hunters

5. Checking hunters, trappers, fishermen, to count the harvest of game and fish and making regular counts of game and fish populations.

WHERE HABITAT DEVELOPMENT WORK IS DONE

Under the Federal Aid to Fisheries and Wildlife Programs, development work is done on both State-owned fish and game lands and on privately owned farms.

The State-owned lands on which work is done are:

1. Lands purchased with Pittman-Robertson funds from July 1, 1937, to June 30, 1948..... 8,748 Acres
 2. Land purchased from July 1, 1948, to June 30, 1953... 7,617 Acres
 3. Lands already State-owned and assigned to Federal Aid Section for administration.....12,864 Acres
- A total of 29 areas makes up 29,229 acres of State-owned public shooting grounds being managed for game.
4. Lands purchased with Dingell-Johnson funds..... 273 Acres
 5. Lands purchased with Dingell-Johnson and Pittman-Robertson funds 733 Acres
- A total of 4 fisheries areas—3 combination areas.

An over-all total of 59 areas of 30,235 acres of fish and game lands being developed under the Federal Aid Program in Iowa.

Habitat development has been done on 547 acres on 205 different farms.

ENGINEERING CONSTRUCTION

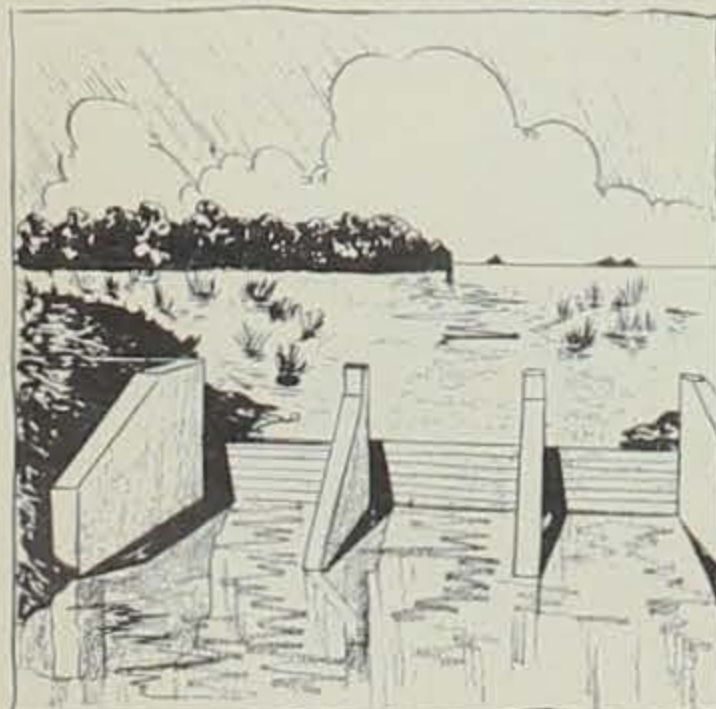
The Engineering Construction Section plays a big part in building a wildlife area as it relates to construction. This section does all the necessary field surveys and from this information completes the designing and drafting for constructing dikes, dams, buildings, and roads.

The Engineers carry the construction phase of development through the stage of preparing specifications and advertising for bids from contractors on the larger jobs.

All construction is supervised by resident engineers until the job is completed and accepted by the State and the Fish and Wildlife Service.

During the five-year period from July 1, 1948, to June 30, 1953, the Engineering Section aided the Federal Aid Section by doing all the necessary work to carry out the following construction:

1. Built 21 water control structures on 18 sites.
2. Built three headquarters residences, remodeled two.
3. Built five service buildings on headquarters sites.
4. Built 1,960 rods of access roads.
5. Built 3,376 rods of earthen dikes to hold water on marsh areas.



Water Control Structures



Building Dikes and Water Areas

GAME MANAGEMENT UNITS

Because the acreage of public shooting areas in Iowa is so small in relation to the total area of the State, it is necessary to manage these areas intensively.

All the wildlife areas are surrounded by privately owned farm land, so the management must be compatible with the farm practices. This is especially true of our natural marshes where water levels must be regulated according to the drainage pattern of the surrounding farm land.

Because of the farming, good boundary fences must be built and maintained. Certain noxious weeds must be controlled and other farm practices must be carried out.

On the other hand, because of the heavy public use, all roads must be kept in good condition, signs must be properly placed and maintained. Every acre must be developed and maintained to provide the most good.

To carry out intensive management on the 30,235 acres of public lands assigned to the Federal Aid Section, Game Management Units have been set up.

A Game Management Unit is made up of several scattered public wildlife areas brought together to be managed as a Unit. These Units average about 4,200 acres in size and can be properly cared for by one man, the Unit Manager, and some extra help during parts of the year.

The Unit Game Manager is a young man with academic training in wildlife management and must have a farm background. He is held responsible for the well-being of all the areas in his unit. His duties are many and diversified. He must:

Plant and take care of food and cover for wildlife.

Build and maintain fences and roads.

Keep inventories of wild game on his areas.

Interview hunters to know the harvest of game.

Regulate water levels to insure growth of desirable plants in his marsh areas.

Post and maintain signs and boundary markers.

Make maps of vegetation and land use on the areas.

Control noxious weeds.

Keep records and prepare reports on his activities and record results of his work.

Maintain buildings, machinery, etc.



Ground Preparation



Posting Sign



Counting Birds



Record Keeping

Each unit has a headquarters, where a residence and service building has been built. Sufficient machinery, materials and supplies are provided the Unit Manager to carry out his assignment.

At present, five Game Management Units are in operation to develop and maintain 20,191 acres of State fish and wildlife lands. The names of the Units are listed here. The areas that make up each Unit are listed in the appendix.

Game Management Units

Ruthven Game Management Unit.....Northwest of Ruthven
 Ingham-High Game Management Unit.....East of Wallingford
 Rice Lake Game Management Unit.....Southeast of Lake Mills
 Sweet Marsh Game Management Unit.....Northeast of Tripoli
 Colyn Game and Fish Management Unit.....South of Russell

Headquarters Location

Maps of the areas and other information concerning the development and use of the areas can be found at the headquarters of each unit.

Of the 59 areas assigned to this section, 41 are managed by a Unit Game Manager. The remaining 18 areas of 10,034 acres are scattered over the State so that they cannot be brought together as a Unit. These areas are managed by the Game Section Area Game Manager in cooperation with the Federal Aid Section.

FARM GAME HABITAT DEVELOPMENT

Much of our effort toward building better wildlife areas has been the acquisition and development of State-owned refuges and public shooting grounds. This is the kind of work that private individuals are not apt to undertake by themselves.

On the other hand, most upland game such as pheasants, quail, squirrels and rabbits are hunted on privately owned farms. Good food and cover conditions must be provided on the farms in Iowa.

There are about 198,000 farms in Iowa. Some of these farms do not need additional wildlife cover, but most of them do.

No one has yet devised a plan for developing wildlife habitat on farms on a large scale. Many systems have been tried, but so far, no large scale operation has "caught on" and been accepted by the majority of farmers.

The Federal Aid Section has a Farm Game Habitat project which is designed to provide better wildlife habitat on privately owned farms. The number of areas planted each year is relatively small, but one of the objectives is to plant a series of good "example" areas so that other farmers become interested in the idea. Many farmers, after seeing that a wildlife area on his farm does not have to be an eyesore, plants an area of his own. Farmers as a whole are becoming more interested in wildlife and hunting and are beginning to "carry the ball" by providing food and cover for wild game on their farms.

HOW THE PROJECT WORKS:

The project is set up to plant and fence small one to ten acre plots on farms where wildlife cover is needed.

The farmer leases the area to the State for a ten-year period and agrees to prepare the ground for planting. After the area is planted and fenced by the State, he agrees to maintain fences, prevent grazing and fire on the area and to allow hunting on his farm during open seasons.



Farmer and State Man

The State agrees to plant the trees, shrubs, vines and grasses, to do what fertilizing may be needed and to fence the planted area. The State will also furnish planting stock for needed replacements.



Tractor and Planter

To carry out the State's obligation, the area is first visited and a planting plan is set up. The following spring, a three-man crew comes in to plant the area. After the planting season, this same crew

goes back over all the planted areas and erects a fence sufficient to keep out grazing. Small signs are hung on the fence indicating the area is developed in cooperation between the State and the farmer under the Pittman-Robertson Program.



A Wildlife Area

The project was begun in 1950. By July 1, 1953, a total of 205 areas totaling 547 acres of land had been planted with trees, shrubs and/or seeded to grasses for small wildlife production units.

A total of 558,042 trees and shrubs were planted on the 205 areas and 12,500 rods of fence were built to protect the plantings. Trees and shrubs species planted on these areas include multiflora rose, wild plum, caragana, honeysuckle, Russian olive, dogwood, pines and maples.

The number of areas is relatively small, but our system of having trained men make the plantings properly assures good areas that farmers are proud to have and show to their neighbors.

To have an area on your farm, contact your Conservation Officer or County Soil Conservation District personnel. They will explain the program and get in touch with our men who plan and plant the area.

