IOWA CONSERVATIONIST

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PICTURED ROCKS CANOE TRIP

BRUSH CREEK CANYON STATE FOREST RESERVE

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

Brush Creek Canyon State Forest Reserve is a bit of wild and rugged country if there ever was one. The writer knows, because he took a stroll through it not so long ago. It was in the fall, and the leaves were pretty well down, so the visibility was good. That made the going easier than it would have been in the summer.

The park is in the limestone area of northeastern Iowa. To be specific, as far as the geology is concerned, it is in the area of outcrop of the Niagaran series, the series that forms the rock framework of so many of our eastern and northeastern state parks. More about that later.

The park, an area of about 250 acres, is on Brush Creek a few miles north of Arlington in northeastern Fayette County. The creek has its headwaters some 5 or 6 miles above the park, and flows generally northward and northeastward. It is a tributary of the Volga River. The park is about 6 miles upstream from the river. Approximately 14 square miles of the watershed of Brush Creek are upstream from the park, to the southwest, south, and southeast.

What are the features of geological interest in the park? First, of course, is the Niagaran dolomite or dolomitic limestone, which forms the walls of the valley. Then there is the weathering of this rock, and the movement down-slope of the fragments. The work of the stream and its tributaries has many interesting angles. And finally, there is whatever we can find of the work of the glaciers.

Let us start with the bedrock. The park is underlain by sedimentary rocks, deposited in sediments in the ancient seas, to a depth of about 1,300 feet. The valley or canyon itself is in beds of the Niag-

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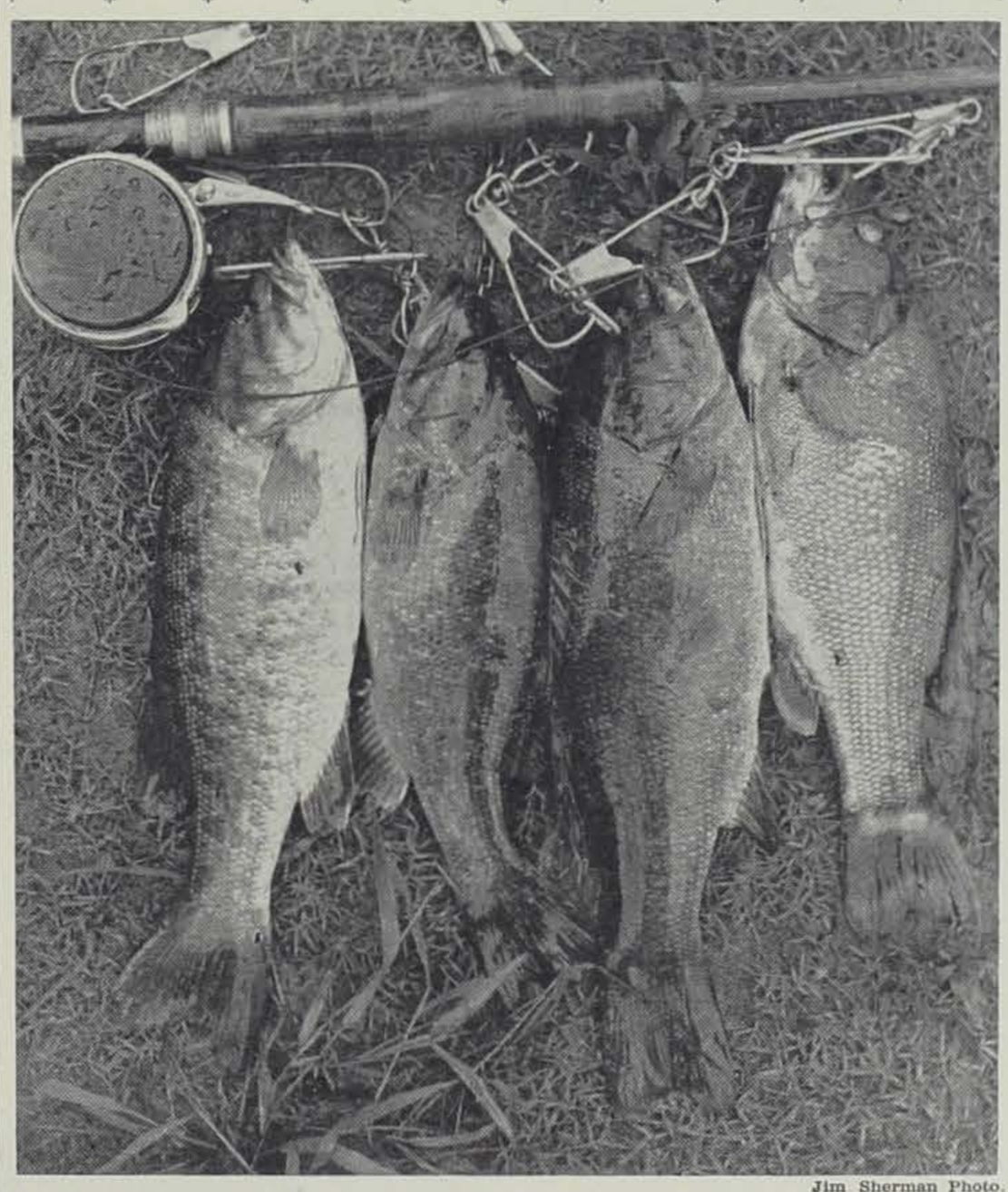

Jim Sherman Photo.

The Pictured Rocks Area of the Maquoketa River can be fished most successfully from a canoe. It contains prime smallmouth bass and channel catfish water.

Bowhunting: Old Sport Stays Young

By John Madson
Education Assistant

About thirteen thousand years ago some Stone Age genius tied a thong to the ends of a supple stick, fitted a small spear to it, and went bowhunting. It was one of the world's great ideas and it has never been quite forgotten.

Even after the coming of gunpowder, hunting with bow and arrow was kept alive by poachers and other primitive peoples. They used it for what it was—a silent, deadly method of hunting. In the past thirty years many gun hunters have realized the same thing, and have accepted the severe demands that bowhunting makes on the hunter and his equipment. Today the bow and arrow are to hunting what the barbless hook is to fishing, and many states have set aside special seasons for their archers.

In its present form, the hunting bow is a merger of the Neolithic and Atomic ages. The supple stick has been replaced by light, powerful bows of laminated glass and maple. The crude arrow has become a duraluminum shaft. Even the bowstring has been changed,

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By Tom Berkley
Area Game Manager

There are a number of good canoe streams in Iowa, but for a one-day canoe trip none of them can match a stretch of the Maquoketa River southeast of Monticello. Three hours of paddling from town will put a canoeist in the Pictured Rocks area, one of Iowa's newest and most beautiful public playgrounds.

The area is three and one-half miles long and consists of over four hundred acres acquired last year as fishing access by the Conservation Commission. Except for about ten acres the entire tract is heavily timbered with cottonwood, elm, maple, river birch, oak and hickory.

Its great scenic value lies chiefly in the towering limestone bluffs beside the river. They are nearly a hundred feet high and are especially striking when the maples and oaks are colored by frost.

The bluffs have been carved by the river over many centuries and have caused the river bed to remain quite narrow. This has helped scour out holes and pools and has resulted in fine populations of smallmouth bass and catfish. Fish habitat has been further improved by huge boulders that have fallen from the bluff tops, providing deep pools, cover, and spawning areas for the game fish of the Maquoketa.

Because of the rough terrain and the difficulty in getting down to the river, the best fishing is from boats. The Picture Rocks area is a natural for float trips. Canoes are recommended, for during the summer some stretches of the river are riffles that would ground a rowboat.

Floating through the area is a deadly way to fish it, for the pools and runs may be quietly and systematically worked with bait or lure. To many visitors, fishing may be less important than just looking, for the scenery in the Pictured Rocks area is second to none. Whether you fish or not, a float trip through the area will furnish many hours that will long be remembered.

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Iowa Conservationist
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Editor, Iowa Conservationist
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Des Moines, Iowa

Dear Sir:

Since we have been having such excellent luck with the enclosed receipt, we thought that others might like to try it, so we are sending it to you hoping that you might see fit to print it in the IOWA CONSERVATIONIST.

We made this bait a year ago and have brought home many carp from 14 to 18 inches in length every time we went fishing, with exception of two times, and might have then if the weather had not been so darned cold.

