Kansas Fish and Game

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What is Game Management?

By Bob Todd

Just what is game management? It is talked about and the term is thrown around frequently, but few people understand the principles involved.

The aim of game management is to provide annually, the greatest quantity and highest quality of hunting possible, in keeping with primary land use. Now that is a simple enough statement, but just how do you go about it? How do you provide all the hunting you can this year without hurting the possibilities for next year?

Through long-term studies a game manager determines just how many, percentagewise, of a certain type of game animal are going to die each year whether man hunts the creature or not.

Let's take quail for example. In a normal year, it is estimated that 80 percent of the quail die whether they are hunted or not. (The validity of this estimate was shown recently in the results of a seven-year study of bobwhites on Missouri refuges.)

Let's say a piece of land has 20 quail on it when the breeding season begins. The quail manage to raise 80 young birds, bringing the total to 100, by the end of summer. That number of birds will be reduced to 20 again due to natural causes. This varies, of course, as will be explained later. (These figures are based on the fact that each fall, the ratio of young birds to adults is 80-20 to 75-25.)

The 80 birds that will die are accounted for by various causes. Some will be eaten by foxes or coyotes or hawks. Some will die of diseases, parasites and accidents. And still more will die simply be-

cause there isn't enough food and cover to go around in late winter.

Now if the food and cover remain unchanged and all the other causes of death are removed, a large portion of these birds would still die due to starvation and exposure from lack of cover. This is nature's system of checks and balances. Nature produces more quail than there is room for almost every year. One reason is to provide food for predators and another is to increase the total population if better food and cover permit it.

The game manager's task is to find out how man can fit into nature's scheme. He discovers, for instance, that a certain number of quail will die of disease. This he cannot control. It is nature's way of eliminating weak animals. For illustration let us say that 10 of the 100 birds will die of disease.

He discovers that predators will eat 10 more birds. He finds that highway traffic claims five and farming operations another 15. He adds these up and finds that 40 of the birds will die of things other than starvation and exposure.

That leaves another 40 birds for which these just isn't enough room. There is not enough food and cover for them in late winter. Now if man can take some of these excess birds, that are going to die anyhow, he benefits himself at no expense to the quail population.

Now, I said it varies. Remember that we are using illustrative figures. Nature works her system of checks and balances in many varied ways which man cannot wholly comprehend. Natural conditions are constantly changing and the game manager must try to keep abreast of the most important changes.

If the food and cover available to the quail used for illustration above is diminished somewhat, perhaps only 16 birds will survive the winter to enter another breeding season. If breeding conditions remain the same, these birds will have 64 young and the total population will be 80. On the other hand, food and cover available in the spring to the 16 remaining birds might increase and they may raise 110 young for a total of 126.

If the winter cover remains diminished, however, only 16 birds will survive the winter again. In this case the 80 percent figure is low.

If, on the other hand, the winter food and cover were increased, it is likely that fewer than 80 percent of the birds would die. However, if food and cover were not increased again the following year, the percentage would climb to 80 again.

Seasons, limits and other regulations are the methods which a game manager uses to limit the predation of man through hunting. How are these regulations established?

Sticking with the figures we have already used, let us say that studies show man can take 40 percent of the birds each year without affecting the quail population whatsoever. (Experts on quail management say the figure is actually nearer to 50 percent.)

The next thing to determine is just how many quail there are to begin with. This cannot be figured exactly, but experience gives the game manager ways to estimate the population. In Kansas farmers and landowners are surveyed to obtain opinions of whether quail have increased or decreased, and estimates of bird numbers on given acreages.

From this survey the game manager can determine the reported trend in the quail population compared to the previous year, or the long-range average. He takes this information, findings from kill surveys conducted after the previous season, and other pertinent data, and weighs the evidence to see whether or not recommendations should be made to change the hunting regulations. (These recommendations are studied by the commissioners of the Forestry, Fish and Game Commission. They combine these recommendations with other considerations and set the season accordingly.)

If there are more quail to be harvested, the game manager recommends a longer season, higher limits or relaxed restrictions on shooting hours, etc. Or he may recommend a combination of these. To some extent, he can create more hunters in a given year because some who have not hunted before will be attracted if they feel it is now worth the effort.

By the same token, if there are fewer quail, the game manager recommends a shorter season, reduced bag limits and perhaps restrictions on hunting hours. This reduces the kill per hunter. It also tends to reduce the number of hunters since some will feel that the restrictions make the sport not worth the effort.

In addition to using his findings for making recommendations concerning regulations, a game manager uses them to find ways to increase the total quail population. From the illustration above we see that in the instance of quail, creating additional food and cover is the best way to increase the number of quail.

If more birds can be carried over through the winter by increasing the food and cover available to them, it stands to reason that there will be more nests the following season and probably more quail come fall.

With more quail, let us say 120 instead of 100 the year before, there will be more birds to harvest. Taking 40 percent the year before meant killing 40 birds. If 40 percent is taken from the 120, there will be 48 quail avilable to hunters.

Other possibilities present themselves. At first glance it would appear that reducing the number of predators would leave more of the quail surplus for man. It would also seem that reducing disease, parasites and accidents would leave more quail for man. This is true

to a degree, but the most practical way of reducing these losses normally is to increase the quantity or distribution of food and cover. This gives quail more hiding places and lessens the threat of epidemics.

When this is accomplished, then one can look to other methods of increasing man's share of the harvest. But even then, predators, disease and other natural mortality factors will still take some of the surplus. Predators eat a great deal of sick and diseased birds. In this way they help hold down the possibility of epidemics. If predators were removed, a single epidemic could take a much larger toll of quail than predators and disease together previously.

