

# IOWA CONSERVATIONIST

Volume 18

May, 1959

Number 5

## RESEARCH FOR BETTER CONSERVATION

### NEW DE SOTO BEND WILDLIFE REFUGE

**Howard S. Huenecke**  
Assistant Regional Supervisor  
Branch of Wildlife Refuges  
Bureau of Sport Fisheries and  
Wildlife

Acquisition and development of the DeSoto National Wildlife Refuge, located on the Missouri River in the states of Iowa and Nebraska, is now well under way. U. S. Highway 30 between Missouri Valley, Iowa, and Blair, Nebraska, mounds the area on the north. This refuge, when completed, will represent the culmination of many months of work and effort by the Bureau of Sport Fisheries and Wildlife of the Department of the Interior; the U. S. Army, Corps of Engineers; the Iowa Conservation Commission, the Nebraska Game, Forestation and Parks Commission; the National Park Service of the Department of the Interior; and many individual sportsmen and sportsmen's groups.

For many years the need for a refuge in this general vicinity had been recognized by the Bureau of Sport Fisheries and Wildlife and the States, but areas that would lend themselves to practical development were lacking. In 1956, interested sportsmen from Missouri Valley, Blair, Council Bluffs, and Omaha suggested to the Bureau and the two State game commissions that the activities of the Departments of Defense and Interior be coordinated to establish a national wildlife refuge and recreational area at the DeSoto-Bertrand Bend of the Missouri River where the Corps of Engineers was planning a channel straightening project.

#### Conduct Hearings

After preliminary inspections had been made and meetings had been held with the Corps of Engineers and State personnel, public hearings were conducted by the Bureau of Sport Fisheries and Wildlife on September 4 and 5, 1957, at Blair, Nebraska, and Mis-

(Continued on page 134)



Where people once fished only a few months each year, they are now encouraged to fish year-round. All these improvements have come into being as a result of painstaking fact-finding, usually as a result of a whole series of investigations and separate discoveries.

### FISHING FINE IN '59—MISSISSIPPI RIVER

**K. M. Madden**  
Supt. of Fisheries

Fishing today on the Mississippi is as great as the river itself.

One of the first organized white parties to set eyes on Iowa was Father Marquette, the Jesuit Missionary. He started a Mississippi River fish story that has no ending: "They sometimes grow very large and strike with great force. . . ."

Sac, Fox, and Pottawattamie tribes fished near Davenport in 1812. Even then favorite fishing spots led to concentrations of fishermen.

(Continued on page 130)

**Dr. Arnold O. Haugen**  
Iowa Cooperative Wildlife  
Research Unit

Good Old Days? People frequently refer to the "good old days". Conditions recalled out of the past, however, often have been magnified and "sugar-coated" with time. It is strange, but usually it is only the very good or the very bad that can be remembered. Old time outdoorsmen, for instance, often refer to a period when game was supposed to have abounded everywhere. As we look back to the general conditions prevailing during "the good old days", we find people had to live without most of our modern conveniences, which are now regarded as necessities by everyone. The time is here when we must look forward, not back as did Lot's wife. We must face the future with a determination to search for improved ways for managing and maintaining wildlife resources.

Almost everything we have around us today has been improved and modernized to make living more pleasant. We obviously have progressed from the "horse and buggy days" to a life of conveniences and gadgets. Has our lot been improved mainly through painstaking research? It couldn't have been done by any other means. While the advancement of many professions has kept pace with modern trends for fact-finding, wildlife management in many ways still is in the pioneer stage of development.

Research in medicine, engineering, and agriculture, for example, is at least a century ahead of research in wildlife management. It was in 1932 that research in game management got its start. That was the year in which J. N. "Ding" Darling, well-known Des Moines cartoonist, proposed a program for research and education in wildlife, with the Iowa State Conservation Commission and Iowa State College cooperating. So enthusiastic was Darling that he agreed to personally share in financing the work.

In 1935, Darling, then Director of the former Bureau of Biological

(Continued on page 130)

#### IN THIS ISSUE

	Page
1959 Listing of State Parks	132
Wildflower of the Month	130
10th Annual Conservation Camp	131
Map of DeSoto Bend Refuge Area	134



## Iowa Conservationist

Published Monthly by the  
IOWA CONSERVATION COMMISSION  
East 7th and Court—Des Moines, Iowa  
(No Rights Reserved)

HERSCHEL C. LOVELESS, Governor  
BRUCE STILES, Director  
JAMES R. SHERMAN, Editor  
EVELYN BOUCHER, Associate Editor

### MEMBERS OF THE COMMISSION

MRS. JOHN CRABB, Chairman.....Jamaica  
CLYDE M. FRUDDEN, Vice Chairman.....  
.....Greene  
GEORGE M. FOSTER.....Ottumwa  
A. N. HUMISTON.....Cedar Rapids  
GEORGE V. JECK.....Spirit Lake  
G. H. MEYER.....Elkader  
J. D. REYNOLDS.....Creston

CIRCULATION THIS ISSUE.....54,800  
Two Years \$1.00

Entered as second class matter at the  
post office in Des Moines, Iowa, September  
22, 1947, under the Act of March 24, 1912.

Subscriptions received at Iowa Conser-  
vation Commission, East Seventh Street  
and Court Avenue, Des Moines 9, Iowa.  
Send cash, check or money order.

### Fishing Fine—

(Continued from page 129)

The *Davenport Weekly Gazette* editor in the July 16, 1857, issue said, "A friend of mine caught nine fine 'bass,' one pike and three gar in three or four hours of fishing." The *Muscatine Journal* reported in 1869, "Fishing parties are fashionable now. . . ."

The explorers, lumberjacks and raftsmen have receded into history. They have been replaced a thousandfold by Boy Scouts, mechanics, lawyers, doctors, truck drivers, railroad men, farmers and their families who "trek" in a new V-8 with portable aluminum or glass "outboard" in tow.

Modern land and water pleasure craft have put all parts of the river at your recreational disposal. Swift tail waters of the mighty navigation dams, myriad channels, tributary stream mouths, islands, and large, long, wide, often stump-studded shallow pools, except for the barge channel through the vast expanse of water, generally characterize the areas between dams. There are 11 dams from New Albin to Keokuk.

Walleye pike, sauger pike, catfish (flatheads and channel), striped bass (silver and yellow) are more frequently caught in good numbers and size just below any of the 11 dams. Any of the panfish group may be taken also if water stages are right and fish runs are on. Walleye and sauger pike dominate the catch—sauger being more abundant south of Dam 12 at Bellevue.

