

# IOWA CONSERVATIONIST

VOLUME I

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NUMBER 1

## Iowa's Trout Policy Pays

### Northeast Iowa Streams Support Heavy Population

By E. B. SPEAKER  
Superintendent of Fisheries

Brook, or speckled trout have been native to the streams of northeast Iowa since the earliest records of man. Other species now common there have been introduced by State and Federal fish hatcheries, and the native brook trout have given way to rainbow and brown trout because of certain physiological changes in the streams. These changes occurred with the removal of the forest cover and intensive agricultural practices, which caused severe flood conditions and grossly increased soil erosion.

Trout have been cultured in Iowa since the first state fish hatchery was established at Anamosa in 1873. In December, 1880, a hatchery was constructed on the

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## Game Farm Active in Winter

By TAYLOR W. HUSTON  
Superintendent of Game

During winter the average person gives little thought to a game farm, assuming that winter is a loafing period for the game farmer. However, according to C. H. Updegraff, superintendent of the State Conservation Commission game farm at Boone, there is plenty to be done.

For example, there are more than 2,000 adult pheasants in the winter range pens, and they must be fed and watered daily. These birds are divided into two groups, 1,400 being confined in a nine acre winter range, and 700 in a four and three-quarters acre range. These pens are located some distance apart, and it is

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## Trout Culture From "Cradle to Creel" Guarantees Regal Sport for Fishermen

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### Devil's Backbone Cradles Future Creelsful



Backbone Trout Hatchery and Rearing Ponds at Strawberry Point.

### Hatchery Men Operate Year 'Round Program

By R. B. COOPER and E. T. ROSE

Thousands of fishermen enjoy trout fishing in Iowa each year, and this story of trout culture from the cradle to the creel is told to acquaint sportsmen with the methods used by the State Conservation Commission to guarantee this sport.

Breeding stocks of brook, rainbow, and German brown trout are held in the Backbone hatchery rearing ponds at Strawberry Point the year around. Some of these breeders are eight years old and weigh as much as 14 pounds. In addition to eggs produced at the hatcheries, eggs from wild stock are imported from commercial breeders from both the east and west coasts. About Nov. 15, rainbow trout, the earliest spawners, begin to ripen and are confined where they can be closely watched by the fish culturist. When a group of these fish are fully ripe they are placed in a large tub, and the stripping, that is, the taking of the eggs and milt, begins.

#### Task Delicate

In taking spawn the manipulation of the fish without injury is a very delicate and exacting task. It is difficult for an inexperienced operator to squeeze the eggs from the fish without injuring or even killing the latter. In taking hold of the fish in the spawning tub, the operator catches it by the head with the right hand, the back of the hand being down and the nose of the fish being well in the palm of the hand, with the fingers extended under and along each side of the fish in the direction of the tail.

At this same time the fish is

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## IOWA CONSERVATIONIST

For a long time the State Conservation Commission has recognized the need for some method of conveying to the public information about the work of this branch of the state government. Possibly no state department enjoys a more favorable and cooperative press, but there are certain types of materials relative to various phases of the conservation program that while interesting and important are not of news value, and consequently the newspapers cannot use them.

It is, frankly, the purpose of this bulletin to aid the field force sell conservation cooperation to the people of Iowa by familiarizing them with the program and techniques of the State Conservation Commission, thereby strengthening the program of "wise use" in this state.

The Iowa Conservationist is to be published monthly and will each month emphasize some phase of the program. We hope you will find it of sufficient interest and value to warrant its continued publication.

**IOWA CONSERVATIONIST**

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JAMES R. HARLAN, Editor  
F. T. SCHWOB, Director  
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**Pittman-Robertson  
Firearms Tax Act  
Aids Wildlife**

The Pittman-Robertson Act passed by Congress in 1937, authorized Federal aid to states on wildlife restoration projects. Under the Act, the money for this Federal aid comes from a tax imposed on firearms, shells, and cartridges. Wildlife restoration projects are construed under the Act to mean the selection, restoration, rehabilitation, and improvement of areas of land or water adaptable as feeding, resting, or breeding places for wildlife, including acquisition by purchase, condemnation, or gift of such areas as are suitable or can be made suitable for wildlife. Wildlife restoration projects under this Act may also include research into such problems of wildlife management as may be necessary.

Under this Act, Iowa began in 1938, a program of acquirement and development of game lands. One completed project typical of the work being done and to be done is the Rice Lake area. Rice Lake had been partially drained and was partly in private ownership.

For many years it was a failure as far as agricultural production was concerned. It was also a failure as a game producing area. This tract has been purchased, fenced, dams built, water impounded, and is now a splendid game producing unit.

From time to time the Iowa Conservationist will carry details regarding Pittman-Robertson activities in this state.

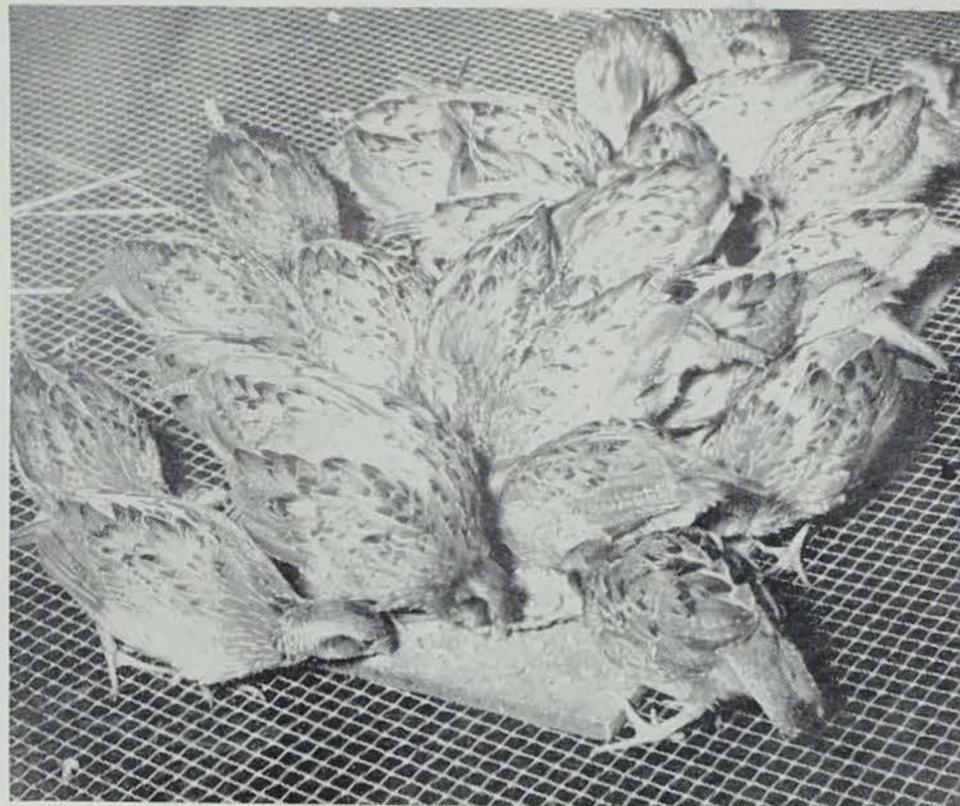
**Laugh Kills Duck**

A Lake City man went hunting during the duck season and returned with one duck. He told his wife she should appreciate it because it was a hard one to get and he had to empty his gun before it fell. She is puzzled about the gun emptying yarn, for when she cleaned the bird, she didn't find a single shot. She thinks it died from laughter. — Graphic, Lake City.