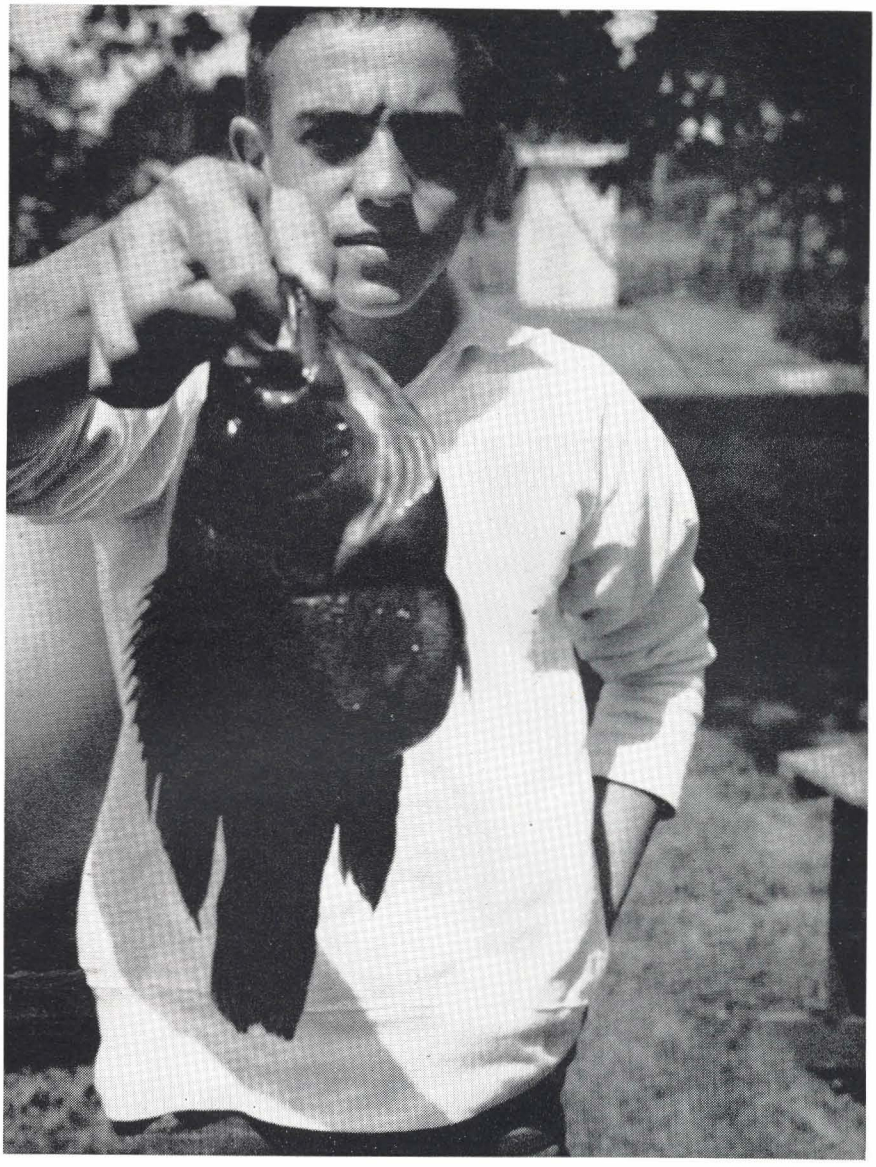
At the present time, man has found no ways more effective than predation, for the control of diseases in wildlife. You can't line up wild quail and give them immunization shots.

To some extent, there is a possibility of decreasing the loss of quail to accidents. But in many cases these possibilities do not fit in with man's other values. He values speed on highways and thus cannot avoid runing over an occasional quail. Farming operations are indispensable to crop production and even the careful farmer must destroy some wildlife in his farming activities.

If the time comes when man values wildlife more than speed on the highways and plenty of food on the table, then losses from accidents can be reduced.

Many jobs fall under the heading of game management but in essence, they all involve the same factors. Study the situation that nature and man have created. Study man's place in this situation and find the most practical means to work him into nature's scheme so as to meet his aims and goals without upsetting nature's productivity.

The jobs presented in this story are but a few of the jobs in game management that affect you, as this fall season begins.



Another Record Established

An official record has been set for green sunfish with the recording of a two-pound two-ounce specimen taken May 28 in Cherokee County strip pits.

Louis Ferlo, Scammon, was the lucky angler. He took the fish on an orange and black Abu spinner about 10 a. m. The fish measured 12 inches in length and 16 inches in girth.

There was no previous record for green sunfish so Ferlo has the honor of being first to hold a record on that species.

What about your big fish? To be eligible, the fish must be caught by legal means in any waters in Kansas. Upon being landed, it should be measured for length and girth and weighed on scales legal for trade with at least two witnesses to the weighing.

The fish should be photographed with the angler. An official record blank should be obtained from the Fish and Game Commission and filled out completely according to instructions. This blank is returned to the Commission along with the photograph. The angler will receive a letter of confirmation when his catch is certified as a new record.

Decatur County State Lake

Fourteenth of
A Series on

The State Lakes Of Kansas

When you get into northwest Kansas, particularly the last six counties of the state, you get into an area where both trees and fishing water are scarce. The sun beats down on the short grass prairie.

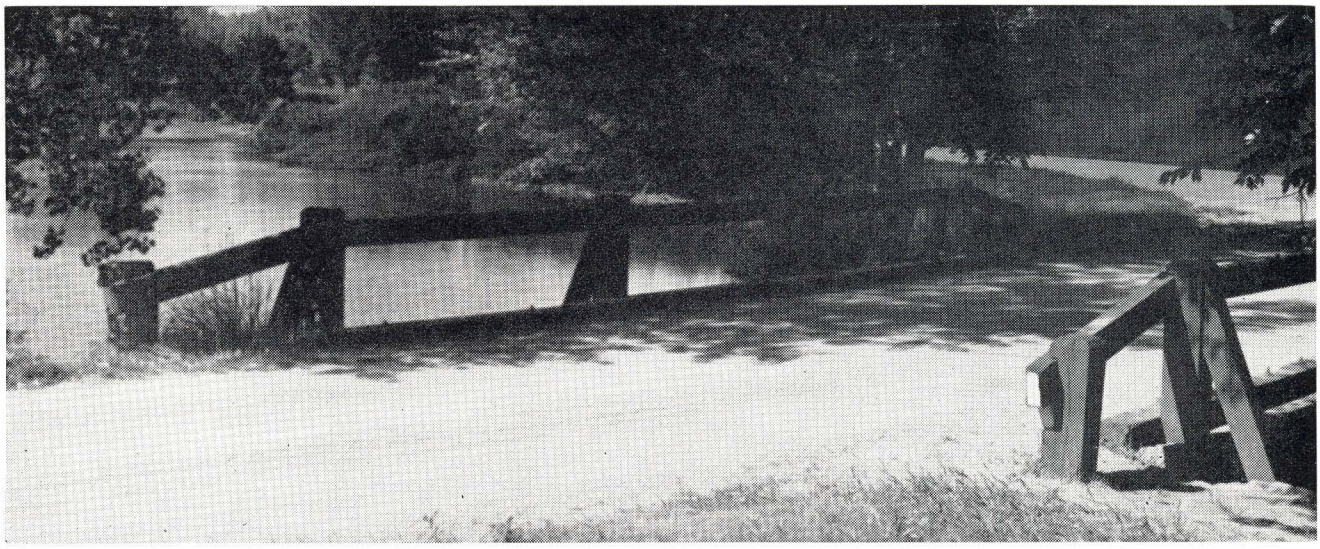
Before the coming of the white man, it was real buffalo country. In fact the chief industry of the early settlers was gathering and selling buffalo bones. They sold for about $8 per ton.