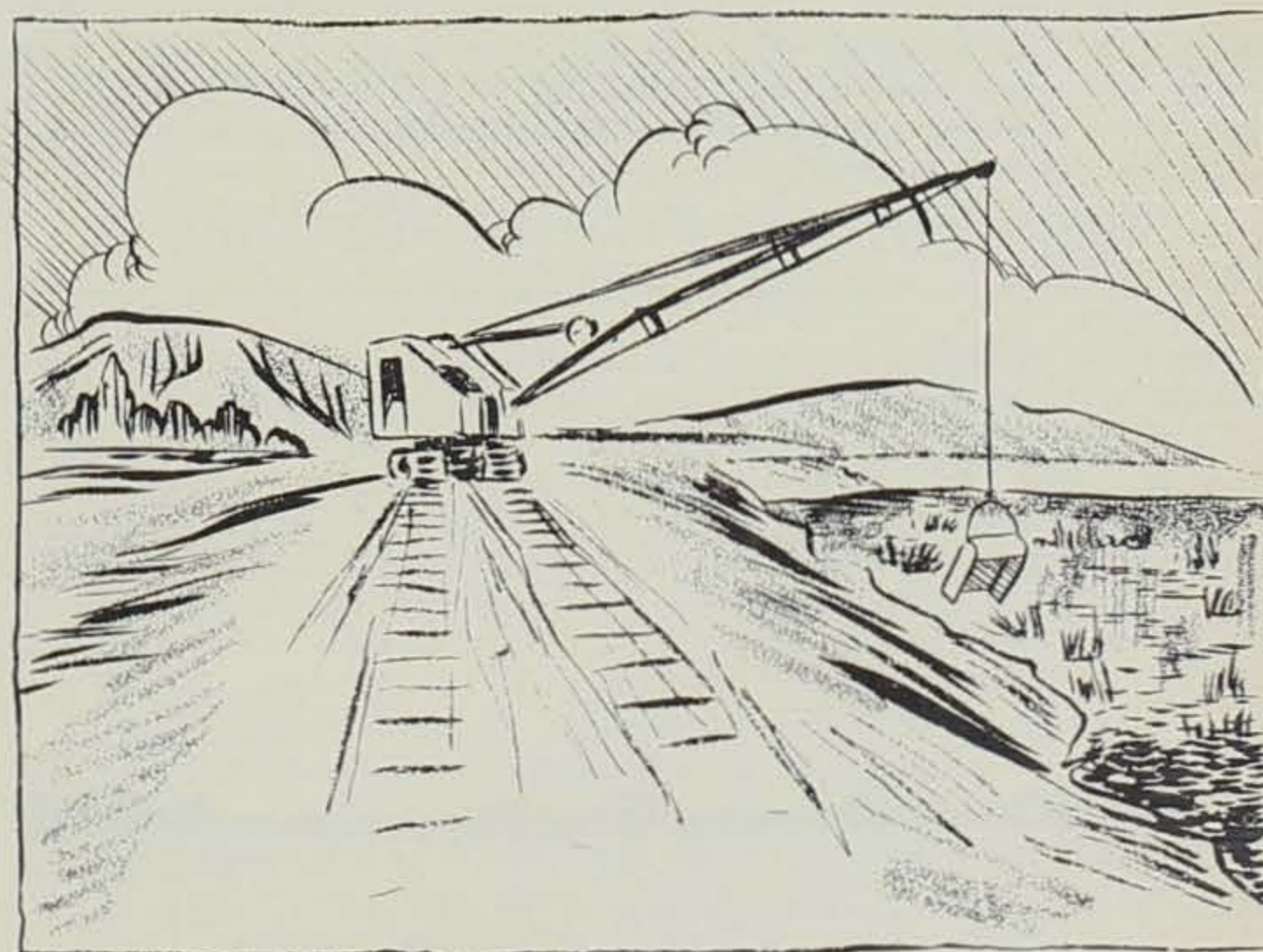
ARTIFICIAL MARSH CONSTRUCTION

Most all of the natural marsh areas in Iowa have been purchased and developed for waterfowl.

In recent years, more effort has been made to build new artificial marshes. Along several of the major river courses in Iowa, there are large, flat, wet areas that are normally too wet for consistent farming operations, but are too dry for use by waterfowl.

The first effort to make a permanent wildlife area on the river bottoms was Sweet Marsh in Bremer County along the Wapsipinicon River.

Approximately 7 miles of earthen dikes were built to enclose about 1,000 acres of marsh. Through the construction of a dam in a feeder stream and the dikes, enough water is held to cover the 1,000 acres through the year. The area now is an excellent marsh area and is permanent.



Dike Construction

This same process was followed to build a 300-acre marsh in Lucas County along the Chariton River and by July 1 of 1953, 1,800 acres of land was purchased along the west fork of the Cedar River in Butler County to build a 1,100-acre permanent marsh.

The artificial marshes have the advantage of a good supply of water and water levels can be regulated to provide the best kind of food and cover for ducks and furbearers.



A Marsh Area

WATERFOWL MARSH RESTORATION

Many natural shallow marsh areas in Iowa are not deep enough to support fish life through the winters, but are too deep in places for good growth of emergent aquatic plants necessary for waterfowl and furbearers.

Some of these marshes become barren of plant growth and must be "managed" to restore them to a productive condition.

By experiment, it has been learned that if all the water is drained from these areas so that the bottoms are exposed to sunlight and drying conditions for one or two summers, many of the desirable plants begin to grow again. Since 1949, this operation was successfully completed on three areas and started on a fourth.

East Twin Lake and Eagle Lake in Hancock County were so treated as was Rush Lake in Palo Alto County. Drainage was just begun on West Swan Lake in Emmet County.

This drainage and refilling of marsh areas seems to be one of the most important marsh management practices. Many of the other marshes will have to be handled in the same way from time to time.

Although the drainage and refilling process will result in a loss of use of the area during drainage, the benefits far outweigh the loss. This method of bringing back vegetation in a marsh is better than trying to replant vegetation. Operations on the areas drained show that when growing conditions are ideal for natural growth, plants will grow without planting new ones.



An Open Body of Water Before Drainage



A Woodduck Box on a Tree, Metal Type

WOODDUCK NESTING BOXES

Research has shown that where there is a shortage of hollow trees and other nesting sites used by woodducks, artificial nest boxes can increase populations.

Many types of nesting boxes have been tried with varying success. Much loss of eggs and young ducks has occurred where animals such as squirrels, raccoon and others are able to get into the nests. To help prevent these losses, a metal box with a conical metal lid was devised.

A project was set up in 1953 to build, paint and distribute 300 woodduck nest boxes.

Arrangements were made with a metal works company to cut the 300 metal tubes, cut and crimp the conical-shaped lids and provide the three screws to attach the lid to the box.

Project personnel cut and installed wooden floors, bolted on 1 x 4 x 30-inch hanging brackets and painted.

Thirty-five boxes were sent to each of the five Game Management Units. Twenty-five were installed on State-owned wildlife areas and ten were distributed along major river courses in the vicinity of the Units. These nesting boxes are placed on trees or poles near or over the marshes or streams.

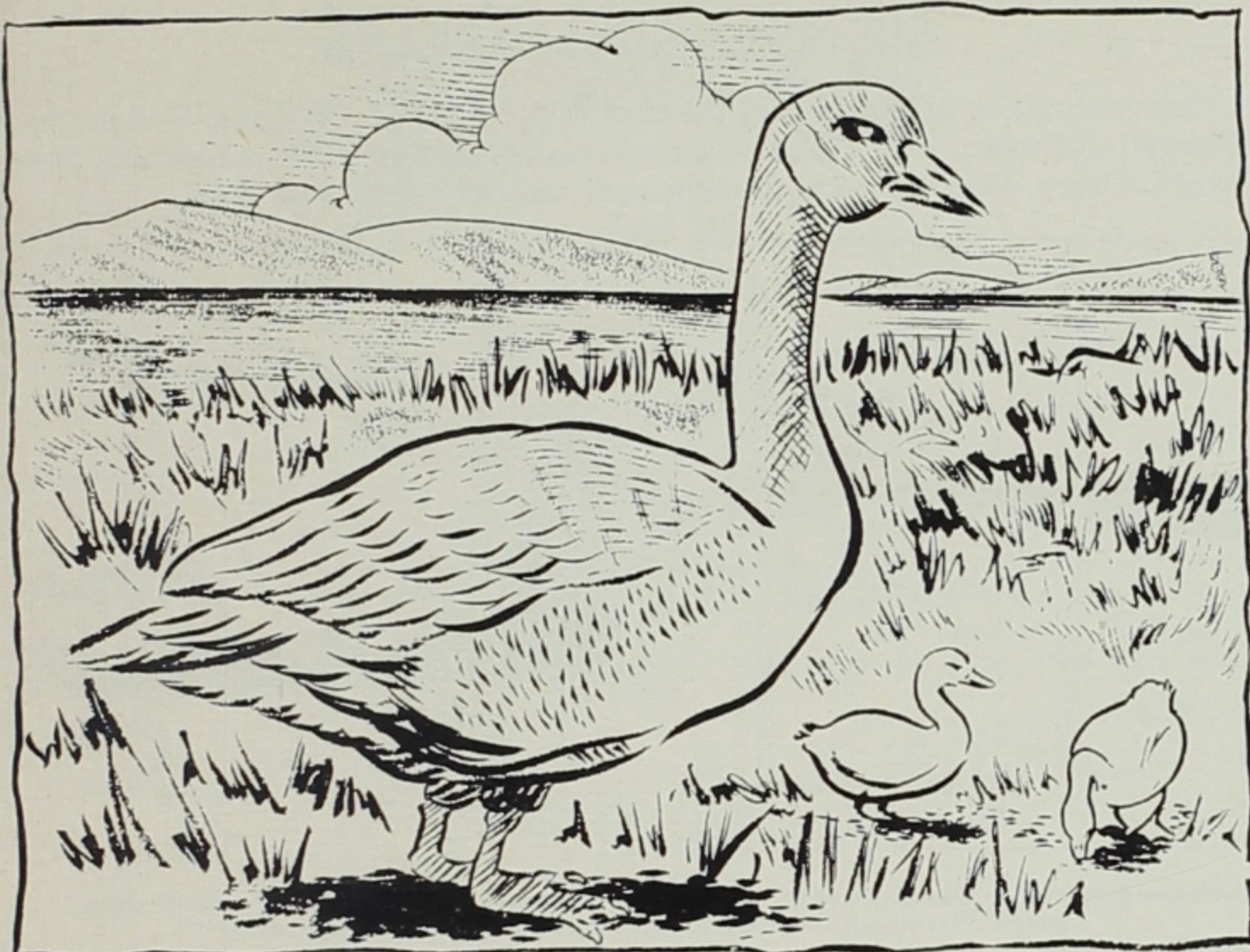
One hundred boxes were installed on or near the Lake Odessa Area along the Mississippi River in southeast Iowa.

Most of the boxes were distributed and put up after the 1953 nesting season, so no information is yet available on the use of these nesting boxes.

This is another example of the type of work done with the Federal Aid funds to improve living conditions for wildlife.



Same Marsh After Restoration



Adult Goose — Two Young

THE CANADIAN GOOSE PROJECT

Many years ago, the Canadian Goose nested in Iowa. The loss of water areas and the advance of human settlement reduced the habitat that geese need.

Ducks and geese have a tendency to return to the vicinity where they were hatched to raise their own broods.

Several states have successfully established flocks of nesting geese by maintaining a resident flock and allowing the young to migrate. After some of the young geese returned and produced more young the flock gradually built up in sizable numbers.

In the hope that the nesting of Canadian Geese could be re-established in Iowa, two resident flocks were obtained and penned. One flock of about 50 geese is held at Rice Lake, near Lake Mills, and another flock of geese is held on the Ingham-High Area near Wallingford.

In the two years since this experiment has been started, only a few young geese have been raised. None have been allowed to migrate. It is hoped that a larger nesting flock can be established so that a large number of young birds can migrate. Once some of these young return to the areas where they had hatched and nest outside the pens in a natural condition, the over-all flock will increase itself.

So far, we can claim little success with this experiment. It may take several years to produce enough young that will migrate south and return in the spring to set up housekeeping on their own.

STRIP COAL MINE DEVELOPMENT

Three abandoned strip coal mines were purchased with Dingell-Johnson and Pittman-Robertson funds. These areas were acquired to be developed for both wildlife and fish.

Most of these mine areas are useless for farming so it is hoped that they can be developed for good use by making water impoundments for fishing and planting the hillsides for upland game cover.

Strip mining operations leave these areas a series of long parallel banks or ridges with steep sides and narrow, slightly rounded tops. The large holes left by mining are being developed as water areas for fish.

The narrow tops of some of the ridges were flattened with bulldozers to increase rainfall penetration and to provide sites for planting shrubs and grasses. Some of the major gullies were plugged to prevent erosion into the ponds.