**Well Attended**

Iowa's state parks had a total attendance during 1940 of 3,331,348 visitors.

**Quail Live Well at Game Farm**



A covey of quail in a winter pen, eating their breakfast from a shingle.

**Game Farm  
Active in Winter**

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necessary that the roads be kept open and that paths be shoveled to and about the pens.

Freezing rain or sleet is one of the winter worries at the game farm, and during such a storm the fences must be given constant attention. Fences are built of one-inch mesh netting, topped with a fifteen-inch strip of galvanized metal. When ice freezes on a fence of this type, there is always danger that a strong wind will cause it to collapse. Consequently frequent checks of fences are made and ice broken off as it forms.

Contrary to common belief, pheasants consume considerable water and even when there is snow on the ground adequate water supplies must be available to the birds at all times. Fifty gallon water drums equipped with flow-controlled founts, and with a kerosene heater under each drum to keep the water from freezing, are maintained in the winter ranges.

There are more than 1,000 quail at the game farm. They are divided into coveys of about 17 each and held in winter pens 5x5x14 feet. Quail demand more attention than pheasants and must be fed and watered twice daily.

Starting about Feb. 1, weather conditions permitting, pheasants are placed in breeding pens, six hens and a cock in each. This transferring of birds entails a great deal of work. All birds must be blood-tested at the time they are placed in the breeding pens.

About March 15 the quail are

put into breeding pens, one pair of birds to each pen.

Other winter duties that are more or less routine include the daily job of grinding and mixing feed and repairing equipment.

Even though from all outward appearances it may seem there is not much winter activity at the state game farm, many different things must be done in order that as the hatching season approaches, birds will be in good condition and equipment in readiness.



By HAROLD BJORNSON  
Assistant State Forester

Two years ago the "Game Packet" idea resulted from the thoughts and conferences of several conservation-minded people who realized the great value of natural permanent cover and feed insofar as wildlife is concerned.

The picture of the amount of timber and other natural cover has changed greatly in the past 80 to 100 years. According to a survey completed in 1859, the state of Iowa had 6,680,000 acres, or about one-fifth of the total area of the state, classified as forest cover. The census of 1934 tells us we have only 2,312,000 acres of wooded areas left, or just about one-sixteenth of the state's area, which is about one-third of the original cover.

The destruction of this much

timber, plus the breaking up of the natural prairie sod, has caused a great decrease in two of the greatest needs of the furred and feathered creatures, namely, desirable food and cover. This, in turn, has greatly reduced the total wild-life population.

The game packet was started to fill this need which is so evident even to the casual observer. Our hard winter storms, of which Nov. 11, 1940, is the most notable recent example, take their periodic toll of wildlife, principally because of this very lack of cover and feed.

Planting for cover can be made to serve a double purpose by planting a species which also gives food; and a triple purpose can be served by planting where erosion control is needed.

On almost every farm in the state of Iowa there is some spot on which a planting can be made which would aid materially in sustaining and increasing the total wildlife population. These areas include rocky spots, eroded areas, waste corners, edges of the woodlot or timber, along waterways and many other places which would come readily to one's attention upon an examination of the land.

In order to provide trees that will grow in all types of soil as well as provide food and cover, several different species of trees, shrubs, and vines have been chosen from which the game packets are constituted. The contents of the game packets vary somewhat for different sections of the state. However, they are essentially the same.

There are high growing trees, such as ash or black locust; low growing trees, such as mulberry, wild plum or osage orange; evergreens, such as jack pine or red cedar; and shrubs and vines, such as hazel-nut, dogwood, elderberry, wild grape, etc.

It is the hope of the sponsors of this plan to get enough of these packets properly planted, cultivated, and protected from livestock to go a long way in making up for the lack of natural cover and food which now exists.

This coming spring packets will be available for the third year.

**Maybe We're Wrong**

Wrong answers given by applicants taking the recent Iowa conservation officers' examination:

Question: Name three kinds of aquatic plants common in Iowa.

Answer: Poison ivy, poison oak, nettles.

Question: Name three kinds of owls found in Iowa.

Answer: Barn owl, hoot owl, wise owl.

**Good Seining**

During 1939 and 1940, 2,534,651 pounds of rough fish were removed from Iowa's inland waters by state crews.

## WARDENS' \* TALES \*

### SHOP TALK FROM THE FIELD

This column is to contain "shop talk" of the state conservation officers and will be principally anecdotes about the field men and their work in their territories.

—WT—

**Some time ago one of the officers with a family of five children wrote asking for authorization to shoot some bitterns that were making heavy inroads on the bass in a rearing pond under his care. The authorization came back okayed, with a further footnote, "You are also granted permission to shoot any storks you observe circling your house."**

—WT—

When the possession limit was first put on frogs in this state, many stories were told about how difficult it was for the conservation officers to check on limits. An officer came upon a red-headed, freckled-faced boy frogging along the edge of a marsh. The bulge in the frog sack indicated more than the legal limit.

"Sonny, I'm afraid I'll have to count your frogs."

"Sure. I'll help," replied the quick-witted lad, as he turned the sack's contents upside down on the ground.

**The boy grinned, the officer grinned, and several dozen frogs, simultaneously took to the safety of the tall grass.**

—WT—

Conservation Officers Peterson and Adamson, on pheasant patrol, were watching a suspect through glasses from about a mile away. They observed the hunter shoot a pheasant and get out of his car to pick it up. A farmer in a nearby field plowing observed the pheasant shot and took out after the hunter, but he was easily out-distanced. The pheasant hunter got into his car, thumbed his nose at the farmer, and drove down the road. The officers intercepted him a couple of miles away, seized the pheasant, and told him to appear in court next day.

**They then returned to the farmer plowing, walked out to where he was and said, "Well, we got that bird."**

The farmer dropped the lines, doubled up his fists, and said, "Yes, you so and so's. I know you did." It was several minutes before the farmer had cooled off enough for the officers to explain that they were wardens and

# Trout Culture From "Cradle to Creel" Guarantees Regal Sport for Fishermen

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grasped between the ventral and caudal fins with the left hand, the back of the hand being up. Fish caught in this way can be brought out of the water easily and when held gently but firmly against the body will struggle only for a moment.

When the struggling is over, the right hand is passed down the abdomen of the fish until a point midway between the pectoral and ventral fins is reached. Then with the thumb and the index finger, the abdomen is gently pressed, and at the same time the hand is slipped toward the vent. If the fishes are fully ripe, the eggs will come freely and easily.