My wife and I go after carp every weekend, and the following numbers are what we have caught the past 4 weeks: 8, 9, 7, 20.

Respectfully,
Con Booton
551½ West Broadway
Council Bluffs, Iowa.

HOW WE CATCH CARP

Bait

1½ cups white flower
1½ cups yellow cornmeal
Mix dry thoroughly
Add just enough water to make **a very stiff dough.**
Note: A very stiff dough.
Add 1 heaping tablespoon of White Petroleum Jelly.
Mix Petroleum Jelly (White Vaseline) in dough, mix thoroughly.

Attention: Do not sweeten or put any other mixture in this bait. Do not cook dough or melt Petroleum Jelly. Place dough in glass container with cotton or sponge in bottom with moisture in it, this will keep the dough from drying out. Keep sealed and in refrigerator. Make fresh night before each fishing trip. This doughball has the natural corn smell, the Petroleum Jelly is water repellent and will not detract from the corn smell, it is also harmless to the fishes.

Line and Hook:

Use rod and reel. Have a No. 12 hook (no larger). Use a foot leader. Put the line through a barrel sinker, let the sinker come to the swivel at the leader, let the sinker run freely on the line.

Bait hook with small piece of dough (about the size of a large grain of corn) cast out and lay rod down on the ground with handles of reel up. Leave brake and ratchet off but keep line fairly tight. When you see the handles of the reel move a turn or two, pick up rod and begin to reel fish in. With this size hook, use a landing net.

Jim Sherman Photo.

The shotgun riddled beer can made a secure prison for three living fresh water mussels and a tomb for one that had died imprisoned.

* * * * * *

TAVERN CANNED CLAMS

By E. B. Speaker
Superintendent of Biology

It is rather commonplace for some men to retire to the taverns for solace, food and drink, but when wildlife seeks its food and refuge from its enemies in a beer can it makes news!

Recently Mr. Claus Gotsch of Lake View, Iowa, was surprised to find a beer can dangling from his fish line when he retrieved it from the waters of Blackhawk Lake. The can, one of the small neck type, contained three living and one dead fresh water mussels (incorrectly, but most commonly called clams). Since the "captives of the can" were much larger than the opening through which they had entered, Mr. Gotsch summoned local Conservation Officer Verle Holmes who in turn requested an explanation.

What happened? We can only guess and your guess may be better than ours. The can contained a number of perforations that had undoubtedly been made at the time it served as a target for some shot-gunner. These additional ports certainly played a part in the survival of the inmates by permitting additional water and food to pass through the can. At birth fresh water mussels are tiny creatures called glochidium. A teaspoon will hold many hundreds of them. At first they are parasitic and attach themselves to the gills of fish by means of claw-like hooks. In 9 to 12 weeks they are large enough to shift and feed by themselves, and they drop off their host and fall to the soft ooze on the bottom of lakes and streams.

The principal foods of our mussels are tiny plants and animals that live in the water. The body of the mussel is enclosed in a soft mantle which secretes the calcarious materials that forms the shell which covers it. This mantle has two openings, the lower one serving as the mouth and the upper the vent. Large volumes of water containing food particles enters the "mouth" and food is extracted in the digestive system before it is expelled through the vent.

Our "can prisoners" were two and one-half to three and one-eighth inches in length and were two or three years old.

Our explanation of this oddity is that the mussels entered the can in their first summer of life, when they were less than one-fourth inch in diameter. The presence of the perforations made by the marksman aided the mussels in obtaining food, but their greed was their downfall since they ate so much they grew so large they could not get out.

The moral of the story is—never eat and drink so much you can't go back to join your friends and relatives.

GIVE CARP A CHANCE!

As long ago as I can remember nearly all fishermen of the Vinton area scorned the carp. As boys and young men we regarded the carp with contempt. To us he was a nuisance and a liability. When, through accident, we caught carp we distainfully flung them back on the bank where they were left to die and rot. We heard many stories about carp, none of them good—and there were few who dared speak a word in his favor. In those days we didn't even care particularly about catfish or bullheads, though we often went chubbing at nearby creeks in the spring. But most of our fishing energies we devoted to catching bass, northerns, and crappies in the Cedar River and Dudgeon Lake.

Of course, even in the years gone by, there were carp fishermen who preferred carp to all other species of fish. These good folk were thought by the "game fish" anglers to be slightly touched in the head.

Now people are learning things about the carp they never knew before. Thousands of them are discovering through personal experience that the carp is a wily, hard-fighting and good-to-eat fish.

Some time ago, I remember, a Vinton fisherman had a fish fry at his Cedar River cabin. On that occasion he prepared quantities of carp, bass, catfish, pike and perhaps a few other species of fish. Carp predominated. After the guests had eaten their fill and expressed their enjoyment they were told they had been eating carp. Most of them just wouldn't believe it. They had identified the distinctive catfish meat easily enough, but they couldn't tell much difference in the other fish. Well, some of them couldn't have been expected to identify fried carp because they had never tasted it before.

Pound for pound the carp will give the rod fisherman as much fight as nearly any other fish. It

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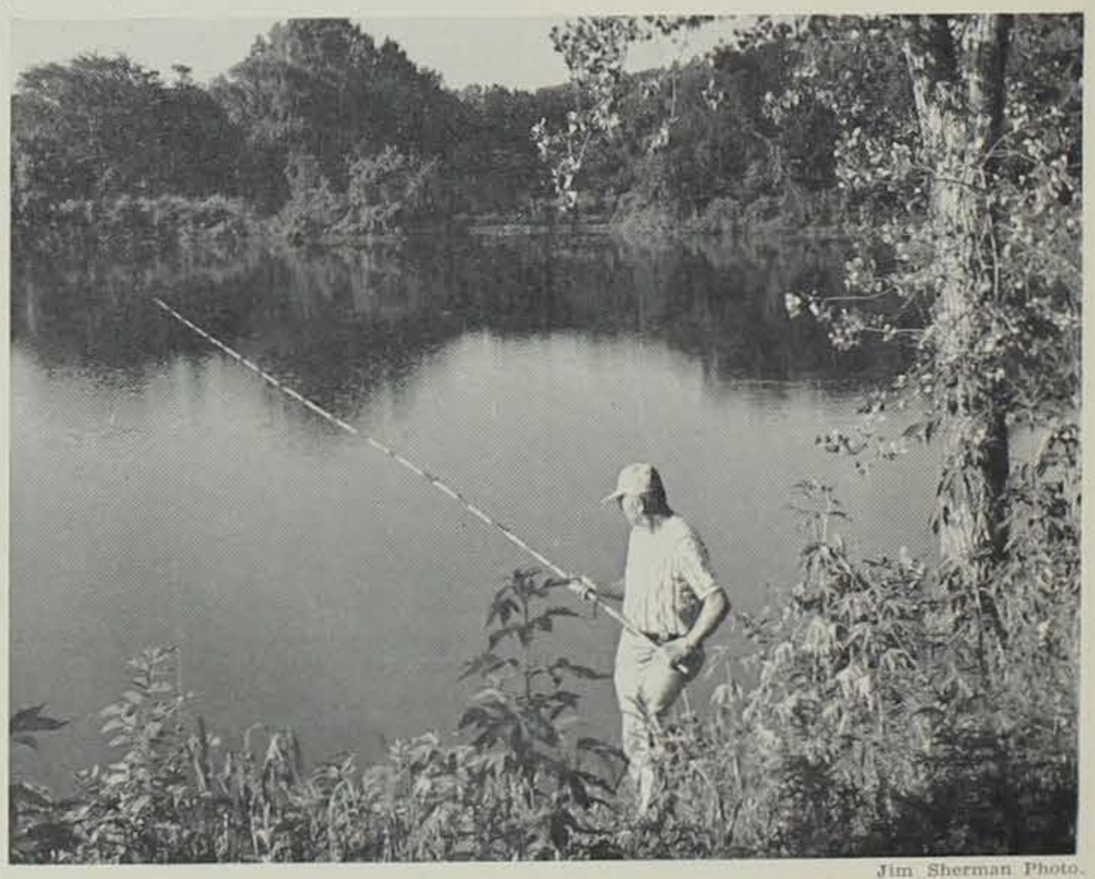
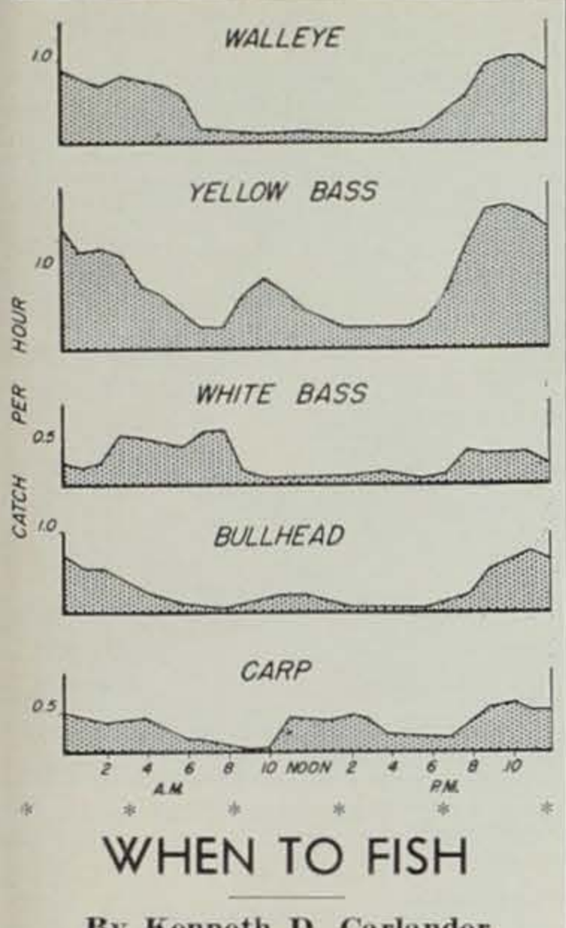