The major problem of development is the acid soil conditions caused by a high content of sulphur compounds found in this kind of soil. In the process of mining, these soils were dug out and exposed on the banks of the ridges. These soil conditions are not good for growth of plants, but there is enough good ground to get shrubs and grasses started. Gradually, the harmful acids will be reduced to a point where plants will grow.

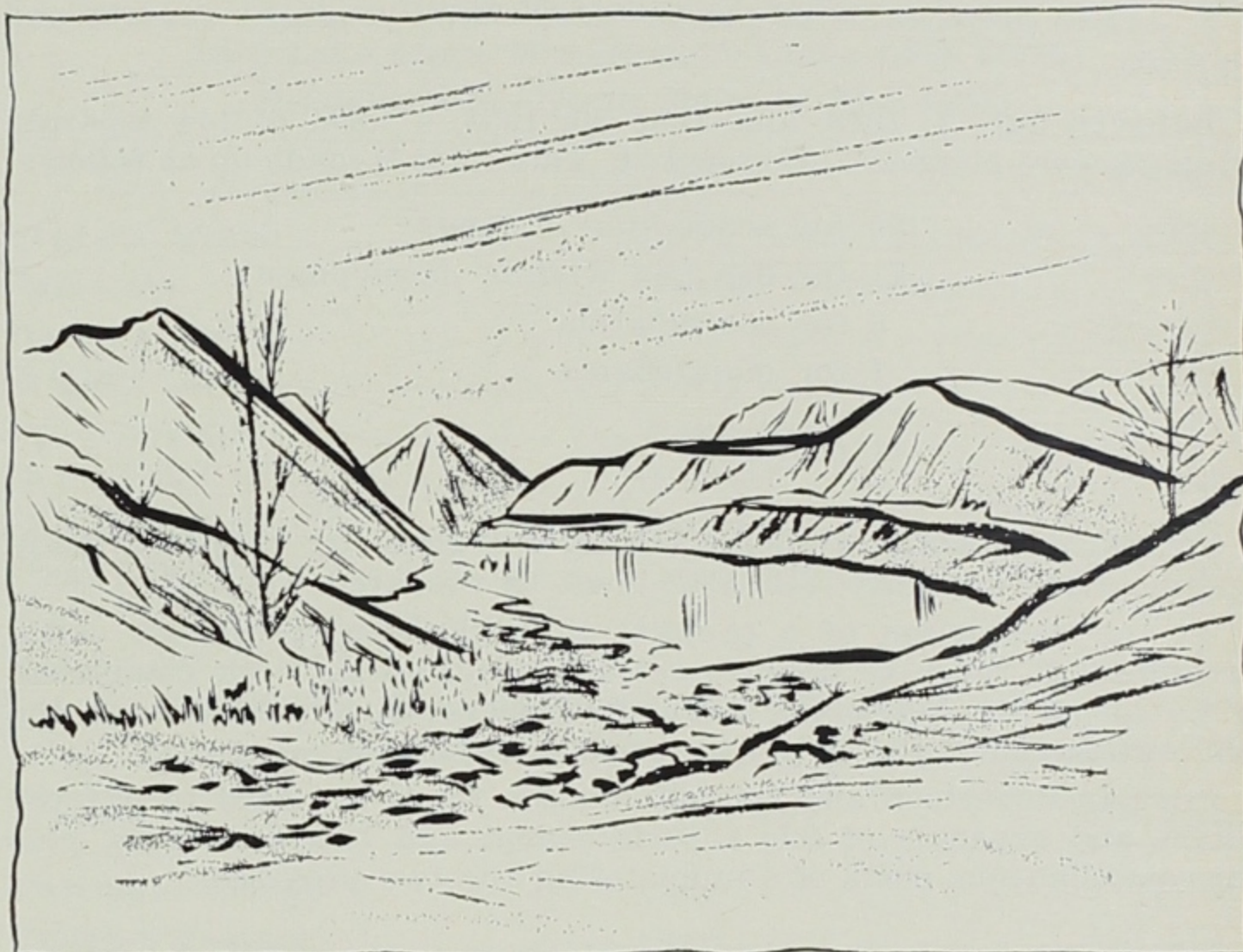
The Pella Area in Marion County is being developed first, on an experimental basis.

Plans for three concrete water control structures have been prepared to build water areas to be managed for game fish.

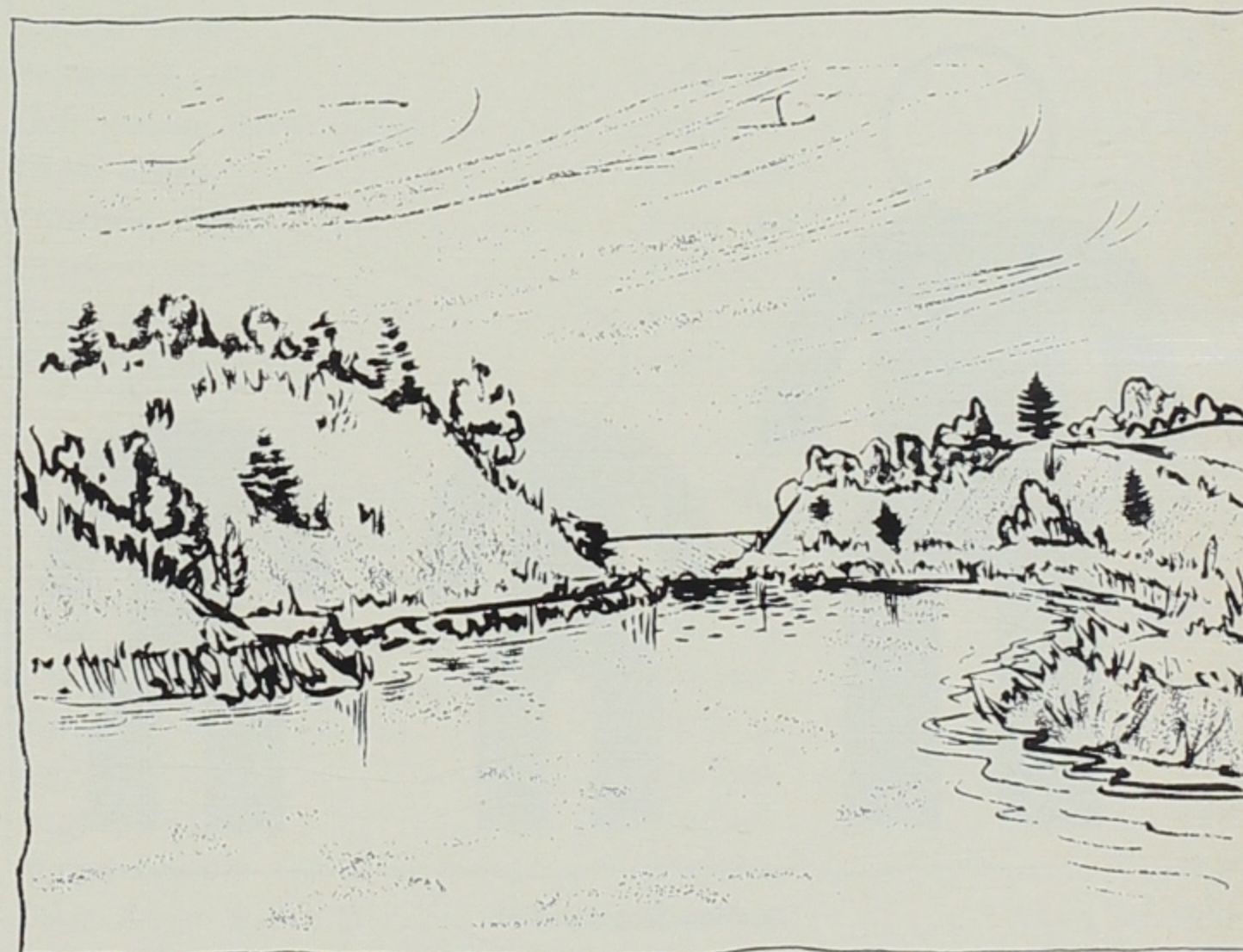
About fifty acres of ridges were bulldozed and leveled and seeded to a mixture of sericea lespedeza, Korean lespedeza and sweet clover.

About 72,500 trees and shrubs were planted around the edges of the leveled areas to help stop erosion and provide cover for wildlife.

Two hundred and fifty rods of fence were constructed between the areas to be developed and adjacent farm lands.



A strip pit before development.



The same pit after development.

FISH AND WILDLIFE MANAGEMENT COORDINATION

In 1947, revenues to the State of Iowa from the tax on sporting arms and ammunition became large enough to warrant the assignment of one man to carry out the program.

The Federal Aid Section was set up July 1, 1948, and a superintendent was appointed to administer the wildlife restoration program.

When the money from the tax on fishing tackle was made available to the State in 1951, the administration of this fisheries program was assigned to the Superintendent of the Federal Aid Section.

The main duties of the Section Superintendent are:

1. Be responsible for the selection, planning and direction of the Pittman-Robertson and Dingell-Johnson Programs.
2. Have supervision of personnel in the Federal Aid Section and general supervision over the work they are assigned to do.
3. Plan and carry out a development and/or maintenance program on State-owned lands assigned to Federal Aid Section.
4. Cooperate with other sections of the Fish and Game Division where joint activities may occur.

Two field Assistant Superintendents complete the staff to administer the Federal Aid Program. One field assistant is assigned to aid in the execution of the Pittman-Robertson Program. The other is assigned to fisheries work carried out under the Dingell-Johnson Program. These two men are responsible to the Section Superintendent to carry out the following basic duties:

1. The location, surveys, acquisition and development of fish and wildlife areas.

2. Aid in preparation of project documents, vouchers, reports and records.

Between July 1, 1948, and June 30, 1953, a total of 144 separate projects were planned and executed. This total is made up as follows:

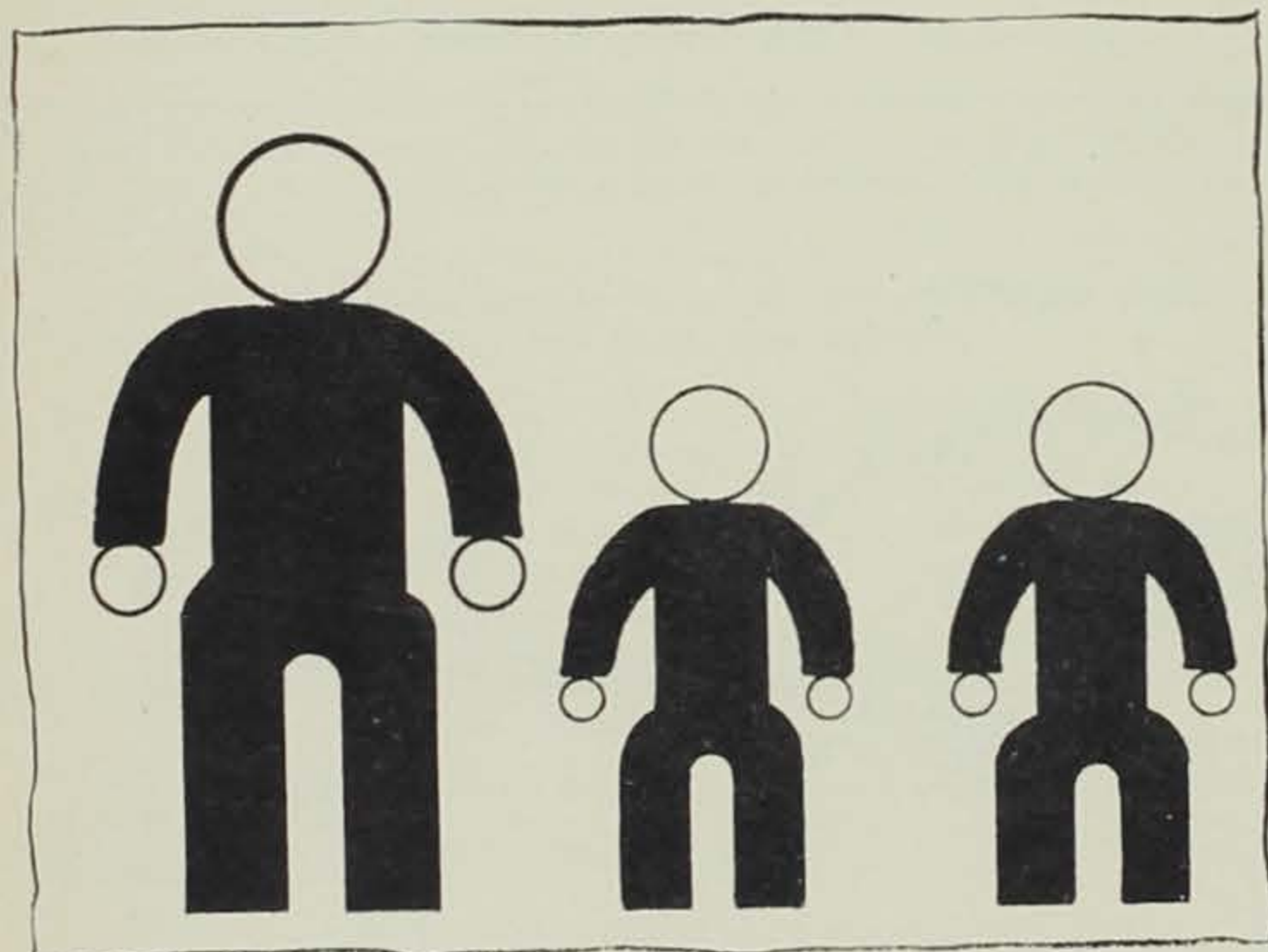
- 60 for acquisition of lands
- 71 for fish and wildlife development
- 6 for coordination
- 7 for maintenance

144 projects

For each project, documents setting out plans for proposed work, specifications and cost estimates must be prepared.

At the completion of a project, a bookkeeping procedure called "vouchering" must be done to set out exact costs, work completed, and request reimbursement from the Federal Government, from the restoration funds, for 75 per cent of the total cost.

Pittman-Robertson and Dingell-Johnson funds are used to pay the salary and expenses of one superintendent and two assistants, plus the miscellaneous costs of administering the two programs.



Section Organization

MAINTENANCE:

Provisions of both Federal Aid laws allows a maximum of 25 per cent of the funds received each year to be used for maintenance of areas purchased and/or developed with these funds.

Maintenance work is much the same as development except that the activities are done to maintain work that was completed as development. There are access roads to keep in good condition, fences, buildings and machinery to keep in repair and tree and shrub plantings to cultivate and plant replacements.

As of July 1, 1953, 41 areas were being taken care of under maintenance projects. As of this date, approximately 4 per cent of the funds were being used for this purpose.

RESEARCH:

Federal Aid funds may be used for research into problems that will result in better administration of the over-all program.

No new research projects were set up during the five years covered in this report. One project on the study of muskrats on the Upper Mississippi River was started in 1946 and ended in 1949. This project provided some good information on the condition affecting muskrat populations on the river.

The Biology Section of the Conservation Commission and the Research Unit of Iowa State College provides the scientific data on game and fish studies needed by the Commission. The Unit Game Managers of the Federal Aid Section cooperate with the Biology Section in gathering data on waterfowl, upland game, furbearers and related information, such as nut crop yields and hunter, fisherman and trapper harvest of fish and game on their marshes and lakes.

SIGNS AND MARKERS

Several types of signs and markers are used on Pittman-Robertson, Dingell-Johnson, and Farm-Game Habitat Areas. Drawings are presented here with an explanation and use of each type sign.



Pittman-Robertson Development: "Used to identify areas already state-owned on which Pittman-Robertson funds were used for development."

Pittman-Robertson Project: "Used to identify areas purchased and developed with Pittman-Robertson funds."



Dingell-Johnson Project: "Used to identify areas purchased and developed with Dingell-Johnson funds."

Game Management Area: "A sign being used on all new areas. As the sign indicates, the area is open to the public unless otherwise posted."



Public Hunting Area: "Used to designate areas open to the public for hunting and trapping."

Wildlife Habitat Development Area: "Used to identify plantings on privately owned farms."



Wildlife Refuge: "Used to designate areas closed to hunting and trapping."

Public Access: "Used to designate roads or other public access to state-owned areas."





Miscellaneous: "Used for miscellaneous purposes such as parking lot, food plot number, demonstration areas."

APPENDIX

Land Acquisition

Lands acquired between July 1, 1948, and June 30, 1953

These tables show only data on lands purchased during the five-year period. Table does not necessarily show total acres acquired on each area or include acres still to be added.

Pittman-Robertson—For Game Purposes:

AREA	COUNTY	ACRES	COST*
Klum Lake.....	Louisa	39.35	\$ 5,700.00
Dunbar Slough.....	Greene	134.78	20,016.51
Forney Lake.....	Fremont	199.53	28,930.10
Myre Slough.....	Winnebago	215.28	15,743.04
Harmon Lake.....	Winnebago	14.70	882.00
Dudgeon Lake.....	Benton	286.82	19,588.86
Four-Mile Lake.....	Emmet	34.30	1,503.66
Christopherson Slough.....	Dickinson	200.00	12,500.00
Rush Lake.....	Osceola	6.12	525.50
Sweet Marsh.....	Bremer	1,621.83	56,143.43
Eagle Lake.....	Emmet	237.61	19,300.80
East Twin Lake.....	Hancock	299.24	32,462.39
Brown Slough.....	Lucas	669.50	30,425.00
Brown Lake.....	Woodbury	721.00	62,442.13
Jemmerson Slough.....	Dickinson	179.95	18,495.00
Rock Creek.....	Jasper	179.00	17,168.90
La Hart Area.....	Monroe	179.20	10,181.50
Big Marsh.....	Butler	1,818.15	127,250.00
Colyn Area.....	Lucas	580.25	26,865.63
TOTALS.....		7,616.61	\$506,124.45

*Cost does not include overhead—Land costs only.

Dingell-Johnson—For Fisheries Purposes:

AREA	COUNTY	ACRES	COST*
Garlock Slough.....	Dickinson	92.62	\$ 5,895.00
Silver Lake Access.....	Palo Alto	17.00	4,800.00
Flint Access.....	Polk	37.00	2,000.00
Williamson Pond.....	Lucas	126.08	20,000.00
TOTALS.....		272.70	\$ 32,695.00

*Cost does not include overhead—Cost of land and fixtures only.

Dingell-Johnson and Pittman-Robertson—For Game and Fisheries Purposes:

AREA	COUNTY	ACRES	COST*
Hull Mine Area.....	Mahaska	364.55	\$ 15,950.00
Pella Mine Area.....	Marion	274.07	5,085.80
Lizard Creek Area.....	Webster	94.43	3,632.90
TOTALS.....		733.05	\$ 24,668.70

*Cost does not include overhead—Cost of land only.

DEVELOPMENT

Game Management Units

Rice Lake Game Management Unit—4,878 acres Headquarters—North Shore of Rice Lake

AREA	COUNTY	ACREAGE
Ventura Marsh	Cerro Gordo, Hancock.....	630
Rice Lake	Worth, Winnebago	1740
Harmon Lake	Winnebago	483
Bright's Lake	Worth	123
Myre Slough	Winnebago	430
Eagle Lake	Hancock	914
East Twin Lake	Hancock	496
Clear Lake Pond	Cerro Gordo	62

Ruthven Game Management Unit—5,114 acres Headquarters—Northwest Corner of Dewey's Pasture

AREA	COUNTY	ACREAGE
Barringer Slough	Clay	1054
Dewey's Pasture	Clay	402
Mud Lake	Clay	252
Dan Green Slough	Clay	340
Round Lake	Clay	450
Trumbull Lake	Clay	1230
Ocheyedan River Area	Clay	100
Rush Lake	Palo Alto	522
Opedahl Tract	Palo Alto	115
Sunken Grove	Pocahontas	371
Elk Lake	Palo Alto	261
Silver Lake Access.....	Palo Alto	17

Ingham-High Game Management Unit—4,181 acres Headquarters—North Shore of Ingham Lake

AREA	COUNTY	ACREAGE
Cheever Lake	Emmet	343
Birge Lake	Emmet	136
Grass Lake	Emmet	171
Ingham-High	Emmet	479
Ryan Lake	Emmet	366
East Swan Lake	Emmet	588
Twelve-Mile Lake	Emmet	290
Eagle Lake	Emmet	298
West Swan Lake	Emmet	1046
Four-Mile Lake	Emmet	240
Goose Lake	Kossuth	224

Colyn Game and Fish Management Unit—2,544 acres Headquarters—On Colyn Area

AREA	COUNTY	ACREAGE
Brown Slough	Lucas	680
Colyn Area	Lucas	700
La Hart Area	Monroe	183
Pella Mine Area	Marion	274
Hull Mine Area	Mahaska	365
Williamson Pond	Lucas	126
Flint Access Area	Polk	37
Rock Creek Area	Jasper	179

Sweet Marsh Game Management Unit—3,484 acres Headquarters—North Side of Sweet Marsh