The number of eggs produced by a fish depends upon its size and age. The maximum number from a two year old rainbow weighing from six to 12 ounces is from 500 to 800 eggs, and from a six year old fish weighing four to eight pounds the number is from 3,000 to 4,000 eggs.

The eggs vary in size from four and one-half to five eggs to the linear inch and from 280 to 360 per fluid ounce, the sizes varying according to the age of the fish from which they are taken. When the eggs are first taken, they are of a rich cream color, changing to a pink or flesh tint before hatching. Eggs from wild fish are a bright salmon color and, as a rule, are much smaller than those of domestic fish.

After the eggs are taken, the breeder, having paid for its board and room, is returned to the holding pond, and as they swim away they seem to say, "Well, I'm glad that is over for another year."

### Water Incubator

The eggs and milt, stripped into a two-quart pan, are thoroughly mixed by stirring with a feather, and after two or three minutes, fertilization is complete. The milt is then poured off and clear water added to the eggs. This water has a tendency to harden the eggs and make them separate, the separation being further encouraged by a gentle shaking of the pan.

When the eggs are completely separated, they are transferred to six-quart hardening pails, with four quarts of eggs to each pail. A small flow of cold water, about one gallon per minute, is then run through the pans for about 12 hours to complete the hardening.

The eggs, after hardening, are put on screen trays placed in

that they had apprehended the violator, seized his game, and that he was to be prosecuted the next day.

metal troughs 14 feet long, 14 inches wide, and eight and one-half inches deep, through which a constant stream of cold water is run. These troughs are "incubators" and as well act as the homes of the small fish for about six weeks after they hatch.

Until hatching begins, the most important duty of the fish culturist is to keep the troughs clean and the dead eggs picked out to prevent spread of fungus diseases. The dead and infertile eggs are easily determined by their opaque, white coloring.

During the first 18 days of incubation, the eggs are very sensitive to shock, and a carelessly slammed hatchery door has been known to kill thousands of the embryo in their shells. In about 14 days, an eye forms inside the shell, and from that time on the day-to-day development of the fish inside may be seen through the translucent shell.

### Fry Active

In water at 48 degrees, the average temperature of Iowa's cold water springs, the eggs hatch in from 48 to 52 days. The tiny fry drop to the bottom of the trough and in a few days begin to scatter through the water, where they swim from trough bottom to water surface with vigorous jerky kicks of the tail and then drop back to the bottom to rest.

In a few more days the fry cease their nervous jack-in-the-box tactics, and all the young fish by that time are able to balance themselves in a horizontal position, heading against the current, swimming well up in the water.

When first hatched, the young trout have attached to their abdomen an embryo sac, or egg sac. For about 35 days this appendage acts as their bread basket, and they are given no additional food. However, when this prenatal food supply is used up, the young fish soon become ravenously hungry. Beef hearts, dehydrated chicken eggs and salmon egg meal, ground to a flour-like texture, seem to be the most satisfactory artificial starting food for young trout.

A small quantity of the food is dropped into the head end of the hatchery trough, and the fry feed by striking viciously at the small particles as they drift downstream. As long as the trout are in the hatchery, they are fed five times daily as much food as they will clean up in 15 minutes. Any remaining food is flushed out so that it will not interfere with

the next feeding and cause a foul condition in the trough.

When the incubator baby fish are about two inches long, they are beginning to over-crowd the hatchery troughs, and their foster fathers are ready to give them their first look at the cold, cold outside world. At this time the name of the small fish is changed from "fry" to "fingerling."

### Cold Water Provided

The outside world to these fish for the next few months will be a state trout nursery pond at one of three locations, Decorah, Strawberry Point, or Kramers. The reason for the nurseries' being at these locations is the fact that at each station large springs with heavy, year-round flows of very cold, crystal-clear water guarantee proper water supplies. Cold, clear water is one of the vital necessities of trout production and propagation.

Iowa's trout rearing units number 30 separate ponds, consisting of three different types: concrete race ways, concrete circular pools, and earthen pools. The circular ponds have proved to be most successful in this state. They are from 20 to 50 feet in diameter and from two and one-half to three and one-half feet deep. The ponds are deeper in the center than at the edges, the bottom being like a flat inverted cone. Water is introduced into the ponds on opposite sides. These constantly flowing streams give the water in the ponds a circular current, the water movement at the outside being comparatively fast, on the inside slow. All refuse and dirt in this "whirlpool" pond settles in the center where it can be quickly and easily removed.

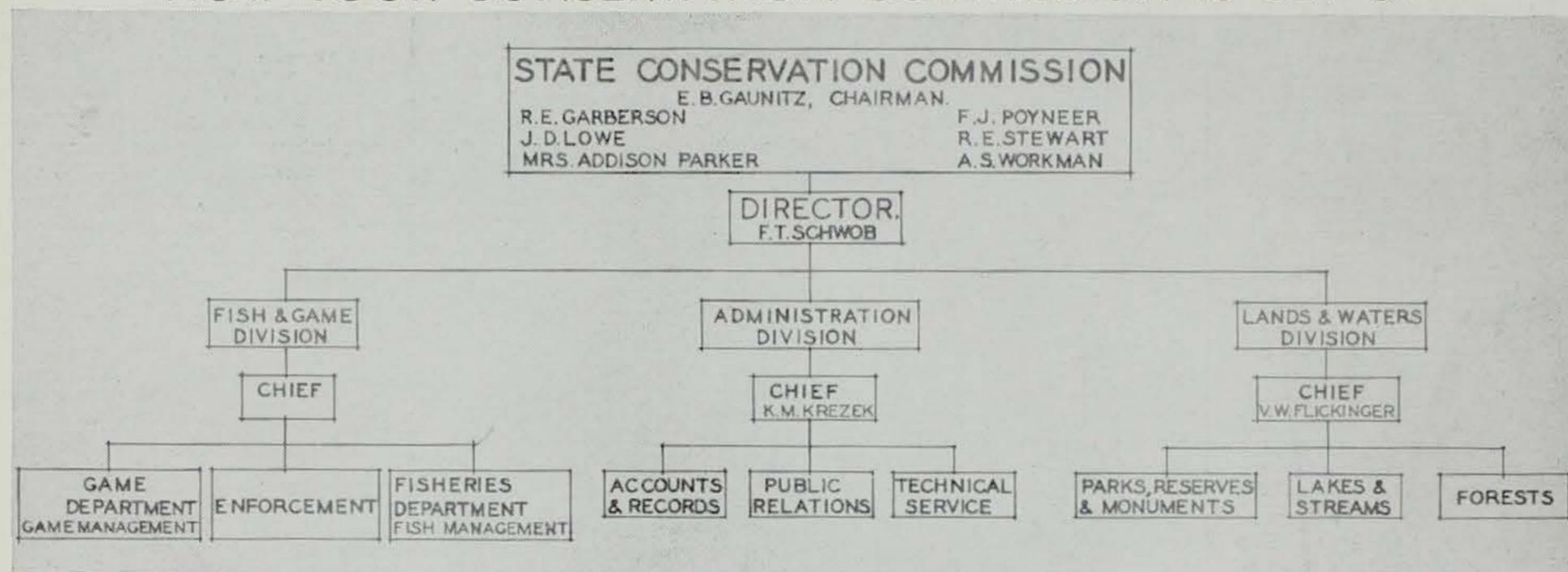
By the first of May, breeders have produced eggs, eggs have hatched, fry have grown to fingerlings that are over-crowding the incubator troughs and are now ready to be moved to the outside rearing ponds. A distribution truck, one of five, is brought to the hatchery door, its specially constructed, heavily insulated tanks two-thirds filled with cold water, and its aerating pumps with every wheeze say, "Oxygen, oxygen, oxygen."

