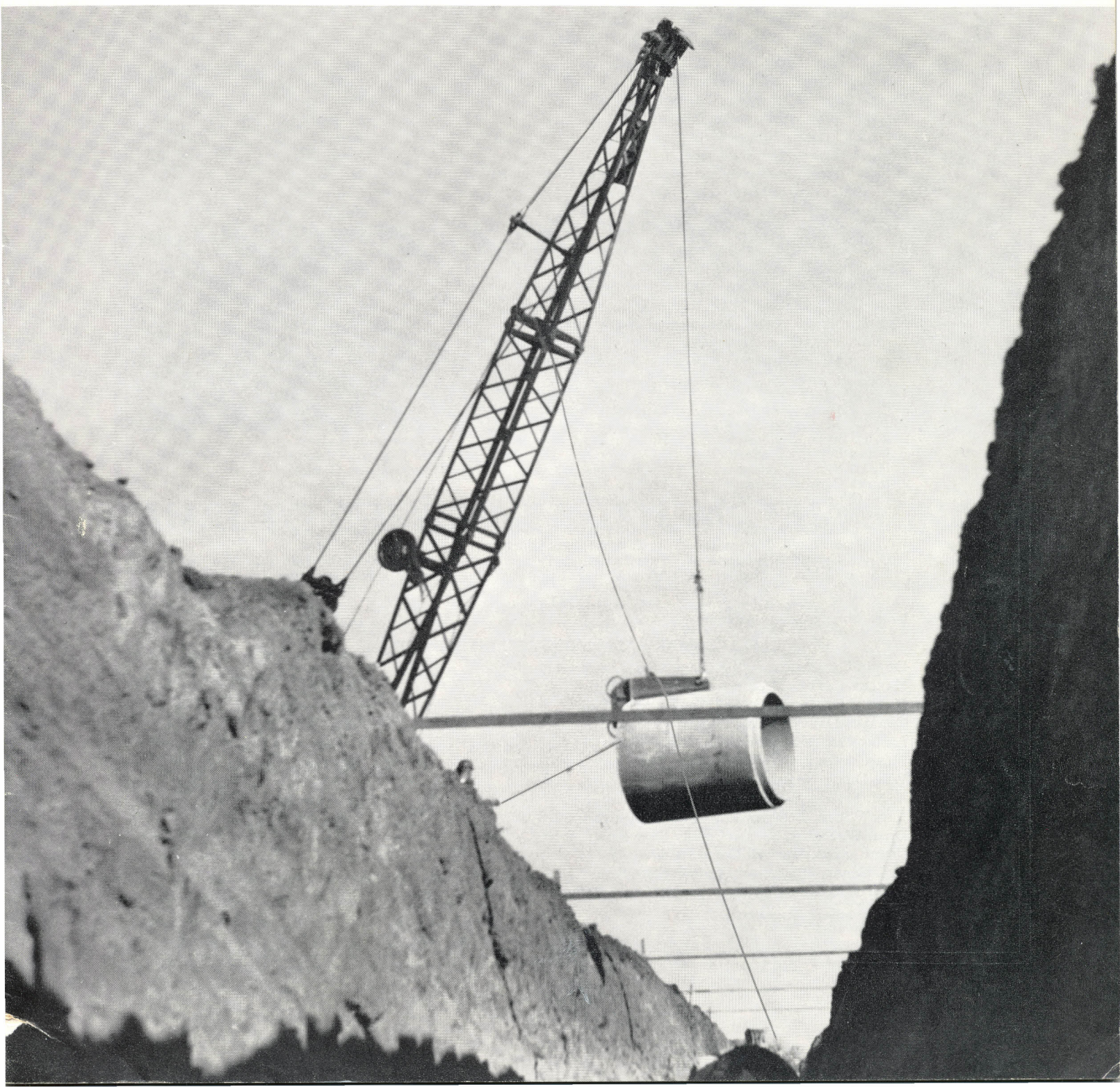
KANSAS FISH AND GAME

VOL. XIII JANUARY, 1956 NO. 3



COMMISSIONERS

Ross Beach, Jr., *Chairman* ..... Hays
C. E. Kaup, *Secretary* ..... Manhattan
Vern Mayo, *Commissioner* ..... Garden City
Ford Harbaugh, *Commissioner* ..... Wellington
A. H. Alcock, *Commissioner* ..... Chanute
Eugene S. Berney, *Commissioner* ..... Atchison

ADMINISTRATIVE STAFF

Headquarters, Hatchery, Pratt, Kansas

Dave Leahy, Director
Mary Anne Crabb, Publicity
George Valyer, Publicity
Jeannine Nicholson, Clerk-Stenographer
Sara McCoy, Stenographer
Judy Steckklein, Clerk-Stenographer
Maurine Smysor, Stenographer
Robert Ward, Accountant
Louise Harrison, Stenographer
Laura Mae Priddy, Stenographer
H. A. Stephens, Educational Representative

FISH AND GAME DIVISION

Seth L. Way, Superintendent, Fish Hatcheries ..... Pratt
Roy E. Schoonover, Fisheries Biologist ..... Pratt
Frank Schryer, Fisheries Biologist ..... Pratt
Charles Burner, Fisheries Biologist ..... Pittsburg
Richard Eggen, Horticulturist ..... Pratt
James L. Coats, Game Biologist ..... Pratt
Harry Smith, Superintendent, Meade County Pheasant Farm ..... Meade
Byron Walker, Superintendent, Quail Farm ..... Calista
Charles Troxel, Superintendent, Quail Farm ..... Pittsburg
Marvin Schwilling, Game Biologist ..... Garden City
* Leo Klameth, District Game Management Supervisor ..... Ness City
Tom Gatie, District Game Management Supervisor ..... Bunker Hill
Max Stone, District Game Management Supervisor ..... Manhattan
Dave Coleman, District Game Management Supervisor ..... Ottawa
Pressley Piner, Game Management Supervisor ..... Ulysses
Clyde Scott, Game Management Supervisor ..... Pratt
Warren Moore, Cheyenne Bottoms Refuge Manager ..... Great Bend

DISTRICT GAME PROTECTORS

Floyd Andrew, Anthony
**A. W. Benander, Topeka
E. L. Bryan, Sunflower
James Bryan, Cherryvale
H. D. Byrne, Concordia
James Carlson, Salina
Joe Concannon, Lansing
Ernest Craig, Erie
Merle Curtis, Garnett
Wallace Ferrell, Marysville
Oliver Gasswint, Emporia
**Edwin Gebhard, Meade
Clement Gillespie, Arkansas City
Eugene Herd, Dodge City
Leon Hopkins, Lincoln
**Arthur Jones, Downs
Willard Jones, Scott City
Ralph Junger, Garden City
Billy F. King, Hays
Kenneth Knitig, Goodland
**A. E. Kyser, Savonburg
Paul LeGer, Perry
Alvin Michel, Lakin
Roy McKinsey, Holton
Jack McNally, Eureka
Jack Randall, Larned
John J. Sharp, Chanute
George Shaw, Garnett
John Shay, Kingman
John Spence, Horton
Carl Suenram, Moundridge
Chas. Toland, Wichita
Clyde Ukele, Norton
Fred Warders, Wichita
George Whitaker, Atwood

LEGAL

Noel Mullendore, Attorney ..... Howard

STATE PARK AND LAKE SUPERINTENDENTS

Duane Carpenter, Butler County State Park ..... Augusta
Harley Kathka, Decatur County State Park ..... Oberlin
Harold Peterson, Ottawa County State Park ..... Minneapolis
Charles Dallan, Scott County State Park ..... Scott City
Leslie Freeman, Clark County State Park ..... Kingsdown
Bill Gregory, Crawford County State Park ..... Pittsburg
Wm. Diggs, Nemaha County State Park ..... Seneca
A. M. Sprigg, Woodson County State Park ..... Yates Center
John White, Leavenworth County State Park ..... Tonganoxie
Dean W. Smith, Neosho County State Park ..... St. Paul
Clair Andes, Maxwell Game Refuge ..... Canton
R. J. Clark, Montgomery County State Park ..... Cherryvale
Walter Williams, Finney County Game Refuge ..... Garden City

* On leave, military service.
** Area Supervisors.

KANSAS FISH AND GAME

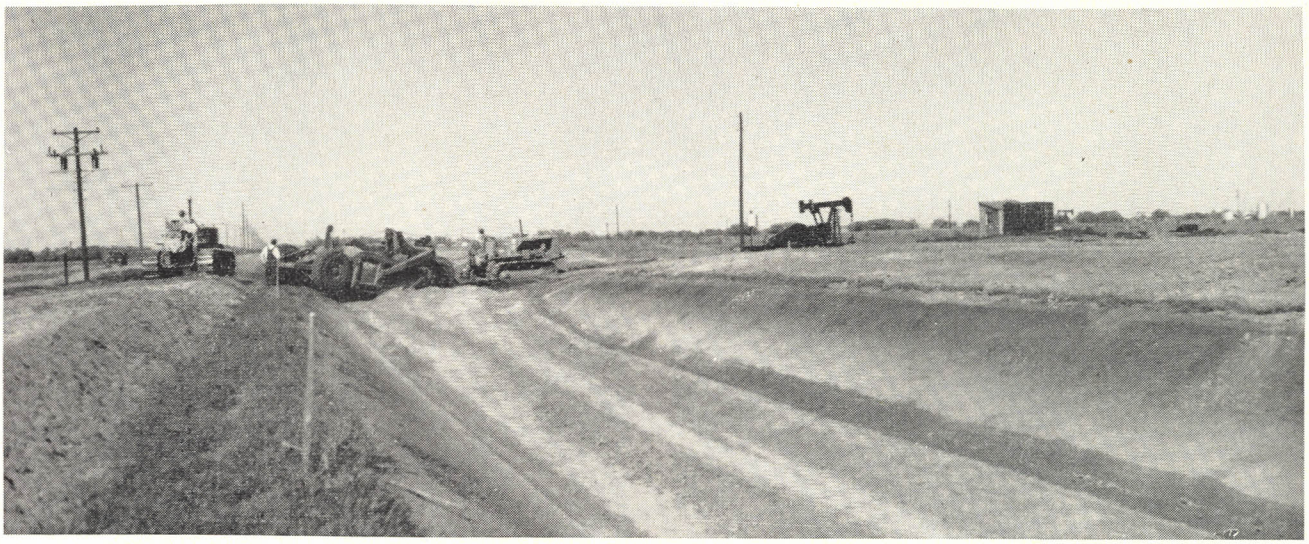
Published Quarterly by
THE KANSAS FORESTRY, FISH AND GAME COMMISSION
Pratt, Kansas

DAVE LEAHY, *Director*

ROSS BEACH, JR., *Chairman* C. E. KAUP, *Secretary*

ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE AT PRATT, KANSAS

VOL. XIII JANUARY, 1956 NO. 3



Men and machines work on the open canal which makes up about five miles of the waterway from the Arkansas river to Cheyenne Bottoms.

CANAL TO CHEYENNE BOTTOMS TAKES SHAPE

A visitor to Barton county, Kansas, can see a unique canal beginning to take shape. The canal, unusual in its scope and size, will deliver Arkansas river water to the Cheyenne Bottoms game refuge.

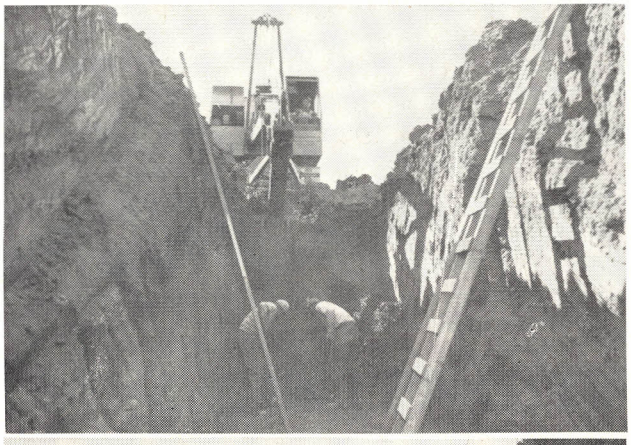
Such a canal was envisioned in the late 1890's by the Koen brothers of Denver as an irrigation and recreation project, but it was abandoned after a short time. Now a canal, following some of the Koen brothers' ideas, is being constructed by the Forestry, Fish and Game commission to take water to the huge natural basin area.

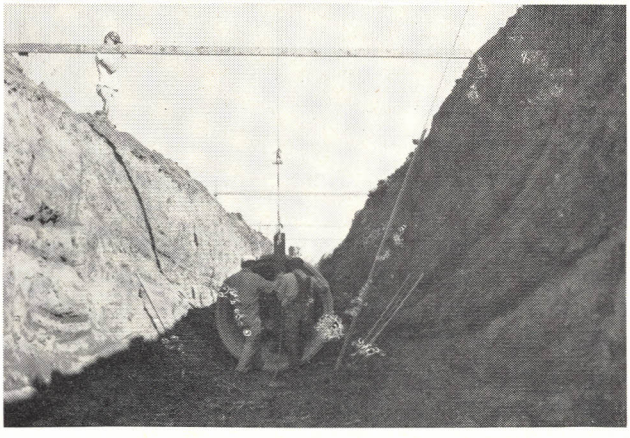
Heretofore, Cheyenne Bottoms provided a refuge for waterfowl only in wet, favorable years. When the project is completed, it will have a permanent water supply and be useful, not only as a refuge for migratory waterfowl, but as a fishing and picnicking spot.