The early settlers built sod houses due to the lack of lumber. And the main reason the houses did not wash away was probably because the area gets only about 20 inches of rain each year.

Situated in this dry (by eastern standards) but beautiful land is Decatur County State Lake and Park. It is known as Sappa Lake locally. The lake is formed by a dam across Sappa Creek which backs up 170 acres of water.

Fishing is rather restricted due to the lake's shallowness. In hot weather the water becomes very warm and the fish in turn become very sluggish. When fall comes along, though, or when the waters become just moderately warm from the spring sun, fishing picks up and can be considered good. But it has been a long time since Sappa Lake was a real fishing hot-spot. Crappie, carp, drum and catfish inhabit the lake.

For an afternoon of quiet fishing in an area of the state with very



Sappa Lake and Park is a beautiful area. This bridge, about half way up the lake, is shady through the afternoon and reported to be a good place to fish. Camping areas are to the right of the picture and on around the lake road beyond the bridge. In addition, there are camping areas back up the road bringing the total to five tent areas and one trailer area.

The lake has an island. And the island has a dense growth of trees that break up the view which would otherwise be just a wide expanse of water. The whole setting of the lake is peaceful; a good place to go fishing or camp out.

little in the way of fishing water, Sappa Lake serves the purpose.

The lake and park do not stand idle through the hot months. In July and August the park around the lake becomes an oasis to tourists. The park is located just north of U. S. highway 36, the shortest route from Denver to Indianapolis, so the signs say. Many of the tourists using the highway come from the east and find the park somehow familiar with its abundance of trees and shade.

In the past four years the park has become very popular with campers. The park has all that is needed for a pleasant camp-out and, thanks to the nearby town of Oberlin, it has a few luxuries to boot.

The town has invested money and effort in the area and provided for improvements not found at other parks. There are five tent areas and one trailer area for campers. Fireplaces and tables are located throughout the park and the shelterhouse boasts the only hot shower available at a state lake.

There are swings and a merry-go-round for children. Wood is furnished and the camping areas are well lighted. Safe water is piped through the park from a big well up on a hill.

The shelterhouse was constructed during the depression days. It is spacious with several large rooms making it possible for several groups to hold meetings or other gatherings there at the same time. The shelterhouse has a unique facility in it. It holds the only hot shower available on a state lake and park area.

Between Eugene Shepherd, superintendent of the area, and the town, the park has become a favorite stop with tourists motoring and camping across country. In 1956 only 85 campers registered to spend the night. In 1960, there were over 3,000 registered tent pitchers and their families. During the busiest months, and on weekends, Shepherd has had as many as 70 tents and trailers spending the night in the park.

Maybe all these statistics have little to do with fishing or hunting, as the name of this magazine would lead you to expect, but the story of this lake is a story of outdoor recreation.

In the case of Sappa Lake, camping is a very important recreation. And camping takes up the slack during the hot months when the fish bite poorly at best.

The primary purpose of building the lake was to provide fishing. This the lake has done. In addition, it has developed into an unexpected resource and asset to Kansas.

Controlling Pesticides

The New York Times, July 31, 1961.

Efforts to modify Government pest-spraying programs, so as to safeguard public health and minimize damage to wildlife, are making some progress. But the recklessness of official pest-control agencies is only part of the problem.

Government uses but a small fraction of the estimated three to four billion pounds of the so-called "economic poisons" that are being spread annually, and in increasing volume, across the American landscape. Most of the new, potent chemicals are sprayed or broadcast privately by farmers or householders with little thought given to the effects upon wildlife, to the consequences of a build-up of poisons in the soil, or the dangers of runoff into streams and reservoirs.

Drenching trees and the soil beneath them with DDT has been highly destructive of bird life in many communities, while failing to halt the spread of Dutch elm disease. There is evidence that some insect problems have grown worse with the use of chemicals, the effects of which are not yet fully known.

Federal and state studies of stream pollution show a growing number of instances where fish have been killed by agricultural poisons. In one example cited by the U. S. Public Health Service, fish kills occured in fifteen different tributaries in the Tennessee River Valley following the application of an insecticide to cotton fields in eight Alabama counties.

To meet this difficult and growing problem two things are necessary. The first is more intensive research into safe control methods and more specific poisons, *i. e.*, materials that will kill the pest without damaging a variety of other living forms. The second need is for adequate information to the public about the dangers.

At present no agency of the Federal Government, and probably none in most states, has been given authority or direction to instruct the public in safe methods of applying pesticides and in the hazards of misuse. If the industry fails to assume its own responsibility, Government may have to step in with controls.

Fish and Drought Study Published

Fish Populations, Following a Drought, in the Neosho and Marais des Cygnes Rivers of Kansas is the title of a sixty-six page booklet published this year by the Museum of Natural History of the University of Kansas.

The author, Dr. James E. Deacon, now is a staff member of the University of Nevada at its Southern Branch in Las Vegas, on the north shore of Lake Meade. He studied the fishes in the Neosho and Marais des Cygnes rivers of Kansas from 1957 to 1959, completing a six-year study begun by others in 1952. He was an employee of the State Biological Survey of Kansas working under the technical supervision of Dr. Frank B. Cross, Associate Director of the Survey, and received financial support from the Kansas Forestry, Fish and Game Commission.

According to Dr. E. Raymond Hall, Director of the State Biological Survey, co-operative studies of this kind yield basic scientific information of great value because the information can be put to practical use. For example, it is possible to increase or decrease the number of individual fish of a particular species in any given body of water. "Clear up the water and raise more bass or promote a larger flow of murky water and raise more catfish" he stated. Fifty-five species of fish were found in the two rivers.