AREA	COUNTY	ACREAGE
Sweet Marsh	Bremer	1666
Big Marsh	Butler	1818

WILDLIFE AREAS ASSIGNED TO FEDERAL AID SECTION FOR ADMINISTRATION

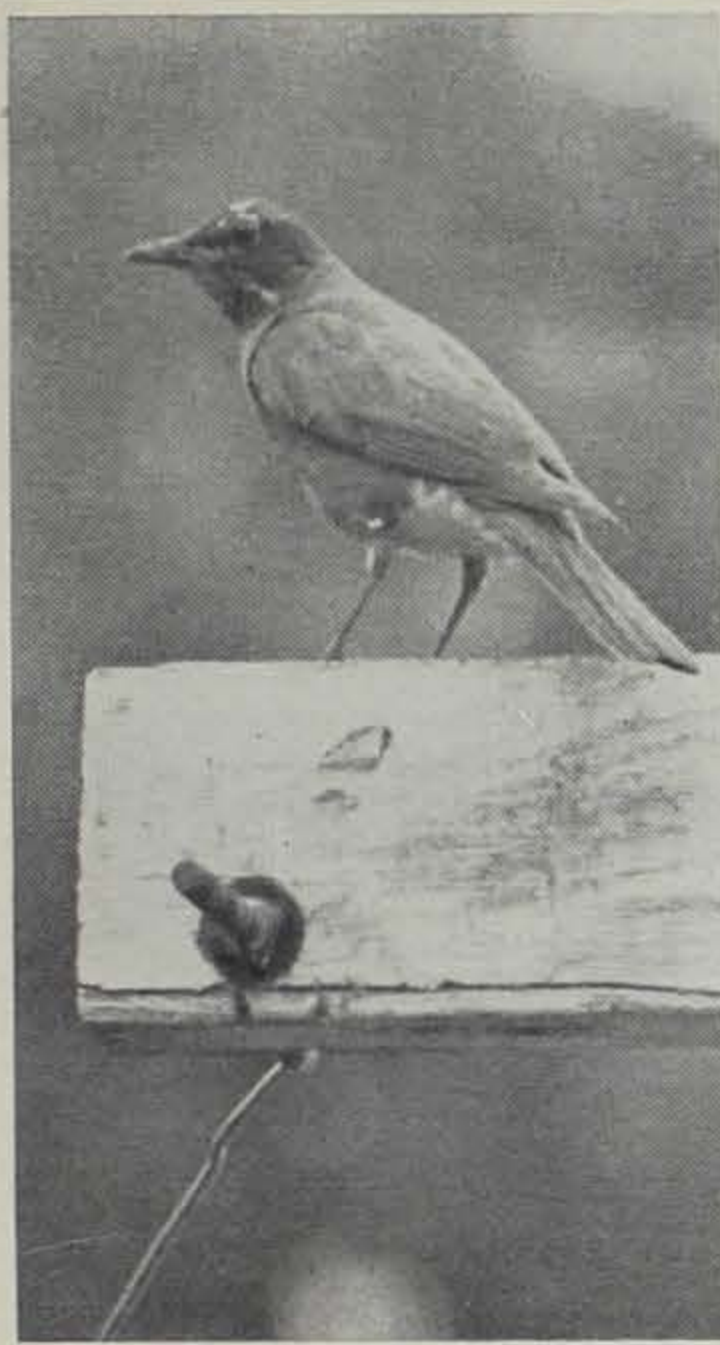
Name of Area	Acres	Type	County	Distance & Direction from Nearest Town to Area	Name of Area	Acres	Type	County	Distance & Direction from Nearest Town to Area
Dudgeon Lake...	802	Marsh	Benton	1.5 m. N. Vinton	Four-Mile Lake...	244	Marsh	Emmet	2.5 m. W. Estherville
		Upland			Riverton Area...	721	Marsh	Fremont	1 m. W. Riverton
Sweet Marsh...	1604	Marsh	Bremer	1 m. E. Tripoli	Forney Lake...	1069	Marsh	Fremont	2 m. N.W. Thurman
Big Marsh...	1819	Marsh	Butler	5 m. N. Parkersburg	Dunbar Slough...	507	Marsh	Greene	.5 m. S., 3 W. Scranton
			Cerro Gordo		Goose Lake...	456	Marsh	Greene	1 m. W., 5 N. Jefferson
Ventura Marsh...	630	Marsh	Hancock	.5 m. S. Ventura	Lakin Slough...	300	Marsh	Guthrie	2 m. E. Yale
Clear Lake Pond...	62	Marsh	Cerro Gordo		Eagle Lake...	914	Marsh	Hancock	3 m. E., 2.5 N. Britt
Barringer Slough...	1054	Marsh	Clay	2 m. W., 1 N. Ruthven	East Twin Lake...	496	Marsh	Hancock	3 m. E. Kanawha
Dewey's Pasture...	402	Pothole	Clay	2 m. W., 4 N. Ruthven	Rock Creek...	179	Marsh	Jasper	3 m. E., 3 N. Kellogg
Mud Lake...	252	Upland	Clay	1 m. S., 4 E. Webb			Upland		
Dan Green					Muskrat Slough...	366	Marsh	Jones	2 m. W. Olin
Slough...	340	Marsh	Clay	4 m. E. Langdon	Goose Lake...	224	Marsh	Kossuth	5 m. W., 7 N. Swea City
Round Lake...	438	Marsh	Clay	3 m. W., 3 N. Ruthven	Klum Lake...	107	Marsh	Louisa	2.5 m. E., 1 S. Grandview
Trumbull Lake...	1230	Marsh	Clay	3 m. W., 4 N. Ruthven	Lake Odessa...	2800	Marsh	Louisa	4.5 m. E. Wapello
		Upland			Brown Slough...	669	Marsh	Lucas	3 m. E., 4.5 S. Russell
Elk Lake...	261	Marsh	Clay	1 m. W., 3 S. Ruthven	Colyn Area...	717	Marsh	Lucas	4 m. S. Russell
Ocheyedan River	100	Marsh	Clay	5 m. W. Spencer			Upland		
Goose Lake...	433	Marsh	Clinton	1 m. W. Goose Lake	La Hart Area...	166	Marsh	Monroe	2.5 m. S.W. Lovilia
Jemmerson					Rush Lake...	337	Marsh	Osceola	1 m. N., 5 E. Ocheyedan
Slough...	270	Marsh	Dickinson	1.5 m. W. Spirit Lake	Rush Lake...	500	Marsh	Palo Alto	6 m. N. Laurens
Christopherson					Opedahl Tract...	115	Marsh	Palo Alto	5 m. N. Ruthven
Slough...	196	Marsh	Dickinson	3 m. N., 1 E. Superior	Sunken Grove...	371	Marsh	Pocahontas	2 m. S. Varina
Cheever Lake...	343	Marsh	Emmet	1 m. W., 2 S. Estherville			Upland		
Birge Lake...	136	Upland	Emmet	1 m. N., 3 W. Dolliver	Mt. Ayr Area...	1118	Upland	Ringgold	4 m. W., 1 S. Mt. Ayr
Grass Lake...	171	Upland	Emmet	1 m. N., 1 W. Dolliver	Hooper Area...	323	Upland	Warren	6 m. S., 1 W. Indianola
Ingham High					Rice Lake...	1740	Marsh	Worth	1.5 m. S., 1 E. Lake Mills
(other than							Upland	Winnebago	
lakes)...	479	Upland	Emmet	5 m. E. Wallingford	Harmon Lake...	483	Marsh	Winnebago	4 m. W., 5 S. Scarville
Ryan Lake...	366	Upland	Emmet	2 m. S., 1 W. Gruver			Upland		
East Swan Lake...	788	Upland	Emmet	.5 m. W., 1 S. Maple Hill	Brown's Lake...	641	Marsh	Woodbury	1.5 m. W. Salix
Twelve-Mile Lake...	290	Marsh	Emmet	2 m. S., 4 W. Wallingford			Upland		
Eagle Lake...	262	Marsh	Emmet	1.5 m. W. Huntington	Bright's Lake...	123	Upland	Worth	1 m. S. Emmons
West Swan...	1046	Marsh	Emmet	2 m. E., 2.5 S. Gruver	Myre Slough...	430	Marsh	Winnebago	5 m. S. Thompson

FISHERIES AREAS

Area	Acres	County	Distance & Direction from Nearest Town to Area
Flint Access...	37	Polk	.5 mi. N. Des Moines
Silver Lake Access...	17	Palo Alto	2 mi. W. Ayrshire
Garlock Slough...	93	Dickinson	.5 mi. W. West Okoboji
Williamson Pond...	126	Lucas	1.5 mi. E. Williamson

COMBINATION FISHERIES AND WILDLIFE AREAS

Area	Acres	County	Distance & Direction from Nearest Town to Area
Hull Mine Area...	365	Mahaska	4 mi W. Oskaloosa
Pella Mine Area...	274	Marion	1.5 mi. S. Pella
Lizard Creek Mine Area...	94	Webster	3 mi. N. E. Moorland



Jim Sherman Photo.
His duties over, he returned to the clothesline to sing of his great works.

A ROBIN DIARY

If there isn't a tree by your kitchen window, there should be. Trees in April mean nesting robins, and nesting robins are often happier breakfast companions than wives and newspapers.

For the sake of this story, let's assume that you have such a tree. Let's also assume that robins have chosen it for nesting and that you keep a log of their progress, a morning-to-morning diary.

Here's how it might run:

MARCH 1: The robins have been arriving for several days, the first of the main migration. These early flights are almost entirely males with black heads and backs and bright breasts. The females aren't far behind.

APRIL 5: With the arrival of the female robins, the males are beginning their spring songfest. Last night about midnight you may have heard a robin singing near the garden. It was a low, "whispering" song of the mating season, much different than the bold, monotonous warble of midday.

APRIL 7: The cock robins are not singing just for the joy of it, but to attract females. Unlike many other birds, robins do not seem to be much concerned with setting up personal "territories" by singing, and often nest close to each other. A wren would never permit this. Fighting among the male robins seems to be more for mates than for private estates.

APRIL 8: A chesty male robin has chosen a nesting site in a crotch of the Kitchen Window Tree, pointing out the desirable location to his mate. His duties over, he returned to the clothesline to sing of his great works. The female robin quietly went about the work of house-building, carrying

all sorts of debris to the crotch to build the outer nest. This morning you watched her add an old shoe lace to the grass, bark, and bits of paper and leaves she has been using in construction.

APRIL 10: Your automobile was assaulted in its driveway this morning by a male robin who saw the reflection of an angry bird in a shiny hub cap. He fought the hub cap for nearly an hour, almost literally knocking himself out. Many male birds (and humans) lose their heads completely in mid-April.

APRIL 15: The female robin has found the muddy spot beneath the outside water faucet, and you can justify your laziness in not putting in a new faucet washer last fall. You watch the robin filling the rough nest with wet mud, bringing a beakful at a time. She packs each load into the nest with her bill and feet, working slowly and steadily.

APRIL 20: The robin placed the last bit of mud in her nest two days ago, carefully moving around in the nest and smoothing the mud with her body. She deserted the nest to let the mud harden, and just returned this morning with some fine grass to line the mud cup. Her nursery built, she must be ready to begin egg-laying.

APRIL 26: From your kitchen window you can see four eggs in the nest when the female robin is not brooding them. The eggs are of a world-famous blue, and your wife is reminded of the new Easter suit that she covets.

So far the weather has been fair, and there have been few cold rains. Robins sometimes build their nests in conifers or under some shelter, but more often they build in open hardwood trees at the mercies of wind, rain and small boys.

MAY 10: For the past few days the robin has hardly left her nest, and has spent most of her time brooding her precious eggs. One egg pipped today and you watched the first scrawny, brand-new robin of the season. As the eggs hatch the mother robin will carry the

broken shells some distance from the nest, leaving no clues for predators. Most songbirds are very clean, and while the chicks are small the adults take great pains in keeping the nests fresh.

MAY 12: The last egg hatched today. This is a dangerous time for the young robins for screech owls now have broods that must also be fed. You hope that cats and squirrels do not find the nest. A squirrel's diet is not limited to nuts alone.