The larger walleye makes up 60 per cent of the "pike" catch from Bellevue north to the Minnesota line. Weighted lures or live "white" minnow bait fished deep next to the bottom just out of the fast water can be very productive. Seaworthy boats, heavy boat anchors, and approved life gear are a must. Water taxis, in some areas, will transport you for a small fee to commercial fishing floats or barges which are anchored over good tail water fishing spots. Generally April, May, October, November and December are the most productive open water "pike" months, although you

## WILDFLOWER OF THE MONTH



PHLOX

### Common Name:

Sweet William or Wild Sweet William.

### Other Names:

Phlox, Woodland Phlox, Phlox divaricata, Phlox pilosa.

### Name Derivation:

The name Phlox is Greek, and means a flame.

### Description:

Sweet William is very much like the Phlox cultivated in many of our gardens (although not like the garden Sweet William). It has blue or blue-lavender flowers in groups at the ends of the leafy stems. The five petals which spread out flat and are notched at the ends unite into a very slender tube which reaches back within the green calyx. The flowers are an inch or more across at their spreading ends, and the tube is about the same in length. There are many stems on each plant, each with opposite leaves, one or two inches long, pointed and narrow. The very showy flowers of Phlox divaricata are first found in April and are very abundant in fields and along streams. Later Phlox pilosa may be found. It has narrow leaves. One of the most common Iowa wildflowers, Sweet William is found in nearly all state parks and heavily wooded sections. Look in low areas. Sweet William grows in clumps or clusters, often giving the appearance of covering the entire woodland floor.

(Description adapted from "Wild Flowers of Missouri.")

### Where to Look:

do catch all kinds of fish in every season on the Mississippi. January, February, and March produce big pike to the winter fishing enthusiasts who have specialized ice boats, stoves, etc., necessary for the sport.

If you are a pan fisherman, stream enthusiast, and/or a bass "bug," the mid-section area of most any of the 11 pools is for you. The many "chutes," deep channels, islands and backwater areas will produce (at right water stages) according to your ability and bait in a variety that will keep you guessing—"what next?" Some days even special baits used for one kind of fish won't keep other fish from bothering. Don't fail to try the sunken rock, wing dams for walleye and sauger. Have you ever caught a four-pound drum perch in fast water? They are "tackle busters" and love small crayfish or minnows—yes, even hit smallmouth bass lures! Mid-pool sections offer a variety of fish, scenery, wilderness, isolation and opportunity to move freely. In windy weather protected areas offer a degree of safety and com-

fort, plus varied fish habitat, which adds up to successful fishing.

The big pools, including the "main channel," are for the specialist. You must "know" the pool or risk having your \$300 boat impaled on a stump by sudden wind swirls. The risk, if taken, may pay off in lunker largemouth bass or catfish from the stumps or unbelievable numbers of bluegill, crappie, or rock bass. The main channel will produce catfish (king size) and walleye if appropriate tackle and bait are intelligently used.

Today, in 1957, as in 1759, "Here then we are on this renowned river—one of the principal channels of future commerce. . . ." The river and forest furnish ample sport and fish are plentiful along the river. Three sovereign states and two U. S. government agencies have pooled their scientific management efforts to keep it that way, or better, for you, Mr. and Mrs. Iowa Fisherman.

The Indians knew some of the hot fishing spots but they used bone hooks and lacked motors. We still "visit and fish" in the "good

fall" as the corn ripens. "Fishing parties are fashionable now" and a lot easier and more varied. The first explorers with their various motives are gone, but they failed to see or chart how much the river could give or take. Explorers in 1959? Yes, thousands!

"Breathes there a man with soul so dead,

Who never to himself has said  
. . . ." Let's go fishing on the Mississippi instead. "They sometimes grow very large and strike with great force. . . ."—(Excerpts taken from "History of Fish and Fishing in the Upper Mississippi River," by Harriet Bell Carlander.)

### Research—

(Continued from page 129)

Survey, was instrumental in initiating the present Cooperative Wildlife Research Unit program. Ten states organized research units that year; there are now 16. In essence, the Unit program is a teamwork approach, with Iowa State College, the State Conservation Commission, The Bureau of Sport Fisheries and Wildlife of the U. S. Department of Interior, and the Wildlife Management Institute cooperating. The three-year old local Cooperative Wildlife Research Unit program was transferred to the nationwide program on October 1, 1935. This continuous history makes the Iowa Unit the oldest Wildlife Research Unit in the country.

The pressure of human civilization has greatly affected Iowa's wildlife populations. At one time, the only inhabitants of the State were roving bands of Indians, whose chief livelihood was the buffalo. This area today is populated by nearly 3/4 million people, occupying 188,750 farms with 6 1/2 million cattle, 10 3/4 million hogs, 1 1/2 million sheep, 3/4 million horses, and 26 3/4 million chickens. Roughly, another 2 million Iowans are living in 700 towns and cities. This increase in populations of humans and domestic animals along with changes in land-use have seriously affected wildlife populations. For example, forest living animals had their range changed considerably when the pioneer cut down the trees in the northeast counties of the state and along river bottoms to make way for his fields. Prairie-living animals, like the buffalo and the prairie chicken, lost their home when the prairie grasses were plowed under. Yet, farm game species, such as the bobwhite quail, and the cottontail no doubt increased in numbers as timberland was cleared to make way for the pioneers patch farming. Pollution, erosion, siltation, drainage, agricultural chemicals, and competition for water have adversely affected many species of fish and game.

### Rationing Wildlife

Many modern game laws are aimed primarily at rationing the existing supply of wildlife. The alternative to rationing by means



of restricted bag limits and seasons is to increase production through management of existing habitat and/or creating new habitat areas. Such management obviously must be based on facts—facts resulting from research.

Many individuals, whose only contact with wildlife problems occurs during the hunting season when they look down the barrel of a shotgun, profess to know exactly what is wrong when pheasant, quail, dove, rabbit, or duck hunting success decreases. Judgment based on such limited or partial knowledge, however, may be dangerous. Such isolated observations, made during only one season of the year, obviously do not tell the whole story and are therefore incomplete and limited in usefulness. Individual observations on wildlife problems and conditions are like individual entries in our bank accounts, in that by themselves they don't tell all the truth. In both our bank accounts and our game populations, it is the surplus or balance that counts.

Old-time game administrators were faced with the problem of acting on hunches and best guesses simply because they did not have facts on which to base a sound management program. This becomes obvious when we look back at what happened to many of our game species. Misguided efforts resulted in depletion of some species, in extinction of others, and in some cases overprotection and underharvest of some species.

#### Modern Professions Due to Fact-Finding

If the wildlife profession is to be raised to the same level of respect now commanded by medicine, agriculture, forestry, engineering, and science, it will have to be done by means of intensive research—research of the same caliber that won respect for these other professions. Even the Bible points out the need for fact-finding. Thessalonians V:21 says "Prove all things: hold fast that which is good."