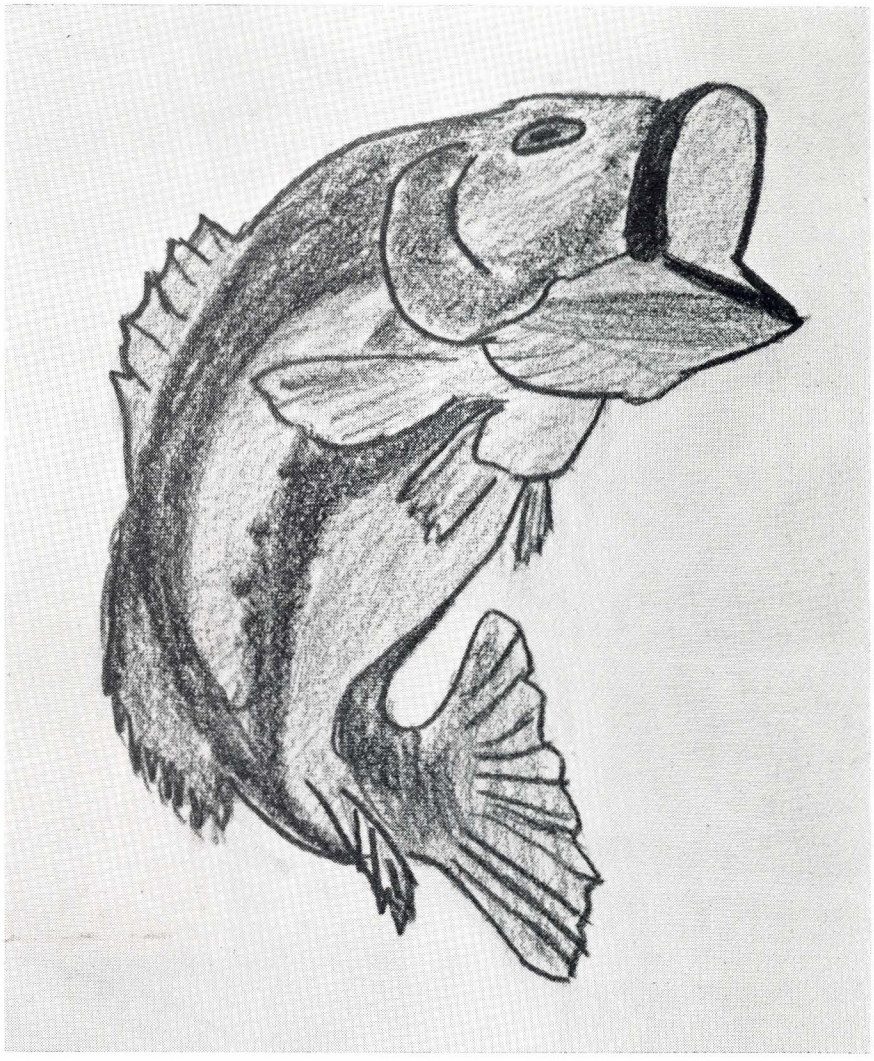
Copies of the booklet can be obtained from the Forestry, Fish and Game Commission, Pratt, Kansas, or from the State Biological Survey Office in the Museum of Natural History at The University of Kansas, Lawrence, Kansas.

News From Other States and Around

WEST GERMANY—In West Germany, limits are imposed on the number of boats which may be operated on Bavarian lakes. For example, there is a limit of 350 boats on one lake measuring 17 by 2 miles. This would amount to something around 21,000 acres of surface area or about 60 acres per boat. The number is controlled through a license roster, a boat license being good for just one lake —with no inheritance rights!

The Story of Sampson

"The preacher cast the popping bug into the riffle and chugged it down along the bank. Sampson sucked it in and crushed down with his jaws. He felt the hook, but too late—"



FICTION BY
BOB TODD

He was a small, insignificant speck in the water when he first hatched out of the egg, but by the time he was five years old, he had a name, a reputation and a score of fishermen after him.

He was known, over in the hills, as Sampson, ever since that preacher tangled with him and declared it would take some cuttin' of his tail by a lady bass before anyone brought him to the bank.

In the end, Sampson was brought in with the help of a lady bass, but that comes later in the story of this fish.

Sampson was one of the last of the eggs in the nest to hatch. His father fanned the nest on the gravel shoal until most of the eggs were hatched before abandoning it. Sampson hatched out on the day the rancher drove his cattle across the creek at that point. In fact, Sampson was barely an hour old when he was forced to leave the nest and make it as best he could to the protection of some water weeds down stream aways.

Somehow, Sampson survived to fingerling size that first summer. Most of his brothers and sisters were not so lucky. They died from floods, silt, and many were eaten by sunfish, other bass, catfish, birds, snakes and turtles. Some were too weak and simply died from exhaustion.

By the next summer, only 100 remained from the hatch that had produced 15,000 young bass. The next summer was just as hard and only eight remained. Somehow, Sampson was among those eight.

In the third summer Sampson suddenly blossomed into a well grown fish. He weighed three and a half pounds by the end of the summer and was bigger by two inches than his two remaining relatives.

It was the fall of the fourth year when Sampson gained his reputation. He weighed five and one-fourth pounds now and was the last of his hatch. In fact, he was the last of his generation in Elderberry Creek.

In the stretch from the highway bridge up to the point where the creek became too small for him, there were only two bass any larger than he. They were older and feared Sampson.

Since his third year, Sampson had become a killer. He showed no fear of larger fish, such as the two large channel cats that claimed residence in that section of creek.

Sampson attacked, killed and ate until he was worn out each morning and each evening. When the insects hung heavy over the water Sampson worked the water to a froth with his leaping and jumping.