### 5,000 To Trip

The hatchery employees dip small trout from the troughs into water-filled metal baskets, carefully watching the weight of the baskets, water and fish as the fingerlings are transferred. When the scales dial says 5,000 fish have been transferred, they are carefully placed into tanks on the dis-

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# HOW YOUR CONSERVATION COMMISSION IS SET UP



## Get Acquainted With Your Local Conservation Officer

Every sportsman should know the conservation officer in his territory, at least by name. The conservation officer is a public servant, and, as such, can be of great help to the sportsman.

### STATE CONSERVATION OFFICERS

Adamson, C. R.; 3500 East Seventh, Des Moines. Dallas and Polk Counties. Telephone 4-8339.

Baer, Kenard; 624 Elm, Cresco. Chickasaw, Howard and Winneshiek counties. Telephone 421.

Baggs, Maurice M.; Alta. Buena Vista, Cherokee and Pocahontas counties. Telephone 2671.

Banes, Harold; 813 Second Street South, Maquoketa. Clinton and Jackson counties.

Beckman, R. W.; 1006 13th Avenue Northwest, Cedar Rapids. Jones and Linn counties. Telephone 6091.

Benson, E. D.; 513 Avenue C, Fort Madison. Lee and Van Buren counties. Telephone 514.

Colby, H. E.; Box No. 402, Clarion. Franklin, Hamilton and Wright counties. Telephone 381.

Graham, J. C.; Centerville. Appanoose, Monroe and Wayne counties. Telephone 874.

Gregory, James T.; 1119 11th Street, Sheldon. Lyon, O'Brien and Sioux counties.

Harvey, W. L.; 12 West Nevada, Marshalltown. Hardin, Marshall and Story counties. Telephone 7140.

Holst, John F.; Denison. Crawford, Harrison and Monona counties. Telephone 158-J.

Huff, Lloyd; 1819 Fifteenth Street, Burlington. Des Moines and Henry counties. Telephone 5064.

Hyde, Sam; 104 North Oak Street, Jefferson. Boone, Greene and Carroll counties. Telephone 5461.

Jago, John C.; 2153 East Fourth Street, Waterloo. Black Hawk and Grundy counties. Telephone 7005.

Johnson, W. A.; Hotel Storm, Grinnell. Jasper, Poweshiek and Tama counties. Telephone 69.

Johnston, T. K.; Sigourney. Jefferson, Keokuk and Mahaska counties. Telephone 318.

Kaufman, George; Lansing. Allamakee and Clayton counties. Telephone 148-W.

Klinge, Otto; 1538 West High, Davenport. Cedar and Scott counties. Telephone 3-2067.

Leaverton, P. E.; 211 South 8th Street, Humboldt. Humboldt and Webster counties.

Lewis, M. D.; Bedford. Adams, Ringgold, Taylor and Union counties.

Lille, C. C.; Lake View. Calhoun, Ida and Sac counties. Telephone 120.

Logan, Leo H.; 315 Third Avenue, Waverly. Bremer, Butler and Fayette counties. Telephone 656.

Morf, W. J.; 2005 Decorah, Box No. 13, Dubuque. Delaware and Dubuque counties. Telephone 6807.

Nichols, Dan; 1803 Mulberry, Muscatine. Louisa and Muscatine counties. Telephone 2436.

Pierce, E. V.; Box No. 545, Algona. Kosuth and Winnebago counties. Telephone 6.

Rector, Harry E.; 109 Seventh Avenue NW, Independence. Benton and Buchanan counties. Telephone 805.

Rector, James P.; Box No. 186, Shenandoah. Fremont, Montgomery and Page counties. Telephone 1004.

Scherf, Earl R.; 717 West Williams, Ottumwa. Davis and Wapello counties. Telephone 3940.

Severson, B. I.; Box No. 245, Ruthven. Clay and Palo Alto counties. Telephone 48.

Shaffer, Vern; Box No. 3, Indianola. Marion and Warren counties. Telephone 574.

Sjostrom, R. O.; Stuart. Adair, Guthrie and Madison counties.

Stevens, J. Z.; Clear Lake. Hancock and Cerro Gordo counties. Telephone 37.

Stiles, Bruce F.; Route No. 3, Council Bluffs. Mills and Pottawattamie counties. Telephone 5732.

Sybil, E. W.; 1310 Cedar Street, Iowa City. Iowa, Johnson and Washington counties. Telephone 6382.

Trusell, W. W.; 4906 Morningside, Sioux City. Woodbury and Plymouth counties. Telephone 6-7359.

Tucker, F. T.; 1206 Poplar, Atlantic. Audubon, Cass and Shelby counties. Telephone 779.

Wogen, E. M.; Estherville. Emmet county. Telephone 1136.

Yates, Glen W.; 118 North Twelfth Street, Osage. Floyd, Mitchell and Worth counties. Telephone 240.

Youngblood, M. D.; Osceola. Clarke, Decatur and Lucas counties. Telephone 154.

(Starr, Frank; Arnolds Park, assisting E. M. Wogen with Dickinson and Osceola counties).

## Trout Culture Guarantees Sport

(Continued from Page Three)

tribution truck and hauled to one of the earthen rearing ponds.

At the rearing ponds the trout go on a new feeding schedule, and for six months they are fed twice daily on a diet consisting chiefly of fresh ground beef hearts. During the first few weeks in the ponds, a very small amount of food is given in order to gradually accustom the fish to feeding in their new environment and to prevent spoilage of any uneaten food on the bottom of the ponds.

The young trout soon adopt their new homes and learn to associate the sight and footsteps of the hatchery men with grub. At feeding time hoards of the little trout crowd the feeding stations in eager anticipation, and with table manners like hungry pigs rapidly clean up the food. The amounts of food are gradually increased, and at the end of six months of care and intense feeding the trout are from four to six inches in length. Some of the more rapacious individuals consume more than their share of food and consequently grow faster than their brothers and sisters. This necessitates frequent sorting to keep uniform sizes in the individual ponds.

The young fish have by now taken on a beautiful color and symmetry and will take an unwary grasshopper with a ferocity unexcelled by their wild relative. All's well in their small world in the earth pond, but it's time to again change their boarding house and name.

### Eat Carp Meat

The new quarters is one of the cement ponds, and their new name, at about six inches, is "yearling." From one to three thousand yearlings are placed in the cement tanks, and ground fish

is added to their diet. Ground fish is a relatively new trout food, and its use is necessary because of the high cost of beef hearts. Fortunately the state-wide rough fish removal program supplies sufficient carp at all seasons, and at a very small cost.

