

IOWA CONSERVATIONIST

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Nearly 68,000 Hours of Recreation

IOWANS HARVEST 2,813 DEER DURING 1957

GEOLOGY IN CLEAR LAKE STATE PARK

Charles S. Gwynne
Professor of Geology
Iowa State College

Clear Lake State Park is an area of 70 acres on the south shore of the lake, in western Cerro Gordo County. It is a narrow area, fronting as it does on the lake, with a shore line of 1,050 feet.

The visitor marvels at the beauty of the lake and at the fine sandy beach. It is not so often that one wonders why there is a lake at this particular place or why there is a sandy beach there. For that matter, who ever thinks back beyond the lake and the sandy beach?

There is a "back beyond," hidden beneath the subsoil of the park and the surroundings. When the new Clear Lake sewer line was being installed in the summer of 1954 operations disclosed the presence of a clay, deep gray-blue in color, at a depth of about 10 feet. Above that, there was sand.

The blue clay was recognized as similar to the shale used in the brick and tile factory and in the cement plants at Mason City. It is thought to be part of the same shale formation, softened to a clay by water. At Mason City it is known to be underlain by the beds of limestone used in the cement manufacture. Some of the limestone layers contain abundant fossil corals, so it is clear that

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Commission biologists and game personnel check deer at the Lansing checking station during the Iowa deer season, December 7 and 8. These observations disclose important information regarding condition, age and growth of Iowa deer. These facts aid Commission game officials in proper management of Iowa's largest game species.

Everett B. Speaker
Superintendent of Biology
and
Paul D. Kline
Game Biologist

Iowa residents were permitted to hunt deer for the fifth consecutive year in 1957. Past records reveal hunting was first allowed in 45 counties during a five day season in 1953. More liberalized hunting in 1954 opened 51½ counties to three days of gun hunting. Also, in 1954, the first special bow hunting season was opened for 10 days prior to the gun season. The tradition of liberal bow seasons has continued since and was climaxed by 31 days of hunting in 1957 (October 26 to November 25). Gun hunting first was permitted statewide in 1955 during a three day season. In 1956 and 1957 the season was cut to two days (December 7 and 8 in 1957).

In general, regulations remained unchanged from preceding years. Gun hunters were permitted to use slugs in shotguns of 20 gauge or larger. Six thousand gun licenses were sold. Of these, the first 5,000 were issued on a first come, first serve basis. The remainder (1,000) were issued after a drawing if more than 1,000 applications were received. No restriction was placed on numbers of bow licenses, and 1,228 were sold. Owners and tenants of land and their children were permitted to hunt on their land without licenses.

All licensed hunters were required to return a card to the Conservation Commission stating their hunting success. Approximately 99 per cent of the cards were returned. Much of the information presented in this report was gleaned from these reports. In addition, biological data were gathered by Commission biologists who examined deer at special checking stations, lockers, on farms, and in the field. About one of every seven deer killed was inspected by biologists.

Harvest—Nearly complete returns from all hunters reveal

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Why Northern Pike Fish Management?

K. M. Madden
Superintendent of Fisheries

The "Ioway" of Indian days was friendly to the Northern Pike (*Esox lucius*). His smaller cousin the "grass pike" (*Esox a. vermiculatus*) kept his distance from old "lucius" and stayed in southeastern Iowa and Missouri where water was muddier and too warm for the strong, active relative from the north!

Here the northern loafed, lived and fed in clear, clean sluggish streams or marsh areas of lakes. North central Iowa was a sea of grass and the "troughs" were filled with clean water which abounded with sunfish, bass, bullheads, perch, frogs, reptiles, crayfish, water insects, and even young waterfowl. Why would a "northern" go south with such a bountiful larder.

He didn't trust his neighbors, nor himself for that matter, so he hid the young by driving the female deep into the grass or up a tiny seepage stream for spawning. The mother instinctively protected the young by depositing, at random, from 25,000 to 100,000 eggs on newly flooded grass or aquatic vegetation growing in shallow waters.

During April spring water levels that were probably stable for about three weeks gave the eggs time to hatch. The northern fry, like most young fish, devoured the "yolk sac" to complete the hatching cycle. The fry then began to feed voraciously on other tiny free-swimming organisms in the sun-warmed shallows. They fed by sight by day and became 15-inch "snake fish" by fall freeze-up when they had to leave the shallows. If