From the Arkansas river, the canal will run underground beneath railroad tracks and U. S. Highway 50N. In that area, 72-inch pipe will be used to carry the water. Beyond the highway, the underground conduit will connect with an open canal which will extend 5½ miles northeastward, along the west edge of the Great Bend airport, to the north fork of the Dry Walnut. Where necessary, the natural sand of the drainage canal is lined with clay or cement to prevent loss of water.

A dam is being constructed on the Dry Walnut to divert the water from that stream to a 54-inch underground conduit which travels under Highway 96 and railroad tracks to the Wet Walnut. The channel of the Wet Walnut then is used for the watercourse to the point of a diversion dam, constructed last year in one of the earlier phases of the Cheyenne Bottoms project. The remainder of the course to the Bottoms from the Wet Walnut dam is via canal already built.

Work on the canal was started last summer and the construction is in progress at several points along the 7½-mile route of the canal. Big machines are exca-





These pictures show the excavation work necessary in the construction of the conduit from the Arkansas river to Cheyenne Bottoms. Above a ditch-digger scoops out dirt for the underground pipeline, 13 feet deep, between the Wet and Dry Walnut creeks. Below, two workmen are grading the bottom of the ditch in preparation for the laying of the conduit In the bottom picture, a section of 54-inch pipe is being shoved into place as the excavation progresses.

vating and grading the open canal. At one point the canal is higher than the surrounding low countryside and is contained by dikes. The work also includes road crossings over the canal and several siphons under the canal and Dry Walnut to take care of surface drainage water in time of excessive rainfall.

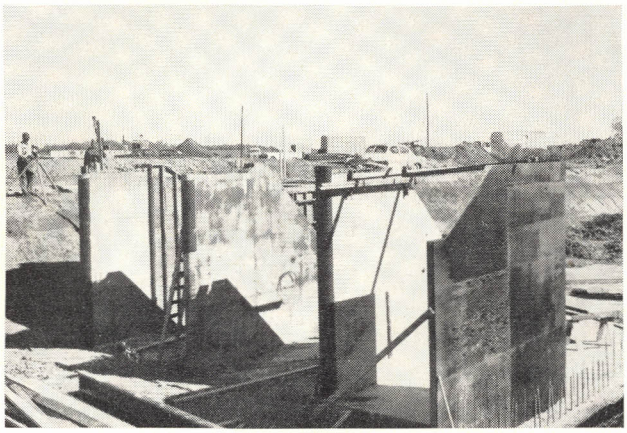
A large digger was used to excavate the ditch approximately 13 feet deep for the underground pipeline between the Walnut creeks. The concrete pipe joints were lifted and mortared into place behind the digger.

The 6-foot concrete pipe to be used in the initial underground pipeline from the river is being made at a Great Bend airport building by a company which is moving new machinery there.

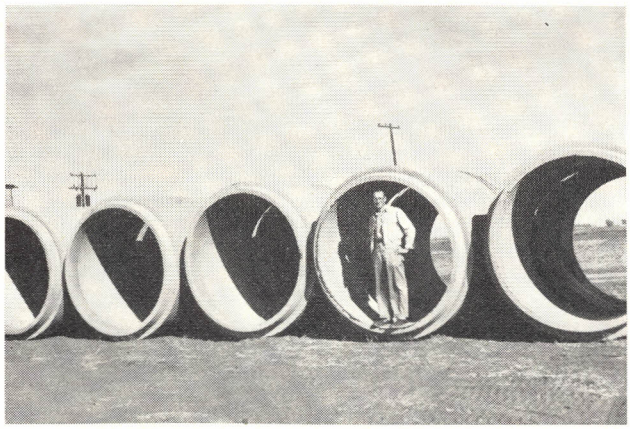
Contract for the present phase of construction work was let to the Hunter Construction company of Hays. It is scheduled for completion in April.

When this part of the Cheyenne Bottoms project is completed the work will be almost finished. Completed in the past several years have been the dike-roadways which formed the five lakes of the Bottoms, structures to control water in all areas, duck blinds in two public shooting areas, the headquarters building and manager's house, an outlet canal, the Wet Walnut diversion dam and canal into the Bottoms.

Remaining for the future are a diversion dam across the Arkansas river and a small amount of pipeline to connect with the 72-inch conduit which is a part of the present contract. Twelve bridges also will be built across the Wet Walnut.



The 7½-mile watercourse to Cheyenne Bottoms will include short portions of the channels of the Dry and Wet Walnut creeks. This dam on the Dry Walnut, under construction northwest of Great Bend, will divert the water into the underground pipeline to the Wet Walnut. The pipeline work can be seen in the background.



This 6-foot pipe will be used in the underground pipeline from the Arkansas river under U. S. Highway 50N and railroad tracks to the open canal. It is being made by the Quartzite Stone company at the Great Bend airport.

Cover Picture

A permanent water supply for the Cheyenne Bottoms is closer to reality with the current construction work on a canal from the Arkansas river. Some of the pipe for the line between the two Walnut creeks is being lifted into place by a huge crane.

The beaver has the swimming power more highly developed in his hind feet than has any other quadruped.

"The man who is curious about wild things or the growing things is never alone in his travels. To him no ocean, desert or mountain-top is desolate."—*From Wildlife in Color by Roger Tony Peterson.*

$315,527.62 Available In Federal Funds

Kansas will have $315,527.62 available for fish and game projects during fiscal year 1956.

The money is allocated to the states on the basis of area and sale of hunting and fishing licenses. It is derived from the Pittman-Robertson fund for game restoration and the Dingell-Johnson fund for fisheries restoration, built up from a federal tax on hunting and fishing equipment.

The funds cover three-fourths of the cost of approved wildlife projects. They are paid only after the state has disbursed the entire amount.

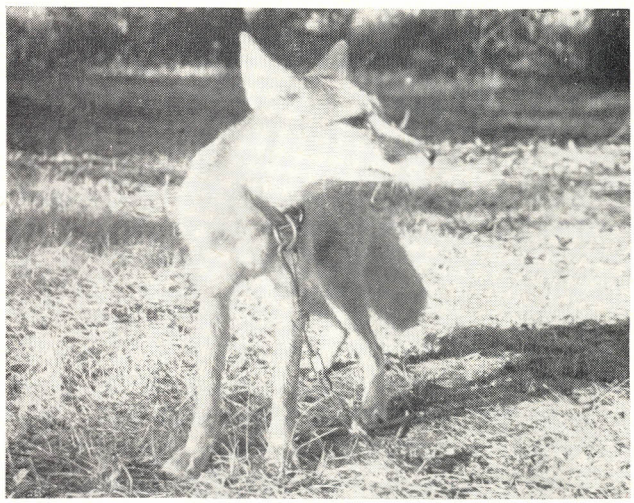
Kansas will receive $230,846.60 in P-R funds. With its one-fourth share, it then will pay out $307,794 on an approved project. The money this year has been designated for use on the canal to carry water from the Arkansas river to Cheyenne Bottoms game refuge in Barton county.

The D-J money was obligated for the Osage County State lake which has just been completed.

The fish and game commission is able to take advantage of these federal allocations by having enough money on hand for the full amount of the projects.

There is no social directory in the wilderness.—Henry VanDyke.

There are very few red flowers which are fertilized by bees probably because bees seem to be color-blind to red.



This is the scarce swift or prairie kit fox. It was found by Harold Walters last spring on his Haskell county farm 13 miles north of Sublette. Three pups and the mother were found in the den but all died except this pup. Walters gave the pup to Marvin Schwilling, game biologist for the fish and game commission, who later gave it to the Museum of Natural History at the University of Kansas.

Fish Conservation Fundamentals

By R. W. Eschmeyer

Population Manipulation

(Fourth in a Series.)

We don't like the term "population manipulation" but use it for want of something better. It involves managing fish populations in such ways as to provide optimum numbers of catchable-size fish. It may involve playing predatory game fish species against their prey (the pan fishes), or controlling the less desirable species, preventing overpopulation; and, in some instances, eradicating entire fish populations and starting over by restocking with more desirable species.

Obviously, we can't manipulate fish populations intelligently unless we know what species are present and the relative abundance, size-classes, and rates of growth of these species. We also need to know what species can contribute the most fishing under various amounts of fishing pressure.

We need to know, too, what species are desired by the angler. Often, a fish which is a "weed" species in one area is a highly-prized species in some other region. There's the question, too, of the relative "catchability" of a species. For example, the bluegill is more catchable than the bass. We also need to know the individual habitat needs of the various species.

Population manipulation hasn't progressed far, except in a few aspects, because we still don't know enough to handle it intelligently. But it has a big future.

We also don't know enough about the subject to give a brief, concise over-all picture of it. So, the comments here are limited to a few aspects.

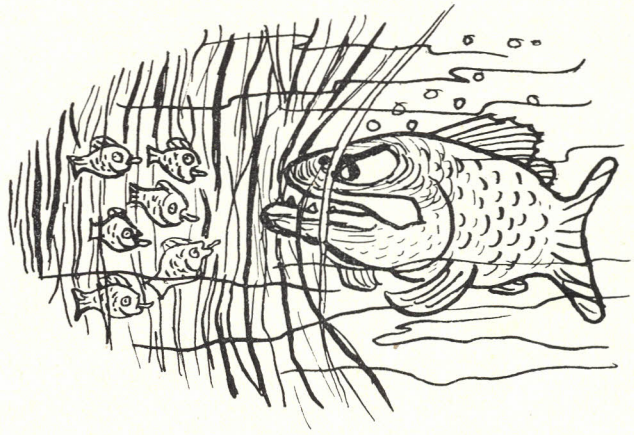
THE FARM POND

The farm pond, with largemouth bass and bluegills (other combinations of predators and prey species also are used) is probably the simplest habitat with which fishery workers deal. Yet, fishery workers disagree rather decidedly on how it should be managed. This disagreement can be attributed mainly to the fact that conditions differ, and that management methods which are successful in one area often don't pan out in another area.

The objective, in the farm pond, is to produce continuing supplies of both catchable-size bass and bluegills in reasonable numbers. This can be done only if the bass keep the bluegill population reduced in numbers (by eating them) to where there's adequate food for the bluegills which survive—and only if enough young bluegills are produced to give the bass enough food to permit rapid growth.

The "balance" between predator and prey is a rather delicate one. Usually, after a few years, the bluegills become overabundant and stunted—regardless of the stocking ratio used at the start. The stunted bluegills make serious inroads on the supply of bass eggs and fry, reducing the future "predator" population effectively. It's a one-way affair, and is unlikely to correct itself. Only about one pond in a thousand gets any kind of management—including nearly enough fishing.

The other extreme—overpopulation and stunting of bass—is much less likely; it can often correct itself because bass can keep their own populations down effectively (when food is in short supply) by eating their own young.



Knowing that the tendency is toward too many bluegills, the pond owner can use various population manipulation "devices" to maintain balance or to restore it. Those which come to mind are:

1. Fish the pond hard and often. Remove all bluegills caught, regardless of size, but return a reasonable number of the bass caught.

2. Keep the pond free of aquatic vegetation. The small bluegills find excellent protection in dense weed beds and are less available to the bass.

3. Destroy most of the bluegill beds. A few nests can produce a lot of young. Destruction of most of the beds by mechanical disturbance or chemical poisoning—when the eggs have been laid—will reduce bluegill production.

4. Partial poisoning. Studies on partial "poisoning" with rotenone made at Auburn, Alabama, indicated that, at mid-day, use of rotenone along the mar-

gin would take mostly bluegills, few bass. The same procedure, used early or late in the day, would destroy large numbers of bass as well. The fact that small bluegills are inshore in mid-day, when bass are in deeper water, permits destruction of bluegills without serious harm to the bass.

5. Where ponds are seinable, excess bluegills can be removed by seining. Or, they may be removed by trapping.

6. Where conditions permit, the pond can be drained and the desired number of fish can be returned. Or, the population can be removed by use of rotenone. However, the fish are killed by this process and the pond will not provide fishing until new stocks have grown to catchable size.

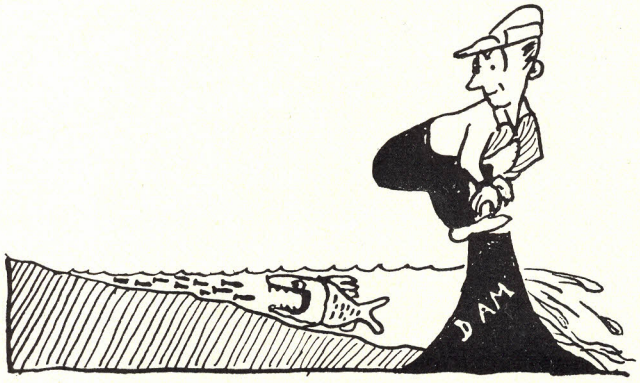
7. A fellow we had lunch with recently had his own simple answer to the bluegill overpopulation problem in his 1½-acre pond. He bought several hundred dollars' worth of adult bass and hoped to add several hundred more dollars' worth in a few months. This method is effective, but we don't advocate it for general use for obvious reasons. The method is too costly, except in isolated instances on private waters, regardless of effectiveness.