Exhaustive tests have proved that ground carp are equal and in many ways superior to hearts as food for yearlings. The carp are shipped alive to the station and placed in holding ponds until needed. They are then, about 600 pounds at a time, thoroughly cleaned, ground in a large grinder and placed in refrigerators. The temperature of the meat room is maintained at just above freezing. Before feeding, iodine is sometimes added to the ground fish to supply this dietary deficiency.

On this food the fish thrive and grow rapidly, and by March of the following year, all are legal size of seven inches or over and ready for stocking in the wild. By the end of 15 months, many of the fish are from ten to 14 inches long.

Most Iowa trout are stocked in the fishing streams during April, May, and June, when the streams are at their best. During the hotter months of July and August, only major trout streams are stocked; then from September till the end of the stocking season in December, all of the trout streams in the state receive fish.

### Wolf Hunt

Harold Eagan, who lives on a farm near Shannon City, collected a five-dollar bounty at the Union County Courthouse recently for an adult wolf which he ran down with his car. There were two wolves in the road, Eagan said, but he was able to hit only one.—News Advertiser, Creston.

### Trappers Prosper

During the 1938-1939 trapping season, \$723,000 worth of furs were taken in Iowa, with a total of 556,815 animals pelted.



EDITOR'S NOTE—"Flick Says" is to be written each month by Floyd H. Davis, United States Game Management Agent for Iowa.

The column will contain much of interest in regard to Federal hunting regulations, duck populations, migratory bird flights, and other materials relative to Federal work in Iowa. "Flick" Davis, whose boyhood home is Dumont, served as a radio operator in the United States Army prior to his appointment as an Iowa



"Flick"

state conservation officer in 1933. His territory headquarters in Iowa included New Hampton, Clear Lake, and Arnolds Park, and he is well-known to thousands of sportsmen throughout the state.

In 1939 he resigned his state commission to take up his present work with the Fish and Wildlife Service, and he now has office quarters in the Old Federal Building, at Des Moines, Iowa.

In this, the first issue of the Iowa Conservationist, I will endeavor to tell you something of the Fish and Wildlife Service, U. S. Department of the Interior, an organization now numbering some 2,000 employees.

Fifty-six years ago on the 3rd of March, 1885, Congress appropriated \$5,000 for the promotion of "economic ornithology," or "the study of the interrelation of birds and agriculture, an investigation of the food habits, and migration of birds in relation to both insects and plants." The money became available on the first of July following.

On the recommendation of the American Ornithologists' Union, Dr. C. Hart Merriam, physician and life long student of Natural History, was appointed head of the new organization. He selected as his assistant Dr. A. K. Fisher, also well trained in field zoology and botany, and a graduate in medicine, and these two men, with a secretary, constituted the entire force of the new organization.

It was first established as a branch of the Division of Entomology. The year following, the appropriation was doubled and the unit became an independent "Division of Economic Ornithology and Mammalogy". In 1896 the name was changed to "Division of Biological Survey."

On March 3, 1905, just 20 years after the date of the first appropriation, the name was changed

### Real Sportsmen

Special recognition should be given to the Jesup Boy Scouts who have done a splendid job of feeding game birds during the bad weather. The troop, under the direction of their scoutmaster, Mr. Sadler, have built and kept supplied with feed 20 feeding stations around Jesup. It has been estimated that 1,500 pheasants and a couple of coveys of quail used the stations during the bitter cold weather. This kind of sportsmen is really worthwhile. —Independence Conservative.

### Stocked

More than 172,000,000 game fish were stocked in Iowa's inland waters during 1939-40.

to the "Bureau of Biological Survey". The annual appropriations acts renewed authorizations for the work, modified them from time to time, and provided funds for carrying them on. The Bureau remained in the Department of Agriculture until its transfer to the Department of the Interior, July 1, 1939. It was consolidated with the Bureau of Fisheries to form the Fish and Wildlife Service on June 30, 1940.

The passage of the Lacey Act on May 25, 1900, marked the beginning of the Bureau's work in the conservation and protection of wildlife. The work of the Biological Survey, which prior to 1900 had been confined to scientific research, had been enlarged by 1941 to include the protection of wildlife by the administration of the Lacey Act, the Migratory Bird Treaty Act, and the Migratory Bird Conservation Act, the Migratory Bird Hunting Stamp Act, the Black Bass Act, the Bald Eagle Act, and the Alaska Game Law; the acquisition, development, and administration of a large number of wildlife refuges; the control of predatory animals and injurious rodents; and the participation in a nation-wide wildlife conservation program through the administration of the law for Federal aid to States in wildlife restoration.

In the meantime, scientific research has been continued and expanded into new fields, as for example, fur investigations, disease investigations, investigation of the relation of wildlife to forests, and cooperative studies in wildlife management undertaken with state colleges and game departments.

The scientific knowledge gained in the early years has been increased by subsequent investigations, and this knowledge has been applied to wildlife management on a broad scale—the restoration and conservation of useful and harmless species and the control of those forms that are seriously injurious to the interests of man.

## Winter Wildlife Feeding Program Takes Planning

That wildlife needs man's help in winter is a fact long recognized. The sheaf of grain that in many European countries is raised on a pole for the birds at Christmas time symbolized man's response to the needs of wildlife; but to be really valuable to birds and animals more than a token offering is required.

Effective emergency winter feeding must be well-planned and sustained. Food must be readily accessible before it is needed, and the supply should never fail.

Emergency winter feeding programs are set up well in advance of the winter months by the State Conservation Commission. All conservation officers take an active part and are required to enlist the assistance of farmers, sportsmen's organizations, and junior groups throughout their respective territories.

In many counties conservation officers have been very successful in obtaining the cooperation of rural schools, and as a result of these programs, the school children have developed an active interest in wildlife and have a far better understanding of its requirements.

Each year the Conservation Commission has several thousand bushels of grain, representing the State's share of the crops raised on state-owned land. This grain is produced and stored principally on the drained lake bed area in northwestern Iowa and is always available for emergency winter feeding work when needed.

### Sources Listed

In many counties corn samples are obtained from AAA officials. In other instances waste grain and screenings are obtained from elevators, feed stores, etc. Quite often farmers donate grain for winter feeding.

In sections of the state where suitable feed cannot be obtained without cost and where distances make it impractical to haul feed from the state supply, the Commission purchases and distributes winter feed through its conservation officers.

In addition to the winter feeding work being carried out by conservation officers in the Fish and Game Division, the park custodians also cooperate in this program. Emergency feeding stations are built and maintained in all state parks. State parks are refuges, and for the most part, so far as cover is concerned, favorable wildlife environment exists; and as a result there is usually a large population of upland game birds, fur-bearing animals, and song-birds in the park areas.

During periods of severe weather, the Commission invariably

ably receives numerous reports of upland game birds being found dead. Most people immediately assume that these birds have either starved or frozen to death. However, investigation usually shows that most of these birds are cripples which have been left following open seasons, birds so old they could no longer stand severe weather, or birds weakened from some other cause. It is very seldom that pheasants actually die of starvation or from severe cold alone.