Jim Sherman Photo.

"Thousands of people are discovering, through personal experience, that carp are a wily, hard-fighting, good-to-eat fish."



WHEN TO FISH

By Kenneth D. Carlander
Iowa State College

Earl Rose's answer that the best time to fish is whenever you can find time, is becoming rather famous around Iowa. It really hits the nail on the head, for most of us. Many people, however, find fishing better at certain hours of the day than at others and increase their success by planning their fishing for those times.

I want to present some observations which have come somewhat as a by-product of the Clear Lake research project of the Iowa Cooperative Fisheries Research Unit. Each summer since 1947 graduate students from Iowa State College have collected information on the growth, abundance, and habits of Clear Lake fishes. In this research many fish have been caught in gillnets. Gillnets catch fish only when the fish are moving around and thus swim into the net. Usually the gillnets in Clear Lake have been lifted at two-hour intervals and therefore it has been possible to determine when fish are most active.

The night and day catches at the same location are so different that a person could tell just from the species caught whether the net has been set during daylight or dark. The daytime catch consists mostly of perch, bluegills, and northern pike; the night catch of walleyes, yellow bass, and bullheads.

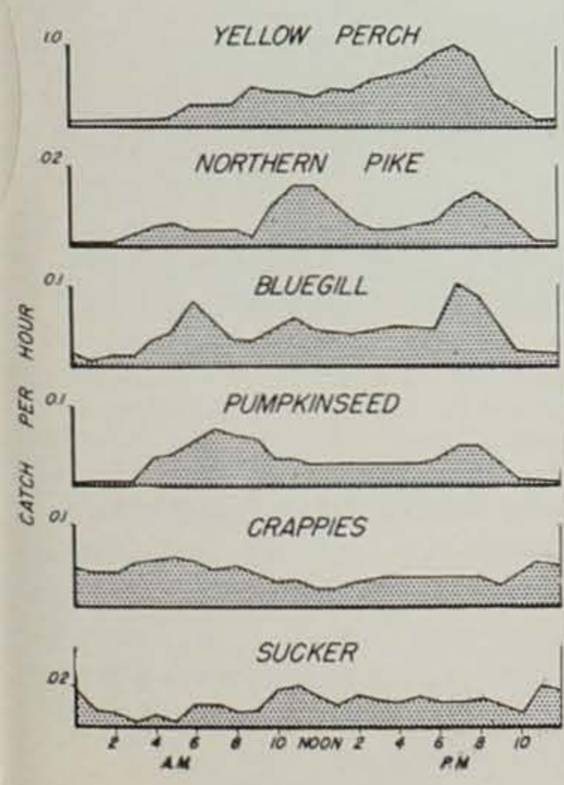
When the catches per hour are graphed (see illustrations), the differences in the activity patterns of the various fishes are abvious. Six to ten times as many walleyes are caught for the same amount of fishing at night as during the day. Black bullheads, yellow bass, and white bass show a similar pattern to that of the walleye. On the other hand, yellow perch, bluegills, pumpkinseed sunfish, and northern pike apparently move around more during the daytime.

Dr. Arthur Hasler, using sonar equipment—somewhat like radar for underwater use, was able to follow schools of yellow perch in Lake Mendota, Wisconsin, during the daytime but found that the schools dispersed at night. Apparently the perch rest near the lake bottom after dark and move very little until daylight.

Some other research on the structure of eyes in walleye gives a clue as to why these fish move more at night than in the daytime. Unlike the eyes of most other animals, their eyes are poorly adapted for bright light but are very sensitive to weak light.

The information on crappies, suckers, and carp does not indicate any marked difference in the daytime or night movement of these species in Clear Lake. No data are given for largemouth or smallmouth bass, because neither of these species are taken in gillnets very often.

The graphs show another feature of interest. In almost all species the best catches are made around dusk or dawn. There is apparently a spurt of activity at the start and close of the day. Many fishermen take advantage of this increased activity.



Jim Sherman Photo.

"The outstanding development in modern fisheries management has been a trend toward more liberal fishing regulations. Open seasons have been getting longer, size limits disappearing despite the fact that twice as many folks are going fishing these days as a decade ago."

THE ANGLER'S PLACE IN FISHERIES MANAGEMENT

Not many years ago "throw the little ones back" was a cardinal rule of sportsmanship among anglers. But if you still think it good conservation to turn back the little fish you catch, you are falling behind the times. The reverse may be true in most inland waters.

The outstanding development in modern fisheries management has been a trend toward more liberal fishing regulations. Open seasons have been getting longer, size limits disappearing—despite the fact that twice as many folks are going fishing these days as a decade ago.

The Wildlife Federation is talking about sport fishing, or hook-and-line fishing. Mass commercial methods, such as netting and trapping, constitute a different story.

The trend toward more liberal fishing rules is based on two scientific facts about fishes. One is that fishes are among the most prolific of animals. Under natural conditions they need no protection to repopulate or even over-populate the waters. A pair of wall-eye pike, for example, may produce 50,000 offspring in a single season. Bluegill, black bass and other members of the sunfish family bring off babies at the rate of 5,000 to 25,000 or more per year.

The other fact is that only a scanty few of every big hatch can ever grow up to whopper size, even if there were no human anglers. This is because fish have to eat in order to grow. In the competition for food and living space, thousands must fall by the wayside or be eaten by their brothers in order that a dozen or so may mature.

Recognition of these facts made former closed spawning seasons and minimum length limits look

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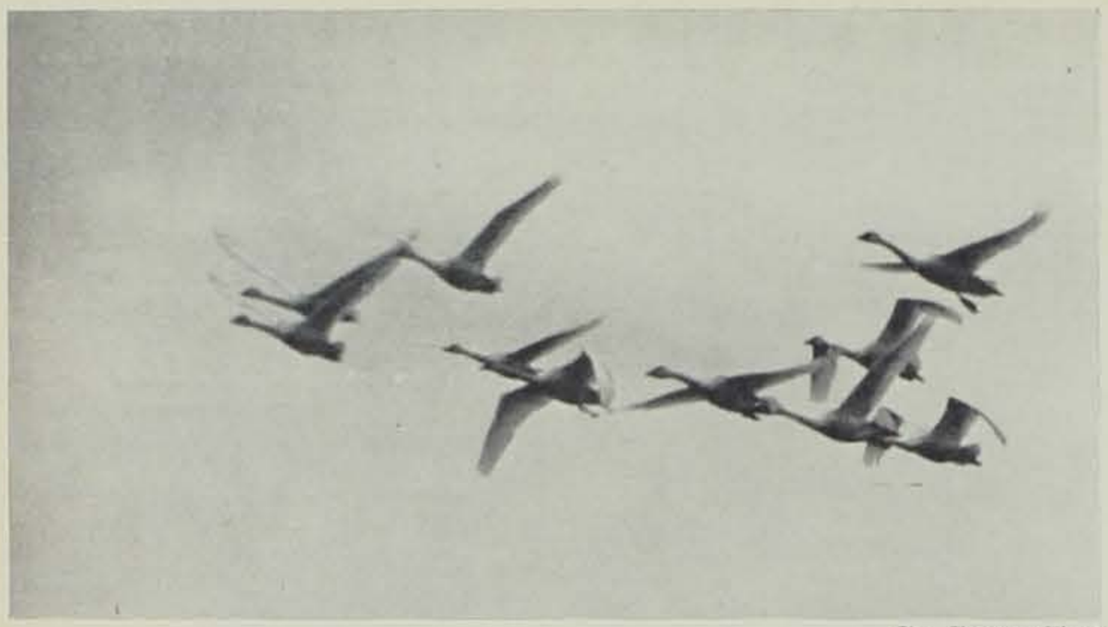
Marshalltown Times-Republican Photo.