LAKE REHABILITATION

Often—where the fish populations are made up largely of numerous stunted fish or undesirable species —the easiest way to restore good fishing is to drain out the water (if possible), or to exterminate the population by chemical means, and then restocking to start over.

There are limitations, of course. Most waters can't be drained. Use of rotenone is expensive, it rarely results in a complete kill of all fish, and it will kill fish in the outlet stream.

Despite the limitations, rehabilitation has become an important tool. By 1954, the state of Washington, alone had treated 210 lakes (17,783 acres), destroying the fish populations and, by subsequent stocking, created excellent trout fishing where angling was poor prior to rehabilitation.



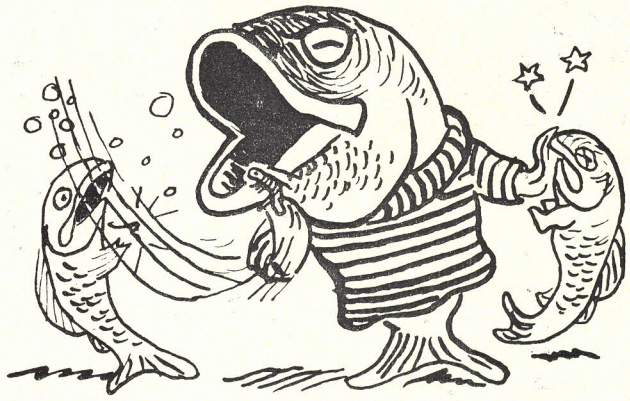
Partial "poisoning" is effective where certain fish concentrate, usually at spawning time. Such fish as adult carp, suckers, and some pan fish species, can be reduced very decidedly by this method.

Rehabilitation of streams has also been tried recently, in a few instances, to reduce the rough fish. In one major attempt, rough fish from downstream soon repopulated the treated areas. Its value in stream management is still not determined.

ROUGH FISH CONTROL

In waters which are well suited to rough fish, control measures often help fishing for the more desirable species. Experience shows that control of rough fish must be substantial and persistent if it is to be effective. Otherwise, recovery to their original abundance is apt to be rapid.

Some years ago big Mattamuskeet Lake in North Carolina was taken over by the U. S. Fish and Wildlife Service and made into a national wildlife refuge. Carp interfered with the success of the refuge. They



became extremely abundant. Much of the food for waterfowl disappeared in Mattamuskeet. The bass and crappie mostly disappeared, too.

A seining area was baited with grain to attract the carp. In 1949, when bait was first used, the take of carp rose to 110,000 pounds. In 1950 it jumped to 360,000 pounds, and in 1951 to 745,000 pounds.

As a result, the water in this shallow 30,000-acre lake became much clearer. Waterfowl food plants increased greatly. Bass and crappie increased quite decidedly. Fishing has improved as a result of the carp control program.

Extensive study in Iowa brought this conclusion from two fisheries workers in an article in the Transactions of the American Fisheries Society:

The Iowa Conservation Commission's policy on rough-fish removal has been based for many years

on the theory that these fish are detrimental to and competitive with the more desirable species of fish. Rough-fish control has been vigorously carried on year after year in several Iowa lakes. In these lakes game fish populations have been large and angling in general has been good. On the other hand, in several lakes with large populations of rough fish that have not been seined so intensively, game-fish populations have remained at consistently low levels.

There are other examples to demonstrate the importance of vigorous rough fish control on some waters. Such control can be exercised in a number of ways, including use of commercial gear, local "poisoning," and possible innovations in electrical shocking devices.

In some areas the problem is being partially solved by liberalizing regulations, and by creating a greater demand for rough-fish fishing. Some of these fish are excellent fighters; and some, from unpolluted waters, have good food qualities. In this connection, two personal experiences come to mind. On more than one occasion persons have commented on the excellent taste of the "walleye" fillets they were eating, not knowing that carp fillets had been substituted. Too, the "fights" which we recall most vividly were with big carp on light tackle. We didn't know that carp weren't fit to eat or fit to catch until we left home and brushed up against "sophistication!"

WATER LEVEL FLUCTUATION

For many years fishery workers and sportsmen believed that a permanent water level was essential to good fishing. We now know that fluctuating levels, properly manipulated, can greatly benefit angling by influencing the fish population favorably.

To cite a single example, a biologist of the Illinois Natural History Survey experimented with summer drawdown on Ridge Lake in Illinois. He found that extensive late-summer drawdown keeps the abundance of small bluegills under control. Large numbers of them are eliminated by stranding as the water recedes or by being eaten more readily by bass when they become exposed and concentrated in a smaller area. This results in increased success of bass spawning the following spring when the lake approaches its normal area again.

PROVIDING FORAGE

To have reasonable supplies of catchable-size fish, all steps in the food chain must be well represented. Fishing can sometimes be improved decidedly by finding the weak link in the chain and strengthening it.

In one such case, a southern reservoir of about two thousand acres had very poor fishing. Sampling in a bay of several acres produced a few catchable-length, but thin, bass and some numbers of badly stunted bluegills. Because of extensive winter drawdown, there was little insect life on the bottom. The only available basic food was the plankton—microscopic plants and animals. This food in the amounts present would raise the bluegills and young bass to sizes of a few inches; thereafter, they needed bigger food organisms. The big bass had little fish as food. But the stunted bluegills tended to take advantage of the very shallow water. The most readily available food for big bass was little bass, and the supply of these was limited.

Gizzard shad, plankton-eaters, were introduced. After they were established a bay was sampled again. Now there were more big bass and they were in better condition. Young-of-the-year bass were well represented, too; many had survived because predation on them had lessened. There were many young-of-the-year shad, just the right size to serve as food for the big bass. As expected, there were also numerous small bluegills as stunted as ever.

The game fish population had changed decidedly and fishing had improved. The weakest link in the food chain had been strengthened. Perhaps we should add that there are places where shad should not be planted; this should not be construed as an endorsement for the indiscriminate introduction of these fish.

IN GENERAL

This is admittedly an unsatisfactory discussion of population manipulation. But, it does indicate clearly, we hope, that this management tool has a big future. In general, we're still too short on factual information to apply it effectively.

As may have been observed, it isn't easy, at times, to draw the line between habitat improvement and population manipulation. But, the point is of academic interest only.

In the past our efforts have been aimed mainly at managing fishing by placing various and sundry restrictions on the angler. Some of these are needed. However, prior consideration should be given to managing the fish populations themselves. On many waters the angling affects the actual fish populations only to a limited degree.

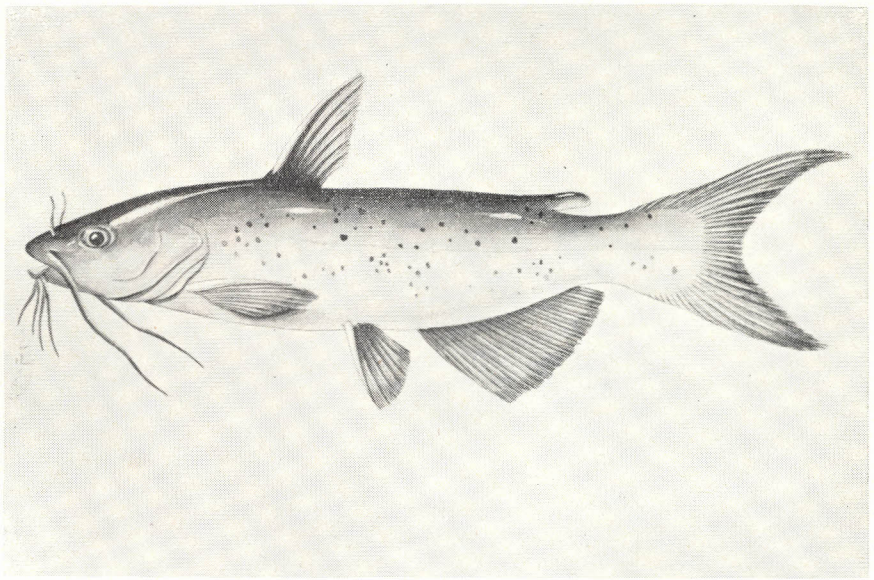
Next Issue: "Creating More Fishing Waters."

Bears often select a prominent tree for rubbing, gnawing and clawing. They mark these "bear trees" to show their size as a challenge to other bruins.

A praying mantis is said to be the only insect that can turn its head.

The Channel Catfish

Third in a series of articles on the different species of fish found in Kansas waters.



The Channel Catfish (Ictalurus lactustris) is among the most important of Kansas fishes.

The name catfish, to distort a phrase, covers a multitude of fins! Everyone knows a catfish, but the species is much confused. All told there are actually more than 1,000 species in the catfish family, both fresh and salt water.

So far as Kansas fishermen are concerned, the channel catfish rates tops in flavor and is probably the most preferred species of any found in Kansas waters.

IDENTIFICATION

Kansas has two species of fork-tailed cats—the channel cat and the blue cat. Anglers are often confused in telling which is which, especially in the older, larger fish. Color and body proportions (except head shape) don't mean a thing. Old channels, especially males, may grow darker than the blues of corresponding age, and many of them lose their spots. The most reliable difference between the two is in the anal fin. The anal fin of the channel cat has a rounded edge and 24 to 29 rays. The blue cat's anal fin has a straight edge and 30-35 rays. There is also a difference in the tail fins but older specimens are often so badly beat up that the fork difference does not show. The tail lobes of the blue cat are of equal length; those of the channel cat finds the upper lobe longer and the lower lobe more rounded.

BIOLOGICAL FACTS

The channel cat is widely distributed over the state, having been successfully propagated at the Pratt hatchery for many years. In fact, the Pratt hatchery was the first to produce artificially-hatched channel some 28 years ago. Each year since then several hundred fingerling channels have been planted in the state's waters.

Many good catches of channel catfish are made below dams in the spring. It is at that time of year that these fish start their spawning runs, upstream, and swifter water is their idea of a honeymoon sight. The young hatch out in about one week and grow to approximately three or four inches by the first summer's end. Throughout their lives, Mr. Channel Cat prefers cleaner, swifter water than other catfish.

The diet of the channel cat is amazing—worms, insect larvae, crayfish, fish spawn, dead fish, pond weeds, algae, frogs, minnows, insects and refuse of various sorts!

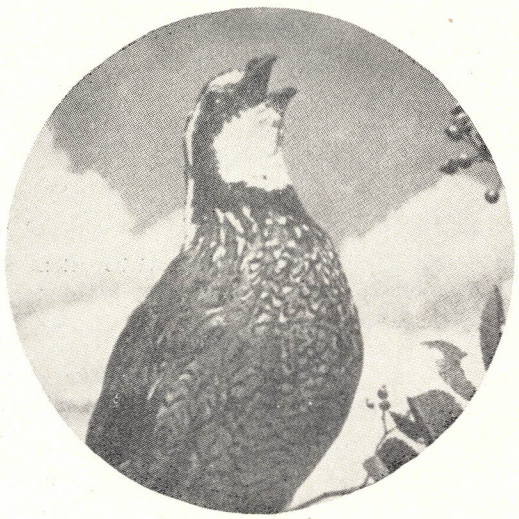
SUITABLE TACKLE

Probably no fish is taken with a greater variety of tackle and by more unusual methods. Channel cat enthusiasts use fly rods, casting rods, spinning outfits, cane poles, set lines tied to tree limbs, trotlines, and many other devices which are against the law to use. Most channel catfish, however, are taken by rod and reel fishermen or bank line and trotline fishermen using bait such as shrimp, liver, chicken entrails, beef melt, etc. The lure is cast out and the anticipation period sets in while the fishermen wait for "old Whiskerface" to swallow his temptingly covered hook.

FISHING TIP

Big channel catfish are sensitive feeders and usually will "mouth" a bait before moving off with it. At this critical point, if anything suspicious is felt, such as the weight of a sinker, you will lose a customer. So, instead of fastening the sinker securely on your line, run the line through the eye of the sinker so that it will slide freely when the catfish moves off with the bait.

The Reasons for the Seasons



Just as the modern conception of vitamins changed American diets and new scientific discoveries upset previous ideas of time and space, so are findings in the field of game management altering some of the old theories of use of our wildlife resource.

Management always has been used in the handling of fish and game, but today many more phases and a broader concept are implied in the term.

Protection of game birds and animals by law enforcement officers formerly was almost synonymous with complete management.

Management today means the attempt to create conditions for proper use and to prevent both excessive and inadequate harvest of game birds and animals. This young applied science is concerned with economic use of the wildlife resource, as well as the preservation of game birds and animals for future generations.

Tools of game management certainly include law enforcement and propagation of game birds, formerly the Big Two, but, of equal importance, provision of proper habitat and increase of the range of each species, research on the habits and needs of the birds and animals and scientific determination of the seasons. These tools, and others to be developed in the future, must be used if we are to keep our game and make good use of wildlife. Selection of the proper game management tools and the emphasis we place on them must vary with changing needs and times.

The sportsman himself has ordained the expansion of the game management field. He has observed and questioned and insisted on sound, scientific answers to his queries. He has realized the need for research methods in the field of game management.

This is the background of the statement, "game bird surveys determine hunting seasons" made by the fish and game commission this fall.

It was an answer to those who have expressed concern about the longer seasons and liberalized bag limits this year.

The game bird surveys, taken scientifically in late summer, form the basis of the regulations set by the commission for the pheasant, quail and prairie chicken seasons each fall. This tool of game management, used in conjunction with other known information, forms a sound, reliable basis for the seasons.