It was the preacher and one of

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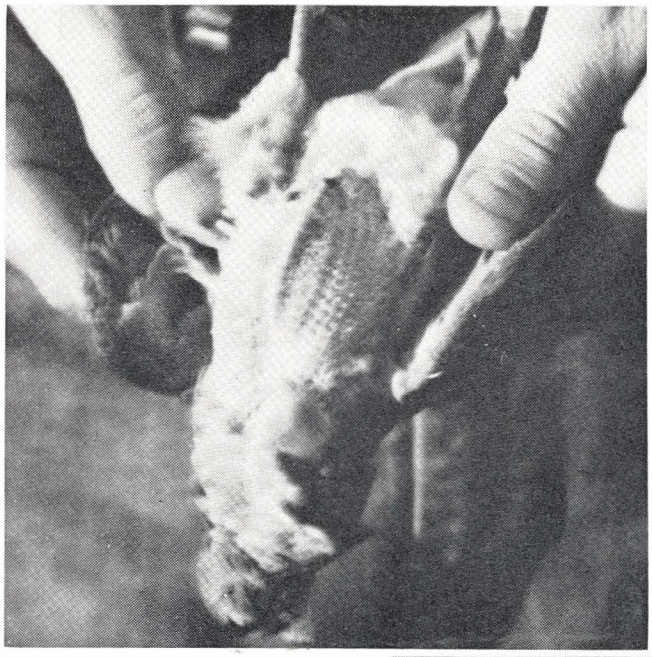
With the Cover

Now that he has shot the dove,
What's he going to do with it?



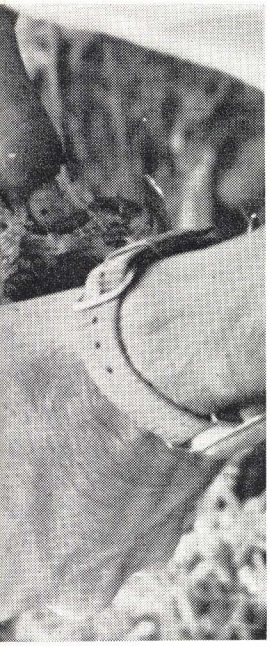
Field Cleaning

Since most of the meat on a dove is on the breast, many people save only that part. If that is all you want, the dove can be easily cleaned in the field. First remove the feathers from the breast.

PULL

Then fold the wings under the dove's feet. The breastbone of a dove ends near a line drawn between the points where the feet join the body. Insert your finger under the breastbone at this point and

The breast and wi



Any piece of clean wood will do for a cutting block. Cut off the wings and the job is done. It takes about a minute per bird.

gs are all that remain. The head, tail, back, feet and entrails pull free.

The breast will look something like the one pictured above. The white spots are rolls of fat on this bird. Field cleaning like this does not ordinarily save the skin, so be sure your wife has a recipe that does not call for the skin. *And while your wife is sure to bless you for cleaning the doves before you come home, be sure the landowner does not mind a few feathers scattered around the hunting site. Most landowners do not mind since predators generally dispose of the discarded portions overnight.*

No. 16 in a series

Kansas Bird Life

BOBWHITE QUAIL

by Dave Coleman

A pair of Bobwhite Quail (*Colinus virginianus*). Male left, female right.

WHERE FOUND IN KANSAS—The popular bobwhite is found throughout the Sunflower State, being very common in the eastern portions of the state but decreasing toward the western limits to be found only in choice local habitat. Since bobwhites are not migratory they are present at all seasons, the population varying with the time of year. There are two subspecies in our state, but the differences between them are slight. In some sagebrush lands of the southwestern counties this species may be outnumbered by another Kansas quail, the scaled or blue quail.

IDENTIFYING CHARACTERISTICS — The bobwhite is about the size of a meadowlark, with plump body, short neck and bill, stubby rounded wings, and short legs and tail. In total length he normally varies from 8-10 inches, and his average weight in Kansas is about 7 ounces. The bobwhite's plumage presents a mixed pattern of brown, chestnut, buff, black, and white. The back and wings are made up of the darker colors while the underparts are white or light gray-buff mottled with dark brown. The male is distinguished from the female by his white throat patch and eye stripe. These areas are buff colored on the female. The all-purpose bill is rather stout and somewhat hooked, being suited both for catching insects and for feeding on weed seeds or grain. The feet are adapted for scratching, as are those of the other members of this family of birds. The feathers of the top of the head are somewhat erectile, and when the bobwhite is alarmed, curious or antagonistic he often raises them, creating a top-knot effect. Other than the well-known call, probably one of the best identifying characteristics of this bird is his flight. He bursts from cover with great speed and a whirring of wings that few birds can equal. When a covey of these fine game birds erupts at the feet of a startled hunter, he often is so surprised and befuddled that he cannot fire a single shot before they have rocketed out of range.

SIMILAR SPECIES—Kansas has no species of bird which is very similar to the bobwhite. Perhaps the meadowlark is confused with the bobwhite as much as any species, but its yellow breast, white tail feathers and slower flight mark it as different. The scaled quail of southwestern Kansas is a uniform slate gray in color. Mockingbirds and starlings sometimes mimic the call of the bobwhite.

VOICE—The bobwhite acquired his name because of his distinctive call. The familiar *"ah-bob-white"* is heard from early spring until late summer when nesting ceases. The beginning note is low and not audible for any distance, but the "bob-white" rings out loud and clear for all to hear. This is the mating call of the male. Bobwhites also utter other calls to express alarm or to aid them in reassembling when they have been dispersed from their covey unit. The chicks give forth with a plaintive peeping when separated from their family.

HABITS—Bobwhites generally are birds of farmlands and thickets. They prefer a mixture of grass, cropland, weeds, and brush or trees in their home range. Choice environment has some source of drinking water, in addition to a good supply of food and cover. Except during the mating and nesting season the bobwhite is a gregarious bird, grouping together in coveys. A covey may contain only members of one family, or the combination of two or more families and stray birds. Normally the covey ranges over a limited area only, seldom travelling more than half-a-mile from their favorite roosting site. They roost in a compact circular group with heads facing to the outside. Usual feeding times are morning and evening, with midday being spent in loafing, preening and dusting.

The mating season begins with the breakup of the winter coveys,

The 1961 Seasons and Limits; Outlook Good

The outlook for this year's hunting is at least as good in most every respect as it was last year. Quail populations are reported well revived from the blow dealt them by the winter of 1959-60.

Reports reaching Pratt say the pheasant population has been on the increase in nearly all pheasant counties. Prairie chickens have held their own and perhaps increased a bit.

Squirrels became so abundant during this past spring that a split season was introduced to increase the harvest of these animals. By avoiding the periods in which squirrels have their young, the population will be held in check, but not threatened.

Other animals have held their own and in some cases seasons and restrictions have been relaxed.

The dove season has again been a success with more hunters in the field than ever before.