Can You Count the Deer? There are three in this photograph taken at the Marshall County home, but even the photographer who took the picture had trouble spotting the third deer later. The most prominent is Faline, who gave birth to two fawns in early June. It is not hard to spot one fawn, Bambi, but can you find Bannie? He's hiding in the grass in the extreme lower left corner of the picture and even the filter on the camera failed to make his fur stand out.



Jim Sherman Photo.

The flight of whistling swans coming in for a landing on Yale Slough.

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1953 SWAN RECORDS

By James Sieh
Waterfowl Biologist

For the first time last spring many Iowans had a look at some of the world's most majestic waterfowl—the whistling swan.

The magnificent, snow-white birds have long been considered a rare migrant in Iowa, and have been brought back from near-extinction by strict state and federal laws. Although far from common, more of the swans are being seen in the state each year. Last spring nearly two hundred were reported in the lakes and sloughs of northern Iowa: 50 swans in the Clear Lake, Mason City area on March 25-27, 1953; 7 swans in the Ventura and Clear Lake area on March 25-27, 1953; 6 swans on Goose Lake near Jewell reported March 21-28, 1953; 6 swans, but a different flock, reported on Goose Lake April 7-14, 1953; 32 swans on Sweet's Marsh near Tripoli (no date). 7 swans on overflow pond south of Tripoli (no date). 72 swans on pond north of Osage (no date). 17 swans on Horseshoe Lake, Dickinson County, March 28-30, 1953.

Whistling swans may be expected whenever large numbers of waterfowl migrate through Iowa. Their large size and white plumage easily separates them from snow geese, which are smaller and have black wing tips.

RECENTLY REPORTED BULLHEAD FISHING

Fair to good bullhead fishing has been recently reported by Conservation officers in the following Iowa waters:

Appanoose:
Mystic Reservoir—good
Moulton Reservoir—good
Numa Reservoir—good
Centerville Reservoir—good
Allamakee:
Slough and lakes off Highway 182 N. of Lansing—fair
Benton:
Dudgeon Lake Area—fair (N. of Vinton)
Buena Vista:
Storm Lake—good
Little Storm Lake—good
Butler
West Fork, Cedar River—good
Beaver Creek—good
Shell Rock River—good
Conn's Bayou—good
Lake Considine—good
Calhoun:
North and South Twin Lakes—fair
Carroll:
Swan Lake—fair
Cerro Gordo:
Clear Lake—good
Chickasaw:
Wapsipinicon River—fair
Nashua Dam—fair
(Cedar River)
Clarke:
East Lake—fair-good
West Lake—fair-good
Clay:
Trumbull Lake—good
Round Lake—good
Lower Lost Island—good
Clinton:
Beaver Island lakes—good
Sodus Creek Area—good (lakes and sloughs)
Decatur:
Nine Eagles—good
Des Moines:
Otter Lake—good (in Misssissippi Island)
Dickinson:
Upper and Lower Gar—good
West Okoboji—good
Big Spirit—good
East Okoboji—good
Silver Lake—good
Minnewashta—good
Emmet:
Iowa Lake—good
Franklin:
Bead's Lake—good
Greene:
Spring Lake—fair
Owens Pond—fair
Dunbar Slough—fair
Guthrie:
Lakin Slough—fair
Howard:
Turkey River—fair
(Vernon Springs)
(Monty's Pond)
Iowa:
Dutch Lake—fair
Jefferson:
Fairfield City Res. No. 2—good
Johnson:
Lake Macbride—fair
Kossuth:
Burt Lake—fair
Plum Creek Pit—fair
Lucas:
East City Lake—fair
Red Haw Lake—fair
Madison:
Horseshoe Pond—fair-good (N. of Patterson)
Marshall:
Deutsch's Lake—good
Monroe:
Albia City Reservoir—good
Cottonwood Pits—good
Palo Alto:
Lost Island—good
Five Island—good
Ringgold:
Old Reservoir—fair-good
New Reservoir—fair-good
Sac:
Blackhawk Lake—fair
Lake Arrowhead—fair
Tama:
Union Grove Lake—fair
Union:
McKinley Lake—fair-good
Afton Lake—fair-good
Wright:
Lake Cornelia—good
Morse Lake—good

I follow nature as the surest guide, and resign myself with implicit obedience to her sacred ordinances.—Cicero.

Muskrats raise two or three litters each year. There are about six or seven young in each litter.

Ottumwa Daily Courier Photo.

IOWA'S LONGEST LIVING FENCE

The last 10 years have seen the addition of multiflora rose to the Iowa landscape. This June the hedge rose, used as a contour fence or farm border in many places, is thriving. Blooms are more profuse and larger than ever before, in most all kinds of roses this season. The picture above shows part of the longest contour rose hedge in the country. It is an unbroken two-mile hedge, right now in beautiful blosom. It contains an unusual number of pink blooms, as well as white. The picture was taken on Dr. F. C. Perkins ranch, east of Fremont. The two-mile hedge which is four years old is only part of the multiflora rose on his 1,000-acre ranch. Altogether there are eight miles of the contour rose plantings. Dr. Perkins handled planting the roses with care. He and his crews prepared the seedbed extensively, fenced 12 feet on each side to go to permanent grass, used electric fences to keep stock away during first three years' growth.—*Ottumwa Courier.*

Davenport Democrat Photo.
"Most of the farms in Scott County have been stocked with fish and give the farmer a chance to relax a few minutes with a rod and reel when the problems of farming become too vexing."

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THE REAL "MULTIPLE PURPOSE" DAMS CREATE FARM PONDS

Soil Conservation Week, June 14-20, has been designated in order to bring to the farmers of Iowa a better understanding of the need of making farming a better way of living through proper soil conservation practices. Conserving the soil through such practices as contouring, strip-cropping, terracing and other methods of stopping soil erosion, will show almost immediate results to the farmer carrying on these practices through increased yields, with a resulting higher standard of living.

At the same time the farmer who is practicing good soil conservation is insuring his children, his grandchildren, and all future generations, that they will have a better living through increased productivity of the soil.

However, all conservation practices do not depend upon immediate or future financial returns for making farming a better way of living. Take farm ponds for instance. While farm ponds do play an important part in the economic side of farming by providing a means of gully control, a source of water for livestock, and, where located close enough to the farm buildings, providing a supply of water to be used in fighting fires, they also serve as a means of recreation for the farmer and members of his family.

Most of the farm ponds in Scott County have been stocked with fish, and give the farmer a chance to relax a few minutes with rod and reel when the problems of farming become too vexing. Largemouth bass, crappies, sunfish, and the lowly bullhead can be found in most ponds, and provide a welcome change in the family's diet as well as providing recreation.

And for the young boys as well as other members of the farm family the ponds serve as a place to cool off during the hot summer day, replacing the "old swimming hole" on creeks or rivers.

Farm ponds play an important part in the social life of many of the farmers during the summer months. The banks of the ponds providing a pleasant place for a picnic when guests arrive, or when members of the family want to spend a few hours of quiet away from the bustle of farm work.

Most of the farm ponds serve several purposes, and are usually located so that livestock can have water available when out on pasture. In order to keep the cattle from the banks, special tanks are installed below the dam, with a constant supply of water from the pond.