Population dynamics give concrete reasons for the extent of the allowable kill. Exhaustive studies of bird populations have been made when hunting was allowed and when it was not allowed. Research teams

have studied the carry-over pheasants in the spring when there has been no hunting in the fall and when there has been controlled hunting. When the allowable kill was determined and controlled by advance population counts, the spring carry-over was approximately the same as if no hunting were allowed.

In the case of quail, it has been determined that of 100 birds starting the winter, approximately 30 will remain in the spring, even if they are completely protected from hunting. The other 70 will die of natural causes—predation, accidents, weather, starvation, etc. The remaining birds then have the best of cover and food conditions for survival through the winter. It is generally agreed that 50 of the 100 birds may be designated for hunting. That leaves a margin of 20, since 70 would be fatalities during the winter.

Hunting is the means of utilizing for human consumption some of the birds which would have died through natural causes anyway. Population counts or determination of population trends of the birds show what kill is allowable, so that adequate birds will remain in the spring. Both quail and pheasants have a high reproductive potential and are able to withstand the big loss each winter. Game birds cannot be "banked." If we do not make use of birds which will be natural casualties, they will be wasted.

An example of a bird which has maintained itself despite heavy shooting is the mallard duck. The mallard generally supports 50 percent of the duck kill, yet its numbers remain fairly constant.

For pheasants, the ratio of one cock pheasant to one hen can be safely reduced to one cock to as many as nine or 10 hens. Hence, the usual hunting regulation permitting only the shooting of cock birds.

Just how is the game bird survey taken?

It is based on a master plan for Kansas drawn up by the game biologist in charge. A number of two-mile check areas are assigned to each county according to its size and they are indicated on section maps of each county. For example, three sample areas were assigned for small Doniphan county and 12 for Butler county.

Game protectors then make the actual survey by personal interview along the two-mile routes selected at random by the biologist. Farmers who live along the two-mile sections of road are contacted and game bird questionnaires are filled out in the course of the interviews. How many quail, pheasants and prairie chickens does the farmer have on his land, the game protector wants to know. How many young of each kind? How many old? Any increase over the previous year? These and related questions are answered in detail. Information given is confidential.

All individual questionnaires are sent to the game biologist in charge who summarizes them. This information then is tabulated by an International Business Machines branch office which comes up with a summary of location of birds, percentages of increase or decrease of old and young birds and related information.

This type of survey has been conducted by the fish and game commission for the past four years. Each year it has been modified and improved.

When the information is in, the seasons are set to match the size of the bird populations. The object is to get an adequate kill in relation to the populations. The birds actually harvested, however, depend on other unpredictable factors such as the weather and cover in the field.

But in the actual setting of the seasons, scientific data is carefully studied to determine exactly how much shooting existing populations will stand.

62,600 See Commission Wildlife Exhibit Truck

The wildlife exhibit truck of the Forestry, Fish and Game commission was viewed by approximately 62,600 persons during the four months of its operation this summer and fall, according to a summary by H. A. Stephens, educational representative for the commission.

A breakdown of the attendance figure includes 36,420 persons at public fairs, 19,695 elementary school students, 6,431 high-school students and 55 college students.

Stephens based his estimate on figures given by school officials at the schools he visited and estimates of fair viewers by fair officials.

The exhibit was shown at 61 elementary schools and 35 high schools in all parts of the state. The elementary school number does not include rural schools of four counties which viewed the exhibit with the county seat schools.

During the late summer the exhibit was shown at 16 county fairs and city celebrations and was open to the public evenings and Saturdays 18 times.

The truck has been brought to the Pratt headquarters of the commission for the rest of the winter. Tours of the schools over the state will be started again in early spring, Stephens said.

Few centipedes have as many as 100 legs. The common house type has only fifteen pairs; the garden variety, twenty-one pairs.

Cooperative Habitat Program Initiated

Soil Conservation Districts Cooperate in Cover Development

By Richard Eggen
Horticulturist,
Forestry, Fish and Game Commission

A few months ago the Forestry, Fish and Game Commission announced the signing of the first Memorandum of Understanding with a Soil Conservation district. Since that time approximately 78 of the state's 105 Soil Conservation districts have signed this agreement. The memorandum calls for a co-operative program to be carried on jointly between these agencies in the field of wildlife habitat development.

The Habitat or "Multiflora Rose" program, as it is also known, was initiated in Kansas in 1948 and has been in operation since. At its inception it was for the most part a multiflora rose program since for the first few years most of the stock made available for plantings was multiflora rose. It soon became apparent, however, that the Rose alone was not enough to do the job and the program was revised somewhat to include more species of plants.

These minor revisions have taken place from time to time as plants suited to this type of work and adaptable to different parts of the state became available. In addition to these changes, there also have been minor changes in personnel and methods. However, in general, the program has operated since its beginning without major changes until those recently announced.

Under the old program, shrub and tree seedlings, as well as seeds of some perennial herbaceous plants were made available upon application for wildlife plantings. Any planting of a nature that it could be utilized by wildlife either as a primary or secondary use was considered to be a wildlife planting. Upon application for such planting stock, the field personnel of the fish and game Habitat Program made a personal contact with the applicant to inspect the planting site. During this visit the exact location of the planting, its design, the amount of stock necessary, and any other essential information regarding the planting was determined.

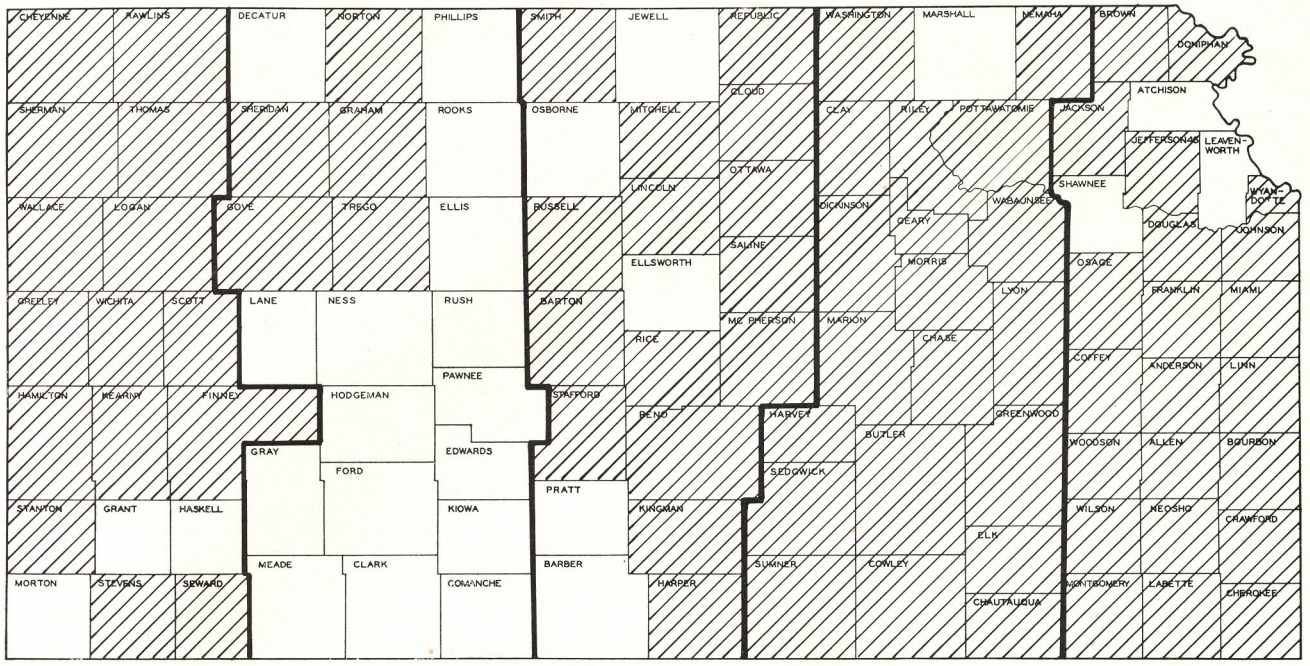
If the application was approved, the applicant was instructed to begin preparing the ground for planting. With the arrival of early spring, the distribution of plantings to the approved locations was begun. This distribution was made by county, with the planting stock being hauled in specially designed trailers. Attempt was made to reduce the number of stops per county to the minimum. We, therefore, tried to select a point of distribution that was centrally located for the planting sites within the county. If a county had quite a number of plantings scheduled, it sometimes became necessary to schedule as high as five or six distribution stops. Applicants were notified by mail of their scheduled distribution stop, its location. and the time that they should be there to receive their planting stock. They were also instructed beforehand to make arrangements, if at all possible, to be ready to plant on the day they received their stock. If this was impossible, they were instructed in the proper method of handling and storing that stock until they were able to plant it.

Field personnel of this program, following delivery, then had a minimum of two more visits to the co-operator, one immediately following the planting and one later in the summer or in early fall. On these visits, he checked the plantings to determine if they had been properly planted and cared for and on his second visit the approximate percentage of survival. With all these visits and oftentimes the necessity of making two or three visits for the initial contact, it is obvious that this method was both time-consuming and awkward.

Under this program, the state has been divided into five districts running from the Oklahoma to the Nebraska line. This gave each of the field personnel a district of from 18 to 25 counties in which the seasons vary from the south to the north by as much as two to three weeks. Under this arrangement, it was often necessary to begin planting operations in the south several weeks before it was possible to begin in the north. This spread the planting season over an unnecessarily longer period and made the handling of planting stock even more difficult.

It was in the light of many of the above listed disadvantages of our original program that we began to plan the major changes in the program. Before any steps were taken, the programs of several of our neighboring states were studied and discussions concerning those programs were held with the personnel of those states. As a result of these discussions and studies, certain major changes were decided upon as will be discussed in the remaining portion of this report.

It was obvious that a more efficient method of handling applications and distributions would lessen to a great extent the work load and time involved in those particular phases of the program. In the past we have co-operated on an unofficial basis with many organizations in the state who were also interested in con-



Shaded Areas—Counties in which a Memorandum of Understanding between the Soil Conservation districts and the Forestry, Fish and Game Commission is in operation. Heavy lines denote game management areas of the fish and game commission's habitat program.

servation work. Among those were Boy Scouts, Sportsmen's clubs, 4-H clubs, county agents, and Soil Conservation Service personnel, as well as many other interested persons and agencies.

The interest and enthusiasm displayed by the agencies with whom we have co-operated indicated that perhaps the answer to our problems might well be found in some sort of co-operative arrangement with those agencies. A considerable number of the states that are engaged in habitat work have a co-operative arrangement with either the Soil Conservation Service or the Soil Conservation Districts. This seemed to be the best suited to our need, since the Soil Conservation program is in effect in all Kansas counties.

An effort was made to develop a Memorandum of Understanding between the two agencies through which a co-operative program of intensive work on habitat dvelopment might grow. This memorandum was then presented to the state office of the Soil Conservation Service and their representatives in the field for their consideration and comments. The basic principles of the agreement were received with enthusiasm and several meetings were held during which certain phases of the agreement were further clarified and minor changes made to integrate this program more satisfactorily into their work. It was our desire, however, to work more closely with the local districts. Therefore, it was felt that the actual agreement should be made with the individual county Soil Conservation Districts. When the final form of the memorandum was agreed upon at the state level, the State Soil Conservation Office endorsed this program and recommended to their personnel that such a program be recommended to the supervisors of the local Soil Conservation Districts.

At subsequent meetings of Soil Conservation agents, personnel from the Fish and Game Commission presented an outline and explanation of the proposed program and submitted copies of the agreement to be considered and signed by the supervisors. In cases where further explanation and discussion of the proposed program were requested, personnel of the Department met with the County Board of Supervisors. It should be pointed out here that in most cases this program was well received and considerable interest was shown in putting the program into operation at the earliest possible date. It should further be pointed out that those counties that have not indicated that they will take part in the program in most cases have not as yet been contacted in regard to the program.

The Memorandum of Understanding which has been signed by the 78 counties now included in the program provides:

The Fish and Game Commission will, subject to its policies:

(1) Furnish, when available, shrubs, seeds, and trees that are to be planted in authorized wildlife plantings.

(2) Provide the District with technical and other assistance, as in the judgment of the Commission are needed and available for furthering the wildlife conservation program in the District.

(3) Furnish to the District a planting plan, which is to be followed as closely as possible, this plan to be concurred in by the Work Unit Conservationists.

The District will:

(1) Receive the trees, shrubs, and seeds furnished by the Fish and Game Commission and care for them in a suitable manner until such time as they can be delivered. The trees shall be planted at the earliest possible date after delivery, by the co-operator or his representatives.

(2) Use only the tree and shrub stock furnished by the Fish and Game Commission in wildlife plantings, and follow the planting plan as closely as it is possible to do so. Major changes can be made only with permission from the Fish and Game Commission.

(3) Give all information concerning potential wildlife farmer co-operators to the Game Management Supervisor in your area, with the understanding that these wildlife technicians will do the same for the Soil Conservation Districts.

(4) Provide such supervising assistance as might be available or agreed upon by all parties concerned, to insure proper land preparation by co-operators prior to planting.

(5) Permit the Commission to make copies of the land-use map for each co-operator, and/or have access to maps and other land-use and capability information in the farm plan.