At times, however, storms such as the Armistice Day storm of 1940 kill thousands of pheasants by smothering. These birds do not die from starvation nor from the severe cold. Smothering occurs when there is a high wind, accompanied by severe cold, and the air is full of fine powdered snow. The snow melts on the pheasant's beak and forms ice. As soon as the nostrils are plugged the bird breathes through its mouth, and ice forms in the mouth, eventually resulting in a ball of ice covering entirely the bird's beak, smothering the bird.

According to Dr. Paul L. Errington, most of the winter bobwhite quail mortality commonly laid to freezing is the result of starvation, wounds, or reduced vitality from sickness or other causes. He has observed that physically fit, well-fed coveys of quail withstood very low temperatures, even lower than 30 degrees below zero, and without serious difficulties; but even moderately cold nights wiped out great numbers of half-starved or otherwise weakened birds.

The bobwhite quail is most responsive to encouragement on individual farms, and if the environment is suitable, coveys may often be found throughout the season within a couple of hundred yards of the same location. In quail feeding it is important that, prior to winter weather, covey ranges be located, and if natural food conditions are not right, emergency winter feeding stations should be provided adjacent to or in the winter covert.

Natural foods, of course, are most desirable for wildlife, but when this supply is exhausted, birds and animals are forced to seek other sources of food or perish for lack of it. Therefore, the thinking conservationist must do something about providing food patches adjacent to winter coverts. This can best be done by putting a few rows of cane, corn, or some similar crop that stands up well above snow, but when this is impossible, emergency winter feeding stations must be resorted to.

## Iowa's Trout Policy Pays

(Continued from Page One)

isthmus between Spirit Lake and East Okoboji, and trout and eggs were transferred from Anamosa to the new site.

Fish, including Atlantic salmon, California salmon, lake trout, and brook trout, were stocked in virtually all of the important lakes and streams in the state for many years. Although considerable success attended the efforts of the pioneer fish culturists in establishing certain non-native species of trout in the spring-fed streams in northeast Iowa, it soon became apparent the trout stocking efforts elsewhere in the state were futile.

### Lansing Pioneer Hatchery

Trout were hatched at Spirit Lake, Sabula, and perhaps at other points in small numbers, and in 1918 trout hatching equipment was installed at the Lansing fish rescue station, where an abundant supply of artesian well water was available. From that date until 1928, all Iowa trout were produced at this station. During this time, trout were released to the wild in the fry stage (shortly after the egg sac is absorbed). The Lansing hatchery was discontinued about 1931.

The Backbone Trout Hatchery was established near Strawberry Point in 1925, and the first distributions were made in 1928. A few adult trout were released in 1929, but the majority of the fish were stocked as advanced fry and fingerlings. At the present time all trout are hatched at the Backbone station, and a portion of the fry are transferred to Decorah and Kramers, where they are held until they reach legal size.

In 1931 a survey was made of the streams in northeast Iowa, and a list of all suitable trout waters was compiled. Most of the streams have been rechecked several times, and all of the trout waters in the state have now been classified according to their value and the fishing pressure exerted upon them.

The policy of the Commission is to stock only such streams as will support trout throughout the entire season. Many factors enter into the composition of a good trout stream.

They include temperature, volume of flow, tributary springs, gradient, velocity, color and turbidity, alkalinity, pools and shelters, riffle areas, shade, aquatic vegetation, fish foods, etc. Of these requisites, perhaps temperature, volume, and fish foods are of most importance. Experiments conducted both in Iowa and elsewhere indicate that a water temperature higher than 75 degrees F. is generally fatal to brook trout, while brown and rainbow

trout may endure water temperature as high as 80 degrees F.

### New Streams Tested

There is an ample number of trout produced in our hatcheries to supply the present trout stocking requirements, but it is good business not to waste trout in areas that are unsuitable. New streams are occasionally added to the list on an experimental basis. These are usually borderline or questionable streams, which are stocked with small numbers of trout for a period of several years to ascertain whether or not they are satisfactory.

Trout streams are stocked in advance of the open season and several times during the course of the year. The number of fish stocked and the frequency is dependent upon the classification of the stream, the existing populations, and, of course, the number of trout available for distribution.

During 1941, over 136,000 legal-sized trout were stocked by the Department, and about 15,000 are being held for early planting next spring. This number is in addition to the 1942 quota and is by far the largest number of adult trout ever stocked in the state.

The overhead cost has remained constant the past few years, but food costs have risen. Food costs have been materially reduced this year, however, and carp has largely taken the place of the more expensive packing house products, such as beef hearts, in feeding fingerlings and adults.

### Pays Own Way

In the past many sportsmen have felt that too much money was allocated to this phase of the fisheries program. Just to keep the records straight, the cost of producing and stocking a legal-size trout is about 11 cents per fish. The total cost of producing 151,000 legal-sized trout last year was about \$17,000. It is estimated on the basis of a careful study that between 10 and 15 per cent of the total fishing license income is derived from the trout fisherman. In 1941 there was approximately \$250,000 paid for fishing licenses in Iowa. Ten per cent of this total is \$25,000, and only \$17,000 was spent; this clearly indicates that the trout fishermen are paying their own way.

At the present time the Department is making an extensive survey of the streams in northeast Iowa to enable the personnel to make more exact recommendations for stocking and other management practices. It is probable the Commission will not expand the trout production program, but will instead expend its effort on the improvement of certain streams to increase their fish-carrying capacity.

In recent years many of the better trout streams of the state have been subjected to severe floods, which has, in many cases, filled the stream beds with sand and greatly decreased their carrying

## Commission Reclassifies All Recreation Areas

### Seven Types Provide Pleasure For All

By V. W. FLICKINGER  
Chief, Division of Lands and Waters

Deep and unforgettable is our love for the outdoors. All men are stimulated by the serenity and peace which come to them when they look upon nature's unspoiled works. Whether we live in the city or in the country, nothing so recreates us as a return to the unspoiled hills, plains, woods, and waters as shaped by natural forces.

Lee Hammer, of the Russell Sage Foundation, has defined recreation as "any pleasurable activity of mind or body which is stimulating or refreshing and which is entered into without compulsion or expectation of material gain."

### Recreation Provided

Recreation of a sort which depends upon the opportunity to wander at leisure through the natural out-of-doors cannot be provided by the city park. It requires primeval areas, which are outstanding in character and which are usually more extensive than provided in local parks.

In recent years, the idea of building up systems of recreation areas has taken hold throughout the country. At the present time most of the states have begun the acquisition of their outstanding scenic areas for the use of the public. These tracts have been variously named "state parks", "state forests", and "state reserves" and the terms have been used interchangeably.

Naturally, in the use of the several names, confusion has existed in the public mind as to the function of each area.

### Begun In 1917

The Iowa state park system was inaugurated in 1917, when the Board of Conservation was organized. In 1918, the Fish and Game Department decided to that Board the nucleus of a tract of 1,300 acres in Delaware County. Use of this site for public recreation had long been advocated by Thomas H. Macbride, L. H. Pammel, and others. Since that early beginning of the state park movement, Iowa has been among its leaders.