The United States Soil Conservation Service, through the local soil conservation district, assists the farmer in determining the best site for a farm pond, makes surveys to find whether the drainage area is right, or whether or not it is too large or too small for the size of the pond. They also make recommendations as to the size of the dam, and the proper methods of construction.

At the present time the landscape of Scott County is dotted with dozens of farm ponds, and more and more farmers are planning on building ponds as they come to the realization of the importance that they can play in increasing the enjoyment of farming as a way of life.—*Davenport Democrat.*

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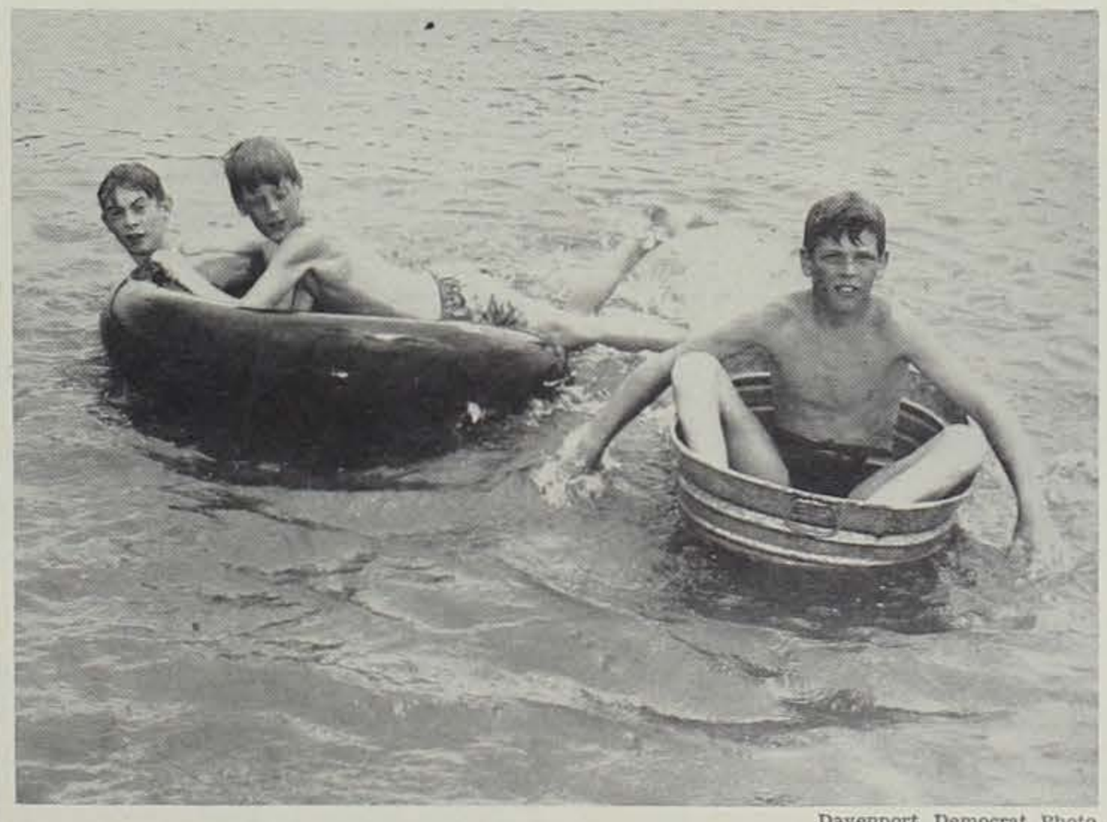

Davenport Democrat Photo.
While farm ponds play an important part in the economic side of farming by providing gully control, livestock water, and water for use in fire fighting, they also serve as a means of recreation for the farmer and members of his family.

Give Carp a Chance . . .

(Continued from page 146)

is true that he rarely breaks water, and sometimes he is a slow, cautious biter; but when he is hooked he is a powerful and resourceful swimmer. He doesn't give up easily or quickly. Many a Cedar River angler has lost tackle to big carp without ever knowing what kind of fish he had on his hook. I remember a few years ago when I hooked a huge carp near a brush pile in the river. He nearly pulled me into the stream with his first rush. After a few minutes of hard struggle as he surfaced briefly, obviously to survey the situation, gave me a cold stare, turned over and drove for the brush. I couldn't turn him a fraction of an inch. The line burned through my fingers. He went straight on. My rod bent double and finally snapped. Then the strong line broke. It was one of the most thrilling experiences I've ever had at fishing. I really would have liked to have shored that fellow, but never had a chance.

It took me a long time to learn to respect the carp, but I do now. He's a fighter (recently dubbed buglemouth bass), not easily caught, and he's better eating than nearly all other fish when prepared for the table. Bones? Sure bones. But not so many as the northern. And the bones can be taken care of in the large fish by removing them from the back. In smaller carp, the bones will cook up. Then there's that streak of dark meat along the side of the carp, just cut it off, if you want to go to the trouble. What remains is good white, sweet meat.

Unlike many varieties of fish the carp is good sport and good eating almost regardless of his size. Some people prefer small carp, other like them big. Some like them fried; others like them baked. Carp are smoked and pickled. I suppose they are sometimes boiled.

Fish hungry? Forget your prejudices. Catch a carp—if you can—and give it a fair chance on your plate.—*The Vinton Times.*

HOMETOWN FISHING

We are constantly amazed at the number of fishermen who find good fishing in the streams around Atlantic, and at the number of fish they catch. Western Iowa with its muddy streams is hardly viewed as a sportsman's paradise, but there are hundreds of sportsmen, many of them in this immediate neighborhood, who have wonderful times right through the summer months without traveling more than a dozen miles from their front stoop. They catch good sized fish, too. Carp and cat run up to four or five pounds with an occasional catch of twelve to fifteen pounds. The bullheads run smaller and are plentiful with the ponds offering bluegill and other panfish.—*Atlantic News Telegraph.*

EXPIRED LICENSE DEPARTMENT

Iowa State Conservation
Commission
Des Moines,
Iowa

Gentlemen:

A friend of ours recently took the butt plate off an old shotgun he purchased and found an Iowa hunting license issued in 1918 to a Mr. John Brusvene of Riceville in Mitchell County. The license (No. 347) was issued in Osage on the 16th of November, 1918.

We would like to locate the former owner of this gun and would appreciate your help or whatever advice you can give us. The man was 21 years old when the license was issued and there is a good chance that he is still alive.

Very truly yours,

Frank R. Martin
Refuge Manager
Upper Souris National Wildlife Refuge
Boxholm, North Dakota

DON'T SWIM ALONE OR IN UNSUPERVISED WATERS.

ALWAYS STAY WITH THE BOAT.

KNEEL IN THE BOW OF THE BOAT WHEN YOU PULL IN YOUR ANCHOR; IF YOU WISH TO CHANGE PLACES IN THE BOAT, PULL INTO SHORE.

Jim Sherman Photo.

About thirteen thousand years ago, some Stone Age genius tied a thong to the ends of a supple stick, fitted a small spear to it and went bowhunting.

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Bowhunting . . .

(Continued from page 145)

the traditional linen being replaced by fortisan, a tough new plastic. The only thing that has remained unchanged is the art of bowhunting itself.

And it is an art. Bows are restricted in range, and arrows have high trajectories and are easily deflected by twigs and brush. If big game is to be killed it must be done in something less than eighty yards. This puts a high premium on skill, patience and fine woodcraft.

When a bowhunter goes after big game he may refrain from smoking for weeks. He may even bury his clothing and equipment before the hunt to remove human scent. He'll practice stalking long before the season opens, and finish the back of bow to prevent reflection.

Depending on the game being hunted, his bow will vary in "weight" from fifty to more than one hundred pounds. This "weight" of the bow is the number of pounds required to draw it to full arrow length. A bow of fifty-five pounds is adequate for deer and a hundred-pound bow may be used on elephant if you wish. Hunting bows may have recurved ends of the "Cupid Bow" type, or may be of the more familiar straight variety.

Hunting arrows are usually made of Port Orford Cedar, and tipped with a deadly bit of cutlery called a "broadhead." These tempered steel arrowheads may be up to an inch wide and two and one-half inches long. The cutting edges are carefully sharpened to a fine, wire edge with a file.

Unlike rifle bullets, hunting arrows deliver little shock and must depend on rapid bleeding to kill big game. When broadheads penetrate the lungs of big game there is extensive and rapid bleeding and death comes quickly.