The above outlined Memorandum of Understanding will enable the Department to intensify the work done through the Habitat Program. Applications for participation in this program will be made to the Soil Conservation District Office. Upon receipt of these applications, the Work Unit Conservationist will file the application and in some cases do preliminary work in helping advise the applicant on the location and type of planting that should be made. In those cases in which the applicant is a co-operator of the Soil Conservation Service, the planting will be designed to fit into any farm plan that might already be in operation.

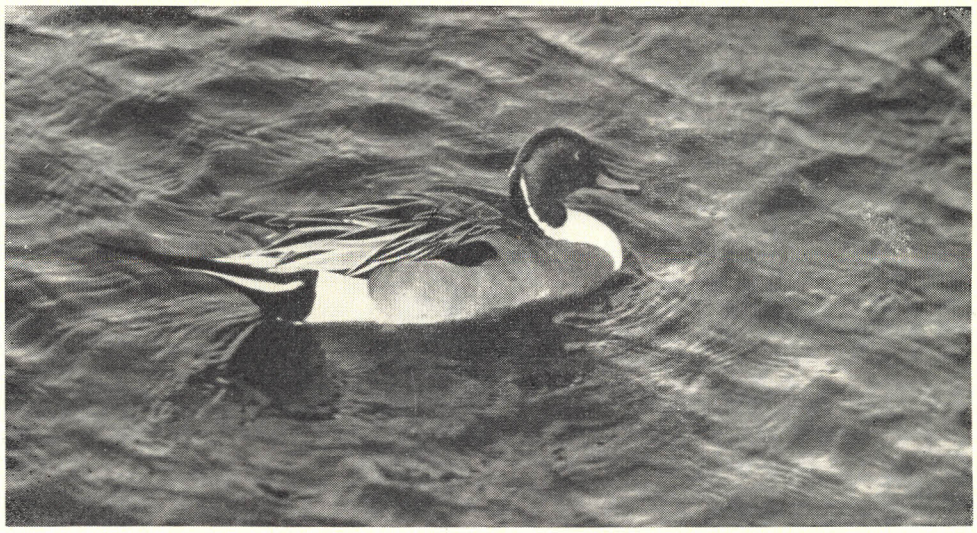
Personnel of the Forestry, Fish and Game commission will make regularly scheduled visits to the district offices where all applications on hand will be studied, using aerial photos, topographic maps, farm plans. and any other information available in the Soil Conservation service office. Following this study a trip will be made to the co-operator's farm and the planting discussed and final plans made. In all cases possible the work unit conservationist will accompany the fish and game representative on these visits. The final plan of the planting will be a result of collective effort of the Work Unit Conservationist, the fish and game representative, and the co-operator. Distribution of planting stock also will be channeled through the district offices and all co-operators in a given county will receive their plants at the Soil Conservation district office. The co-operator will be notified by mail in advance of the date that plants will be available at those offices. Every effort will be made to encourage co-operators to pick up their plants and plant them on the day they are delivered to the Soil Conservation district office. Post-planting checks or visits will, as has been done in the past, be made at least twice during the summer and fall, immediately following planting. These checks will be made to determine proper handling, planting, cultivation and survival.

Some of the major aims of the Memorandum of Understanding will be to secure better planting sites, better ground preparation prior to planting, better planting techniques, improved post-planting care and cultivation, and, of course, an increased interest and participation. It is hoped that as this new program gets under way it will be possible to secure at least one season of summer fallow prior to planting on all planting sites. This pre-planting preparation of the planting site is of such importance to the success of the planting that as soon as is possible it will be required in all cases.

Co-operation with other organizations and agencies will be continued as it has been in the past. However, those applications will be handled in the same manner and should be addressed to the Soil Conservation district office in the county in which they are located. The improved methods of handling both applications and distributions should enable the department to handle a considerably larger number of applications each year. Applications for participation in this program will be received at any time during the year. However, in an effort to provide the best service and to provide for the best planting situation, applications for plantings to be made the following spring must be received before September 1.

Kansas Bird Life

No. 4 . . . in a series—MARVIN D. SCHWILLING



PINTAIL

Anas Acuta

Where Found in Kansas—The pintail is one of the commonest migratory ducks to pass through Kansas. It flies through our state on its southern journey which usually begins in September. A few often stay throughout the winter but not usually in large numbers. They pass through again en route to their more northern nesting grounds in February and March. In recent years it appears that they have become increasingly more abundant nesters in the western sector of Kansas.

Identifying Characteristics—The male pintail is wonderfully garbed in an effective blending of gray, white and brown. He is white-breasted and has a long slim neck that has a conspicuous white strip running up the neck and onto the side of the brown head. The central tail feathers are long and pointed. This graceful long neck and long pointed tail gives this duck a different appearance from the other surface feeding ducks. The female is a nondescript mottled brown duck with a pointed tail. The speculum, color patch of the secondary wing feathers, is iridescent green, violet and bronze bordered in front by a cinnamon buff bar and behind by a black inner bar and white outer bar.

Similar Species—Male, none. Female, may be easily confused with female gadwall and baldpate.

Voice—Teal-like, wheezy, mewing sound, with occasional low quack.

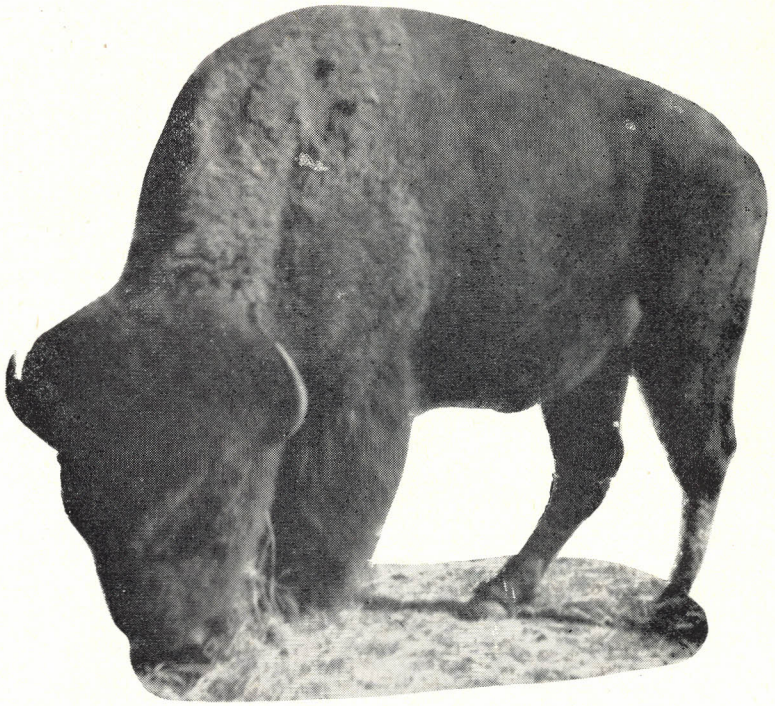
Habits—Pintails are surface feeding ducks, preferring shallow ponds, sloughs and marshy areas with much vegetation growing in the water. Small dry islands seem to be favored nesting sites although nests often have been reported as much as a mile from water hidden in dry prairie grass.

Notes—Most, if not all, publications describing the breeding range of the pintail do not include Kansas as being within their nesting range, so probably the pintail did not originally nest here. However in recent years it appears that they have become increasingly more common as nesters. Clarence Lenard of Lakin, Kansas, formerly of Pawnee county, told me of a nest during the "dirty thirties" (1938 or 1939) near Garfield, Kansas, from which young pintails were hatched successfully at a windmill waterhole.

On June 9, 1954, Ivan Sutton and I found a nest of the pintail northwest of Garden City. The nest was on a small island in Ackley lake and contained seven eggs. All seven eggs hatched on June 15. About a year later on June 12, 1955, Larry Mosby, Bill Lynn and I observed three broods of young pintails in the pothole country just south of Friend, Kansas, also in Finney county. The young varied in age from a few days to approximately five weeks. Undoubtedly there are other records of which I am not aware. It would seem that more pintails are becoming residents of Kansas.

Buffaloes Flourish at State Refuges

By George Valyer



In the beginning, there were plenty. Now there are only a few! Many stories have been written of the vast game herds that once covered the prairies in the central part of the United States. But the scene changed rapidly.

As late as the War Between The States in 1865, huge herds of buffaloes ranged over the grassland in the western part of Kansas and westward-bound pioneers in covered wagons sometimes traveled for days without losing sight of at least some of these shaggy animals. Deer were plentiful in the river breaks and antelope dotted the hills. Occasionally, big-horn sheep were seen in the higher elevations of western Kansas.

But civilization marched westward and the slaughter was begun. William Cody, better known as Buffalo Bill, gained his reputation here on the Kansas prairies by killing 4,280 buffaloes in a period of 18 months. The meat was used for the feeding of railroad construction crews of the Kansas Pacific. It has been estimated that as many as 60 million buffaloes once inhabited the Great Plains area but by 1890, only 500 to 600 remained. Not all of the buffaloes were slaughtered for meat. Countless numbers were killed just for their hides and even more were brought to the ground by so-called sportsmen who killed for the fun of killing and left the carcasses where they fell. At the turn of the century, only decaying bones covered the prairies where once the buffalo roamed.

Thinking men had long decried the needless slaughter of this most noble of creatures and finally when the buffalo was threatened with extinction, something was done. Some ranchers took it upon themselves to maintain small herds and in 1902, the federal government instituted a buffalo restoration project in Yellowstone national park.

A START AT CONSERVATION

In Kansas conservation minded men were seriously concerned about the future of the buffalo even in the late 1800's. In 1872, an act was passed by the Kansas legislature to prevent the wanton destruction of buffalo. However this bill never reached the status of law; it was evidently not signed by the governor and thus died. Before any subsequent legislation could be passed, it was too late. The buffalo had virtually disappeared from the Kansas prairies.

Various laws for the protection of game were passed by the state legislature from its inception in 1861, but enforcement was generally lax at first due to the fact that no state agency was responsible for enforcement. The year 1905 marked the beginning of a co-ordinated attempt at conservation with the establishment of an agency under the direction of a state fish and game warden. The agency derived its funds from the issuance of hunting licenses. This marked the first time that any license to hunt was required in Kansas.

In 1927, another marked change in conservation policies occurred with the organization of a 3-man commission to supervise the activities of the department of forestry, fish and game. The most important duty of the new commission was the building of state parks and lakes. It was allowed to acquire property

in the name of the state of Kansas. It was shortly after the establishment of the first commission that the first steps were taken in the development of a state refuge for buffalo.

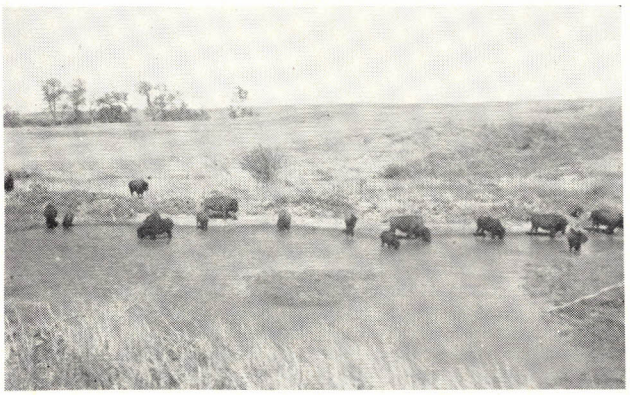
Previously, in 1905, the Federal government had turned over to the state of Kansas an area of approximately six square miles for use as a game refuge. This land was located in Finney county just south of Garden City. This area was at that time designated as a national forest. However, few trees ever grew on the site.

Because grass and browse were plentiful, the commission decided that this area would be suitable as the location for the development of a state buffalo herd. In 1927 the area was fenced and the nucleus of the present day buffalo herd was placed on the preserve. This was the beginning of the Kansas effort to preserve for posterity some of the animals which had played such a big part in the development of the state.

FIVE BUFFALO REFUGES

Today, five different spots of state-owned land are supporting the native American buffalo and there are several privately maintained herds. In some cities, specimens of this shaggy, hump shouldered animal are on display in parks and zoos. The Finney County State game refuge has the largest population of the state-owned animals. At last count there were approximately 150. Since these buffalo live in a semi-wild state, it is hard to get an accurate count, especially during the calving season.

Normally, 65 percent of the mature cow buffaloes in a herd will calve each year principally during the months of May, June and July. These calves have much lighter colored hair than the adults; generally they are a light to medium fawn color. Also, they lack the characteristic hump of the shoulders. However they develop quickly and in two months' time the hump is noticeable. By late fall, the fawn-colored coat is replaced by one of rich brown. The buffalo does not attain its full size until it is nearly eight years old but mating usually occurs in August of the third year.



Buffaloes at Maxwell game preserve

Besides the herd of 150 at the Finney County State game refuge, there are approximately 80 at the Maxwell State game refuge in McPherson county near Canton, Kansas. The Maxwell refuge differs from the Finney County reserve in that other big game animals are present there. This refuge contains sizable herds of deer and elk. Originally, 27 buffaloes were stocked on the Maxwell range in 1951 and 1952 and from this original stock has come the increase to the present figure of 80. It is anticipated that sufficient grass is present to accommodate a herd of 225. Therefore, it will be some time before any great numbers will have to be harvested from this range to prevent overpopulation.