The farmer now knows how to produce bigger and better crops of corn and livestock. He knows that certain kinds and amounts of fertilizers are necessary for increased production. In areas where but a few bushels of corn could be grown on an acre, many farmers now produce over 100 bushels per acre.

Modern textiles are a vastly improved product in comparison to the coarse cloth produced by the early Indian. Engineering has advanced from the horseless carriage to the finest of automobiles, airplanes, locomotives, and sputniks. The willow or cane pole is rapidly giving way to the best of glass rods and spinning reels. Where people once fished only a few months each year, they are now encouraged to fish year-round. All these improvements have come into being as a result of painstaking fact-finding, usually as a result of

(Continued on page 135)

## ORIGINAL DIRECTOR RETURNS TO INSTRUCT AT 10TH IOWA CONSERVATION CAMP



Students seine Springbrook Lake for specimens in the study of small aquatic animals. Jim Sherman Photo.

June 7 will be the beginning of the tenth annual Iowa Conservation Camp. The State Department of Public Instruction, Iowa State Teachers College and the State Conservation Commission cooperated to open the first camp in 1950 and has continued to hold this camp each summer since this date.

In 1950 the Conservation Camp was directed by Dr. Gib Mouser. Dr. Mouser then moved to Michigan. This summer Dr. Mouser is returning from Michigan to teach at the camp.

Scholarships have already been granted to some students attending the Iowa Conservation Camp this summer, but there are many still available. The end of April showed an increase of five times as many registrations as there were on that date last year, so interested individuals are urged to enroll as soon as possible to insure acceptance.

Students receive three semester hours of on-campus credit, graduate or undergraduate, for each

three weeks at the camp. During spare hours there are opportunities for swimming, fishing, boating, hiking, photography, and various other sports.

Not only do students have the opportunity of studying conservation in beautiful Springbrook State Park, but during a three-week session they will travel approximately 1,000 miles to various areas of interest.

The following are the two courses offered in 1959. Both are acceptable as natural science requirements for certification.

Biology 104—Iowa Conservation Problems B—first session, June 7.

Biology 105—Iowa Conservation Problems A—second session, June 28.

Biology 104—Iowa Conservation Problems B—third session, July 19.

Biology 104 stresses soil nutrients, balance in nature and wildlife. Biology 105 emphasizes rocks and minerals, soil, water and forests.

Any adult may attend the camp

for college credit or for fun. Further information may be obtained by writing to:

Dr. Verlin Lee  
Camp Director, I.T.C.C.  
Science Department  
Iowa State Teachers College  
Cedar Falls, Iowa

or

Duane E. DeKock  
Public Relations Officer  
State Conservation Commission  
East 7th and Court Avenue  
Des Moines, Iowa



Dr. Gwynne helps students identify rocks along a stream at Ledges State Park.

Green Valley Lake at Creston has reached capacity for the first time since it was completed and Summit Lake there is at the 18-foot spillway mark for the first time since June, 1953. Green Valley reached the 46-foot mark Monday morning as water started pouring over the spillway and the lake now cover 370 acres.—Atlantic News-Telegraph.



Students at the Iowa Conservation Camp will wade into a marsh for closer look at wildlife and aquatic vegetation. Only those who want to actually enter the marsh. Jim Sherman Photo.