The female robin guards her chicks as well as she can, but she must spend much of her time in a search for food. Whenever you see her now she seems to be either coming or going, and seldom staying put.

MAY 18: The young robins are all squawk and appetite now, and each morning with your breakfast coffee you are greeted with four golden yellow, gaping mouths. The birds are growing rapidly and are eating their weight in worms and grubs each day. As you watch them being fed, you decide not to finish your oatmeal.

MAY 23: With their pinfeathers gone, the breasts of the chicks are taking on the spots that proclaim their thrush blood, for a more correct name than robin is *migratory thrush*. The weather has continued warm and the chicks have not been chilled or wet. At the beginning of a sudden downpour female robins have been known to call loudly to their mates, who helped them shelter the brood from the cold rain.

MAY 25: Although her first brood is still in the nest, the mother robin is building another nest in a tree by the garden. She may raise two more broods before fall, but will build different nests for each brood. The females often return to the same nests year after year, but always use them in the order they were first built.

To help the robin with her second nest, you have steadfastly refused to put a new washer in the leaky outside faucet.

JUNE 3: They began to leave the

nest today, fluttering clumsily down to lower limbs and onto the lawn. They will be flying well in a few days, but in the meantime are in great peril from cats and dogs. Their mother still protects them as much as she can and swoops down in great anger at any marauder.

JUNE 6: The young robins are finally on their own, and have been forgotten by their mother. If they feel any sorrow they will be consoled by your coming cherry crop, and you can expect the young birds to attack it. The old robins will also eat cherries and berries, but they are harming the grub and cutworm populations even more. Every robin on your lawn means fewer bug pests.

Some bird lovers have planted white mulberry to divert the birds from small fruits, which are sought as much for water as for food. You can save many cherries by providing the birds with plenty of water, another good reason to give your wife for not repairing that leaky faucet.

... from now on the male robins sing less and less. They almost cease their singing after the mating season but tune up again in autumn, singing even after the leaves have fallen. By late October most of them are gone and your backyard will be deserted except for some sparrows, chickadees and perhaps a cardinal.

But there'll be spring again, and robins to announce it. You may be sure of that, for in the tree by the kitchen window they have left a nest to return to.—J. M.

5 H. P. OUTBOARD MOTOR LIMIT

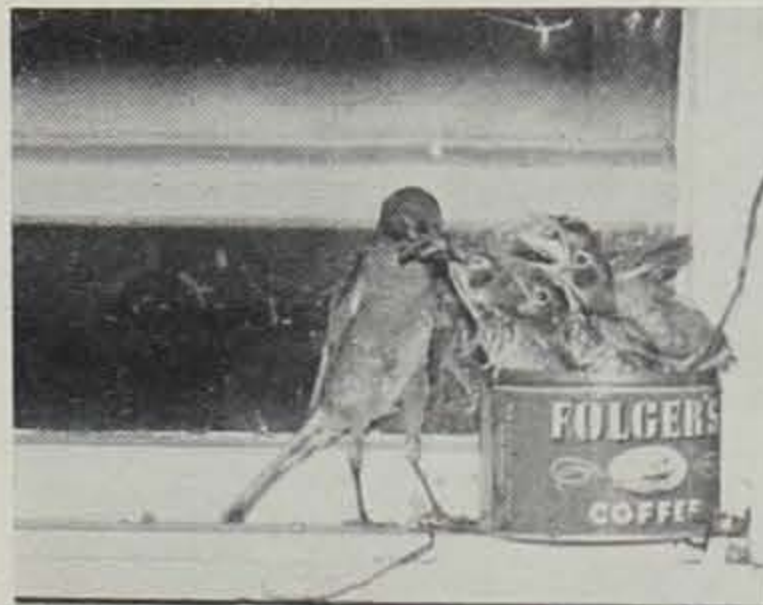
Outboard motor fans are reminded of the 5 horsepower motor limit on Iowa artificial lakes. A popular new outboard motor has appeared on the recent market rated at 5½ horsepower, and the Conservation Commission states that it is not lawful to use this motor on any state-owned artificial lake in Iowa.

Outboard motors may be used only on artificial lakes that are over 100 acres in size, and these motors may not exceed 5 horsepower.

Artificial lakes over 100 acres in area include:

Lake	County
Swan Lake	Carroll
Lake Wapello	Davis
Backbone Lake	Delaware
Beed's Lake	Franklin
Lake Geode	Henry
Rock Creek Lake	Jasper
Lake Macbride	Johnson
Union Grove Lake	Tama
Lake of Three Fires	Taylor
Green Valley Lake	Union
Lake Ahquabi	Warren
Lake Darling	Washington
Allerton Reservoir	Wayne

There are no outboard motor size restrictions on Iowa's natural lakes.



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Muscatine Journal Photo.
Housing problems seldom worry robins and they may build anywhere. This mother robin found a can in a window transom convenient.

222228



Grotesque appearing on the surface the mole has evolved through the ages a body structure that makes him a perfect miner.

Jack Musgrove Photo.

Sodbusters . . .

(Continued from page 25)

worm into his mouth head first while holding it tightly between his paws, and as the worm passes between the front paws it is thoroughly cleaned, inside and out.

When the mole meets a large insect in his burrow he quickly slams the bug against the side of the tunnel with one of his big front paws and looks it over. If the first punch was not a knock-out, the mole proceeds to maul the insect and eat it piecemeal. This attack is incredibly swift and vicious.

In a more playful mood he may cover the insect with loose dirt to confuse and hamper it, and then devours it as it tries to struggle free. We do not know if American moles store food, but a European species paralyzes earthworms by biting their heads and then frugally stores them in food chambers.

About 85 percent of the moles' diet is insects, but it does eat some plant matter, probably taken while capturing the bugs. It may cut through prize tulip bulbs in its tunneling but rarely eats them. However, mice that follow the mole tunnels may finish the job that the moles began. The mole's bad name for eating plants and bulbs is undeserved, but he gets into most of his trouble with feeding tunnels. In expensive lawns and golf courses this tunnel damage can be serious.

The mole is a grotesque creature that has sacrificed much to become a dweller of darkness. The eyelids of our Iowa species have grown together over greatly reduced eyeballs and the mole can see only light and darkness. The outer ear is only a tiny ring of cartilage that does not hamper the mole in his tight tunnel. The pectoral girdle, the bony framework of the shoulders and collarbone, has been greatly changed to anchor the strong, heavy digging muscles and has moved forward until the mole has virtually no neck. The mole's head is arrow-shaped with streamlined cheekbones and a long, sensitive nose. And, like other diggers such as the pocket gopher, the hip bones have become light and compact for maneuvering in

close places.

Blind and ill-formed as he is, he has great beauty. There is no fur in the world like that of a mole. Thick and velvety, it is of an indescribable softness. It may be brushed in any direction, like velvet, and so does not interfere with the mole's backward progress through his tunnels. The color of the fur depends on how light strikes it, and may vary from blackish-brown to silvery, brownish gray. A large mole of the Pacific coast region has been taken commercially for its fur, which unfortunately does not dye well.

The mole's world is of two levels; the upper feeding tunnels and the deeper tunnels and living quarters. The ridge-raising feeding tunnels may wander over half a mile, and the mole can dig them at a rate of 75 feet a night. Although he is traveling only two or three inches below the earth's surface, some instinct warns him of hummocks and dips in the terrain and he never digs out of ground at the crest of a rise.

Since the tunnels leading to the living quarters are deep, they must be excavated. The hard soil of the deeper earth is torn loose by the mole's front feet, thrown back under the body, and then kicked to the rear with the hind feet. When a load of loose soil has accumulated, the mole turns a slow half somersault, flips its body and is headed the other way, pushing the soil before him. Although he hates and fears the sunlight of the upper world, he is forced to dump his mine tailings on the surface. He does this as quickly as possible, forming a circular mound of loose soil. A molehill differs from a pocket gopher's mound, for the gopher's mound fans out from the entrance hole while the molehill surrounds the entrance hole. The mole is a strong digger, and if captured and placed on the ground he will sink swiftly out of sight, seeking the only safe place he knows.

Little is known of the mole's winter life, except that he has no time for rest or hibernation. He simply extends his food tunnels below the frostline and seeks what insects may be there. In spite of

his short, thick fur he is sensitive to cold.

Moles breed only once a year. A single breeding is often found in creatures with few natural enemies who do not need a high annual replacement in their numbers. Perhaps a reason for their limited love life is that they are extremely quarrelsome and evil-tempered, particularly the females. Our prairie mole is a rugged individualist, and two moles almost never share a tunnel. Two female moles were once known to occupy the same burrow, but not for long. They soon walled off a connecting passage and went their own ways.

The baby moles are born in mid-April in a grass-lined nest about a foot below the earth's surface. Several deep tunnels lead into the nest from the side, and there is often another tunnel leading in from below, providing an escape hatch in time of danger. Young moles grow rapidly and reach their parents' size in about two months. At ten months they will be in full breeding condition. But a mole's life is feverish and rapid, and the little furnace of energy soon burns itself out. If they manage to escape dogs, foxes and embattled farmers they are in their dotage at three years, and will soon die of old age.

Only one mole is now known in Iowa; the prairie mole. However, there have been late rumors of star-nosed moles in northeastern Iowa, a species completely unlike the sullen creature already described. The star-nosed mole is usually found in wet areas and his tunnel may even end in a river or pool. It is said that they get along well together, spend time above ground, swim readily, and even eat shellfish caught on stream bottoms.

This mole takes its name from a starburst of 22 finger-like projections around his schnozzle, a structure that probably helps the animal find food. There are star-nosed moles in Wisconsin and Illinois, and there is good reason to believe that they may occur in Iowa.

We've always felt a strong, unscientific pity for the moles, sentenced forever by their structure and evolution to the underworld. Perhaps they miss the sun and wind. But the choice has been made, and there is no turning back.

MOLE CONTROL

Because they prefer to eat living insects, moles are difficult to poison. However, raw peanuts may be used with the poison thallium sulphate, placed every 10 feet in a feeding tunnel.

Mole traps can be very effective if certain precautions are followed. Since they differ in construction, it is well to follow the manufacturers' directions. The following procedure may be used successfully with most mole traps:

1. Locate main runway by tramping down all raised runways. Watch carefully at hourly inter-

vals to determine which is raised first. Place the trap over this runway.

2. Place the trap over any part of the runway, but a straight section of burrow is best. Loosen the soil with a fork or trowel to make the action of the trap easier and faster. Tramp down the **entire** runway again before setting the trap. If only a short section is tramped down the mole may go around it, but if the entire burrow is flattened the mole will be less cautious.
3. If the mole has not been caught in 24 hours, he has probably abandoned that runway. Tramp down all runways and reset trap on another which is being used.
4. In many cases, moles use their own and other burrows interchangeably. It may be possible to catch several moles by resetting the trap in the same place after each dead mole is removed.

WHALE BAIT

A local insurance salesman has more than business problems these days.

What he wants to know is (1) Where is there some extremely deep water, and (2) how can he cast a five-foot long fishing plug into said water.