The buffalo population at the Finney County refuge is now at about the carrying capacity of the range and the herd will of necessity be reduced each year in the proportion that new calves are born. Some of these animals will be moved to other locations and others will be sold. Sportsmen's clubs of the state have first call in the purchasing of the surplus. Many of these clubs over Kansas hold an annual buffalo feed for their members and such an event can be counted on to guarantee a large turnout. Buffalo meat is delicious and is savored by almost everyone who has ever tasted it. As in the case of any meat animal, the younger the critter, the more tender the meat.

Smaller herds of buffaloes are also maintained at three of the state parks in Kansas—Kingman, Meade and Crawford County State parks. The herd at Meade is located near the state pheasant hatchery. The buffaloes at Kingman County park are pastured on the south side of Highway 54, east of the quail hatchery. North of Pittsburg, at Crawford County State park No. 1, the buffaloes are located east of the main entrance in the southwest corner.

VISITORS WELCOME

Visitors are welcome at any of these various places to view these native American animals but a word of caution is in order. It is always best to stay on the side of the fence opposite the buffalo. A ton of charging horn, meat and bone is nothing to sneeze at. The cow buffaloes are most apt to be touchy during the calving season, but both the cows and bulls are unpredictable at any time and are prone to attack without warning. Men of the fish and game department who have been handling the buffaloes for some time are the first to urge care in their presence. Ralph Junger, the fish and game commission's game protector at Garden City reports that on many occasions he has had to

make a dash for the fence to keep from being trampled by a charging bison. To give you an idea of the strength of these critters, it is not uncommon for them almost to wreck the rack of a good stout stock truck when they are confined for moving.

The eyesight of a buffalo is not particularly keen and this fact has led some people to believe they are stupid. However, their hearing and sense of smell are good and those senses are used in detecting danger. In late spring the buffalo begins to shed his winter coat and by July he has taken on a ragged appearance with some of the winter hair hanging on in places. At this time, he gives the appearance of a tattered beggar. By September or October, this old hair has been scratched off and the new coat is sleek and neat appearing.

Whatever else may be said, the buffalo is certainly an interesting animal and we all should be thankful that they are now safe from extinction and on the increase in the state of Kansas.

Is Your Pet Gun Housebroke?

With the fall hunting season past, the care of a gun in storage becomes an important item.

A great deal has been done in the field of firearms safety. Eleven states have adopted legislation concerned with the education of new hunters and this is effectively reducing the firearms accident rate.

Just as we have rules for safe hunting, so are there rules for guns at home.

Treat every gun as if it were loaded. Since "unloaded" guns have caused injury, consider them all loaded and treat them with the respect due a loaded firearm.

Carry the gun in a case. When taking a gun home you want to protect it as well as carry it safely. A good gun is something we save for nowadays so it is well worth the few extra dollars to buy a good gun case. It will keep inquiring hands away and prevent the stock from being scratched. Naturally, carry it unloaded and uncocked. If possible, take the bolt out and carry it separately.

Before storing your gun, clean it thoroughly. Use a good solvent in the bore until the patch comes out clean, then dry thoroughly and put in a light film of oil. Too much oil can be as dangerous as an obstruction in the bore. Excessive oil or grease in the chamber or bore can create pressures greater than the safe maximum. Clean all metal parts and wipe on a light film of oil. Stock waxes and preservatives are commercially available to keep the wood in good condition.

When cleaning your gun, be by yourself. The only time you need ammunition is in the hunting field or on the range so leave it locked away separately from the firearms. Check for mechanical defects and always make sure the bore is clear before using the gun.

Friends probably will want to see your guns when they come to call. The first thing to do is open the action and make sure there are no cartridges in the chamber or magazine. An open action is the most dependable safety because the firing pin cannot reach the cartridge. Safeties are mechanical and thus subject to malfunction. Use them supplementary to good gun handling.

Even with an open action—or if it must be closed to get the right "feel"—point the muzzle in a safe direction. An expert is easily recognized by the way he handles a firearm. He never allows it to point at anything he does not intend to shoot.

There are 75 species of North American violets found in this country.

The lowly earthworm is one of the most important of all animals. It plays an important part in keeping the soil continually fertile.

The pocket gopher can run down its hole backwards about as fast as it can head first, by using its sensitive tail as a guide.

Happy anglers from Columbus, Kansas, exhibit their wealth of cold weather strip-pit fishing caught as December came into Kansas. Mr. and Mrs. Elmer Albin are at left, Mr. and Mrs. Luther Todd at right. Mrs. Todd holds the largest bass of the lot, a 4¼ pounder. The fish were caught from the pits just north of Hallowell in southeast Kansas. The Todds go out nearly every day, in spite of the snow, and Todd says his wife would stay all day if he would let her.—(Photo by Gleason Studio, submitted by Tom Freeman, KOAM-TV, Pittsburg, Kansas.)

KNOW YOUR FRIEND--THE GAME PROTECTOR

Paul R. LeGer, with the fish and game commission the past 11 years, works in Leavenworth, Jefferson and Douglas counties.

He formerly was a marketing specialist with the U. S. Department of Agriculture. He has served two terms as mayor of Perry where he and his family still live.

His family includes his wife, Colleen, a son Bob, and two daughters, Sandra and Mrs. Russell Palmer.

His hobby is guns and Indian relics. He has a private collection of 20,000 Indian relics and about 100 guns.

Art Kyser, game protector in Crawford, Bourbon and Allen counties, is a veteran of 17 years at his job. Last spring he was named one of four game warden supervisors for the state.

Before becoming a game protector, he was in farming and the undertaking business. He was born in Pittsburg in 1901 and can remember southeast Kansas before strip mining was started.

Mr. and Mrs. Kyser live in Savonburg. They have three children, Cecil Kyser of St. Paul, Mrs. Sidney Wooldridge of Miami, Okla., and Junior Kyser of Elsmore. He prefers hunting as a hobby.

Speeds of Birds

A bobwhite flies 28 to 30 miles per hour while a mallard duck gets up to 50 or 60 miles per hour. The real speedster is the duck hawk who flaps along at a clip of 165 to 180 miles per hour. Mr. Swan travels about 55 miles during the complete turn of a clock's long hand. Of these birds, the one that really fools you is the bobwhite. The noise his wings make when he is taking off makes you think he is going twice as fast as he really is.

Giraffes, because of their poorly developed voices, communicate with each other mainly by switching their tails.

There are over forty kinds of sparrows in the United States.

Snakes have no ears. They hear by receiving sound vibrations through their tongues.

KANSAS WILDLIFE

Prepared by MARVIN SCHWILLING
Game Biologist, Fish and Game Commission

Practically everyone is acquainted with the Jackrabbit of Kansas. Ole Jack finds his preferred kind of habitat in abundance throughout our prairie state.

It's true you don't often find him in the timbered sections or along the timbered streams in the eastern part of the state. Here you're more apt to find his cousin, the Cottontail, a true rabbit and not a hare. Instead you find Ole Jack in the open areas where he can use his powerful hind legs and his high donkey-like ears. These give him the appearance of an awkward animal. Actually he's anything but awkward. Ole Jack can span amazing distances, some say as much as twenty-one feet in a single jump, and cruise at a speed of thirty-five miles an hour for a full mile or more. Even his enemy, the coyote, often loses an open country race.

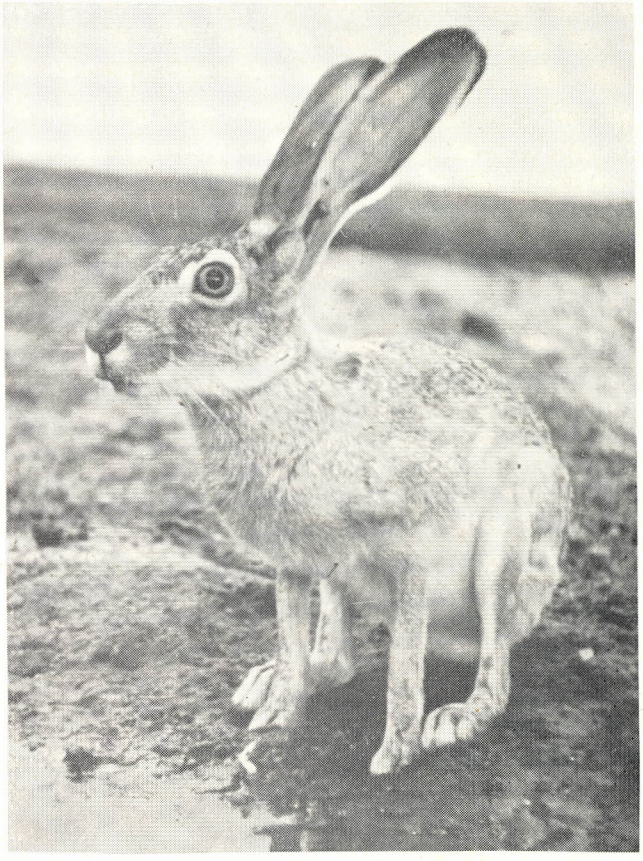
Though gifted with this powerful method of escape, Ole Jack may squat close to the ground and lay those unsightly ears close to his back if he thinks he hasn't been seen. So well does he blend with his surroundings that he often escapes detection.

His long ears, powerful legs, and protective coloring are not Jack's only adaptations to his prairie home. Often you have seen him miles from water even in the driest of summers when the mercury soars well above 100 degrees. How does this animal which normally doesn't travel more than two miles from its birthplace get water? Actually Ole Jack doesn't have to drink. He probably gets thirsty and would relish a drink if water were available, but when it's not he finds ways of doing without it. Ole Jack utilizes the water given off by the burning of his food through the digestive processes, the water of metabolism. Everyone knows that water is given off when something burns. Ole Jack conserves his and since he sweats little, if at all, this water can be circulated over and over through his system.

You seldom see Ole Jack out in the heat of the day. Instead he digs himself a shallow hollow in the ground under some shady weed or stray bush. But, as soon as the blistering sun gets low in the west, out he comes and is his busiest in the evenings until dark, sometimes even staying on the move all night long.

The height of the mating season is in the spring. The young are born some years as early as the month of February. In the warmer areas of the United States, there may be as many as three or four litters a year numbering from one to seven young per litter. The jackrabbit is not as prolific as some people think, but apparently overly sufficient.

Ole Jack is a true hare belonging to the genus Lepus instead of Sylvilagus, the genus of the cottontails. This means that instead of the young being born naked, in fur-lined nests, young Jacks are born fully furred with their eyes wide open, much more precocious than their less developed relatives.



BLACK-TAILED JACKRABBIT
Lepus californicus

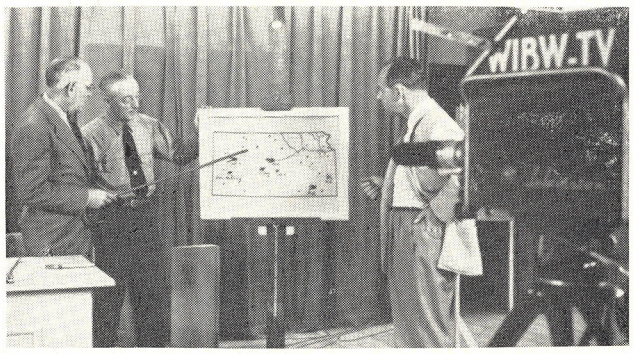
Ole Jack is a valuable species in Mother Nature's plan, too. He is the basic food for many birds, both the birds of prey and those that are scavengers, as well as many predatory animals. Jack probably had more enemies than most animals, even before man came on the scene, and upset the balance of nature. Since man has taken a hand, some of the results have been tragic.

At one time the thousands of hawks that once crossed our state during the fall migration southward took a huge toll of these rabbits. Many people place hawks on the detrimental list and hunt down every member of this great group of rodent-killers. Thus, men have greatly reduced one of Mother Nature's controls of the Jacks.

The coyote and fox, other major enemies of Ole Jack, have been classed as species harmful to man's economy and are trapped, chased, shot and poisoned. Other predators who rely on Ole Jack as a basic portion of their diet are also kept at a low level. With nearly all of his natural checks removed, Ole Jack has smooth sledding and his family increases by leaps and bounds when weather conditions are right. He becomes like a plague to man's crops and causes more damage then all of Ole Jack's enemies combined. So man tries in vain to control Ole Jack, too, with still more expense. He uses traps, poisons, rabbit-proof fencing, and most effective, the organized rabbit drives that end in a brutal massacre of the helpless creatures after they have been driven into a high fenced enclosure.

As a sportsman's target, Ole Jack is about tops. When hunted with a .22 caliber rifle in the open fields, Ole Jack makes a sporting target as he jumps out at your feet and lopes off across the plains. Surely this must be more sporting control than the murderous drives. Try it, you'll surprise yourself with the number you'll bag with a little practice.

According to history, before man broke out and farmed the western grassland, the black-tailed jackrabbit was rare in that area. Instead he was found farther east and the white-tailed jack, a larger relative, was abundant on the grassland prairies. It would seem that the white-tailed jack could not tolerate man and the disruption of his grassland habitat and so pushed farther west. The black-tailed jack then moved west to take over the white-tail's former range as it became farmland. Today the white-tailed jack is nearly gone from Kansas. I have never seen one during 4½ years in western Kansas, although a few probably remain.