During the past 24 years, 79 sites have been acquired by the

capacity for trout. It is of paramount importance that soil conservation measures be taken in the immediate future if these streams are to be preserved for this and future generations as trout water.

Board of Conservation and by the State Conservation Commission. To make out of each of these sites a full-fledged state park, with elaborate artificial developments, would be expensive and entirely unnecessary. In fact, to do so would actually destroy the value of many of the areas.

There is a movement now in progress among the various states to arrive at a more uniform classification of these various areas to avoid confusion among visitors, and to actually have the area designation convey a meaning which will give a visitor some idea as to what to expect to find.

In July the Commission published a booklet entitled "Iowa's State Parks", in which the areas under its supervision were classified as follows:

**STATE PARKS**—State Parks are the battleships of Iowa's recreation areas. Every State Park site must have "scenic quality", woods, water, and, except in unusual cases, must have, when completed, not less than 500 acres of land and preferably more than 1,000 acres. It must provide for certain forms of more active recreation in a setting of relatively unspoiled natural conditions—on land or water or on both.

To serve the recreational needs of Iowa's people, the "Iowa Twenty-Five Year Conservation Plan" states, "State Parks should be spaced not more than 80 miles apart in each direction in so far as it is possible to find sites qualified."

State Parks are more highly developed than other areas and are better equipped to handle great crowds.

**RECREATION RESERVES** have as their purpose preserving some point of special interest or beauty for public use. The reserve may be large or small in area, it may or may not be highly developed, and it may be placed wherever the features are found, regardless of geographic distribution.

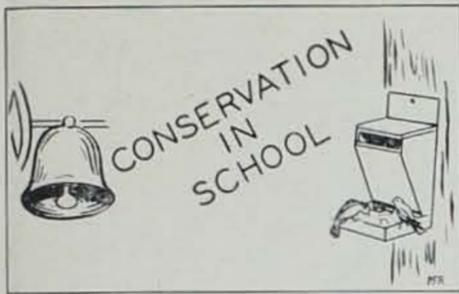
In general they provide access, parking arrangements, picnic grounds, drinking water, comfort facilities, and in some instances shelters.

**LAKE RESERVES** differ from the Recreation Reserves only in that they are located on the shores of lakes, thereby making water areas accessible and open to public use at all times.

Facilities provided in most cases are similar to those found in the Recreation Reserves.

**STATE FORESTS** are tracts of land on which stands of timber are maintained as demonstrations of proper land use. These areas

(Continued to Page 7, Column 2)



By CHARLES ALEXANDER  
Winterset High School

The future control of our natural resources rests with the youth of today. This thought alone should convince our Iowa school authorities of the importance of teaching conservation to boys and girls, so that proper attitudes, applications and knowledges are developed.

Our school, like many others, does not yet require the teaching of conservation. This fact, however, does not prevent any teacher bringing the subject before his students in connection with regular subjects. Conservation can be taught in this manner, because the applications of this field extend into all subjects.

In teaching hygiene and civics, I find numerous occasions for bringing into class important information on various conservation subjects. In addition to this, we have a fifteen-minute room period each morning that can be used for any extra-curricular work or special activities. With guidance and proper motivation, my students have become very interested in wild life.

In following their interests, we have studied wild ducks and geese and their migratory and nesting habits; conditions tending to affect the population of fish and game; harmful and beneficial birds including hawks and owls; the importance of having conservation laws and officers; and the scenic beauty of our state. This is all supplemented by members of the class bringing wild life material to school for exhibition and discussion.

One of the important clubs sponsored in junior high is a "Gun Club." The chief objective of this club is to learn the correct and safe method of handling rifles, shotguns and pistols. Each club member prepares a report to be given to the club on one of the following topics: types of ammunition, game laws, diseases that might be contracted from animals, types of guns, different gun companies, and factors necessary for good marksmanship.

The club is divided into two groups for greater efficiency in teaching. One group will study the above topics while the other group practices the actual use of a gun in a carefully selected and prepared place. The two groups alternate study with actual practice.

## Winter Enriches Beauty of Parks



This charming view of the Ledges State Park shows why Iowa's Parks are becoming increasingly popular during the winter months.

Winter, with its snow and ice, adds to the many attractions to be found in Iowa's state parks. Not only is the scenery enriched by the snow, but trails and footpaths afford ideal places for winter hikes. In many parks shelters are provided where a warm fire may be built and where coffee and bacon will seem to taste much better. In some areas there are good toboggan hills and wide open skiing country. One can coast down the hills without fear of traffic, and numerous parks have lakes for skating. Iowa's parks and preserves are kept open in winter for your pleasure and enjoyment, and there is no safer place to take the children to enjoy winter sport.

## All Recreation Areas Reclassified

(Continued from Page Six)

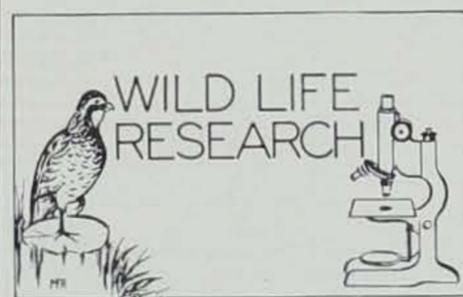
are developed with the multiple use principle in mind—that is, use for soil and water conservation, timber production, game management, and limited cultivation and grazing. Public use of state forests is limited to hunting, fishing, trapping, hiking, nature study, and other similar kinds of informal recreation.

MONUMENTS are outstanding land areas or objects of prehistoric, historic, or scientific character, that are set aside and saved because of their intrinsic value.

WAYSIDES are small areas situated along or close to highways, designed primarily to provide opportunities to rest and relax.

A PARKWAY is a strip of park-like land devoted to recreation, which features a pleasure vehicle road throughout its entire length.

Another important club is the "Farm Club." This club discusses farming in general, but in doing so learns about the destruction caused by erosion and how this could be prevented. There is further discussion concerning the harmful and beneficial effects of birds and animals.



By THOMAS G. SCOTT

To aid in solving its varied and perplexing problems, the Iowa State Conservation Commission has available a vast and growing store of new facts about Iowa's game animals.

This valuable information is the result of negotiations by the Commission almost six years ago through which the Commission entered into a co-operative wildlife research program with the United States Fish and Wildlife Service, Iowa State College, and the American Wildlife Institute. The arrangement provided for a specific agency to carry on a research program. This agency was named the Iowa Cooperative Wildlife Research Unit. Since Oct. 1, 1935, the Unit has been actively investigating state and local wildlife management problems in Iowa.

The office and laboratories of the Unit are located at Iowa State College, Ames, Iowa. Many individuals have contributed their part to the success of the en-

deavor, and a regular staff of approximately 16 whole- and part-time workers is engaged. In addition to laboratory and class work, the Unit engages in approximately 2,000 man-days of research on game animals in the field every year.

The general program is guided by a coordinating committee composed of Fred T. Schwob, Director, Iowa State Conservation Commission; Dr. C. J. Drake, Department of Zoology and Entomology, Iowa State College, and Thomas G. Scott, United States Fish and Wildlife Service.