# 1959 LISTING OF STATE PARKS, HS

Name of Area	Nearest Town to Entrance	Facilities Available	Name of Area	Nearest Town to Entrance	Facilities Available
Ahquabi, Lake	Iowa 349, 5½ mi. SW. Indianola	Resident custodian. Cabins. Camping, two weeks. Group camping. Swimming, supervised beach. Boating. Fishing, panfish and game fish. Lodge. Shelter. Refreshments available. Picnicking. Trails.	Galland School	County road, 3 mi. S. Montrose	Historic interest.
Allerton Reservoir	1 mi. W. of Allerton on County Road	Fishing. Boating. Picnicking. Swimming.	Gardner Sharp Cabin	In Arnolds Park	Historic interest. Grounds only. Cabin not open to public.
Ambrose A. Call	Adjoins Algona	Resident custodian. Camping, two weeks. Lodge. Picnicking.	Geode	4 mi. SW. Danville on County Road	Resident custodian. Shelter. Picnicking. Hiking. Boating. Fishing. Camping, two weeks. Refreshments available.
Backbone	Iowa 19, 4 mi. SW. Strawberry Point	Resident custodian. Cabins. Camping, two weeks. Swimming, supervised beach. Boating. Fishing, panfish and game fish. Shelter. Refreshments available. Picnicking. Trails. Hiking. Motoring. Scenic.	George Wyth Memorial	U. S. 20, adjoins town of Cedar Falls	Resident custodian. Fishing, game fish. Picnicking. Hiking. Motoring.
Barkley	County road, 2 mi. NE. Fraser	Inaccessible.	Gitchie Manitou	County road, 9 mi. NW. Larchwood	Geological monument.
Beaver Meadow	Iowa 14, ½ mi. N. Parkersburg	Fishing, panfish. Shelter. Picnicking.	Gotch, Frank A.	Forks of Des Moines River, 2 mi. SE. of Humboldt	Fishing access, panfish and game fish. Picnicking.
Beeds Lake	3 mi. NW. Hampton	Resident custodian. Camping, two weeks. Swimming, supervised beach. Boating. Fishing, panfish and game fish. Shelter. Picnicking.	Green Valley	2½ mi. NW. Creston on County road	Picnicking. Boating. Fishing. Refreshments available.
Bellevue	U. S. 52, S. of Bellevue	Resident custodian. Camping, overnight only. Golf fee. Lodge. Picnicking. Trails. Historic. Scenic.	Gull Point	West side of Lake Okoboji	Resident custodian. Camping, overnight only. Swimming, beach. Boating. Fishing, panfish and game fish. Lodge. Shelter. Refreshments available. Picnicking.
Bixby	County road, 2 mi. N. Edgewood	Shelter. Picnicking. Trails. Hiking. Historic interest.	Heery Woods	Iowa 188, ½ mi. S. Clarksville	Fishing, panfish and game fish. Lodge. Picnicking. Hiking.
Black Hawk	In town of Lake View	Resident custodian. Camping, two weeks. Swimming, supervised beach. Boating. Fishing, panfish and game fish. Shelter. Picnicking. Hiking. Motoring.	Indian Village	County road, 4 mi. S.E. Sutherland	Historic interest. Inaccessible.
Brown's Lake	4 mi. W. of Sallix on county road	Swimming. Boating. Fishing. Picnicking.	Inn Area	East Shore West Okoboji	Public access to lake.
Brush Creek Canyon	Iowa 154, 2 mi. N. Arlington	Shelter. Picnicking. Trails. Hiking.	Kalsow Prairie	County road, 2 mi. N. Manson	Biologic monument.
Clark, T. F.	U. S. 63, 4 mi. NE. Traer	Shelter. Picnicking.	Kearny	Adjoins Emmetsburg	Resident custodian. Boating. Fishing, panfish and game fish. Golf green fee. Picnicking. Historic.
Clear Lake	Iowa 106, 2 mi. S. Clear Lake	Resident custodian. Camping, two weeks. Boating. Fishing, panfish and game fish. Swimming. Lodge. Picnicking.	Keomah, Lake	Iowa 271, 6 mi. SE. Oskaloosa	Resident custodian. Camping, two weeks. Group camping. Boating. Fishing, panfish and game fish. Lodge. Shelter. Refreshments available. Picnicking. Trails. Hiking. Swimming.
Cold Springs	U. S. 6, Iowa 92, 2 mi. S. Lewis	Picnicking. Swimming. Fishing. Boating.	Lacey-Keosauqua	Iowa 1, adjoins Keosauqua	Resident custodian. Cabins. Camping, two weeks. Swimming, supervised beach. Boating. Fishing, panfish. Golf, green fee. Lodge. Shelter. Refreshments available. Picnicking. Trails. Hiking. Motoring. Historic interest. Scenic.
Darling, Lake	3 mi. W. of Brighton on Iowa 78	Resident custodian. Picnicking. Swimming. Boating. Fishing. Camping, 2 weeks. Refreshments.	Ledges	Iowa 164, 3 mi. S. Boone	Resident custodian. Camping, two weeks. Fishing, game fish. Shelter. Refreshments available. Picnicking. Trails. Hiking. Scenic.
Dolliver Memorial	Iowa 50 and 121, 4 mi. N. Lehigh	Resident custodian. Cabins. Camping, two weeks. Group camping. Fishing, panfish and game fish. Lodge. Shelter. Picnicking. Trails. Boating. Fishing, game fish. Shelter. Picnicking.	Lennon Mill	Adjoins Panora	Historic interest.
Eagle Lake	County road, 4 mi. NE. Britt	Shelter. Picnicking.	Lewis and Clark	Iowa 165, 2 mi. W. Onawa	Resident custodian. Boating. Camping, two weeks. Fishing, panfish and game fish. Lodge. Shelter. Picnicking. Trails. Historic. Swimming, supervised beach.
Echo Valley	Iowa 56, 3 mi. SE. West Union	Shelter. Picnicking. Hiking.	Lost Island Lake	County road, 2½ mi. NE. Ruthven	Boating. Fishing, panfish and game fish. Shelter. Picnicking.
Fish Farm Mounds	Iowa 182, 7 mi. N. Lansing	Historic interest.	Macbride, Lake	Iowa 382, 2½ mi. W. Solon	Resident custodian. Swimming, supervised beach. Boating. Fishing, panfish. Shelter. Refreshments available. Picnicking. Trails. Hiking. Camping, two weeks.
Fort Atkinson	Iowa 24, NE. edge Fort Atkinson	Historic interest.			
Fort Defiance	Iowa 9 and 245, 1 mi. SW. Estherville	Resident custodian. Camping, two weeks. Lodge. Picnicking. Trails. Hiking. Historic interest.			