Two members of the fish and game commission staff, A. W. Benander, area supervisor, and Paul LeGer, game protector, at left, this fall appeared on a television show over WIBW-TV with Wes Seyler, farm director for the station, at right. The topic for discussion on the regular "Farm Feature" show was "Sportsman-Farmer Relationships and Game Regulations for the Coming Hunting Season."

"Carrying Capacity" Is Key To Better Hunting, Fishing

If you are to understand wildlife conservation and what it means to your hunting and fishing, there is one basic concept that is fundamental—that is "carrying capacity."

The concept of "carrying capacity" is as important to your hunting and fishing as knowing how to lead a duck or use a casting rod for bass fishing.

Probably, you already know what "carrying capacity" is. In a cattle state such as Nebraska, the principle of carrying capacity is almost second nature to most people. Yet, few of us apply it to wildlife.

Ask any sandhill rancher about his grazing methods. He will tell you he runs one cow to 20 acres on his pasture because that is all it will carry. Speaking of another pasture, he may change this number significantly, attributing it to the fact that it is a better pasture and can support more cattle.

That is an excellent example of "carrying capacity." It shows you that "carrying capacity" is the ability of a certain area of land to support life. We can add the qualification, much as a rancher does. that it is the ability to produce on a sustained yield basis.

No rancher, worthy of the title, will graze his land so heavily as to drop the annual maximum yield. He knows that his pasture will carry a certain number of cattle, providing him with a steady flow to market. If he over-grazes, his annual production will soon fall. If he kept this up, he would soon be out of business as his range would be destroyed.

Each kind of game animal and fish has its own requirements for survival. The area needed to support one deer is much larger than the area needed to support one pheasant. This is an extreme example, but it emphasizes the different needs of various animals.

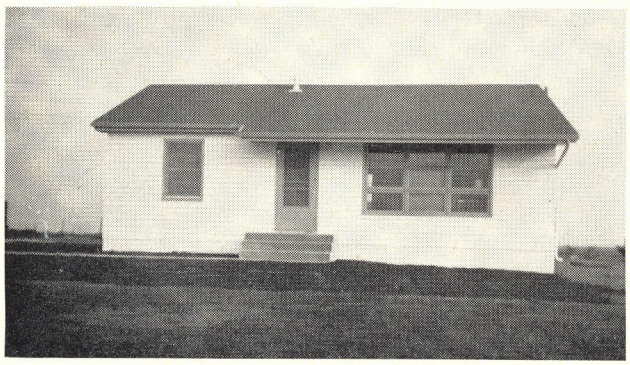
The individual carrying capacity of different areas for the same kind of animals, for example pheasant, varies widely. You probably have a favorite hunting area for pheasants. Generally speaking, the best hunting is on land areas with a large carrying capacity. To put it another way, less land is needed to produce one pheasant than on areas of poor carrying capacity.

The final proof or measurement of carrying capacity of land for wildlife is reflected in good or bad hunting.

The main concern of wildlife technicians is to find the specific life requirements of each kind of wildlife. Then, the big job is to develop methods of increasing the land's ability to provide these life requirements of wildlife, thereby reducing the size of the area needed to produce one pheasant, one quail or any other kind of wildlife.—*Outdoor Nebraska.*

from - - our readers

These monsters are fair samples of the big haul Floyd Becker and Charlie Davis caught at their secret fishing hole on the Smoky Hill river last summer. Davis, left, holds the 37-pound flathead and Becker a 29-pound catch. During four fishing trips between August 13 and September 17, the two Moundridge men caught 12 fish that totaled 255 pounds in weight.—(Moundridge Journal Photo.)

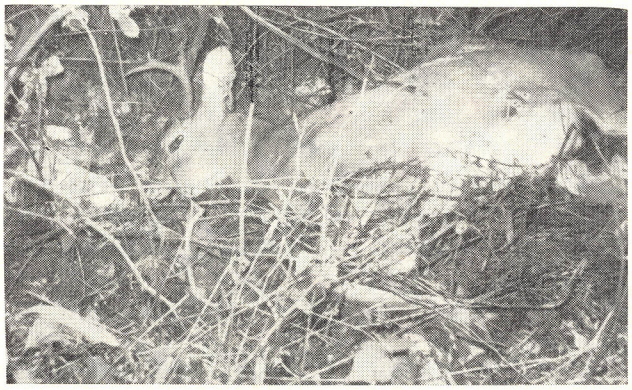


This new superintendent's house at Woodson County State park was completed last summer. A. M. Sprigg, superintendent at Woodson for many years, and Mrs. Sprigg moved in as soon as it was finished.

"Dewdrop," deodorized skunk in the traveling wildlife exhibit of the Forestry, Fish and Game commission, makes a big hit with the youngsters of the Leavenworth schools. They are all eager to hold the little striped kitty exhibited by H. A. "Steve" Stephens, educational representative for the commission who travels with the exhibit. The traveling display of animals, fish and birds was seen by approximately 62,601 persons last summer and fall before it was taken off the road December 1 for the winter months. The viewers included 36,420 at public fairs, 19,695 elementary school children and 6,431 high-school students. The truck will go on the road again in February when the weather permits.—(Leavenworth Times Photo.)

This 42-pound flathead was caught by Adelma Smith and Glen Sauerwein of Eureka while fishing in Woodson county. It was caught on a pound-size carp.

Yes, you're right. Mrs. Arnold Thompson's channel catfish in the lower picture is larger than Mr. Thompson's above. Only a half pound, however. Mrs. Thompson's weighed seven pounds. Both were caught at Woodson County State lake. The Thompsons are from Toronto.



This white-tail deer was killed by a train early in October at the north end of the Marais des Cygnes wildlife refuge, about 1½ miles north of Boicourt. He was one of five which were seen by the engineer on the tracks. The others jumped to safety, but this one reportedly turned and ran head-on into the train.

Catches at Cedar Bluff dam. Above, Kenneth Broomfield of WaKeeney poses with the 24-pound flathead caught at the spillway. The fish was 36 inches long. In the lower picture, Broomfield and his son, Kenneth, display a string of fish which weighed from 1½ to 9½ pounds.

Best Actor

The hog-nosed snake is known for its acting ability. By flattening its head and neck and by hissing, it looks and acts as ferocious as a cobra. No amount of provoking will induce this snake to bite but if he fails to scare you with these tactics, he will resort to playing dead. Rolling over on his back, he will remain lifeless for long periods of time. No amount of handling will produce a sign of life. He overacts his part though. If you turn him over on his abdomen, he will immediately roll back over on his back.

A camel can drink 25 gallons of water in half an hour.

THANK J. Q. SPORTSMAN FOR STATE LAKES

That little fellow, John Q. Sportsman, has been accomplishing big things in his quiet way.

He has built, through his purchase of hunting and fishing licenses, the system of thirty-five state parks which thousands of Kansans and tourists enjoy each year. He is responsible, too, for their continued maintenance.

His license dollar, administered by the Forestry, Fish and Game commission, covers many varied projects such as fish and game stocking, cover restoration, fish and game research and law enforcement, and also includes the state parks.

The lakes have been built primarily to fill the growing need for more fishing water in the state since angling is recognized as the foremost recreational pursuit of thousands of Kansans.

However, facilities for other recreation also have been provided. State lake visitors find camping and picnicking areas, boat docks, and, at some of the parks, space and bathhouses for swimming.

Several of the state parks are located in areas of historical interest. For example, Neosho, Scott and Republic County State parks are sites of important events in the early history of the state. The historical aspect is preserved and emphasized.

Careful study has been made to determine how to provide the most in outdoor recreation at the most reasonable cost for the greatest number of patrons. The solution was to retain the "natural" look of each park area, to provide facilities for as many different types of recreation as possible, with a minimum amount involved in caretaker expense. It is now possible for Kansas families and Kansas tourists to spend a day or week end camping, picnicking, fishing, boating, or plain loafing in pleasant, relaxing surroundings with little expense.

In recent years the state's park system has been expanded by more than one-third. Now no resident of the state is more than a 45-minute drive from a state park where he pays no admission fee or other charge.

Of the 35 parks in the system, 22 are older, established parks; 13 are newly built and the lakes, which will add 1,167 acres of water to the state, are almost filled. As soon as possible, the fish and game commission stocks each new lake with several varieties of fish, then opens the lakes to angling when the fish have reached catchable size.

Contracts for the 13 new state lakes have been let by the fish and game commission during the past two years at an average cost of $102,000 per lake and park. The average cost per surface acre of lake was $1,203, an unusually low figure by national standards.

Money spent so far on new lakes and parks was accumulated specifically for that purpose. The fund was built up slowly over a period of years from the license fees paid by John Q. Sportsman. No legislative appropriation ever has been made to the fish and game commission.

Although the lake-building program now must be modified in keeping with current income, the commission plans to continue the program with construction of two or more lakes and parks every three years. This continuing program will be possible with the use of federal aid funds.

Fred Warders Named Assistant Director

Fred Warders, game protector of Wichita, has been named assistant director of the Forestry, Fish and Game commission by Dave Leahy, director.

Warders was selected for his new job from the field. Leahy had originally hired Warders as a game protector in January.

Warders has been working as a game protector in Sedgwick and Butler counties and in the north half of Cowley county. He previously was employed with the U. S. Fish and Wildlife service and the National Park Service. He served in the Navy with naval communications for thirty-six months.

He and his wife will move to the house on the fish hatchery grounds recently vacated by the Harry Lutz family. Lutz formerly was director of public relations.

Warders' hobbies include making glass fishing rods and hunting.

The female goshawk is much stronger than the faster-flying male.

A female fly can lay its first batch of eggs in less than a week after its birth.

ARRESTS—AUGUST, 1955

Name and address	*Offense*	*Date of offense*	*Fine*
Jack Allen; Larned	No fishing license	7-30-55	$15.00
Charlie Benson; Wichita	No fishing license	8- 8-55	10.00
Fred O. Bills; Wichita	No fishing license	8- 8-55	10.00
Dean Blakenship; Hiawatha	No fishing license	8- 5-55	5.00
Vernon Roy Challons; Wichita	No fishing license	8-23-55	10.00
W. M. Coin; Wichita	No fishing license	7-29-55	5.00
Bill Cole; Winfield	No fishing license	8-26-55	10.00
Marion Davis; Salina	No fishing license	6- -55	5.00
Jonathan Ervin; Kansas City	No fishing license	8-20-55	7.50
Thomas Greenough; Abilene	No fishing license	8-22-55	5.00
C. B. Harger; Winfield	No fishing license	8- 7-55	5.00
John Heider; North Hampton, Mass.	No fishing license	8-10-55	5.00
Al Meredith Howard; Haysville	No fishing license	8- 8-55	10.00
William Martin; Houston, Texas	No fishing license	8-24-55	5.00
Oliver Moon; Stockton	No fishing license	8-16-55	5.00
Gerald Arthur Provorse; Coffeyville	No fishing license	8-28-55	5.00
Richard Townley; Wichita	No fishing license	8-20-55	5.00
Gilbert E. Underhill; Wichita	No fishing license	8- 6-55	5.00
Don Walker; Wichita	No fishing license	7-29-55	5.00
Ed Cupp; Galena	Fishing with more than two (2) rods and lines	8-29-55	10.00
John Q. Hupfer; Bunker Hill	Handfishing	8-28-55	10.00
Clarence J. Hupfer; Bunker Hill	Handfishing; no fishing license	8-28-55	35.00
Valentine Norrell; Redwing	Handfishing; no fishing license	8-28-55	35.00
Lloyd Whittaker; Clearwater	Having illegal seine in possession for the purpose of taking fish	8- 9-55	25.00
Robert Rezac; St. Marys	Operate bank lines in state lake	8-19-55	10.00
Clifford W. Shuyler; Hutchinson	Operate bank lines in state lake	7-31-55	5.00
George Wayne Walker; Wamego	Operate bank lines in state lake	8-19-55	10.00
Wayne Carpenter; Dodge City	Use and operate trotline in state lake	8-28-55	5.00
Ivan Beard; Dodge City	Use and operate trotline in state lake	8-28-55	10.00
Arthur F. Schneweis; Claflin	Use and operate 25 hook trotline in state lake	7-27-55	25.00
Roy F. Pinegar; Sunflower	Take and possess black bass measuring less than ten inches in length,	8-21-55	10.00
Willie Swan; Kansas City	Take and possess black bass measuring less than ten inches in length,	8-27-55	10.00
Lucile Toliver; Kansas City	Take and possess black bass measuring less than ten inches in length,	8-23-55	10.00
Roscoe Kimberling; Humboldt	Failure to obtain a Game Breeder's Permit	8-22-55	25.00
Charles L. Bussart; Salina	Speeding in state park	8-28-55	5.00
Stacy Collitott; Great Bend	Operate motor boat on state lake for purposes other than fishing	8- 7-55	10.00
M. C. Lance; Pittsburg	Operate motor boat on state lake for purposes other than fishing	7-31-55	10.00
Delphus C. Eichman; Greeley	No hunting license	8-22-55	5.00
B. G. Scott; Wichita	Having fur-bearing animals in possession in closed season	8- 7-55	10.00