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ANT SOCIETIES

David H. Thompson and
Roberts Mann

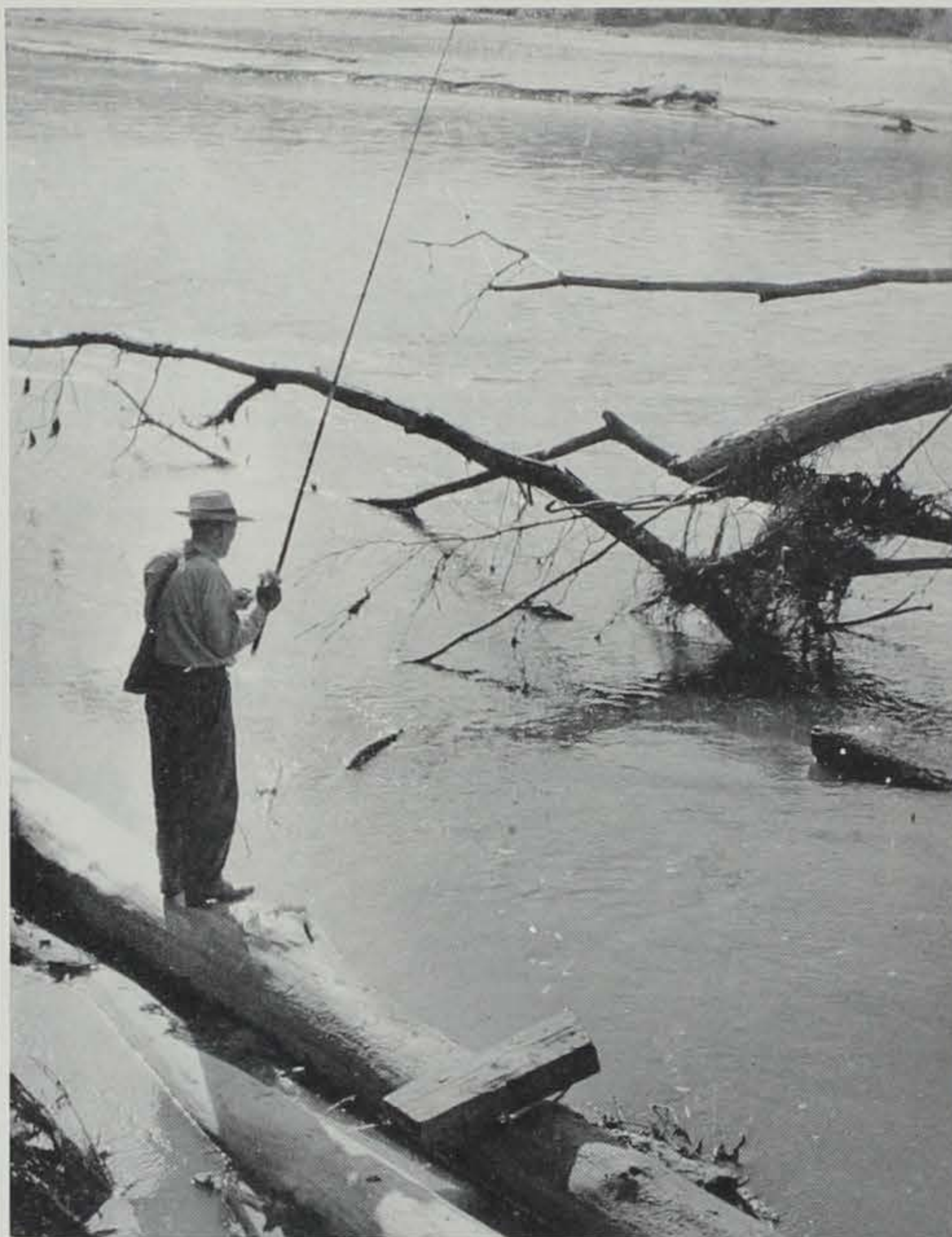
That first small crater-like ring of soil granules heaped up around a crack in the sidewalk is a sign of spring. Hesitate there a moment—children always do—and you'll see several Little Black Ants hurrying in and out, bringing up particles of earth from below as they enlarge their underground home. At another time you may see columns of them in an ant safari with two-way traffic as they cross a lawn or invade a kitchen to forage for food.

All ants live in colonies. Ants are called social insects because within each colony there is a division of labor with males, females and one or more castes of workers performing certain tasks for the benefit of the whole group. A single colony may vary in size from a few dozen individuals up to millions. Some naturalists suppose that ants are more numerous than any other type of land animals; others think that plant lice outnumber them.

In most kinds of ants a new colony is started by a young queen. Immediately after the mating flight she loses her wings, then digs a hole in the ground or finds a cavity under a rock or beneath the bark of a tree. There she walls herself in and remains for weeks or months, a voluntary prisoner. During all this time she does not eat but is sustained by stored fat and the large wing muscles which are now useless. First, eggs are laid which hatch into larvae. The queen nurses these on saliva until they transform into pupae which look like small oblong capsules and are often mistakenly called "ant eggs." From these emerge abnormally small, wingless workers called "minims." Commonly, the three stages—egg, larva, and pupa—each require about three weeks.

This first brood of workers digs out of the cell and begins to gather food for itself and its mother. Then she lays more eggs, and the work-

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Catfish water is moving water. Our angler will be on the move if the spot doesn't produce a fish in 15 minutes or so. Catfishing success depends on fishing a lot of likely-looking spots like this one.

How to Find "Old Whiskers"

Man, That's Catfish Water!

Keith C. Sutherland
Editor

Glen Yates, Superintendent of Federal Aid, pushed aside a blueprint of a Federal Aid Project he'd been looking over and picked up the photographs I had put in front of him.

He shuffled the photos from top to bottom before he stopped and studied one for an extra long moment.

I would have bet he would comment on the action in the photo—of the angler's rod arching sharply under the weight of a fighting catfish. It's a good thing I didn't make any sort of wager!

"Man, that's catfish water!" Yates exclaimed, peering sparkle-eyed over the top of the photo at me.

Take the same observation from anyone who has been catfishing something less than 30 years and it might not raise an eyebrow. But from Yates, recognized by good catfishermen as an "expert's expert," and any reference to the "right kind of catfish water" takes on a new aura of importance. A long discussion followed.

What is the right kind of water for catfish? How important to success is the angler's ability to locate and fish "the right kind of water"? How about time of day in determining what waters will be productive? What about other features of the stream—level, turbidity, etc.—in forecasting movements of catfish? We kicked all of these things around, and the information Yates came up with should help others get a great deal more enjoyment from their expeditions astream.

Little about the channel catfish is slow, and that goes for the water he inhabits. "Old Whiskers" likes to loiter along the edges of the threads of the stream; roam the deeper water; and loaf around rocks and cutbanks where the current cuts into stream boundaries. He also likes the edge of drifts and sometimes his haunt is close to riffles at the end of a hole or run. These waters may be tumbling, swirling or gliding—but one thing you can stake your bankroll on—catfish water is moving water. Yates points out that the angler who fishes still water only

better not invite too many guests for dinner!

Pass Up Mud

Type of stream bottom is another aspect of the cat's habitat that is logically mentioned here. Pass up the mud and sand bottoms! Catfish avoid them, preferring gravel or rock bottoms. Actually this fact creates an additional angling opportunity for the catfishermen since walleyes, sauger and smallmouth bass are often found in the same immaculate neighborhood!