This isn't as brutal as it sounds. An Alaskan bowhunter recently drove a hunting arrow into the side of a standing bull moose, which merely lifted his head and pawed with his hoof at the three inches of arrow protruding from his side. As he began to trot away he literally died on his feet. Deer often show little reaction when shot with an arrow while standing still. They may be struck, look up with a start, run a short distance, and drop dead. If the arrow is placed correctly they won't run far.

If the arrow is not well-placed there is usually little damage done. It is a clean wound with none of the tissue destruction of a heavy rifle bullet, and the standard broadhead will soon work out. There seem to be few cripples in bowhunting; the arrow either does the job completely or not at all.

Big game bowhunting falls roughly into three categories: stalking, still-hunting, and driving game. Of all methods of hunting, none demands more skill than stalking game with a bow and arrow. The hunter must know his quarry intimately and take advantage of terrain, cover, and the smallest air currents. Still-hunting at a watering place or game crossing demands great patience, but probably less skill than stalking. Even so, the hunter must know his business in order to choose a place that will be visited by game.

In addition to these methods, some bowhunters stage drives. These consist of several archers waiting at the edge of clearings or patches of woods while other hunters walk noisily through the cover. This calls for good shooting, for the animals are usually in rapid transit when they break from the woods.

Such was the case last fall when Bud Austin, well-known Des Moines archer, killed his buck in Wisconsin. Austin loosed his arrow while the buck was in mid-air, leaping over a windfall. The shaft struck the deer in the chest, sheared through a rib, penetrated the lungs, and sliced through the shoulder joint on the opposite side. The buck staggered a few more yards and died.

Most hunting bows show such power. Many arrows will completely penetrate a deer, cutting through any bone that happens to be in the way. There is almost no big game in the world that can stand before a heavy hunting bow in the hands of an expert. Every species of big game in North America has been killed by modern bowhunters, and one of the biggest grizzlies on record was killed with a single arrow.

In Iowa there is a small, but happy, population of bowhunters that regularly hunts rabbits, squirrels, woodchucks and even pheasants and ducks. This isn't as difficult as it sounds for a good man can put arrows into a four-inch circle at fifty yards. Even so, rabbits present a problem, for a dodging cottontail can even be missed with a scattergun.

Because of his rapid habits, old Cottonbottom is usually shot with an arrow while he is sitting. Strangely enough, broadhead arrows are not too effective on small game, and usually drive cleanly through with none of the dramatic effects they have on deer and elk. Arrows tipped with .38 cartridge cases are much more effective, largely because of their greater shocking power.

Some archers can take limits of squirrels almost as readily as riflemen. The range is usually short and squirrels often give the bowman a second shot. Squirrels are still-hunted or stalked and treed, much as in hunting with firearms.

Broadheads are out of the question for squirrels for the steel points which stick in limbs high in trees. On the other hand, an ordinary "blunt" would be lost if the squirrel were missed. The answer is a wild-looking arrow called the "flu-flu," which has large, loose, spiral fletching or feathers that kills the arrow's speed in less than fifty yards. If the squirrel is

(Continued on page 152)

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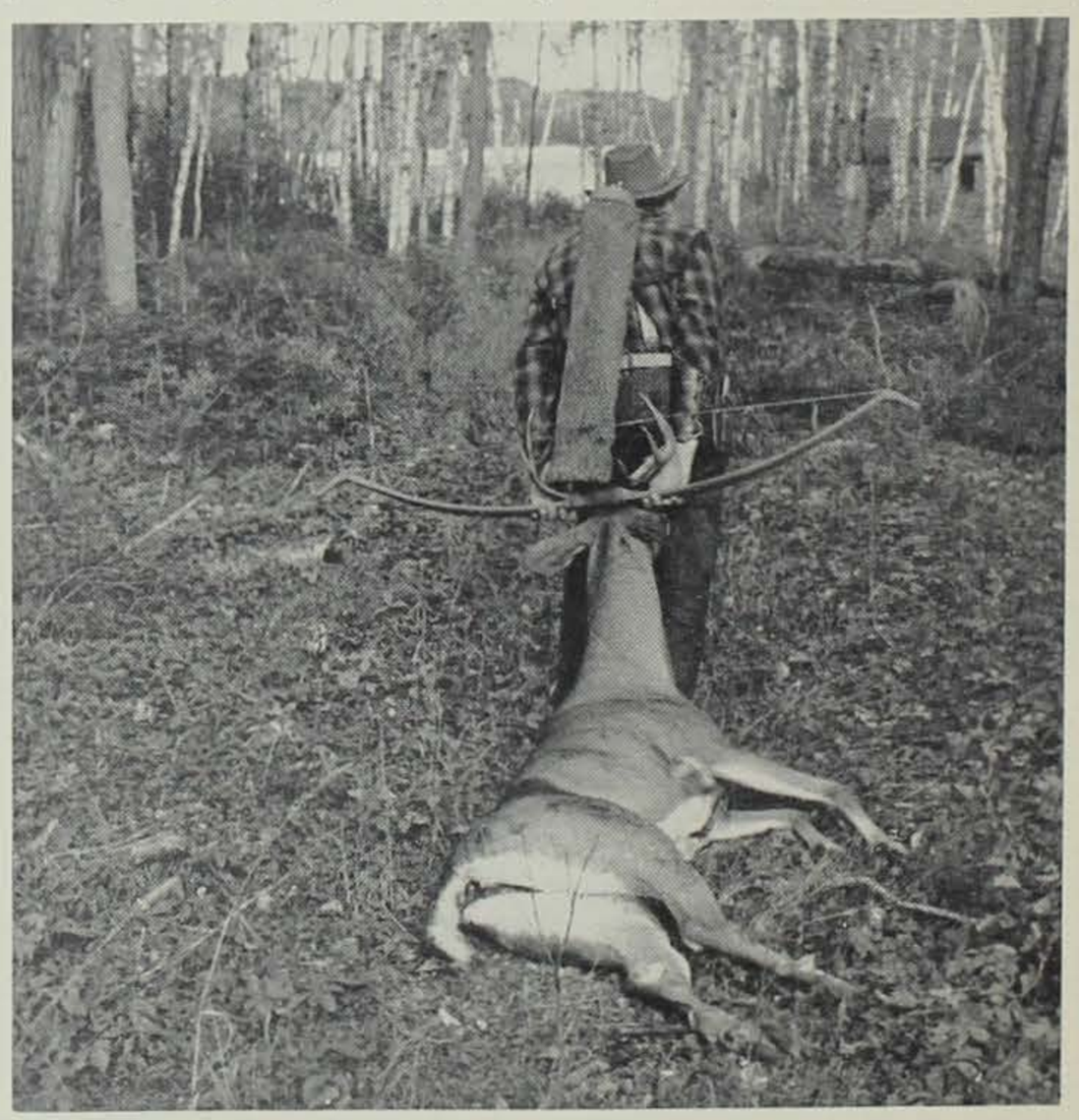
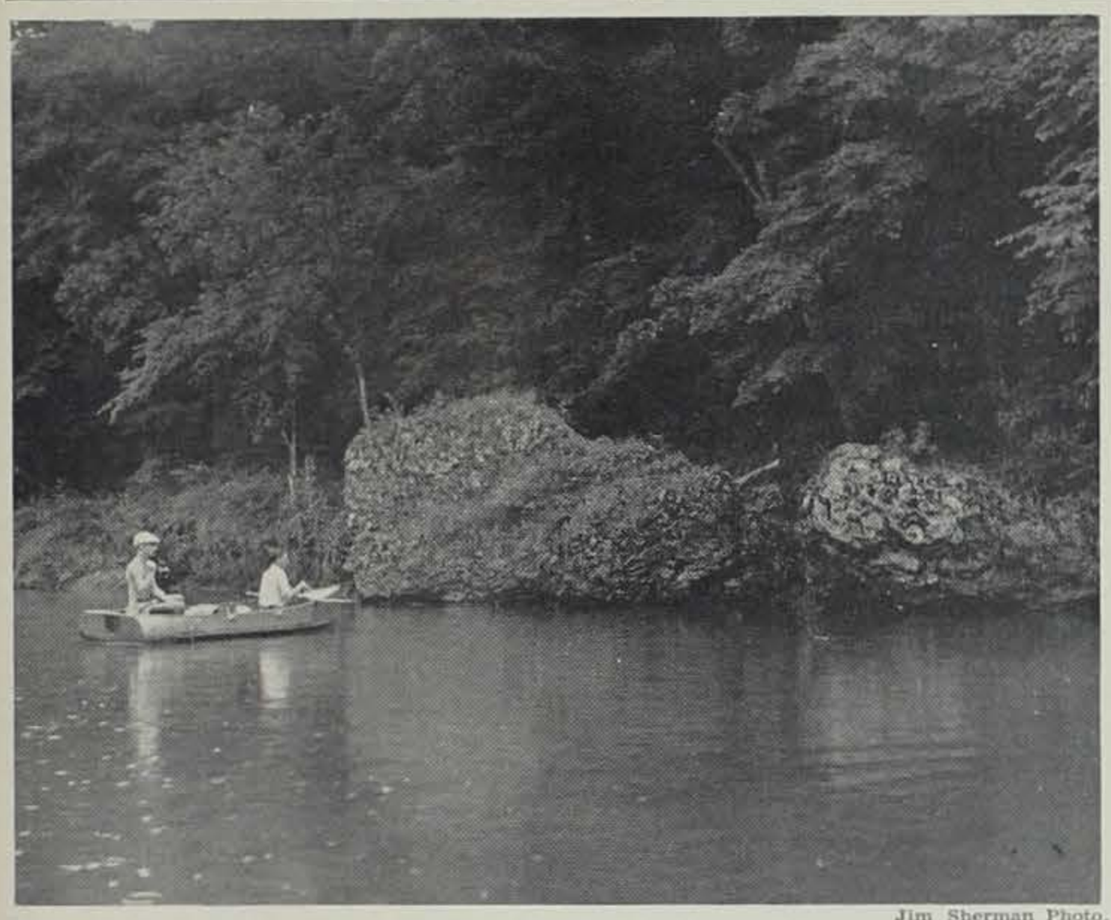
Jim Sherman Photo.