The fundamental objectives approved by this committee are as follows:

(1) **Development of practicable and efficient census techniques.** To formulate wildlife management policies the research worker and wildlife manager must have knowledge of the year-to-year changes in the numbers of game animals. Dependable information on the amount of game in the field is especially needed by administrators charged with making recommendations for bag limits and shooting seasons.

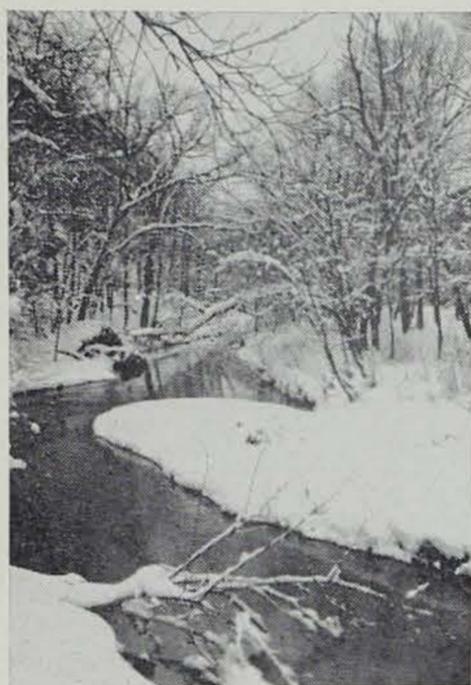
(2) **The study of the economic importance of various game animals.** Wise use of the same resource demands a non-prejudiced analysis of its value. It is especially necessary to observe how this is affected by changes in the environment and in the numbers of animals. An otherwise desirable game animal may actually become destructive in local areas to man's interests when its numbers become excessive. Knowledge of the numbers of game animals should provide information upon which to recommend an orderly removal of excess animals by hunting or trapping, and this in turn should keep the economic value of game definitely on the favorable side.

(3) **Investigation of the factors that tend to decrease or increase the numbers of game animals.** In order to establish desirable game animals in adequate numbers in a particular area, a thorough understanding of their food and cover preferences and their relation to climatic conditions, predators, diseases and parasites, is necessary.

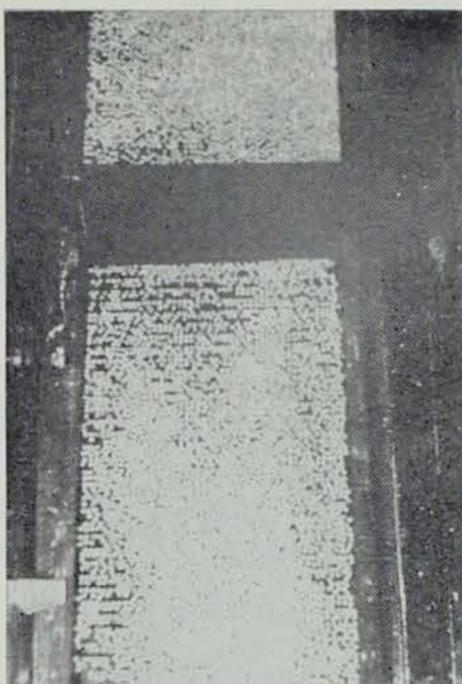
(4) **Development and testing of game management techniques and practices.** Wildlife management techniques and practices developed as a result of study of game animals should be tested and improved. Study is necessary to determine the worthless as well as the effective techniques and practices.

### Problem

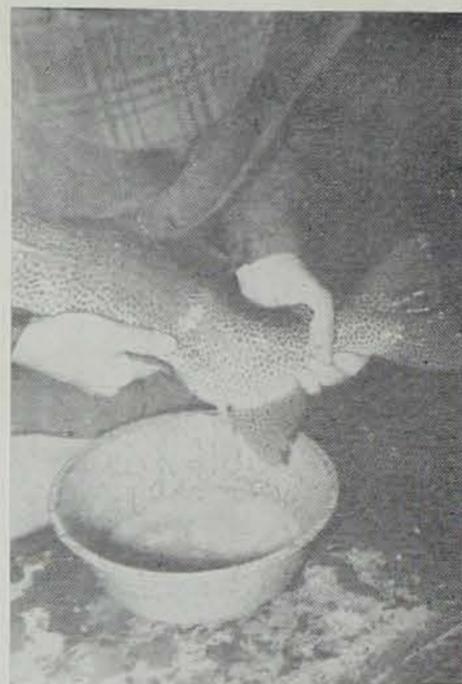
A man purchased seven trees to set out on a plot of ground. After he set them out he found he had set them so that he had six rows of trees and three trees in each row. How did he do it?



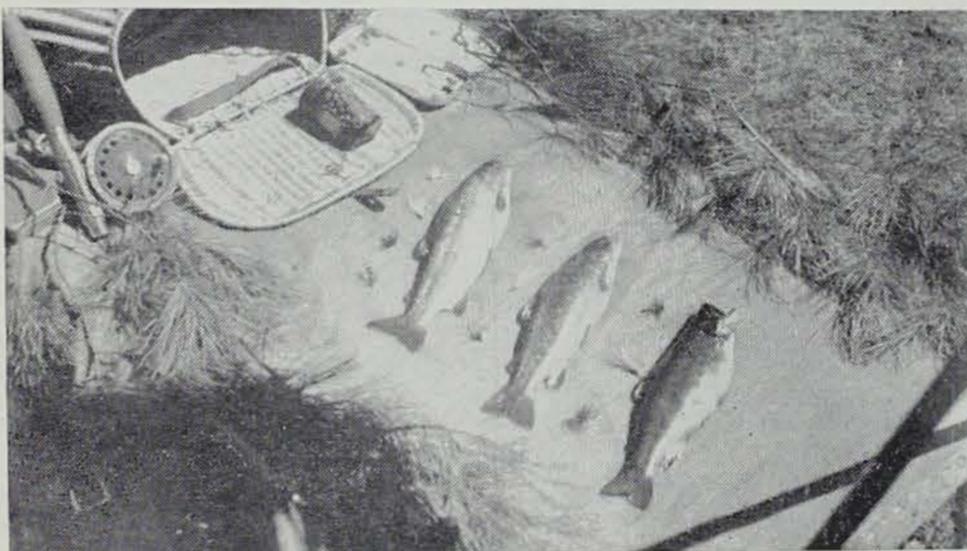
A typical northeast Iowa Trout stream in winter.



Thousands of trout eggs in the incubator troughs at Strawberry Point.



An expert strips ripe brood at the Backbone Trout Hatchery.



All beauties: Top to bottom: rainbow, brown and brook.



Trout fry a few days old showing their "breadbaskets" attached. These bread baskets support the fry for the first 35 days after they hatch.



Battery of Hatchery troughs in Backbone Trout Hatchery.



Five Thousand Legal-size trout in a circular rearing pool.

### SCENES FROM IOWA'S TROUT PROGRAM



Siewer Springs, Iowa's largest at the Decorah Hatchery.



Falls immediately below Siewer Springs.