Durward Gibson was the victim of a friendly prank Monday night at his home which created the above situation.

The reaction stemmed from a chain letter for fishing plugs which Gibson answered two weeks ago. Mailing a fish lure to a friend and requesting that he write six other friends with the same thought in mind, Gibson received 24 new fishing plugs, one 9½ inches long. The values run to \$2.50 each.

Plugs have been received from Wisconsin, Texas, Illinois and Iowa—all stemming from the original plug he mailed.

But the granddaddy of them all was delivered to his home Monday night.

Answering a telephone call at his home, Gibson was informed by the voice on the phone that he was "just checking."

Moments later Gibson answered

(Continued on page 32)



Like some prehistoric monster out of the night came this answer to a chain letter.

Cox Studio Photo.



Jim Sherman Photo.

Cold Springs State Park, south of Lewis in Cass County, is a man-made lake of sixty acres. It receives its name from the springs that issue from the base of the sandstone outcropping on the south side.

Cold Springs . . .

(Continued from page 25)

the two until it comes to the surface on the side of a valley.

Springs of great volume, such as those of Florida and Missouri, have a somewhat different explanation. These springs are in a limestone country. Here the water passes through more open channels in the limestone, channels which were once narrow cracks in the rock. Limestone is slightly soluble in the water that penetrates the ground. Through the solvent action of this water the cracks are gradually widened into the passageways along which the water moves. Some of this water issuing in these big springs has traveled for many miles underground. It may also have been hundreds or even thousands of feet underground. The water of some of these springs is warm, or even hot. This is evidence that it has been far underground, before appearing at the surface.

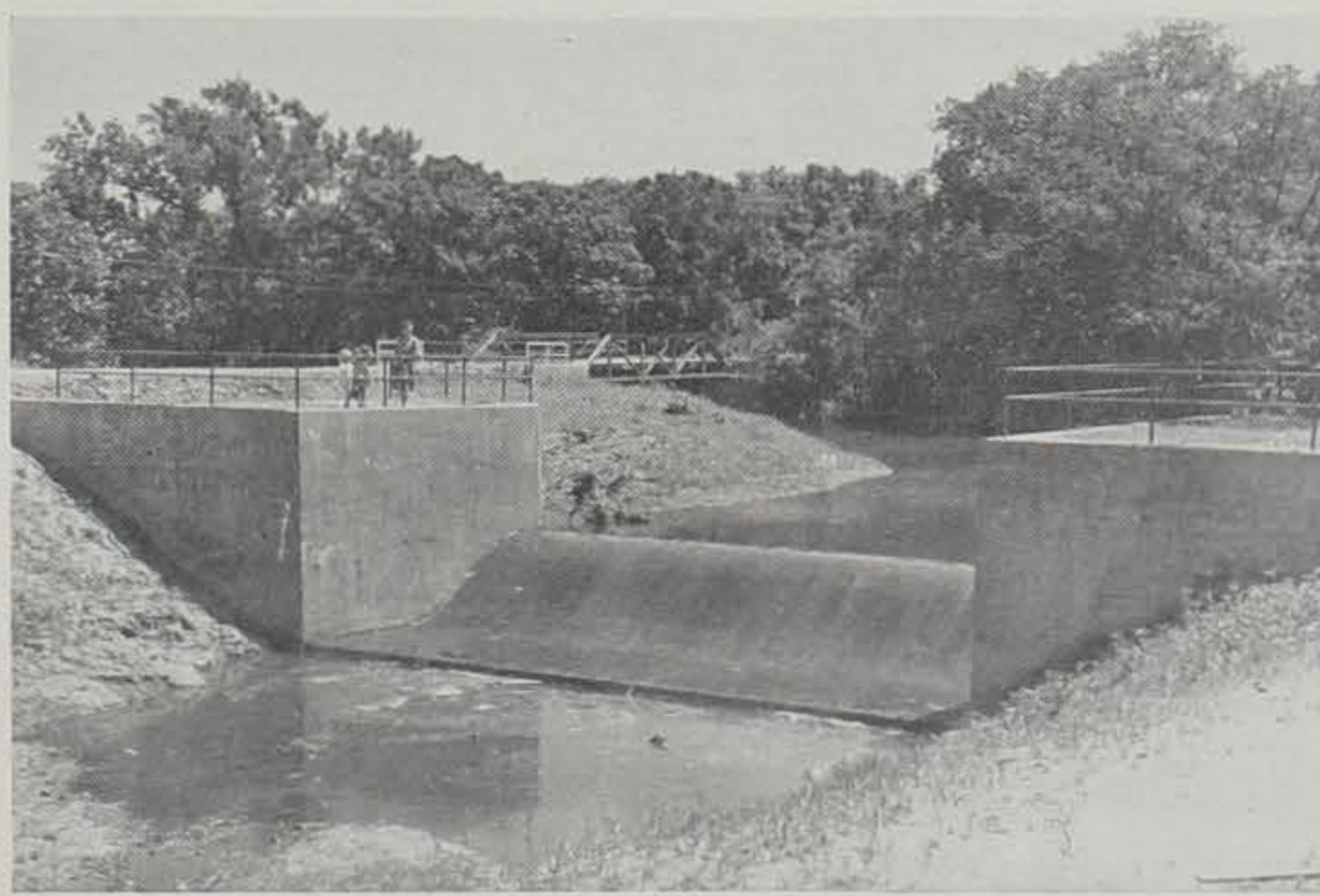
The sandstone cliffs of the park are of the Dakota formation. This formation directly underlies the subsoil materials, the wind-blown loess and the glacially deposited drift, of much of western Iowa. Many wells draw their water from it. The Dakota sandstone also extends westward to the Rockies, where its upturned edges form prominent hog-back ridges. These are particularly noticeable on the east side of the Black Hills. The formation dips westward from Iowa, and eastward from the Rockies. Beneath the Dakotas, Nebraska, and Kansas it is thousands of feet below the surface.

An examination of the outcrops of the Dakota formation in the park reveals some interesting facts. In the first place, it is not all sandstone. Here and there are layers, lenses, and streaks of gray plastic clay. These are apparent in the cliffs and also in the road-

side exposures on the hill to the south. But most of the formation is made of white quartz sand. It is poorly cemented and is easily crumbled.

The Dakota formation was laid down as sediment in an ancient sea which extended north and south through what is now North America. This was in a period known to geologists as the Cretaceous, named from the fact that in Europe the deposits contained much chalk. Creta is the Latin for chalk. The Cretaceous of northwestern Iowa also contains some chalk.

For millions of years after the Cretaceous seas had withdrawn from the continent this area was subject to wear by wind and water. Then came the glaciers, down from Canada. They left a deposit of drift, and later this was covered by the wind-blown loess. The roadside cuts in the vicinity expose plenty of loess, but the drift with its assortment of strange stones is generally out of sight below. Only a little, and that badly weathered,



Jim Sherman Photo.

The diversion dam in Little Indian Creek holds a head that may be piped into Cold Springs Lake to supplement the water provided by the springs.



J. Curtis Grigg Photo.

Curt Grigg with part of his spring catch of 96 beaver.

IOWAN TAKES 96 SPRING BEAVER

For J. Curtis Grigg of Hopkinton, the 1954 spring beaver season was one to remember. A veteran trap-

per can be seen in the park. That is at the bottom of the deep ditch on the north side of the road, south of the park.

All the slopes here are the result of the work of running water, aided by weathering, wind, and slumping of the land. Not far away to the west is the Soldier River valley, an old-timer, if there ever was one. It is a wide valley, with level floodplain. Its sides are flanked here and there with terraces, and its tributaries extend into the surrounding upland, making the land a hilly one. It is quite evident that the agents of gradation have been at work here for a long while, completing the story told by the deposits of sandstone, the glacial drift, and the loess.

per, Grigg took a total of 96 beaver in the last two weeks of the February 1-March 15 season.

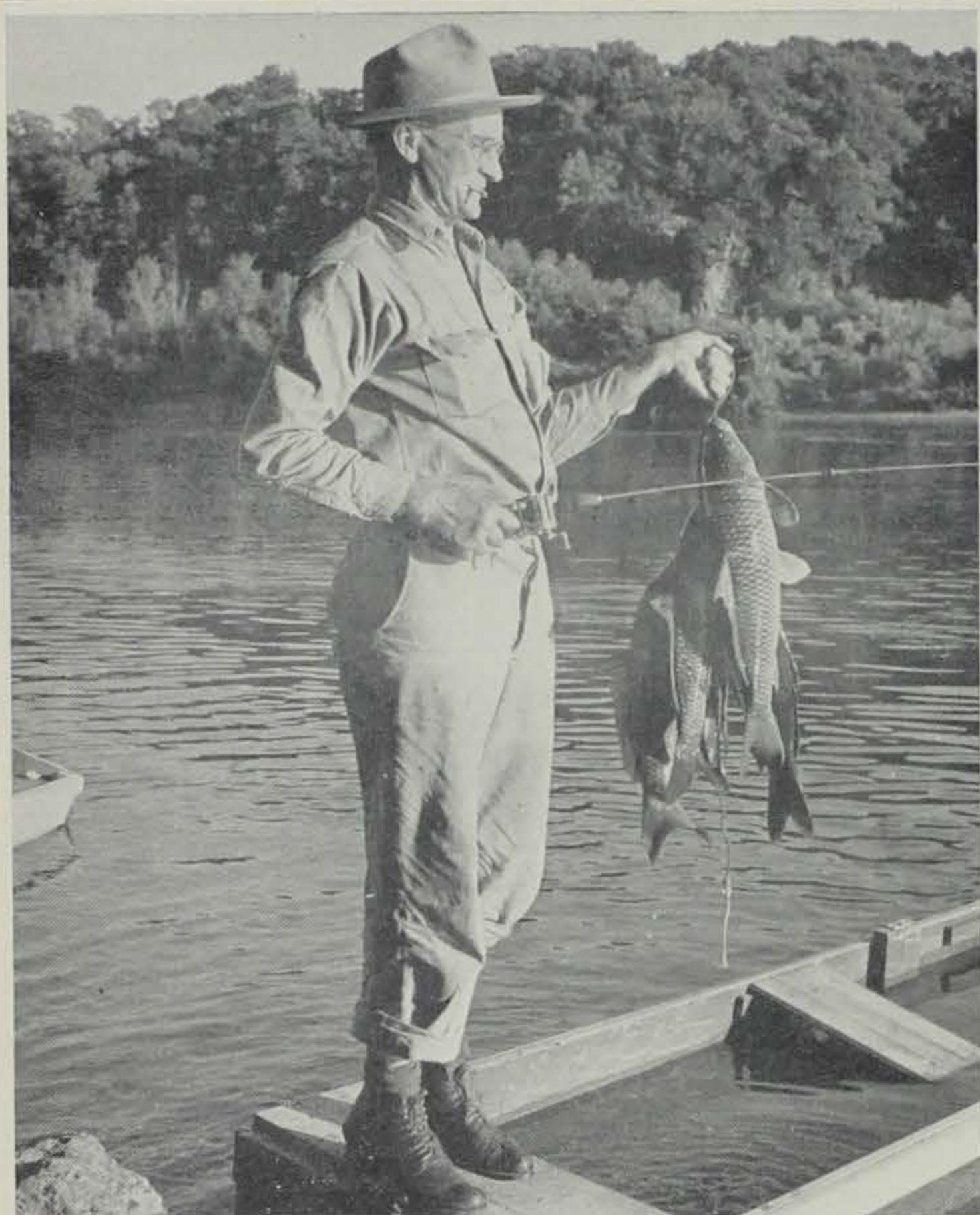
Grigg stated that although he has trapped for 50 years he had never before trapped beaver. He trapped mink and muskrat last fall but ignored beaver because of their low price. In an interview with Harlan Frankl, Dubuque County conservation officer, Grigg commented, "I didn't have much luck at first, and it took me most of the spring season to get the hang of it. I caught the 96 beaver in the last two weeks of the season."