Here are the official seasons and limits for 1961:

QUAIL: November 18, 19, 21, 23, 24, 25, 26, 28, 30, December 2, 3, 5, 7, 9, 10, 12, 14, 16, 17, in the entire state with the exception of a triangular area in Riley and Geary counties comprised mostly of the Fort Riley Military Reservation. This specific area is bounded on the north by U. S. Highway 24, on the west by U. S. Highway 77, and on the south and east by the Republican and Kansas Rivers. In the Fort Riley Area the season is November 18, 19, 23, 25, 26, December 2, 3, 9, 10, 16, 17, 23, 24, 25, 27, 30, and 31. Daily bag limit 6; possession limit after opening day, two days' bag limit. Shooting hours from one-half hour before sunrise to sunset.

PHEASANTS: November 11 to December 17, both dates inclusive, in the following counties: Barber, Barton, Cheyenne, Clark, Clay, Cloud, Comanche, Decatur, Dickinson, Edwards, Ellis, Ellsworth, Finney, Ford, Gove, Graham, Grant, Gray, Greeley, Hamilton, Harper, Harvey, Haskell, Hodgeman, Jewell, Kearny, Kingman, Kiowa, Lane, Lincoln, Logan, McPherson, Meade, Mitchell, Morton, Ness, Norton, Osborne, Ottawa, Pawnee, Phillips, Pratt, Rawlins, Reno, Republic, Rice, Riley, Rooks, Rush, Russell, Saline, Scott, Seward, Sheridan, Sherman, Smith, Stafford, Stanton, Stevens, Thomas, Trego, Wallace, Washington, Wichita. Daily bag limit 5 birds, not including more than one hen; possession limit after opening day, 10 birds, not including more than two hens. Shooting hours from one-half hour before sunrise to sunset. Pheasants in possession of hunters and in lockers must retain head and feet.

PRAIRIE CHICKENS: November 4, 5, and 6 in the following counties: Allen, Anderson, Butler, Bourbon, Chautauqua, Cowley, Coffey, Chase, Crawford, Douglas, Elk, Franklin, Geary, Greenwood, Jackson, Linn, Lyon, Marion, Morris, Nemaha, Neosho, Osage, Pottawatomie, Riley, Shawnee, Wabaunsee, Wilson, Woodson. Daily bag limit, 2; possession limit, two days' bag limit. Shooting hours from one-half hour before sunrise to sunset.

DUCKS: (except canvasback and redhead), COOTS and MERGANSERS: October 28 to November 26, both dates inclusive: *Provided*, that there is no open season on canvasback and redhead ducks. Daily bag limit on ducks, 3; possession limit, 6. The daily bag and possession limits may not include more than 1 wood duck. Daily bag limit on coots, 6; possession limit 6. Daily bag limit on American and red-breasted mergansers is 5, possession limit 10, singly or in the aggregate of both kinds. Daily bag and possession limit on hooded mergansers, 1. Hooded mergansers (but not American and red-breasted mergansers) must be included in the established daily bag and possession limits for other ducks. Shooting hours for ducks, coots, and mergansers, will be from sunrise to sunset except on opening day, when shooting hours on all species will start at 12 o'clock noon.

GEESE: October 7 to December 5, both dates inclusive. Daily bag and possession limit on geese, 5: *Provided*, that the daily bag and possession limits may not include, in the alternative, more than 2 Canada geese or subspecies; or 1 white-fronted goose; or 1 Canada goose or subspecies and 1 white-fronted goose. Shooting hours from sunrise to sunset, including the opening day of the season.

MOURNING, TURTLE DOVES: September 1 to October 30, both dates inclusive. Daily bag limit, 15; possession limit, 30. Shooting hours from one-half hour before sunrise to sunset.

RAILS AND GALLINULES: September 1 to October 20, both dates inclusive. Daily bag and possession limit on sora rail, 25. Daily bag and possession limit on other rails and gallinules, singly or in the aggregate, 15. Shooting hours are from sunrise to sunset.

WILSON'S SNIPES: September 15 to October 14, both dates inclusive. Daily bag and possession limit, 8. Shooting hours are from sunrise to sunset.

WOODCOCKS: October 1 to November 9, both dates inclusive. Daily bag limit, 4; possession limit, 8. Shooting hours from sunrise to sunset.

SQUIRRELS: September 1 to November 30 inclusive and April 15 to May 31 inclusive. Daily bag limit, 8; possession limit, two days' bag limit. Shooting hours from one-half hour before sunrise to sunset.

RABBITS: Closed season on rabbits from October 16 to December 14, inclusive, except, rabbits may be legally taken during the legal open season for the taking of quail, pheasant, and prairie chicken. Daily bag limit on cottontails, 10; possession limit, 20. No bag or possession limits on jackrabbits. Shooting hours from one-half hour before sunrise to sunset.

FUR-BEARING ANIMALS (except otter, badger, beaver, and raccoon): Open season, December 1 to January 31, both dates inclusive.

BEAVER: Open season, January 1 to February 28, both dates inclusive.

RACCOON, RED AND GRAY FOX AND BADGER: No closed season.

OTTER, SWIFT OR PRAIRIE FOX: No open season.