Channel catfish are almost exclusively nocturnal in their movements and ordinarily feed more eagerly after dark. They venture from deeper water that protects them during the day and enter shallow areas just before dark. Many fishermen are attracted by their splashing rises at dusk. Sometimes the water in which they feed is too shallow to cover their sleek bodies. This is a favorite and productive time of day during summer and fall months. During the rest of the year, time of day is less important for water is usually turbid in spring and the murky, early-season water protects them from predators. This means that when water is turbid, catfish are likely to be anywhere. When water is clear, they are more often found in deeper water.

Deciding on what is the right kind of catfish water and finding it boils down to a two-word term: stream reading. It means looking for the "catfishingest" spots—covering a lot of stream—studying every bend, stretch, channel, undercut, bank and bottom diligently and thoroughly. It also means getting the bait, whether casted or floated, into a lot of likely-looking spots. The angler who stands flat-footed, expecting catfish to come to him, will have to be content with fewer fish. It's that simple!

Pays Off

Yates related an experience that best illustrates how a thorough job of stream reading can pay off on the stringer.

Several years ago, Yates was fishing the Cedar River and had located a likely looking stretch. Wading across the river, he methodically explored a gliding run along the far bank. The narrow channel was but ten feet wide, and, from where Yates stood, the stretch looked too shallow to attract catfish. Investigating closer and moving toward the bank, Yates found a little cut that was deep and clean.

"Others had passed it up. I took four or five fish out of it every time I fished it," Yates recalls with a proud grin.

Yates, who likes to float chicken blood on plenty of line for his catfish, made another valid point right about here.

"Don't give up on a spot that has produced. Cats are spooky but they'll come back. I've taken

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About the Author

Conservationist Fred W. Kent is head of the photographic department at the State University of Iowa. He is regarded by many as the "Dean of Iowa Photographers." Kent is an amateur ornithologist and has combined this hobby with his achievement in the field of professional photography. In the following article, Kent emphasizes that there is a limitless opportunity to study and photograph owls in Iowa's state parks. These areas, which offer

ideal habitat and complete wild-life protection, have found favor with the several species of owls visiting and nesting within Iowa's borders. Whether you're an amateur or professional naturalist; a novice photographer with a box camera, or top pro with the best optics money can buy; or just plain outdoorsman and nature lover, we think you'll enjoy Kent's observations of Iowa owls. Also how he has combined an interesting hobby with his professional skill.



Naturalist-Photographer Kent is in action with camera and telescope he uses to bring Iowa owls up close. In the accompanying article, Kent makes some observations about Iowa owls and where they may be found.

Nature's Notebook

Major Events in April:

- General migration of songbirds—Purple Martin, Swallows, and majority of other songbirds.
- Spring migration of ducks continues with Spoonbills, Teal, Baldpates and smaller species moving to northern nesting grounds. Courting displays in evidence this month as ducks begin to select mates.
- Heavy bloom of early spring wildflowers occurs during the month. Hepatica, Virginia Cow's Slip (more commonly called Bluebells) and Bloodroot are some of the more common species blooming this month.

Others:

- Insects—Hatching of some members of the insect world begins.
- Spawning runs of the Northern Pike underway. Suckers and chubs begin migration in smaller streams.
- Crows begin to nest in late April and many others begin preparations for nesting. Bird songs begin to be heard in early morning and evening as males begin to mark out nesting territories.
- First shore birds will be moving during April. Snipes, Pectoral Sandpipers, and Yellow Legs are in this group.
- First Whippoorwills will be heard in April.
- Sandhill Cranes begin to move along Iowa's western counties, with main point of concentration around Lexington, Nebraska.
- Greening of lawns begins during April with the first dandelions beginning to appear in the warm places.
- First marsh serenading begins with toads and frogs beginning to "sing" in April.

In State Parks

Owls Through the Camera Lens

Fred W. Kent
State University of Iowa

Owls have been described by someone as "night-roaming feathered mouse traps," a group of birds we see, but rarely; hear occasionally, and about whose habits we know but little.

For a number of years I have tried to find, study, and photograph some of the owls found in Iowa. It is no simple task since owls are almost entirely nocturnal in their habits and quite possessed with superior equipment of sight and hearing. Humans are somewhat handicapped in observing their active movements.

Owls have very large heads with the space largely occupied by the organs of sight and hearing. Their eyeballs are as large or larger than the human eyeball, so large in the eye socket that they have no movement as do ours. However, a very flexible neck permits rotation of the head as much as 270 degrees. This is, perhaps, the origin of the old saying—"walk around an owl until it twists its head off."

The eye has a large iris opening, and a retina with more of the light-sensitive rods highly sensitive to dim light. This may reduce the sharpness of vision in poor light. This may reduce the additional aid in locating prey at night or in darkness. I would compare eyes of owls to a camera with a very large opening lens and a very high speed film—even faster. The eye of the owl also has enough of the cones in the retina for good vision in daylight, aided by flexible pupils which cut down excess light. Along with better vision, the owls have adapted flight feathers for silent flight. The extra long plumes on the barbs of the feathers overlap and prevent the "whistle" of air through the wings, a common thing in other birds.

Because of the owl's superior equipment, looking for them at night is hardly an even match. In daytime the best chances of finding them is at a roost or in holes. This is a rather slow procedure, but each of the species has definite preference as to habitat and surveys of these disclose a larger population than one might first imagine.

For many years I would see only one or two Screech Owls a year. However this winter I know of five roost trees where I can find them sitting and sleeping in holes on sunny days.

In one particular grove of cedars at Macbride State Park, five or six Long-eared Owls have roosted during the winter.

Owls seem to have fixed winter territory with definite roost places. Therefore, knowledge of these places is one way of finding them.