The veteran trapper said that he shipped 40 of the pelts to a New York market where he received up to \$13 for "blanket" sized pelts and down to \$1 for kits. The collection averaged \$3 each. Of the pelts shipped, 20 were in the "blanket" class and the remainder were kits, or pelts of young beaver. Figuring gasoline and other costs the trapper netted 36½ cents per hour for his trouble. The 56 pelts he is still holding are all blanket pelts. According to Frankl, some of the beaver carcasses weighed over 70 pounds.

Grigg trapped with his son, James Grigg of Cedar Rapids. The heavy beaver catch was made on one of the Northeast Iowa rivers.

Although beaver were in full prime during the spring season, fur prices were generally low. Buyers complained that for the most part Iowa trappers did not dress or handle beaver pelts correctly, and so fur prices were cut. Some fur buyers, to insure good handling, preferred to buy the entire carcass and skin the animals themselves.

The spring beaver season was set in an attempt to control excessive beaver populations in many areas where the animals have caused damage to young trees and have flooded farm lands.—J. M.



Carp sportfishing has many devoted followers and the big powerful fish provide plenty of action for these anglers.

Carp Fishing . . .

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knead all the "carp dumplings" into a large ball from which individual baits can be pinched as needed.

To any of these dough baits the individual fisherman may add anise oil, salt, vanilla, cinnamon, oil of clove, molasses, sugar, or anything else his fancy dictates. It is generally believed that a carp bait should be either sweet or salty, but never just neutral.

These baits will all catch carp, but they often have the disadvantage of coming to pieces in water or crumbling when a carp goes to work on them.

Because of this, our favorite is Art Williams' "Tackle Smasher":

- 1½ cups Quaker yellow corn meal
- 2 heaping tablespoons of Quick Quaker Oats
- 1 level tablespoon of sugar
- 1 cup of cold water

Water, sugar and oatmeal are stirred together. Two-thirds of the corn meal is then added to the mixture and stirred in. Place on a medium to hot fire, stirring constantly for five to seven minutes until the dough works up into a stiff ball. Remove the pan from the fire. Sift the rest of the corn meal into the cooked dough and work it well into the mixture. The resulting dry dough is placed on paper and thoroughly kneaded. Before wrapping the dough in paper for a fishing trip allow to cool; if not, the dough will sweat and soften. If too much sugar is added

the dough will be sticky. If not enough sugar, the dough will not be rubbery.

This bait is tough, rubbery, and waterproof. It is attractive to carp but hard for the carp to remove. He'll mouth it for a while and finally take the whole thing in his mouth and run with it. That's when you sock it to him!

Whatever dough bait you prefer, Art Williams' method of carp fishing is one of the best. Like nearly all anglers, carp fishermen

are usually "over-gunned". That is, they use too much tackle for the fish they are trying to catch. Their hooks are too large and their lines and sinkers are too heavy.

Williams uses a light rod and line and a number 4 carlisle hook on which a small pear-shaped doughball is molded, just covering the hook. He doesn't recommend a treble hook. Art uses a half-ounce slip sinker, running freely along the line and stopped about 12 inches above the hook by a small piece of matchstick tied in the line. Most fishing experts, whether carp or catfish specialists, maintain that a fish will not run with the bait if it feels the drag of a heavy sinker.

Other old-time carp baits are fresh or boiled sweet corn, worms, marshmallows, and the white meat of crayfish tails. Fresh peas have also been used with some success.

When your doughball interests a carp he will give a few light tugs, applying a "taste-test" to your bait. There'll be two or three nibbles before there is any action, so be patient. The mystery about carp fishing is that you can't tell the size of the fish by the nibble. A 3-pound carp works on a bait about the same way as a 20-pounder. Let him nibble; presently there will be a short run with the bait. Wait for this run and then set the hook.

Finding good carp water is easy, for there are "bugmouth bass" in practically every lake and stream in the state. For the most part they do not feed in the channels of streams, but in the deep eddies and backwaters. One of their favorite haunts is near drifts and brushpiles in rivers at just about the place where the bottom drops off. Other good spots for carp fishing are in the quiet, deep coves of river-banks and below any large river power dam.

Iowa carp fishing hits its stride in May, and continues good

through June, July and in August. The best carp fishing is when catfishing is at its peak; in periods of clear water and not-too-high temperatures. During the heat of midsummer the best carp fishing is usually in early morning and evening.

You'll need all the tricks you can get, for the carp has some of his own. One of his favorites is a mad charge at the fisherman, slackening the line and throwing the hook. Another is his ability to wind a line around a snag and tear the hook out of his tender mouth or break the line. Most carp seem to save one last powerful flurry for when they are being lifted out of the water. Probably more carp are lost while being landed than at any other time during the battle.

And it is a battle! Henshall once said the smallmouth black bass was "inch for inch and pound for pound the gamest fish that swims". Maybe so, but we wonder if he ever caught a big carp.—J. M.

Whale Bait . . .

(Continued from page 30)

a doorbell knock to find a huge five-foot paper carton on his porch labeled: "To Durward Gibson, Fishing Club of America."

With some skepticism Gibson carried the box into his house and unpacked its contents to discover that a mammoth round 36-inch long wooden plug weighing 15 pounds with perfectly fashioned hooks of pointed wire, complete with chromium trim and metal eyes was encased.

Turning out his house lights and "lying low" for a time, Gibson peered out into the darkness to discover some unusual objects hidden behind neighboring trees. Going to the door he called out, and learned that it was three of his friends—Joe Thorpe, Roy Merwin and Forrest Cook, of this city.

The quartet had engaged Paul Smith, local woodworker, to turn out the mammoth plug on his lathe, and it was later painted an attractive red and white and fitted with a head and eyes and hooks perfectly fashioned of shaped wire.

The quartet was invited to Gibson's home for a good laugh.—*Dubuque Herald*.

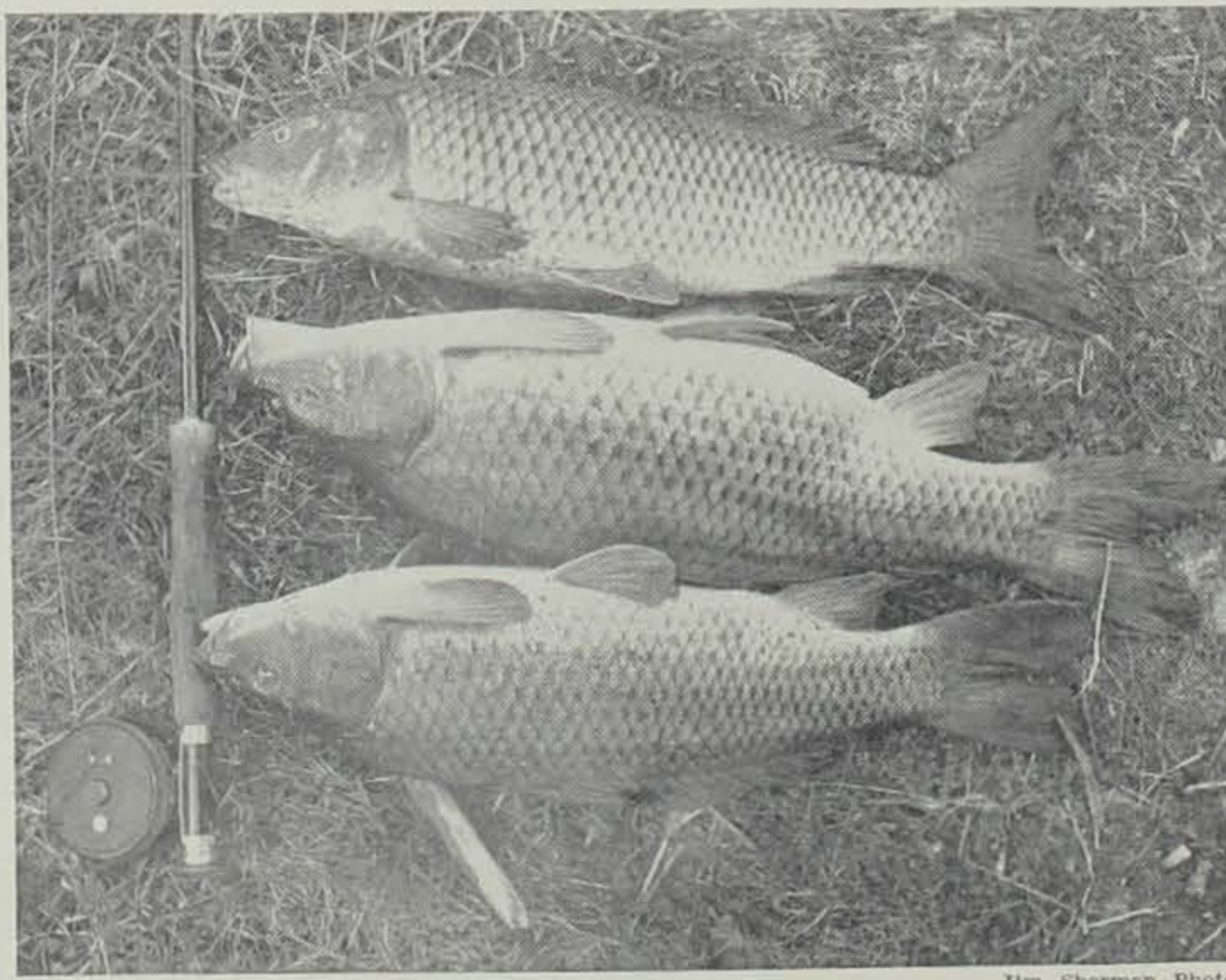
Free Dog . . .

(Continued from page 27)

glad to see them, but never goes maudlin. The other day he was pulling the cockleburs out of the neck of a visitor as they loafed in a sunny spot in the backyard.

He is a little grizzled, a wise old guy, who could be taught almost anything, we think. So far as we can tell, he is top dog of the neighborhood, commanding respect which is a little fearful from the canines in residence there.

Well, have we sold him to anyone?—*Emmetsburg Democrat*.



For thousands of years carp have been a prized food fish in Europe and Asia. It is only in America that the carp has a bad name.