# HISTORIC MONUMENTS, PRESERVES

Name of Area	Nearest Town to Entrance	Facilities Available	Name of Area	Nearest Town to Entrance	Facilities Available
Anawake, Lake	Iowa 192, 1 mi. S. Council Bluffs	Resident custodian. Boating. Swimming, supervised beach. Fishing. Golf, green fee. Refreshments available. Picnicking. Hiking.	Rice Lake	County road, 2½ mi. SW Lake Mills	Boating. Fishing, panfish. Golf, green fee. Shelter. Picnicking. Swimming.
Maquoketa Caves	Iowa 130, 7 mi. NW. Maquoketa	Resident custodian. Camping, overnight only. Shelter. Picnicking. Trails. Hiking. Scenic.	Rock Creek	3½ mi. NE. Kellogg on County road	Resident custodian. Camping, two weeks. Picnicking. Fishing. Boating. Refreshments. Swimming.
Margo Frankel Woods	2 mi. N. of Des Moines, Hwy. 60	Picnicking. Hiking.	Rush Lake	County road 6 mi. N. Laurens	Picnicking.
Gregor Heights	Adjoins McGregor	Hiking. Scenic view.	Sharon Bluffs	Iowa 2, 3½ mi. SE. Centerville	Shelter. Picnicking. Trails. Hiking. Scenic.
Intosh Woods	U. S. 18, ¾ mi. E. Ventura	Boating. Fishing, panfish and game fish. Picnicking.	Springbrook	Iowa 25 & 384, 7 mi. N. Guthrie Center	Resident custodian. Cabins. Camping, two weeks. Group camping. Swimming, supervised beach. Boating. Fishing, panfish and game fish. Shelter. Picnicking. Trails.
Ill Creek	Iowa 10, 1 mi. E. Paullina	Swimming, supervised beach. Boating. Fishing, panfish and game fish. Golf, green fee. Lodge. Refreshments available. Picnicking.	Spring Lake	2 mi. W., 4 mi. N. of Grand Jct.	Picnicking. Boating. Swimming. Fishing.
Ini-Wakan	Iowa 276, 6 mi. NE. Orleans	Boating. Fishing, panfish and game fish. Shelter. Picnicking.	Steamboat Rock	Adjoins town of Steamboat Rock NW. section	Fishing, panfish and game fish. Picnicking.
One Eagles	County road, 3½ mi. SE. Davis City	Resident custodian. Picnicking. Hiking. Boating. Fishing. Camping, two weeks. Swimming.	Stone	Sioux City	Resident custodian. Camping, two weeks. Fishing, panfish. Lodge. Shelter. Picnicking. Trails. Hiking. Moting. Historic. Scenic.
Rock Grove	County road, 4 mi. NW. Harwarden	Resident custodian. Camping, two weeks. Fishing, game fish. Shelter. Picnicking. Trails. Hiking. Scenic.	Storm Lake	Adjoins town of Storm Lake	Boating. Bathing. Fishing, panfish and game fish. Picnicking.
Rockland Mills	Iowa 133, 4 mi. SW. Mt. Pleasant	Resident custodian. Camping, two weeks. Fishing, game fish. Picnicking. Trails. Hiking.	Swan Lake	County road, 3 mi. SE. Carroll	Boating. Fishing, panfish and game fish. Shelter. Picnicking.
Shamanpedan	County road, 3 mi. NE. Dolliver	Boating. Fishing, panfish and game fish. Shelter. Picnicking. Historic.	Three Fires, Lake of	Iowa 49, 3 mi. NE. Bedford	Resident custodian. Cabins. Swimming, supervised beach. Boating. Fishing, panfish and game fish. Shelter. Refreshments available. Picnicking. Trails. Hiking. Camping, two weeks.
Silades-Kepler	U. S. 30, 3½ mi. W. Mt. Vernon	Resident custodian. Cabins. Camping, two weeks. Boating. Fishing, panfish and game fish. Lodge. Picnicking. Trails. Hiking.	Trappers Bay	Adjoins town of Lake Park	Boating. Fishing, panfish and game fish. Shelter. Picnicking.
Stammel	Iowa 92 & 162, 5 mi. SW. Winterset	Resident custodian. Camping, two weeks. Lodge. Shelter. Picnicking. Trails. Hiking. Historic. Scenic.	Turkey River Mounds	U. S. 52, 4 mi. S. Guttenberg	Historic interest. Scenic. Inaccessible.
Steele's Peak	4 mi. SE. McGregor	Shelter. Refreshments available. Picnicking. Trails. Hiking. Moting. Historic interest. Scenic.	Twin Lakes	Iowa 17-124, 4 mi. N. Rockwell City	Swimming. Boating. Fishing, panfish and game fish. Shelter. Picnicking.
Steele's Point	East side of West Okoboji	Swimming, beach. Picnicking. Boating. Shelter. Fishing, panfish and game fish.	Union Grove	County road, 3 mi. SW. Gladbrook	Resident custodian. Boating. Fishing, panfish. Picnicking. Swimming. Refreshments available. Camping, two weeks.
Stout Knob	4 mi. E., 1 mi. S. of Forest City	Resident custodian. Camping, two weeks. Shelter. Picnicking. Trails. Hiking. Moting. Historic.	Viking Lake	County road, 3 mi. E. Stanton	Picnicking. Swimming. Boating. Hiking. Camping, two weeks.
Steele Lake	Iowa 118, ½ mi. NE. Eldora	Resident custodian. Cabins. Camping, two weeks. Swimming, supervised beach. Boating. Golf, green fee. Lodge. Refreshments available. Picnicking. Trails. Hiking. Fishing, panfish and game fish.	Wanata	Iowa 10, ½ mi. S. Peterson	Shelter. Picnicking. Trails. Hiking.
Stoner	County road, 7 mi. SW. Riceville	Lodge. Picnicking.	Wapello, Lake	Iowa 273, 6 mi. W. Drakesville	Resident custodian. Cabins. Camping, two weeks. Swimming, supervised beach. Boating. Fishing, panfish and game fish. Lodge, serving meals. Shelter. Refreshments available. Picnicking. Trails. Hiking.
Stam Grove	SE. section of Iowa City	Historic interest. Open to public 1 to 5 P.M. each afternoon except Monday, April 1 to December 1.	Wapsipinicon	U. S. 151, adjoins Anamosa	Resident custodian. Camping, two weeks. Fishing, panfish and game fish. Golf, green fee. Picnicking. Trails. Hiking. Moting.
St. Ann	Adjoins McGregor	Scenic view.	Waubonsie	U. S. 275, Ia. 2, 239, 7 mi. SW. Sidney	Resident custodian. Camping, two weeks. Shelter. Picnicking. Trails. Hiking. Scenic. Historic interest.
Stearns Canyon	Iowa 372, 5 mi. SW. Moorhead	Picnicking. Hiking. Historic interest.	Wild Cat Den	U. S. 61, Iowa 160, 3 mi. E. Fairport	Resident custodian. Camping, two weeks. Shelter. Picnicking. Trails. Hiking. Historic interest.
St. Haw Lake	U. S. 34, 1 mi. E. Chariton	Resident custodian. Boating. Fishing, panfish and game fish. Shelter. Picnicking. Trails. Hiking. Swimming. Camping, two weeks.	Woodman Hollow	County road, 3 mi. N. Lehigh	Hiking. Inaccessible. Fishing.
			Woodthrush	County road, 2 mi. SW. Lockridge	Undeveloped.



**DeSoto—**

(Continued from page 129)

souri Valley. The purpose of the hearings was to obtain an expression of local opinion on the proposed development. The hearings were well attended and while some opposition arose from individuals owning land within the proposed refuge boundary, the proponents of the project were overwhelming in their support.

Approximately 7,170 acres of land are included in the approved refuge area (see accompanying map),

of which 2,570 acres are located in Iowa and 4,600 acres in Nebraska. In addition, there will be, at maximum lake level, about 900 acres of water in the old river channel which will be cut off by the Corps of Engineers' channelization project. It is tentatively planned that all of the area within the bend will remain closed to hunting while portions of the lands acquired outside the bend will be available for public hunting.

A waterfowl refuge in this locality is important in the over-all

national migratory waterfowl management program, and more specifically for the management of the eastern prairie flock of Canada geese. The DeSoto National Wildlife Refuge will be one unit in a chain of national wildlife refuges that provides resting, feeding and sanctuary areas for waterfowl moving through the Central and Mississippi Flyways. It is located on the border between these two flyways. (See map showing flyways and DeSoto location.)

It is expected that the sanctu-

ary provided by the DeSoto National Wildlife Refuge will permit a more natural fall migration and a healthier condition for the flock. It will provide public hunting opportunities now lacking in the area and afford hunters in Iowa and Nebraska a chance to harvest a reasonable number of Canada geese and other waterfowl. It will also provide a feeding and resting place for the tremendous numbers of snow and blue geese that migrate northward through this area in the spring. These spring concentrations of as many as 300,000 to 400,000 geese occasionally cause damage to farm crops and are always a potential source of depredations in this general vicinity. A portion of the waterfowl food produced on the agricultural lands within the refuge will be available for the spring migrants and will help to forestall crop damage on private lands.