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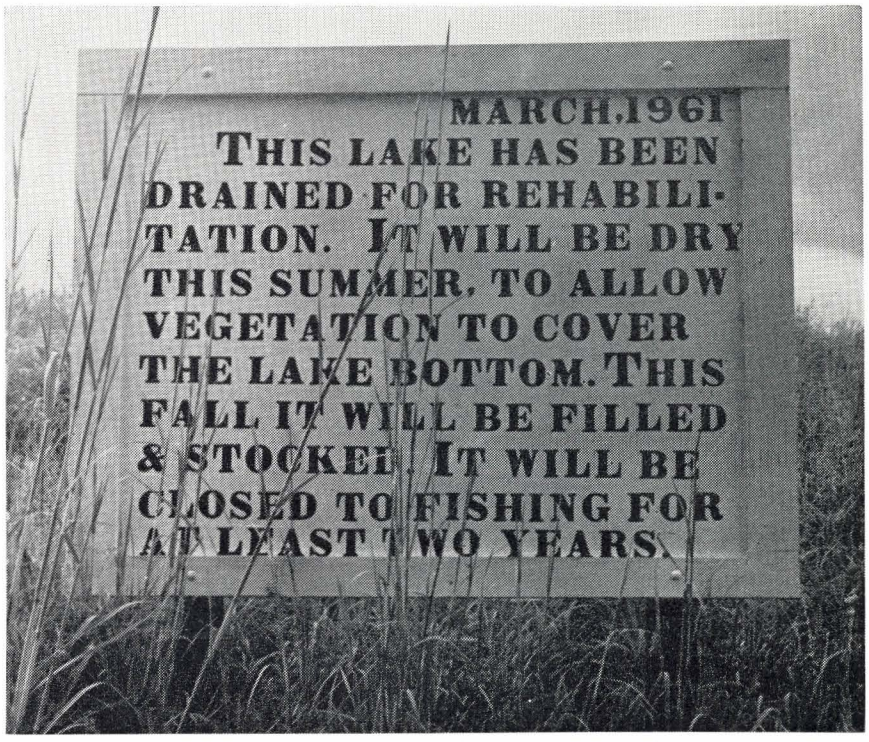
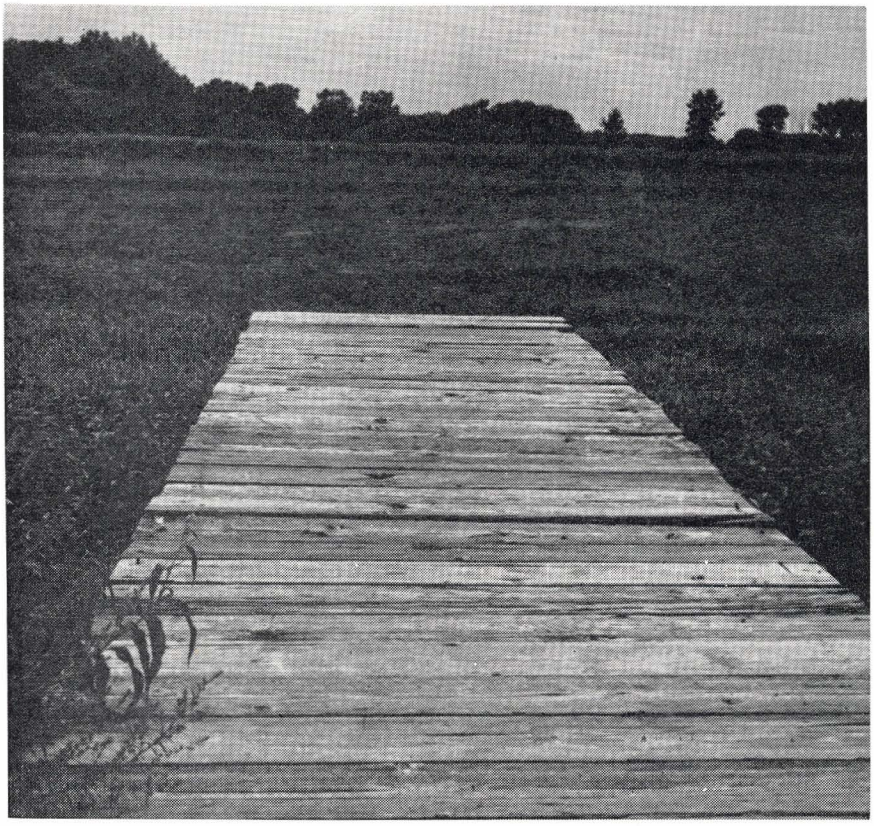
usually in early April, the exact time depending on the particular year. The birds select their mates and, once paired, usually stay together throughout the next several months. The normal clutch of eggs is 15. The hen does the incubating, but if something happens to her, the cock may take over this chore. Incubation lasts 23 days. Both parents assist in brooding and rearing the chicks. The usual hatching peak is late June or July, but late nests may be hatching as late as September. If a pair has its nest broken up in some way, they will try again in another location. Predators, storms and farming activities cause a great deal of renesting. Once a pair has nested successfully and reared its brood, it does not repeat the process. The average fall population is made up of about 80 per cent young birds which were hatched only the previous summer.

A great variety of foods are included in the bobwhite's diet. Waste grain in harvested fields of corn, milo, wheat and soybeans is important. Korean lespedeza is another preferred food which is man-supplied in the eastern counties. Such native foods as foxtail grass, ragweed, wild bean, croton, sunflower and acorns also are staples in the diet. The young birds eat many insects, as do the adults when a plentiful supply is available. Other food items are fruits, green vegetation and berries.

Clark, Kingman State Lakes Are Now Filling





Even without water in it, Kingman County State Lake had waves—waves of plant tops. The vegetation grew swiftly after the lake was drained and will help stabilize the bottom. Even after the tops of the plants have rotted off, the root systems will bind the bottom together and hold down the effects of wave action. This view from the boat dock shows the wide expanse of vegetation in the lake bottom.

Fishermen from various parts of the state may have been a little stunned this summer when they arrived at Clark or Kingman County State Lakes. You see, the lakes had no water in them.

The sign pictured at the right was posted just inside Kingman County County State Park. It says the lake has been drained for rehabilitation. Both Clark and Kingman lakes were drained this spring for this purpose.

The history of Kingman lake is something like this. Prior to 1955, the lake was found to be out of balance. That is, there were too many small fish and not enough large fish to keep the small ones in check. The situation was snowballing. As more and more small fish came into existence, the food supply became so short that few of the small fish could grow to a larger size.

The larger game fish were dying off from old age and a few were taken by fishermen. Too few small fish were growing up to replace this loss.

In 1955 the lake was enlarged. This provided more food, and for a while the population began to

take on a more balanced proportion. This lasted through 1957 when the Ninnescah River flooded and the water rose enough for large numbers of carp to enter the lake. These fish threw the lake out of balance once more.

The lake is shallow, and the combination of wind and many carp rooting in the bottom soon caused the water to become too muddy for the predator fish, bass, crappie and channel cat, to feed well.

Growth rates in all but the carp became nearly suspended.

In 1959 fishery biologists surveyed the lake for population composition. Their results showed few bass, a fair amount of channel cat and thousands of undersized crappie. There were large numbers of carp and shad.

Tests on the crappie showed that most of them were two to three years old. Yet the size of their bodies indicated only one year of growth in a favorable environment.

The lake was tested again in 1960 and results showed the lake was not making any improvement. It was decided to drain and rehabilitate the lake.