ARRESTS—SEPTEMBER, 1955

Name and address	*Offense*	*Date of offense*	*Fine*
John David Bout; Coffeyville	No fishing license	9-16-55	$5.00
Claud R. Carrice; Sunflower	No fishing license	9- 5-55	5.00
Bill W. Everts; Kansas City, Mo.	No fishing license	9-18-55	20.00
Tommy Gardenhire; Salina	No fishing license	9-10-55	5.00
Levester Gay; Salina	No fishing license	9- -55	5.00
Donald Charles Gisick; Wichita	No fishing license	9-24-55	5.00
Earnest C. James; Des Plains, Ill.	No fishing license	9-28-55	10.00
James C. Kirkland, Kansas City, Mo.	No fishing license	9-18-55	20.00
Fred C. Kroeger; San Antonio, Texas	No fishing license	9-20-55	5.00
Robert S. McMillan; Great Bend	No fishing license	8-21-55	10.00
Luther Nash; Dewey, Okla.	No fishing license	9- 6-55	5.00
Wesley Eugene Nelson; Kansas City	No fishing license	9-18-55	10.00
Raymond Nunn; Niles	No fishing license	9-10-55	5.00
Gary Paris; Concordia	No fishing license	9- 4-55	10.00
Randolph Prim; Salina	No fishing license	9- -55	5.00
Charles R. Smith; Jacksboro, Texas	No fishing license	9- 5-55	10.00
Lionel R. Williams; Los Angeles, Cal.	No fishing license	9- 6-55	10.00
Viril Lonbard; Galena	Taking of fish by use of a multiple hook larger than sizes one (1) to twelve (12)	9-29-55	10.00
Fred A. Norton; Galena	Taking of fish by use of a multiple hook larger than sizes one (1) to twelve (12)	9-29-55	10.00
Alma Henry; Kansas City	Possession of illegal length bass	9-20-55	10.00
Michael W. Bolin; Kansas City	Operation of illegal fish net	9-11-55	10.00
Warren Penegar; Kansas City	Operation of illegal fish net	9-11-55	10.00
James Tucker; Kansas City	Operation of illegal fish net	9-11-55	10.00
Walter Louis Uziel; Kansas City	Operation of illegal fish net	9-11-55	10.00
Clenn Korthanke; Robinson	Use of too many untagged lines	9-10-55	10.00
Robert Watts; Robinson	Use of too many untagged lines	9-10-55	10.00
John Reimer; Great Bend	Use of bank lines in state lake	8-27-55	10.00
Ira V. Burkhart; Topeka	Seining game fish	9- 4-55	10.00

Name and address	*Offense*	*Date of offense*	*Fine*
Oran Garvey; Wichita	No hunting license	9-10-55	5.00
James E. Hill; Wichita	No hunting license	9- 1-55	10.00
Walter M. Honer; Wichita	No hunting license	9- 2-55	10.00
Robert Kley; Lansing	No hunting license	9- 3-55	5.00
Don McQuillan; Lansing	No hunting license	9- 3-55	5.00
E. O. Meadows; Arkansas City	No hunting license	9- 9-55	10.00
Buddy William Molder; Bethel	No hunting license	9-10-55	5.00
Mike Schauf; Cimarron	No hunting license	9- 6-55	5.00
Ralph E. Strickland; Russell	No hunting license	9- 2-55	15.00
James Wilson; Leavenworth	No hunting license	9- 3-55	5.00
R. C. Amis; Plainville	Shooting game birds with gun capable of holding more than three shells in magazine and chamber combined	9- 9-54	10.00
Roger D. Furgason; Quinter	Shooting game birds with gun capable of holding more than three shells in magazine and chamber combined	10-31-54	10.00
Sam Williams; Lenora	No hunting license; cock pheasant in possession; taking pheasant in closed season; shooting from a public road	9-18-55	30.00
David Henry Dick; Wichita	No hunting license; no fishing license; operating trotline exceeding 25 hooks	9- 4-55	20.00
Norman Welborn; Topeka	Hunting game birds with riffle; no hunting license	9- 1-55	10.00
Virgil Van Pelt; Oberlin	Shoot dove on set; shooting game birds with rifle	9-17-55	30.00
Chester C. Vannocker; Gridley	No migratory bird hunting stamp	1-30-54	10.00
Lawrence Harkader; Wichita	Shoot and kill game bird from automobile	9- 3-55	10.00
Forest F. McKnight; Topeka	Shoot dove from automobile; shoot dove while sitting	9-11-55	20.00
Lavern J. Bean; Wichita	Hunt and kill wild birds—sand pipers	9- 4-55	10.00
Louis P. Kern; Kansas City	Hunt, pursue, molest raccoon with dogs during closed season	9-18-55	25.00
Martin Godley; Kansas City	Hunt, pursue, molest raccoon with dogs during closed season	9- 2-55	12.50
Tom Johnson; Kansas City, Mo.	Hunt, pursue, molest raccoon with dogs during closed season	9- 2-55	12.50
Charles L. Passler; Kansas City	Hunt, pursue, molest raccoon with dogs during closed season	9-18-55	25.00
L. T. Webb; Kansas City	Hunt, pursue, molest raccoon with dogs during closed season	9-18-55	25.00
Steward Lowry; Hoisington	Possession and discharge of firearms in state park	9-18-55	10.00
Charles Rome; Hoisington	Possession and discharge of firearms in state park	9-18-55	10.00
Henry Fennell; Kansas City	Hunting squirrels and possessing firearms in state park	9-20-55	10.00
Walter Williams; Kansas City	Hunting squirrels and possessing firearms in state park	9-20-55	10.00

ARRESTS—OCTOBER, 1955

Name and address	*Offense*	*Date of offense*	*Fine*
W. J. Bardett; Easton	No hunting license	10-29-55	$10.00
Harold Belford Caldwell; Maize	No hunting license	10- 9-55	5.00
Mike Allen Loreg, Jr.; Plainville	No hunting license	10-25-55	5.00
Darrell Patterson; Moline	No hunting license	10-21-55	5.00
Eldon Schmidt; Wichita	No hunting license	10-22-55	5.00
R. W. Watchous; Wichita	No hunting license	10-21-55	5.00
Erbest Wulleeschleger; Frankford	No hunting license	10-21-55	10.00
Vernon Witt; St. John	No hunting license; shooting from roadway	10-24-55	20.00
W. C. Craig; Plainville	Take and possess pheasants during closed season	10-14-55	20.00
Tony J. Feist; Claflin	Take and possess pheasants during closed season	10-16-55	100.00
Edward Traynor; Plainville	Take and possess pheasants during closed season	10-14-55	20.00
Dean Banks; Leavenworth	Possession of hen pheasant	10-29-55	10.00
W. J. Bardett; Easton	Possession of hen pheasant	10-29-55	10.00
Andrew Neinert; Easton	Possession of hen pheasant	10-29-55	10.00
Lester Collins; Easton	Possession of hen pheasant	10-29-55	10.00
H. T. Bradley; Clay Center	Take and possess quail during closed season	10-21-55	100.00
Shelby McGinnis; New Albany	Take and possess quail during closed season	10-30-55	35.00
Luther Shinkle; Fall River	Take and possess quail during closed season	10-20-55	20.00
Robert E. Smith; Coffeyville	Take and possess quail during closed season	10- 9-55	50.00
Carl Stahl; Junction City	Take and possess quail during closed season	10-23-55	100.00
Otto L. Berens; El Dorado	Kill and possess gull	10-13-55	10.00
James A. Crigger; Newton	Kill and possess gull	10-15-55	10.00
Harlan C. Seeber; El Dorado	Kill and possess gull	10-13-55	10.00
Henry Tarnish; Newton	Kill and possess gull	10-15-55	10.00
George Maddix; Wichita	Hunt pheasants on Cheyenne Bottoms Game Refuge	10-22-55	15.00
Robert Maddix; Wichita	Hunt pheasants on Cheyenne Bottoms Game Refuge	10-22-55	15.00
Albert Robinson; Great Bend	Hunt pheasants on Cheyenne Bottoms Game Refuge	10-22-55	15.00
B. C. Atkinson; Wichita	Hunt wild ducks on restricted area in Cheyenne Bottoms Game Refuge	10-30-55	15.00
Norval Messeck; Wichita	Hunt wild ducks on restricted area in Cheyenne Bottoms Game Refuge	10-28-55	15.00
Neil Sauder; Gridley	Hunt wild ducks on restricted area in Cheyenne Bottoms Game Refuge	10-23-55	20.00
R. W. Schuelke; Wichita	Hunt wild ducks on restricted area in Cheyenne Bottoms Game Refuge	10-28-55	15.00
Robert O. Thrush; Great Bend	Hunt wild ducks on restricted area in Cheyenne Bottoms Game Refuge	10-30-55	15.00
T. A. Hunter; Wichita	Hunt pheasants and wild ducks in restricted area on Cheyenne Bottoms Game Refuge	10-29-55	15.00

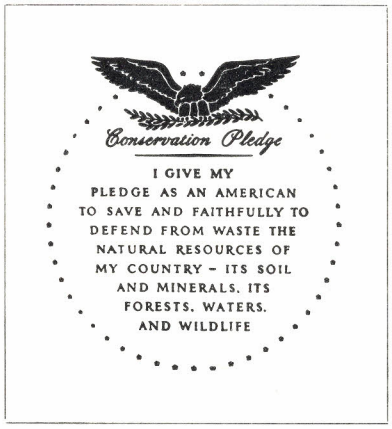
Name and address	*Offense*	*Date of offense*	*Fine*
Joseph Lowe; Wichita	Hunt pheasants and wild ducks in restricted area on Cheyenne Bottoms Game Refuge	10-29-55	15.00
C. C. Stanford; Wichita	Hunt pheasants and wild ducks in restricted area on Cheyenne Bottoms Game Refuge	10-29-55	15.00
George Wight; Wichita	Hunt pheasants and wild ducks in restricted area on Cheyenne Bottoms Game Refuge	10-29-55	15.00
Hosea Jette; Junction City	Shoot ducks from motorboat; shoot ducks when not on wing	10-30-55	10.00
Ernest Bowen; Salina	Disorderly conduct within state park	9-24-55	5.00
Leo Conner; Wichita	Shoot game birds from motor car	10-21-55	10.00
Ed Foaster; Wichita	Shoot game birds from motor car	10-22-55	10.00
Charles Winderlin; Scott City	Shoot game birds from motor car	10-21-55	10.00
General Fitz; Kansas City	Hunt and have firearms in possession in state park	10-30-55	5.00
Charlie Hayes; Kansas City	Hunt and have firearms in possession in state park	10-30-55	5.00
Jessee Wilson; Kansas City	Hunt and have firearms in possession in state park	10-30-55	5.00
Ted Cooper; Hoxie	Hunt and have firearms in possession in state park	10-18-55	5.00
C. D. Herren; Kansas City	Hunt, shoot, and possess squirrels in state park	10-15-55	15.00
Charles Palmer; Kansas City	Hunt, shoot, and possess squirrels in state park	10-15-55	15.00
Roland Brown; Salina	Disturbing the peace in state park	7-17-55	15.00
J. W. Boyd; Long Beach, Cal.	Misrepresentation	10-26-55	5.00
Jack Hidecker; Council Grove	No fishing license	10-15-55	5.00
James Kennedy; Lawrence	No fishing license	10- 2-55	5.00
Gerald Lindsey; Stockton	No fishing license	10-29-55	10.00
Robert Lindsey; Stockton	No fishing license	10-29-55	10.00
Charles Showalter, Jr.; Coffeyville	No fishing license; catch, take and possess bass under 10 inches in length	10- 3-55	15.00
Ben Clemons; Kansas City	Have set and operate more than two rods and reels and/or pole lines for the purpose of taking fish	9-24-55	10.00

RADIO LOG FOR

OUTDOOR SPORTS FOR KANSAS

City	Station	Time
Arkansas City	KSOK	7:00 p. m. Thursday
Chanute	KCRB	5:00 p. m. Saturday
Colby	KXXX	9:00 a. m. Saturday
Dodge City	KGNO	6:30 p. m. Saturday
El Dorado	KBTO	11:15 a. m. Saturday
Emporia	KTSW	6:45 p. m. Thursday
Garden City	KIUL	6:45 p. m. Saturday
Goodland	KWGB	9:00 a. m. Saturday
Great Bend	KVGB	5:45 p. m. Saturday
Hays	KAYS	7:15 p. m. Wednesday
Hutchinson	KWHK	7:45 a. m. Saturday
Junction City	KJCK	7:00 a. m. Friday
Kansas City	KFRM	5:00 p. m. Saturday
Lawrence	KLWN	4:00 p. m. Thursday
Leavenworth	KCLO	9:15 a. m. Saturday
Liberal	KSCB	To be scheduled in January
McPherson	KNEX	12:45 p. m. Saturday
Manhattan	KMAN	5:00 p. m. Thursday
Manhattan	KSAC	Tuesday or Wednesday p. m.
Newton	KJRG	5:00 p. m. Saturday
Ottawa	KOFO	7:15 a. m. Saturday
Pittsburg	KOAM	7:15 p. m. Monday
Pittsburg	KSEK	8:15 a. m. Saturday
Pratt	KWSK	4:45 p. m. Sunday
Topeka	WIBW	5:30 p. m. Saturday
Topeka	WREN	6:45 p. m. Saturday
Wichita	KFBI	11:45 a. m. Saturday
Wichita	KFH	4:45 p. m. Saturday

(NOTE.—This list is correct as of January 1. However, the individual radio stations reserve the right to change the time of broadcast to suit their programming best.)



PRINTED BY
FERD VOILAND, JR., STATE PRINTER
TOPEKA, KANSAS
1956

26-2083