**Other Migrant Birds**

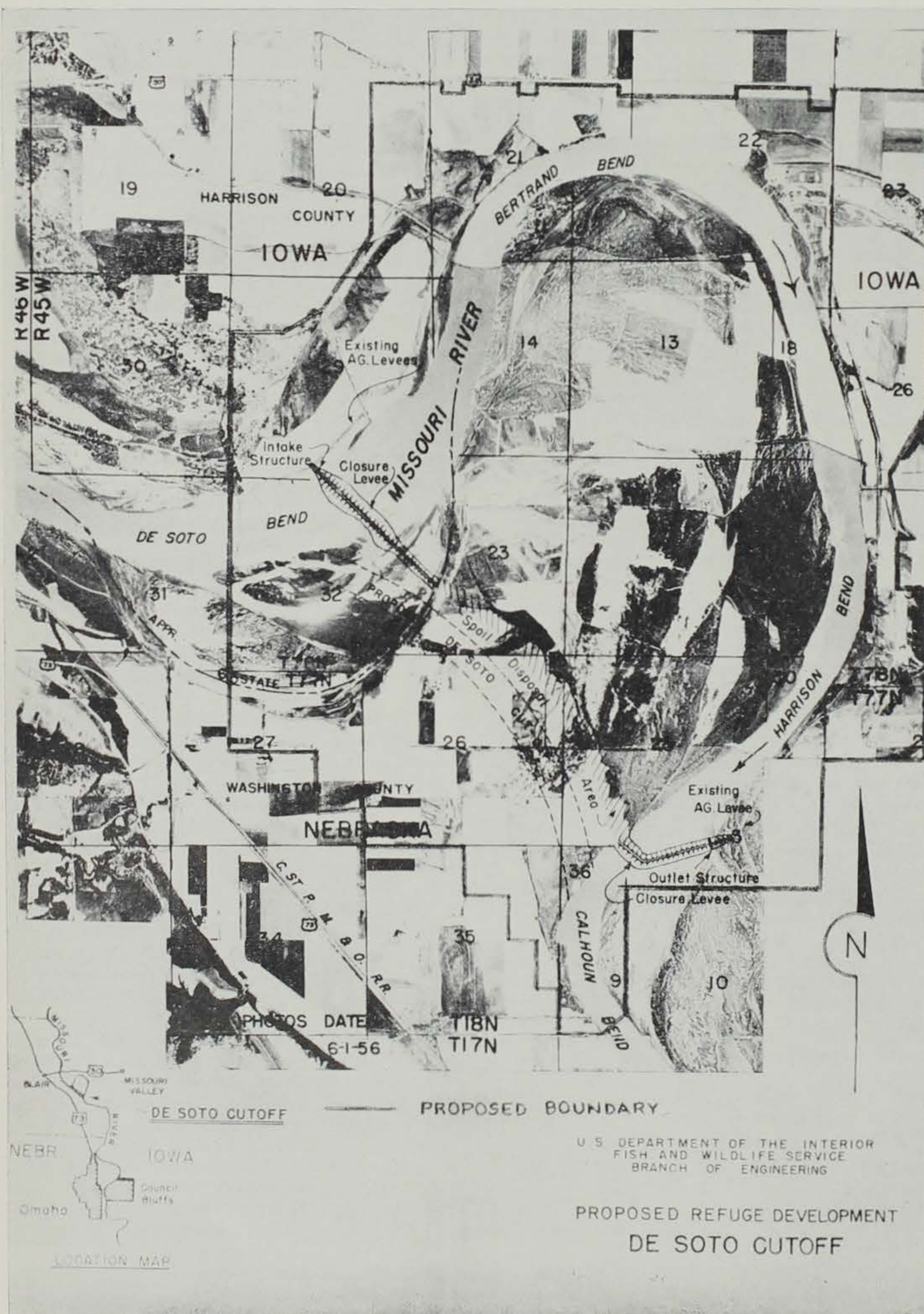
In addition to its use by waterfowl, the DeSoto National Wildlife Refuge will provide habitat for upland game birds, deer, and other animals. Migrant birds other than waterfowl will also use the refuge and will be of interest to ornithologists, naturalists, and others.

The water supply for the oxbow lake created by the channel cut-off will be the Missouri River. Engineering plans for the water control system are not yet final, but tentative proposals involve taking water from the river through a five-foot diameter intake structure in the dike at the upper end of the oxbow, and releasing water through a 54-inch diameter outlet structure in the dike at the downstream end. The water supply will also be augmented by flow from the 14.5 square mile drainage area to the east and north of the project.

Clean water for the refuge lake will be a necessity, especially in view of the anticipated high recreational use for swimming and other water sports. One of the main problems will be to keep silt deposition in the lake at an absolute minimum. Intake of water into the lake will, therefore, be coordinated with the periods when the silt load in the Missouri River is low. Serious consideration must also be given to means of reducing the present heavy discharge of sewage and industrial wastes into the Missouri River.

**Recreational Use**

The National Park Service is co-operating with the Bureau of Sport Fisheries and Wildlife in laying the groundwork for recreational use. The Park Service is preparing a comprehensive recreational development plan which will serve as a guide for the work to be done by the Bureau of Sport Fisheries and Wildlife. It is planned that the recreational development will consist primarily of day-use facilities for local and nearby residents of Iowa and Nebraska, rather than of overnight and extended-use fa-







Feeding geese were photographed during the 1957 hunting season in the DeSoto Bend area. Blue and snow geese concentrated in this area were reminiscent of the large flocks seen during the spring migration.

ilities for tourists. The recreational planning includes facilities for picnicking, swimming, boating, fishing, water skiing, etc., and installation of boat docks, beaches, bathhouses, concession buildings, public water supply, public toilets, and other small structures. These facilities will be handled by the Bureau through concession contracts with reliable operators. Concessionaires will be selected through solicitation of formal bids.

Recreational use will be permitted during the period from about May 1 to October 1. During other seasons of the year, public use will need to be restricted to prevent disturbance to waterfowl. Public hunting may be permitted during regular seasons on refuge lands designated for this purpose on the outside of the river oxbow, after a substantial number of birds have established a tradition of use of the project area. Public hunting on refuge lands will necessarily be controlled to prevent excessive kill of the waterfowl using the area.

#### Public Shooting

Although the DeSoto Refuge will be managed by the Bureau of Sport Fisheries and Wildlife, cooperative agreements are proposed with the Iowa and Nebraska Game Commissions to provide for state operation of the public shooting which eventually will be permitted on the lands around the periphery of the refuge. Provisions will be included in these agreements to close the entire area (refuge and adjacent lands in both states) being used by the waterfowl from the refuge in the event the kill on both public and private land reaches the limit of the desired harvest.

Agricultural lands within the refuge, which are vitally important in the management of Canada geese, will be farmed insofar as possible by former owners or by neighboring farmers under cooperative agreements with the Bureau

of Sport Fisheries and Wildlife. The farming will be done on a share basis, with the Bureau's share left in the fields for feed for waterfowl and other wildlife. In establishing the farming program, former landowners and tenants of former landowners will be given priority. On all national wildlife refuges, basic farm plans which will assure wise land use are prepared for all agricultural lands. The assistance of the Soil Conservation Service and agricultural experiment stations will be requested in making soil capability surveys and land use plans, establishment of sound soil conservation practices and use of crop varieties best suited to the area and of most value to waterfowl.