These roosts can often be found by spotting droppings and pellets on the ground under the roosts. Often a tree will appear empty of owls but if pellets are visible beneath roosts further search will often disclose a bird sitting close to the tree trunk or concealed in a clump of foliage nearby. Analysis of these pellets (regurgitated sacks of the undigestible remains of their prey) provide an excellent means of cataloguing the food habits of owls, a method extensively used by scientists and naturalists (notably in the extensive studies by Professor Paul Erring-



Amid barren branches an Iowa owl has built his home.

ton of Iowa State College). Most of these are clean, odorless pellets and when opened consist of bones tightly encased in fur. Experts have no trouble identifying the various species. The ones I have examined usually contain mice with the skull bones nearly complete.

Of the owls found in Iowa three are common residents—the Horned, the Barred and the Screech Owl. The Barn Owl is seen in Iowa, but it is rare. Other owls, usually found in winter, are the Long-eared, Short-eared, and more rarely the Saw-whet, with the big Snowy Owl of the north wandering into the state during some winters.

BARRED OWL—A large gray owl with round head, without ear tufts, dark eyes and a yellow bill. It is generally called the "Hoot Owl" because of its familiar hoot-

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Jim Sherman Photo.

Northern pike like these are the result of concerted, near year-around management of the species. Fish management has made great strides in recent years, but it can at best only partially offset man's uses and some new abuses of water.

Pike . . .

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they got out they were too big to be eaten by other fish.

But the sands of time and changing conditions were running out for the northern of this day. He was dethroned—banished forever by the white man's "bull ditch drainage" and his creeping prairie plow. Return to domination of his prairie fish province has been impossible in the face of extensive farm cultivation.

As the northern's aquatic kingdom crumbled and disappeared, competition for the remaining water became keen. Bullheads and carp—fish that could spawn and feed in turbid waters—controlled most of the habitat, not like the tiger of the prairie ponds, but like the Army ants of Africa—they changed the environment to their advantage!

Early settlers recounted spearing expeditions close on the heels of winter in which they filled the wagon box with pickerel for their spring supply of fresh and salted fish. Abundance and their shallow-water spawning habits made them vulnerable to such a harvest. Strict laws and good enforcement during spawning runs failed to offset population losses caused by drainage and the decline continued.

The walleye and other firm-flesh, deep water fish were sought later

by lake and stream fishermen. Because of the northern's voracious feeding habits, he was assumed to be a liability during the "era" when every small fish was believed destined to grow to be a big fish for the frying pan. So he gained the nickname "snake" and only "low-caste people" caught him except by mistake. Live "mistakes" were seldom returned to the water in some areas.

The pike's tenacity for life, characterized by large numbers of young, voracious feeding, rapid growth, longevity and large size may have saved the species in many Iowa waters. Fish culturists were first attracted to pike hatching because of the large number of eggs (up to 100,000) a single female could produce. Fish managers liked northerns because they could produce "decent-sized" fish the second year and they would bite any time on a variety of baits and lures. Anglers learned to respect and love them for their occasional tackle busting, trophy size. Just talk to a man who has caught a 10-pound northern on light pan-fish tackle—he's been fishing!

It has only been in fairly recent years that the nickname "snake" has been discarded from the angler's vocabulary. Biologists, through scientific analysis, have concluded that northerns help main-

tain a biological balance by their heavy and varied feeding habits. Thus, modern fish managers recognize the pike as a valuable game fish worthy of protection and extra propagation efforts. *Esox lucius* offers a natural means of improving fishing for other species because of his predacious feeding. He removes surpluses which cause dwarfing among non-predatory and valuable panfish species and these bluegills and crappies make up a high percentage of the average Iowan's creel!

Artificial northern pike egg hatching techniques are over 50 times better than average natural spawning results. Great improvements have been made in planting techniques since 1950. For many years, fry have been scattered in vegetated shallow areas like the female instinctively seeks, instead of the old mass bucket plantings of early years. Nursery pond production of larger sized fingerlings has received the attention of many Midwestern fish culturists and biologists.

Pond production of fingerlings over 3 inches in length for stocking is not successful because of the specie's high cannibalistic tendencies. Survival rates of planted fry are very erratic. About 10,000 fry may produce 16 15-inch fish by fall or 1,600 three-inch fingerlings by June 30. No planting method is known that will assure reasonable survival year in and year out. Cold wet springs with high water stages appear to favor the survival of the young, but we do not know why.

Biologists familiar with water chemistry, soil chemistry, botany, zoology, climatology, pathology, aquatics and ecology can solve the problems that cause erratic artificial pond production of northern pike.

Sure economical methods of artificial northern pike propagation and rearing would do much to add to Iowa's angling success for pan-

fish and game fish alike. Artificial production and wise management can at best only partially offset the damage to all fish life caused by man's ever-increasing uses (and some new abuses) of water—the basic medium for fish life!

RABBITS: GUNNERS' FAVORITE GAME

It's well established that more Iowans hunt the cottontail rabbit than any other game animal, but what about the rest of the nation?

Well, according to Remington Arms Company, "Mr. Hotfoot" apparently holds the sporting lime-light in every one of the 48 states!

Remington says that 29.6 per cent of all the shotgun shells manufactured in the nation are fired at the cottontail.

Squirrels are the second most popular target, with 14 per cent, and quail, with 13.9 per cent, are ahead of ducks and geese, which are targets of 10.5 per cent of the shells fired. Pheasants are responsible for 9.5 per cent, doves 7 per cent and other game 3.5 per cent.

(Editor's Note: Some 30 states hunt doves. Iowa does not have a season on this game species at the present time.)

Trap and skeet account for 12 per cent of the shells fired.

LAMPREYS

The commercial catch of lake trout in Lake Michigan was 5½ million pounds in 1946 but by 1953 the lamprey eel had cut it down to 402 pounds. Fisheries men are fearful the eel may get established in other inland waters, particularly the TVA lakes. Persons importing minnows are urged to inspect the shipments closely to see that they contain none of the killer eels.