In Iowa there is a small but enthusiastic group of bowhunters that regularly hunt rabbits, squirrels, wood chucks and other small game.



Big game bowhunting success depends upon skill, great patience and a generous portion of lady luck's favor.



Jim Sherman Photo.
To many visitors fishing is less important than just looking at the scenery in the Pictured Rocks Area.

Canoe Trip . . .

(Continued from page 145)

The tops of the bluffs abound in red and gray squirrels, and hunting is permitted. Because of the steep slopes and numerous den trees, a hunter will earn every animal he takes, and at the end of a day will be ready to admit it. Early fall would be a setup for an all-day program like this: Canoe down the river from "Put-in 2", fishing as you go and taking in the scenery. Stop in the afternoon to eat lunch and work the bluffs for squirrels, and be at the county road at "Pull-Out 1" by dusk.

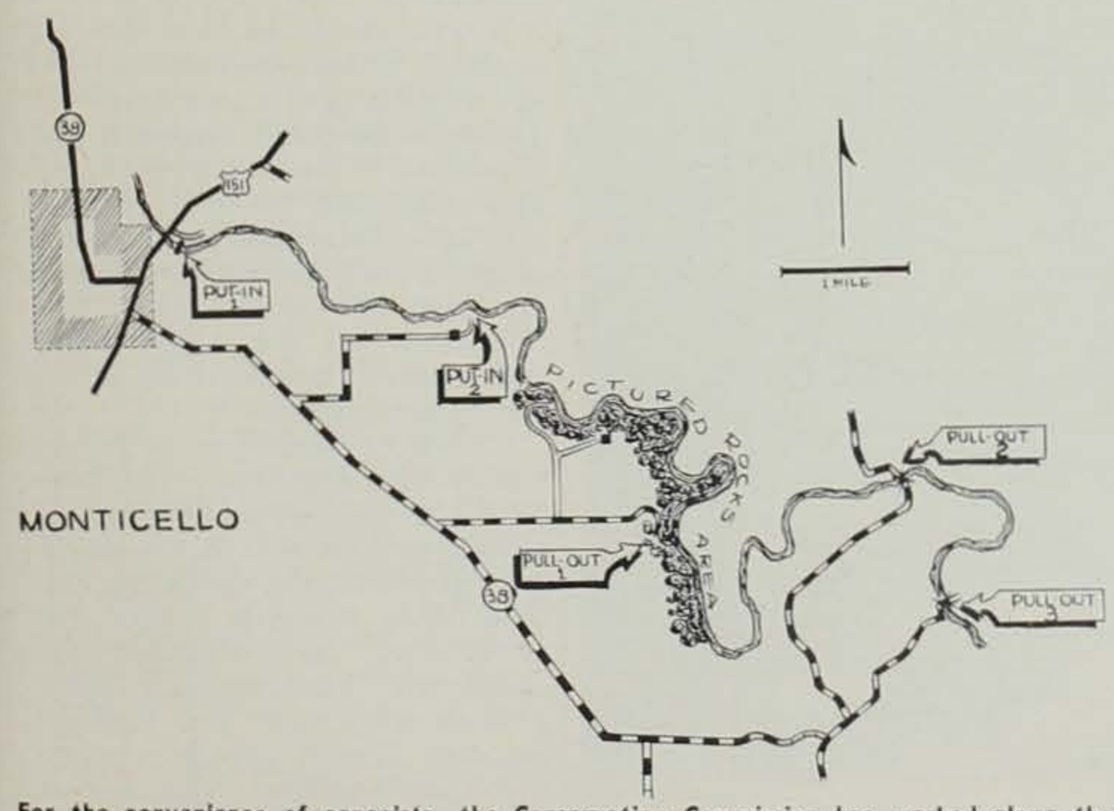
There are many other animals and birds in the area, including deer, red and gray fox, raccoon, mink, muskrat, beaver and numerous turkey vultures. Vultures are fairly uncommon in Iowa, and the Pictured Rocks area is a good place to study them. At times there may be six or eight of the birds soaring over the area at once.

Because of the roughness of the terrain and the narrowness of the tract, little development work is planned. Last summer more than 2,000 rods of new fence were constructed on the area, and only one eighty-acre tract remains unfenced. With the purchase of this piece of land it will be possible to improve the access road to the river and construct a suitable parking area. Other development work will be done if public use of the Pictured Rocks area justifies it.

Canoes may be put in the river just below Monticello at the dam. A road leads back to the dam from Highway 151 as shown. If you wish to fish and picnic, plan on about seven hours from the dam ("Put-in 1") to "Pull-in 1" in the Pictured Rocks area. The same trip can be made in four hours of fast paddling.

Canoeing from "Put-in 2" to "Pull-out 1" will require about three hours, or longer if fishing. This is the trip most recommended. "Pull-out 1" is a dry wash coming into the river near the end of the county road entering the center of the Pictured Rocks area. There is a small parking lot at the end of this road near the river where cars can be left. The unsurfaced road going north from this county road also gives access to the river. This is private access and permission should be obtained before using it.

The river from the end of the Pictured Rocks area to "Pull-out 2" is very scenic but flows through private property. A good two-day trip may be taken from "Put-in 2" to "Pull-out 2", but ask permission before camping or hunting on private lands.



For the convenience of canoeists, the Conservation Commission has marked along the Maquoketa River two convenient "Put-in" sites and three "Pull-out" locations as shown on this map.

Fisheries Management . . .

(Continued from page 147)

silly. Why forbid fishing during spawning season, when the fishes always overdo the restocking job anyway? And why protect the little fishes, when removing some of the youngsters only relieves an overcrowded situation and permits others to grow up? Besides since most little fishes will never get to be big ones anyway, not to keep them, once hooked, is a waste.

The nationwide trend toward greater freedom for anglers has been documented by Dr. R. W. Eschmeyer, executive vice president of the Sport Fishing Institute. Dr. Eschmeyer, as chief fisheries investigator for the Tennessee Valley Authority from 1938 to 1950, had a great deal to do with starting the trend. After he proved that sportsmen were taking only a small percentage of the finny crop, the big TVA impoundments were thrown open to year-around fishing and size limits were discarded.

Dr. Eschmeyer points out the rather obvious fact that sport fishing methods are inefficient. That, of course, is what makes it sport. "If hunters tried to catch rabbits only by hiding behind a tree and dangling a carrot at the end of a pole and line," he commented, "we wouldn't need closed seasons on rabbits."