The Bureau of Sport Fisheries and Wildlife will assign a refuge manager to the area, probably in July of 1959. Eventually the staff will include, besides the refuge manager, an assistant manager, a clerk, and a maintenance man. Temporary help will be employed when needed for development and maintenance work. A standard refuge headquarters will also be developed in time.

#### Work Timetable

The timetable for construction and development calls for initiation of work in the summer of 1959 and the completion of the cut-off channel and diversion of the Missouri River by the summer or early fall of 1960. Construction of the main dikes and levees for the refuge will probably be started late in 1959 and will be completed as soon as possible to prevent excessive silting of the oxbow lake when diversion of water begins. Refuge developments such as roads, buildings, fences, utilities and recreational facilities, which cannot be undertaken in most cases until the basic water control developments are completed, are planned for 1961. Present forecasts point to 1962 as the

first year that public recreational use of the refuge can be authorized.

The DeSoto National Wildlife Refuge will be unique in that it will provide an important feeding and sanctuary area for waterfowl and also provide recreational facilities for upwards of 400,000 nearby residents of Iowa and Nebraska. It is important that the public appreciate that waterfowl management is a primary responsibility of the Bureau of Sports Fisheries and Wildlife and is the basic reason for establishment of this refuge. For this reason, recreational use must be subordinate to the needs of waterfowl during the periods of the year when waterfowl are present in significant numbers. With proper control and management, and with the cooperation of the public, the DeSoto Refuge will become an outstanding waterfowl management area and will provide excellent outdoor recreational opportunities to a significant number of our citizens.

#### Research—

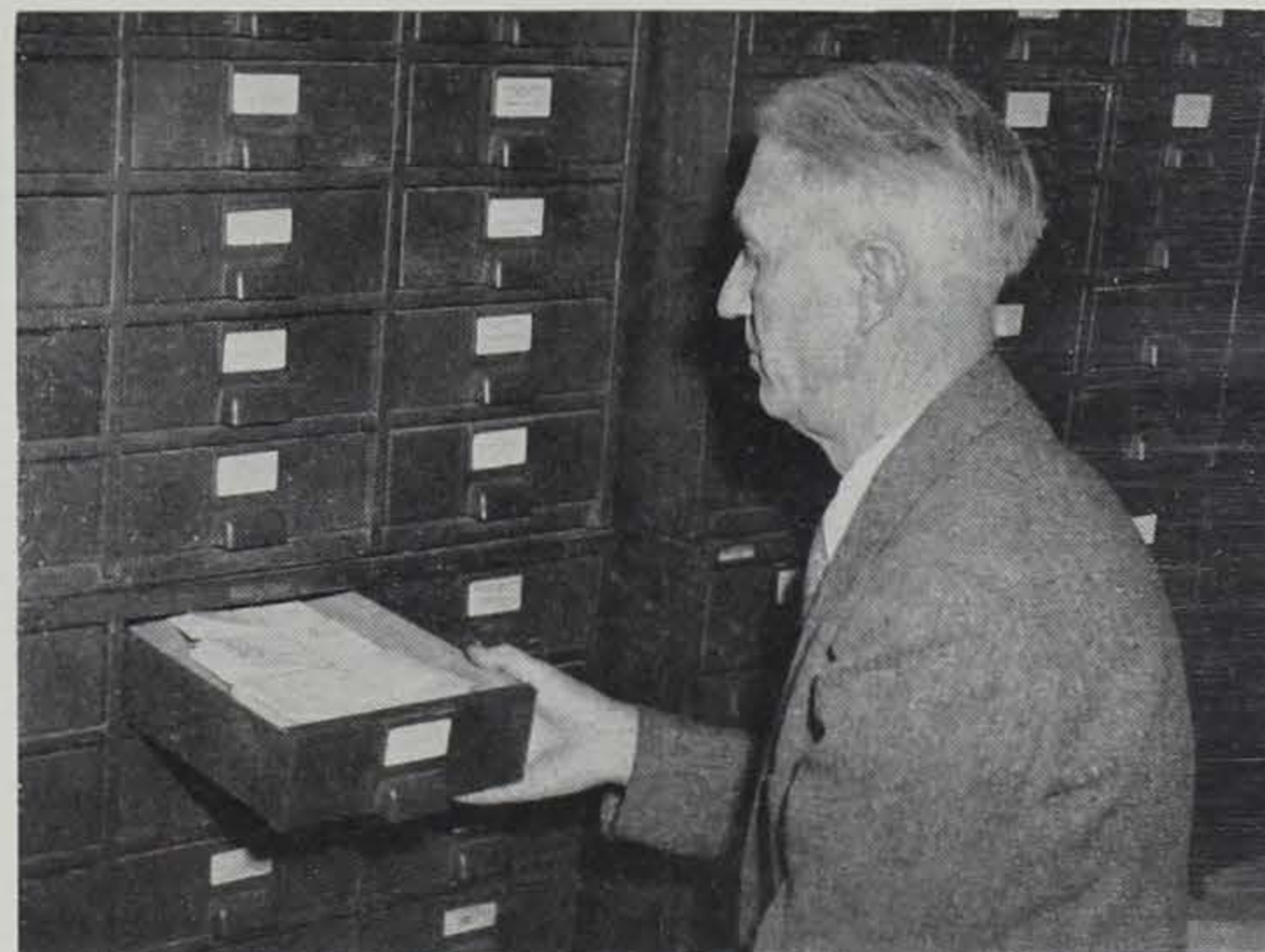
(Continued from page 131)

a whole series of investigations and separate discoveries.

Fact-finding must be done on a carefully planned basis. In the not too distant past there were administrators in some states who instructed their employees to go out and get the "facts" to justify politically expedient programs. Such is not true research. Real facts must come from open-minded investigations aimed at discovering truths, regardless of what the outcome or political expediency may be.

In many cases, individual segments of basic research projects may seem impractical. Compare such projects, if you will, to one piece in a jigsaw puzzle that may be solved piece by piece, regardless of how twisted and funny each individual piece may look. Many of us can well recall about 25 years ago when people joked about physicists who were splitting mole-

(Continued on page 136)



Analysis of research records and their publication are important in wildlife management and teaching in conservation. George Hendrickson, who has devoted 37 years as a Wildlife Professor at Iowa State College and Iowa State Teachers College, is checking on records from field studies.



A hoop net is tossed over pheasants along roadsides in order to capture them alive to mark them with a numbered leg band. Before releasing the bird, a blood smear is made for the studies on parasites, and a few drops are soaked into a blotter for studies on diseases.