A deer camp scene near Fish Farm Mounds during the Iowa deer season. Hanging fat, cornfed Iowa deer for dressing calls for hefty muscles, and a good hearty breakfast under the belt helps.

Jim Sherman Photo.

Deer . . .

(Continued from page 25)

2,805 deer legally taken during 1957. Of these, 2,187 were shot by licensed gun hunters, 138 by licensed bow hunters, and 480 were legally killed by unlicensed hunters. These data are comparable to that obtained in 1956 when 2,667 deer were legally killed. Fewer licenses were sold in 1956. In five hunting seasons Iowa nimrods have harvested a known total of 14,974 deer. Only 323 of these were known to have been killed by bow hunters.

Of the counties where more than 100 deer were harvested, Allamakee ranked first with 364, followed by Winneshiek (160), Clayton (115), and Pottawattamie (107). Northeast Iowa, with its many acres of ungrazed woodland, is certainly yielding its share of deer. The data from five seasons reveal 1,581 deer have been killed in Allamakee County. In other words, over one-tenth of all deer killed came from Allamakee County alone. However, the herd remains approximately as large as before hunting began in 1953.

Sex and Age Data—Males comprised 54.5 per cent of all deer reported by hunters. Checks by game biologists consistently reveal more male fawns than females are to be found in the bag. Probably we actually do have slightly more bucks than does in our herd.

Most Iowa hunters, if given equal opportunity to shoot a buck or doe, would shoot the buck. However, our short, two-day season makes difficult any selection of sex by hunters. Most are satisfied to shoot the first deer they encounter and are happy for the opportunity.

As can be seen in Table 1, 40.8 per cent of all deer checked by biologists were fawns. This indicates that at least 69 fawns were produced by every 100 adult deer in 1957. Iowa deer reproduce faster than many people have believed in the past. Not only are they prolific, but deer are not long-lived. Only four of 375 deer aged were older than 4½ years. Most were aged as either fawns, 1½ years, or 2½ years.

Weights and Antler Development—Complete weight data can be seen in Table 2. In Iowa, fawns grow rapidly and average nearly 100 pounds when hunting season rolls around. Most deer increase in weight until they are 4½ years of age. Bucks are usually considerably heavier than does of comparable age. The largest deer that was examined by Commission biologists tipped the scales at 248 pounds. Larger ones were very likely killed, but not officially weighed.

As with weights, the antlers of bucks up to 4½ years show increases in size and number of points comparable to age. Male fawns usually had small buttons

TABLE 1
Sample Age Composition of Deer Taken by Hunters

AGE CLASS	PER CENT OF TOTAL SAMPLE
Fawn	40.8
1½ years	26.9
2½ years	20.8
3½ years	6.6
4½ years	3.7
5½ years	0.5
6½ years	0.5

for antlers. Older bucks averaged 3.2 points per antler for yearlings (1½ years) and 4.3, 4.5 and 5.3 points per antler for ages 2½, 3½, and 4½, respectively.

Hunting Success—Of 5,942 licensed gun hunters, 2,187 reportedly killed deer for a success of 36.8 per cent. Both successful and unsuccessful nimrods hunted a total of 67,947 hours. In other words one deer was bagged per 31.1 hours of hunting. These same hunters reportedly saw 30,480 deer while hunting, or one deer per 2.2 hours afield. The 30,480 deer seen does not mean we have that many in Iowa. Many of these deer were observed by several hunters and so were reported a number of times. Also, some hunters may have unknowingly seen the same deer more than once.

Strangely enough, only 918 deer were killed on December 7, while 1,195 were shot on December 8. Usually more deer are taken on the first day than on the second. For both days, 1,158 were taken before noon, and 942 after noon. Of course, some reports did not indicate the time of day during which deer were killed.

Bow hunting success was 11.4 per cent, as revealed by 1,212 license returns. Bow hunters hunted a total of 51,122 hours. On the average, they bagged one deer per

370 hours of hunting. While hunting they observed 14,699 deer, or one every 3.5 hours.

It is interesting to compare the 67,947 hours of gun hunting and 51,122 hours of bow hunting. The combined total of at least 119,069 hours of recreation provided Iowans by deer hunting is an important reason for continuing the sport. Bow hunting alone permitted a minimum of 6,390 eight hour days of recreation in 1957.

Occupations of Hunters—Farmers again were the largest single group of hunters. They totaled 2,094 licensed gun hunters and 170 bow hunters. In all, 1,402 deer, or nearly 50 per cent of the total harvest, were taken by farmers. For the gun hunters, laborers made up the second largest class, followed by: Miscellaneous, merchants, professionals, technicians, retired persons, and housewives respectively. Seven deer were bagged by 20 housewives who used shotguns. Another housewife bagged a deer with bow and arrow. The weaker sex just cannot be outdone, even when it comes to deer hunting.

Bow hunters were of a slightly different breed. Laborers comprised their largest single group; followed by: farmers, merchants, professionals, technicians, miscellaneous occupations, housewives, and retired persons.

TABLE 2
Average Weights of Iowa Deer from the 1957 Season

AGE CLASS	AVERAGE LIVE WEIGHTS IN POUNDS	
	MALES	FEMALES
Fawns	98.5	94.9
1½ years	154.0	135.2
2½ years	191.7	153.0
3½ years	195.3	158.6
4½ years	204.8	154.6

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OWLS AND SUPERSTITION

Because their activities and movements usually take place at night, owls have not been studied as extensively as some other groups of birds and for centuries have been subjects of superstition. Nearly every civilization has given the owl the role of oracle and considered its presence as an omen. Perhaps this was justified. Owls are great mousers and ratters. These rodents are notorious disease carriers. Hence the presence of owls within a town usually indicated a high rodent population, with its accompanying incidence of disease and death. Conversely, when the rodent population decreased, owls became less numerous and the disease rate dropped.—*New York State Conservationist*.