The former TVA expert cited the example of experimental Lake St. Mary's in western Ohio. A few years ago St. Mary's was overstocked with stunted crappie, mostly too small for angling fun. All restrictions were lifted and the fishing has steadily improved.

This year Ohio leaped to the forefront of the trend by throwing down all the bars. In 12,000 miles of streams and 2½ million acres of impounded waters in the Buckeye state, anglers need not worry about closed seasons, length limits or creel limits. Only a few special waters are excepted in Ohio's wide-open fishing.

In general, the Southern states were the first to liberalize. Fish grow faster, spawn at an earlier age, and year-round angling is both practicable and pleasurable below the Mason-Dixon line. Up north the winter freeze-up enforces a practical closure, except in places where ice-fishing is popular.

Even in the north the trend favors the fisherman. Missouri, Nebraska, Minnesota, Wyoming and others have abandoned length limits. Many states have thrown certain waters open for year-around fishing, if not all waters. North Dakota not only permits anglers to keep the little ones, it forbids throwing them back.

An exception to the trend is trout fishing. Trout thrives only in cold waters—mountain streams or spring-fed brooks—where natural production was never high. Many states are producing pan-size trout in hatcheries and stocking them ahead of the fishermen.

Dr. Eschmeyer also believes that most northern states are wise in keeping protective limits on predator species like muskie, northern pike and walleyes. These predator fishes are needed to help keep more prolific kinds in check. Popular with sportsmen, muskies and pike are likely to be depleted by heavy selective angling.

The Sport Fishing Institute leader agrees there are places where closed seasons are needed, but he believes length limits are rarely helpful. He pointed out that most states now have competent research men keeping tab on fish supplies. "The state fisheries men, with perhaps, a few exceptions, know what they are doing," he advised anglers. "Depend on them."
—National Wildlife Federation.

IOWA DUCK HUNTERS AND NATURALISTS WILL BE GLAD TO HEAR THAT "WATERFOWL IN IOWA" HAS BEEN REPRINTED, AND IS NOW AVAILABLE FROM THE STATE CONSERVATION COMMISSION IN DES MOINES. THE BOOK, WRITTEN BY JACK AND MARY MUSGROVE, IS ILLUSTRATED WITH SKETCHES AND COLOR PLATES BY MAYNARD REECE, AND INCLUDES THE LIFE HISTORIES OF ALL DUCKS, GEESE, AND SWANS OCCURRING IN THE STATE. THE COST IS ONE DOLLAR POSTPAID FROM THE STATE CONSERVATION COMMISSION.

Jim Sherman Photo.
The shelter house in Brush Creek Canyon State Forest Reserve is situated in one of the wildest and most rugged areas in the entire state.

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Brush Creek . . .

(Continued from page 145)

aran series, principally dolomite, which outcrop in many places. Beds high on the canyon wall are massive and form cliffs, some of those near stream level are in beds only a few inches thick. The material of this series was deposited on the sea bottom as a limey substance. Later, through action of the sea water, it acquired some of the element magnesium in its composition.

The layered character gives evidence that the sediment was deposited in a body of water such as a sea. The wide area of North America underlain by the series gives evidence that it must have been in an extensive sea rather than a lake. That was a sea-deposited sediment is also borne out by the character of the rock; no such quantity of limey material could ever have been deposited in a lake. Furthermore, fossils of marine life, principally corals, are found in the rock. These fossils are difficult to find in the park because the rock is so weathered.

These beds of dolomite once extended clear across the canyon, but time has taken its toll. For one thing, most of the rock is somewhat soluble in rain water and in the water which soaks into the ground. The freezing of water in cracks and pores, the wedging of plant roots, help to weather the rock. Running water carries off the dissolved material. It also carries downstream the solid particles, big and little, depending upon the velocity and volume of the water.

The downslope movement of large blocks of dolomite on the canyon side is a notable feature of the park. Most of these have come from the very rim. They are poised at all angles. All are roughened and pitted by weathering. Many are covered by vegetation, seemingly growing out of the very rock. The American yew (Taxus canadensis) grows in profusion on some of these limestone blocks. Even trees, some over 8 inches in diameter, are found standing erect on some of the blocks. These huge masses of rock move slowly down the canyon side, urged by gravity, freezing and thawing, wetting and drying of the material on which they rest. While in transit they become smaller and smaller. Once at stream level they are eroded by the running water and its load of sand and gravel.

The stream and its tributaries have brought to the park more sand and rock fragments than could be immediately carried through. The valley bottom has as much as 8 feet of rubble brought from upstream by Brush Creek. With every flood more is carried in, and at the same time part of the material now in the park is shifted downstream.

A quarter of a mile or so downstream from the shelter house a short tributary enters the canyon from the south. At the lower end and extending out into the canyon bottom this tributary has built out an alluvial fan. With decreasing velocity as it entered the valley the tributary stream has been unable to carry its load. The material has been dropped, and gradually this fan-shaped deposit, sloping gently upstream into the mouth of the tributary valley, has been built up. It is at present trenched by the channel of the tributary stream and by a stream which flows from a spring issuing from the dolomite near the head of the fan.

A walk a short distance up this tributary valley brings to view a striking scene. The valley narrows and gains in steepness. Then the channel, if it can be called one, becomes a jumbled mass of huge masses of rock, lichen-and-moss-covered. It is a wonderful sight and a fine demonstration of what Mother Nature can do with air and water.

Of course the glaciers covered this area, along with the rest of Iowa. There were three of them which spread over this area. They came along at widely separated intervals, hundreds of thousands of years apart. The last one, named the Wisconsin because its deposits are best known from Wisconsin left its imprint upon the country surrounding the park. The drift surface is one of relatively slight relief and long gentle slopes, none too well drained. It has a thin mantle of loess, a deposit of silt brought in by the wind.

In the canyon area, however, post-Wisconsin erosion has swept away the glacial drift, and cut or deepened the canyon itself. The rubble, alluvium, of the valley bottom carries an occasional glacial erratic, different indeed from the native stone. At that the erratics are more numerous than the alluvium of Bixby State Park, not so far away. Remember, however, that Brush Creek drains an area of some 14 square miles above the park. The glacier left plenty of stones, carried from the north, over that area. It is not surprising that they are to be found mixed in with the pieces of stone pried loose from the bedrock of the valley by weathering and running water.

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Jim Sherman Photo.
A short walk up the tributary valley brings to view a striking scene. The channel becomes a jumbled mass of huge lichen and moss covered rocks and presents a fine demonstration of what Mother Nature can do with air, rocks and water.

Bowhunting . . .

(Continued from page 150)

missed, the shaft falls to earth and is easily found nearby.

The stalwarts who hunt ducks with bows usually shoot them on the water, and pheasants may be shot sitting, too. However, pheasants are also shot in the air. Bowhunters claim a pheasant isn't a very tough target just about the time he finishes climbing and starts to level off.

An entirely new field has been opened to inland Iowa archers with the Attorney General's decision that arrows may be lawfully used in Iowa's new rough fish spearing season. The season opened on July 4 and will extend until October 31.

Archers in other states have long enjoyed shooting gar, carp and quillback with special barbed heads fastened to a line running from a spool or reel attached to the grip of the bow. Carp are usually shot in shallows or flooded backwaters. Gar may be shot almost anytime as they lie just beneath the surface of the water.

One of the most common questions asked archers is how far and hard will a bow shoot. That, of course, depends on the bow. Turkish archers are said to have shot arrows more than eight hundred yards, although the official record is about seven hundred yards.

A strong hunting bow will drive a broadhead through a skillet or a pine door with ease. However, the greatest penetration in wood is not with a broadhead but with a plain, flat, wooden tip. An untipped arrow can easily be driven through a two-inch plank with a seventy-pound bow.

If you decide to take up bowhunting, remember that the average hunting bow is only fifty-seven pounds in weight. A beginning man is advised to learn with a fifty- or fifty-five-pound bow, while a woman should start her shooting with aboout a forty-pound bow. Pulling a hunting bow takes some strength, it is true, but it's mostly knack, co-ordination and learning how to use special muscles.

It's hard to convince the average hunter that a hunting bow differs from a dime store archery set. We have forgotten that bows and arrows reddened the earth for more than fifty centuries. The short bows of the Turks wreaked havoc among the Crusaders, and English yeomen with their yew longbows smashed French armies at Agincourt and Poitiers. The bow and arrow was something to reckon with in those days, and it still is.