**Research—**

(Continued from page 135)

cules in their laboratories. If the truth were known, probably a majority of the public at the time regarded such research as being of no practical value. However, today we know that type of basic research has made atomic energy possible. Polio has finally yielded to science after years of studies, and millions of dollars spent in experiments, not with humans, but with laboratory animals, including monkeys at that. Sometimes truths are found in strange places and under strange circumstances.

Not all research on game problems in the nation has been productive of positive results. Negative results, however, may also be of value. It is possible that what we regard as negative results today may actually turn out to be positive results when viewed under changed conditions in years to come. As in many other fields of endeavor, experiments in game problems have produced many useable facts to justify research programs.

**Some Important Findings**

Some of the more important findings resulting from studies at the Iowa Cooperative Wildlife Research Unit follow:

Dependable census methods have been developed for determining relative numbers of pheasants, cottontails, and quail. These census methods have proved particularly valuable to the Conservation Commission over the years because Iowa's game laws are based on what is known as the "biological balance" principle. This fundamental conservation law accordingly recognizes the need for basing regulations on current biological facts. The law therefore makes a current fact-finding program essential. The census method developed at the Unit are tools needed for setting biologically sound hunting seasons. This is a contribution of major importance.

Many basic biological facts have been determined for the pheasant, quail, cottontail, dove, ruffed grouse, fox, muskrat, mink, raccoon, and the skunk. Findings include data on such important factors as productivity, nesting success, annual mortality, and age and sex ratios. Studies on the biology, nesting, and management of waterfowl in Iowa were among the first such studies in the nation. The publications on the blue-winged teal and redhead ducks are still rated as the best publications available on these species. Many of today's studies of waterfowl in other sections of the country are based in part on principles discovered in Iowa's pioneering waterfowl studies.

The role of predation in wildlife populations has been evaluated. Predation has been found to be primarily a symptom of some other ill or shortcoming in carrying capacity of the habitat and has been found to have little direct effect on game populations living

in good habitat. Dr. Paul Errington, who carried on this particular study, was among the first in the nation to do a thorough job of interpreting the role of predation. His findings, no doubt, have saved many state conservation commissions thousands of dollars because they, on good authority, could show good reason for not paying bounties on foxes. Errington's principle of inversivity, which simply means that



Studies on Iowa pheasants include a survey to learn whether or not they suffer from any of the blood parasites or diseases found in poultry or other wild birds. A drop of blood placed on a glass slide and examined under a microscope provides information on blood parasites.

high populations produce fewer young per adult and that low population of wildlife produce a larger number of young per adult is recognized on a world wide basis as one of the most important concepts of modern ecology.

Some of the earlier studies pointed out the need for suitable food and cover conditions for quail, if they were to thrive. This has helped explain why quail do not survive long in areas where either of these two life necessities are missing. It was also found that orderly harvest of quail through a hunting season did not affect the population of quail on the area the following year. Hunted and un-hunted populations suffered annual mortality that cut the population back to the carrying capacity of the habitat.

Unit studies have resulted in improvements of the pheasant flushing bar used on tractor mowers to reduce the loss of nesting pheasants during hay mowing operations. Such flushing bars have not proved equally effective from year to year under different field conditions. In other words, the flushing bar is not a cure-all.

As a result of cooperation between the Research Unit and the School of Veterinary Medicine, many facts have been contributed on the occurrence of diseases in wildlife populations, such as tularemia in cottontails, the hemorrhagic diseases in muskrats, rabies in skunks and foxes, and the relationship of these diseases to human welfare. More recently,

disease organisms associated with a local die-off of raccoons in Iowa were discovered by cooperators at the Veterinary Diagnostic Laboratory. Similar losses from diseases went unexplained for years.

**More Facts Needed**

At the present time, Unit personnel are attempting to learn more about the role of diseases in various wildlife populations in Iowa. A project is underway to

learn if there are any blood parasites in Iowa pheasants and, if so, to see whether or not there is any connection between these and similar parasites in domestic poultry. Studies on the blood of the pheasant are also being conducted to learn what, if any, disease antibodies are present. This study should give a clue to what diseases the pheasants may suffer from as well as their effect. Such information is needed for a better understanding of the relationship of diseases in poultry to pheasants and quail. As a cooperative venture with the Department of Bacteriology at Iowa State College, a study is being made to find out if brucellosis, a disease commonly found in cattle, is found in Iowa's population of deer.

One of the more important studies underway at this time is one to determine the breeding season and rate of production of Iowa deer. The facts learned may be of importance in setting of proper dates for the open season and in determining the extent of hunting or harvest to be permitted.

An important part of the Unit pheasant study consists of keeping tabs on the pheasant population from year to year. A study area near Creston was selected in order to compare the relatively new pheasant population in that part of the state with the high populations of a similar study area in the primary pheasant range in Winnebago County. We are looking for the reasons for the recent increase in numbers of pheasants in

parts of southern Iowa. An important question is, "is the increase a result of change in habitat or has there been a physiological change in the pheasants themselves that are succeeding in this new area?"

A current study is aimed at finding a more reliable way for determining numbers of wood ducks in Iowa. Previous census methods for the wood duck have not provided adequate information for proper management.

In anticipation of the construction of the Saylorville Dam on the Des Moines River in Polk County, a study is being made to determine populations of pheasants, quail, waterfowl and deer on sample areas along that river. These areas are being studied so that Iowans may learn the over-all effect of such impoundments on populations of various species of game.

The significance of predation on waterfowl populations in selected Iowa localities is being investigated. A critical appraisal will be made of circumstances influencing security and/or vulnerability to natural enemies, the contributing role of sickness, lead poisoning, gunshot wounds, etc. In other words, the study should reveal answers to old questions on why waterfowl are preyed upon, on why not, and what, if any, effect does such predation have on the annual population.

**Extension and Education**

In addition to research activity, the cooperative agreement establishing the Unit also calls for game extension activities. Such activity includes the writing of popular articles for magazines and newspapers, the publication of research findings in scientific journals, preparation of information for use on radio and TV, and the handling of correspondence requesting information on various phases of game management, the control of nuisance animals, and conservation in general. To date the wildlife and fisheries units have produced 681 publications.

The training of students to serve as professional workers in the field of conservation in years to come is the third important responsibility recognized in the Cooperative Wildlife Research Unit program. The success of such training is in part attested by the fact that at least 16 of the present Commission employees received some degree of wildlife or fisheries training at Iowa State College.

The Iowa Unit, through such personnel as Wildlife Professor George Hendrickson, former Unit Leaders Logan Bennett, Tom Scott and Edward Kozicky, along with Research Professor Paul Errington, Fisheries Professor Kenneth Carlander and Game Extension Specialist Robert Moorman, has made many important contributions to conservation. The influence of these men has been considerable at state, national and world-wide levels.