STRANGE ANTICS

During mating seasons cottontail rabbits often engage in what appears to be hopping contests. A pair faces each other. One rabbit leaps straight up in the air and the other jumps underneath. The routine may be repeated several times.

DOESN'T FISH

The fisher, a member of the weasel family, seldom if ever catches fish. Most of its diet is made up of small land animals. However, the fisher sometimes catches fish that have died or that have been caught by other animals.

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Long-eared owls are sometimes confused with Great Horned owls. A winter visitor, Long-eared owls have been seen at Macbride State Park for many years.



One of the most familiar sounds of childhood is the wavering cry of the screech owl. A hole in a tree is a favorite roost for this Iowa owl.

Owls . . .

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ing, but it also produces many varied screeches and screams. Found in heavily wooded areas and often in wooded areas in city limits. A typical location is the woods along the river in Wapsipinicon State Park where I found a pair of the downy young sitting on a limb unable to fly. Gray owls nest in holes, often in the same one year after year. They usually spend the day perched on some high branch of a tall tree. While they are nocturnal, they sometimes hunt by day. Surveys of the pellets show the main food is mice. They are often located by blue jays and robins diving and yelling at them. Last summer I observed one over-agitated robin which spent three days continuously chirping at an owl in a high oak back of my house. The owl treated the scolding robin with complete unconcern.

HORNED OWL—The largest of our owls. He has more brown than the Barred, with large ear tufts and huge claws. His favorite area is the heavily forested areas and scattered woodlands. Its call is a series of hoots on the same pitch. A ravenous feeder on mammals and birds, especially rabbits (The



Study of owl pellets provides insight into the food habits of owls.

fine studies by Errington on this bird, its food habits and predator relationship). It is a difficult bird to locate. It will either fly off silently ahead of you in the woods, or sit concealed next to a tree trunk behind leafy branches. Crows are a great help in locating a Horned Owl and they seem to delight in pestering one when they find it. When nesting during February and March, Horned Owls can be spotted by the "cat-like" profile above an old Red-Tail Hawk nest which they often use. When on eggs they sit very tight as one might suppose they should with severe winter weather.

There is a bottomless area along the Iowa River where Horned Owls and Hawks have alternated nesting in two high trees for five or six years. The Hawks build a nest one year and the Owl the next. The young are as large or larger than the adults when they leave the nest late in April. They are often found near the ground the first few days out of



The Saw-whet is Iowa's smallest and rarest owl. Saw-whets winter at Lake Macbride State Park. Mild of temperament, they are easily approached.

the nest since they are relatively flightless. Once I found a young one in a low willow hanging on for dear life while the old birds put on a "broken-wing" act nearby. This is hardly the fierce defense reported by some observers.

LONG-EARED OWL—A medium-sized owl with very tall ear tufts, closer together and more erect than the Horned Owl with which it might be confused. However, its habitat and habits are quite different. Found usually in the winter, often in groups roosting in small cedar groves in farm plantings. In an old cedar planting near the Custodian's residence at Macbride State Park they have roosted for many years. Roy Reed, the park custodian, has counted 17 on one occasion.

I have found them in pines in other parts of the park, in willows, and once in an oak tree in the heart of town. Long-eared owls are very difficult to see since they blend perfectly with the branches of a cedar, and use the additional

concealment trick of "slimming" themselves. Often one will finally discover them inside dense foliage by first sighting the large yellow eyes or erect ears. They apparently are entirely nocturnal and feed mostly on rodents.

SHORT-EARED OWL—Another medium-sized wintering owl about the same size as Long-eared Owls. They have very small ear tufts, often not erected and have entirely different habits from those of Long-eared Owls. It hunts over open fields and marshes by day, flying very low back and forth over the field in search of food, mostly mice. Its flight has been described as "moth like." It usually roosts on the ground in high-tufted grasses of old marshes or roadsides. With heavy snow cover they will move into low roadside bushes. The best way to locate them is to watch open fields at dusk when they are most likely to start feeding. Sometimes they are found sitting on fence posts or telephone poles in daylight, comically twisting their heads around as if to keep an eye on all the scenery at once. Sometimes they are found sitting in open fields.

SCREECH OWL—This small common owl I find a bit elusive



Short-eared owls are great "mousers" with a flight described as "moth-like."

All photos by the author.

since it is nocturnal and often roosts in holes in trees. It has prominent ear tufts and is seen in both red and gray plumages. Sometimes it is mixed within woods. Its call is a tremendous or wavering whistle. This call was quite familiar in my boyhood days when there was always a pair in an old apple tree in our yard. I don't often hear them now. Their favorite nesting place is a hole in a tree, even wood duck houses, and they are quite aggressive when the young are fledging. I have found them more often in the winter by looking for holes in old maples around farm plantings. Here on sunny days they sit sleeping. However, they are also to be found in the cities. There is one in a tree along one of Iowa's city's busiest streets. It sleeps all day seemingly unaffected by the very heavy traffic.

SAW-WHET OWL—Our smallest and rarest owl. It is a pretty little brown bird without ear tufts. It likes to sit very well hidden inside small pine and cedar trees or other tangles. I have found them only at Lake Macbride State Park in the winter. They are very trusting birds which can be approached to within a few feet.

One cold day last winter I moved a large camera on a tripod to within four feet of one. By the time I got ready to take a picture it had gone back to sleep. I had to disturb it a bit to get a picture with its eyes open.

Once I took Jim Sherman, now head of the Conservation Commission Public Relations Section, out to see one. He looked without success and finally questioned my reliability. Finally, I suggested he look above his head. There one sat concealed behind a clump of pine needles. Again, spotting pellets under the roost tree is the best way to locate them. All the pellets I have examined contained white-footed mice. I have found them holding a partly consumed mouse in their claws as they roosted. I surmised that the morsel was probably too big for one meal.

BARN OWL—The most striking of the owls with heart-shaped face pattern, light colored plumage and delicate brown markings. It is quite rare, a nocturnal rat and mouse feeder, and likes to nest in old lofts, belfries and barns. I have seen but one nest, which was in a barn on a pigeon loft. The four grown young were huddled in a corner hissing at us. It was a rather comical sight.

SNOWY OWL—A rare winter visitor from the arctics and shows up in Iowa only in certain years. A large white bird, the female is more brown. The species is not very wary. They are sometimes seen on poles and on tall buildings in towns.

For this article, I have had the assistance of "The Way to Game Abundance" by Wallace Byron Grange; "The Vertebrate Eye" by

Gordon L. Walls; and "The Owls of New York" by H. Wayne Trimm.

Photos by Fred and Tom Kent

Ants . . .

(Continued from page 26)

Workers take over the care of the new larvae which appear. Because they are abundantly fed, these produce workers of a larger caste. All workers are imperfect females which rarely lay eggs. Now the colony increases rapidly. New chambers and galleries are excavated. For the remainder of her life, which may reach 15 years, the queen is merely an egg-laying machine. In later years, males and females with wings suddenly appear outside the colony and launch into their nuptial flight. These young females start new colonies and the males die a day or two later. The queens come from larvae which have been specially fed, and the males come from unfertilized eggs.

Various ants eat almost any kind of plant or animal material. Cookie crumbs—a combination of sugar, starch and grease—seem irresistible to many of them. They are also great scavengers, stripping the flesh from the bones of dead animals and dragging away dead insects. Some kinds are best known for their habit of keeping "ant cows"—plant lice or aphids—from which they coax a sweet fluid called honeydew.

The Army Ants of tropical America and Africa are famous for their predatory habits. No living thing along their line of march, even man, can resist their tearing jaws. The Leaf-cutting Ants feed on fungi which grow on chewed-up foliage in their subterranean "mushroom gardens." Some of our local ants raid the colonies of other kinds, carry away their pupae, and make slaves of the workers that emerge from them.

Few things are more interesting in the schoolroom than a healthy colony of ants in an observation nest. Detailed information about that is given in Service Leaflet No. 35, which may be obtained from the General Biological Supply House, 8200 South Hoyne Ave., Chicago 20, Illinois.

OFTEN BENEFICIAL

Though claims have been made that a mountain lion kills 300 of its favorite prey each year, careful estimates by naturalists range from 35 to 100, and, in the case of deer, which sometimes overpopulate their ranges, this is often considered more beneficial than harmful.

LOSES FANGS

The rattlesnake develops new fangs about every three months, generally swallowing the old ones as they become embedded in the snake's prey. It sheds its skin approximately three times a year, each time adding a new ring to its rattle.



Jim Sherman Photo.
Cutbanks and swirling water around snags are productive spots for channel catfish. Reading the stream and bottom before you fish will pay off on the stringer later.

NEWS WHEN DUCK HUNTS A HUNTER

It isn't news when a duck hunter hunts a duck, but when a duck hunter hunts a duck hunter—well, that's another story.

One of Burlington's most enthusiastic nimrods is John Trienens, who has slain many a mallard in his day. Recently, the situation was reversed.

As Trienens and his wife, Rosell, were eating lunch recently, they heard something strike their house. They went outside and there, in the yard, was a fat mallard hen, who had flown into the house and rendered herself exceedingly defunct.

Law-abiding folk that they are, the Trienens called Conservation Officer Ken Kakac and reported the incident.

"Don't know what made her fly into the house," said Rosell. "Maybe her radar failed."—*Burlington Hawkeye-Gazette*.

KOKANEE SALMON

Other common names of the Kokanee Salmon, a fresh water relative of the Sockeye Salmon, are "little redfish" and "silver trout." Kokanee spawn every four years and die after spawning.

PORCUPINE DIET

The porcupine's fondness for mistletoe is a real asset in reducing this parasitic plant which saps the vitality of so many trees. But the animal may undo its good work by eating the bark of the same trees.

UNDAUNTED

Coyotes frequently eat porcupines, despite the quill menace. Seventy-five per cent of the coyotes killed in Yellowstone National Park during the late 1920's, before predators were protected there, carried porcupine quills.

Catfish . . .

(Continued from page 26)

a lot of fish from places where a week or month before I caught catfish."

Stream reading from the bank may have some merit, but it can't be as thorough or productive as getting right into the stream and wading. When the angler wades, he has complete freedom to maneuver and explore every part of the stream—ahead, behind, and from one bank to the other. Wading also simplifies bottom reading—at close range, rather than guesswork from afar!

Yates, like a good many other successful catfishermen, keeps a "weather eye" on rises in the stream, whether nature-instigated in the form of rains or thaws, or artificial by the opening of controls at hydro-electric dams. Some of the best catfishing is during these highwater periods and the angler who watches this aspect of catfish water can give his luck a hefty "shot-in-the-arm."

Recognizing the right kind of catfish water and ranging far astream to fish these places adds much to catfishing. Maybe it's the possibility of that eight or ten-pounder lurking around the next bend. Or maybe it's the appeal of new and interesting things along the stream that lures the angler on and on, farther and farther upstream. Every catfisherman has his reasons. I know that I've never heard of a catfisherman who moves for his fish to return or be satisfied with any other method!

FAST FOX

The kit fox is sometimes called the "swift fox" because it can run faster than other foxes. Some naturalists believe that for short distances, perhaps a hundred yards, the kit fox is one of the fastest running animals.



Clear Lake State Park is one of Iowa's favorite vacation spots. What many visitors don't realize, perhaps, is that numerous and interesting geological happenings of the past are in evidence at today's Clear Lake.

Clear Lake . . .

(Continued from page 25)

this rock at least is of marine origin. The limestone and the shale were laid down as sediments in an ancient sea. The limey sediment was subsequently hardened to a solid limestone.

The sea prevailed during the Devonian period, which ended some 300 million years ago. During this period, which lasted for about 50 million years, the shallow sea spread widely over what is now North America. It spread slowly and had many ups and downs. Deposits formed in the later part of this period directly underlie Clear Lake State Park and much of the surrounding Cerro Gordo County. These deposits, now shale and limestone, are part of the Lime Creek formation, named from the numerous outcrops along that stream, in northeastern Cerro Gordo County. The formation in places has a thickness of as much as 190 feet. It has a gentle dip to the south, so that with distance it gets farther from the surface, being overlain by the deposits of later seas.

As noted earlier, fossil corals are abundant in outcrops of the limestone. The stone used in the construction of the park lodge is from a quarry at Mason City, but no fossils were noted in this stone by the writer. There are many limestones from which fossils are absent.

The sediment which formed such limestone probably came from solution in the sea water. Other limestones may be almost a solid mass of shells and shell fragments, corals and other shelled animals. Sandstones of Devonshire, England, from which the Devonian system of rocks was named, are noted for the occurrence of fossil fishes.

Long after the Devonian sea had withdrawn a change in world cli-

mate brought on a period of glaciation. Ice sheets, similar to those now existing in Greenland and Antarctica formed in Canada and spread in all directions. They reached as far south as the Missouri River. The glaciation began about a million or more years ago. It was not continuous, as the climate changed back and forth. Northern Iowa was glaciated several times.

The Clear Lake basin lies on the eastern margin, the end moraine, of the deposits left by the last glacier. In Iowa this glacier was in the form of a lobe which extended as far south as Des Moines. Like the earlier glaciers it left a deposit of glacial drift over everything. This drift is composed of fragments of all sizes ranging from fine clay to large boulders. All of this was carried by the glacier from country to the north. Some of it was in the form of subsoil, derived from the weathering of the bedrock of the country. The glacier also ground off or quarried other material from the bedrock.

Most of the glacial drift is of a sort called till. There is no arrangement of the materials in till. The clay, silt, sand, pebbles, cobbles are in a jumble, all mixed up. Another sort of drift, call it stratified drift, has been deposited from

glacial meltwater. In this, the materials have been size-sorted by the running water. So one may find associated with the till, deposits of sand, or of clay, or of gravel. There is plenty of drift to be seen in the country around Clear Lake.

Excavation for the sewer line disclosed something of interest in this connection. Above the blue clay mentioned previously were about 10 feet of brown sand. This is thought to be material deposited by glacial meltwater near the margin of the ice in the closing stages of glaciation. It in turn seems to account for the fine sandy beach at Clear Lake State Park. Most of the beaches on Iowa lakes are artificial. That is, the sand has been brought in from some nearby location, and spread on the lake shore. There is so much clay and silt in the glacial drift along the shores of most of the lakes that the off-shore bottom is usually muddy. Not so here at Clear Lake State Park, and probably all because of that deposit of sand laid down by the meltwater of the last glacier, some 10,000 years ago.

Apparently also the beach is in such a position with respect to wind and waves that fine muddy sediment eroding from the shore elsewhere is not carried very far. Rather, it would seem that it must be carried almost directly out and deposited. There is also the possibility that because of the shallowness of the beach, agitation by the waves is sufficient to keep the finer clay particles from settling along this stretch of the lake front.

The visitor to Clear Lake State Park is seeing then not only a pleasant spot on the shore of a beautiful lake but he is also in a place where the sea once ranged for millions of years, and where not so long ago there was glacial ice instead of lake, fertile farms, and woodland. There is much to reflect upon, in the events of the past, when one visits Clear Lake State Park.

BOBCATS

One study of bobcat diets in Minnesota showed that porcupine flesh was the third most numerous food and was present in 10 out of 50 stomachs.



CAMP STRESSES FIELD STUDY

Duane E. DeKock
Public Relations Officer

A group of modern cabins nestled back in the hills of beautiful Springbrook State Park will again be the home for many teachers this summer. This scenic state area will be the base for Iowa's unique conservation course.

The camp has several unusual features. Instruction is mainly in the field, with emphasis on seeing and doing, rather than listening and reading. The students travel hundreds of miles each session, visiting the more educational areas in the state. Specialists chosen for their expertness in providing education experiences lead each separate phase of field work.

Teachers or students who come to the Conservation Camp earn three semester hours of college credit for each three-week session, either undergraduate or graduate. The first session, beginning June 8, emphasizes rocks and minerals, soils, forests and water. The second session, beginning June 29, deals with soil nutrients, wildlife and balance in nature. The third session begins July 20 and duplicates session one.

The park offers excellent facilities for swimming, boating, fishing, hiking and bird study, as well as being a well-equipped outdoor classroom. The informality of dress and instructor-camper relationship make for a pleasant, though intensive, training experience.

A well-equipped industrial arts shop and instructor are available for the construction of collection boxes, display boards, other teaching aids, and craft work. Fishing equipment, a photographic darkroom, an excellent library, and other facilities are provided for the use of campers.

As in the past, local Soil Conservation Districts, sportsman's clubs, woman's clubs, garden clubs, and other groups are offering scholarship assistance to teachers. Many teachers find such groups eager to pay part or all of their conservation camp expenses, expecting nothing more than better conservation teaching in return. Scholarships may be applied for through the local Soil Conservation District office, the local State Conservation Officer, or the Camp Director.

This course is sponsored jointly by the State Conservation Commission, State Department of Public Instruction, and Iowa State Teachers College.

George W. Worley, Camp Director, Science Department, Iowa State Teachers College, Cedar Falls, Iowa, is providing information on courses, scholarship assistance, and other matters pertaining to the Teachers Conservation Camp.