This summer, the lake bottom has taken on a rich growth of vegetative cover. This will be of great value in keeping the water from becoming muddy due to wind and waves. The root systems of the plants will bind the bottom together, long after the tops of the plants have died away.

The fish population situation at Clark County State Lake was about the same—too many carp and small fish. The bottom was stabilized after draining. Both lakes have been filling now and will be stocked this fall.

Normally it takes about two years before stocked fish reach a catchable size. And it normally takes about two hours before the fish breed the first time. So in any event, it will be two years at least before either lake is opened to fishing again.

Both lakes are refilling now and will be stocked this fall. Treatment was completed in September and the lakes began to fill. This view of Clark County State Lake shows the water as it began coming back up. The dark portions around the water's edge are part of the bottom which is now covered with vegetation. After stocking this fall, it will probably be two years before fishing is allowed again at either lake.

50 Million Americans Hunt or Fish in 1960

Fifty million Americans fished or hunted in 1960, 30 million of them in more than an occasional way, and this latter group of sportsmen and sportswomen spent $3,852,000,000 last year in the process of enjoying this kind of recreation.

The 30 million figure was produced by the 1960 National Survey of Fishing and Hunting, returns from which were released at the annual meeting of the International Association of Game, Fish and Conservation Commissioners in Memphis by Daniel H. Janzen, Director of the Bureau of Sport Fisheries and Wildlife of the Fish and Wildlife Service.

The 1960 survey is comparable in coverage to the 1955 National Survey of Fishing and Hunting conducted by the Fish and Wildlife Service. It was explained that the over-all 50 million hunters-fishermen figure was derived from a separate special survey conducted for the Outdoor Recreation Resources Review Commission. This survey added the occasional hunters and fishermen to those who pursued their sport more than a day or two or purchased a license or spent more than $5.00.

The number of anglers and hunters has increased at a faster rate over the past five years than the population of our country, according to the 1960 fishing and hunting survey report. The total population increased 11 percent in the five-year period while the number of fishermen and hunters increased 22 and 24 percent respectively. The number of women who hunt increased by 106 percent, while the number of lady anglers was 21 percent higher than in 1955.

The survey report shows that 30,435,000 Americans 12 years or older spent all or part of 658 million days fishing and hunting. They traveled 26.4 billion passenger miles by car in pursuit of fish and game. This compared with 24,917,000 anglers and hunters, 567 billion recreation-days of fishing and hunting, and 24 billion passenger miles by auto in 1955.

The total expenditures of nearly $4 billion in 1960 for fishing and hunting compared with $2,851,000,000 in 1955. The 1960 expenditures are distributed as follows on a percentage basis: licenses, 3; food and lodging, 10; transportation expenses, 14; fishing and hunting equipment, 17; auxiliary equipment, 32, and privilege fees and other expenses, 24.

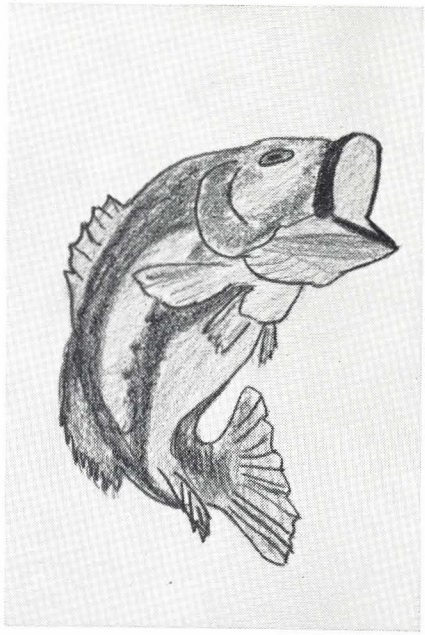
In 1960 there were 25,323,000 sport fishermen and 14,637,000 hunters. These figures include 9,525,000 persons who both fished and hunted.

The anglers dropped their lines into the water on 412 million fishing trips totaling 466 million recreation-days; they traveled more than 18 billion automobile-passenger-miles and spent $2.7 billion. The hunters made 178 million trips, piled up 193 million recreation-days on hunting, traveled 7.6 billion automobile - passenger - miles and spent in excess of $1 billion.

There were 6.3 million persons who hunted big game in 1960 and 12 million who hunted small game. On the average, small-game hunters spent $60 per hunter, while big-game hunters spent $55.

The increase in the popularity of fishing and hunting is also noted in the number of households having at least one angler or nimrod. These increased from 17 million households in 1955 to 20 million in 1960.

In the population 18 years old and over in 1960, one woman in every ten fished, one in every 69 hunted; and one man in every five hunted and one in every four fished.



Sampson

Continued from page 9

the elders of the small rural church that arrived at the creek one evening just before Sampson began his feed. The preacher was a fly fisherman and the other man used spinning tackle.

The preacher approached the pool quietly from below. He stripped off line and began his cast. At first he snagged in a tree limb.

On his second attempt he failed to reach his mark.

On his third attempt the line headed for the spot he had selected, but suddenly veered away toward the bank.

Even before the large fly touched the water, an eruption was beginning beneath the surface. Sampson shattered the mirror of water as he intercepted the fly in its flight.

He felt the sting of the hook only an instant later and felt the pull of the line as the preacher bent his rod to the task.

Sampson jumped. He jumped again. And again and again and again until the pull of the line forced him to fight from a deeper retreat. He made his runs and

each time had to yield to the pull of the line.

Finally he jumped once more and with all his effort, strength and determination snapped the slender leader.

The preacher repulsed a cuss.

The other man, who had watched the battle, said "Wow!" Neither man moved for a matter of half a minute or so.

★

It was later, when the preacher talked with his cronies, that the name "Sampson" was first used for the bass. And his reputation spread.

And it was later, almost a year, before the preacher tangled with Sampson again. Other fishermen had tried to catch Sampson in that time, but Sampson had changed during the winter.

He no longer ate all he killed. He now weighed six and one-half pounds and killed much more than he could eat. He still went on a killing spree in the morning and evening, but he had extended his hours some and now killed just to be killing off and on through the day and night.

Only once during the summer did a fisherman have a bite from Sampson. That time the fisherman used spinning tackle and a large minnow. The minnow was cast to the center of a pool where Sampson now resided.

The minnow, five inches in length, fluttered on the surface for several minutes before he gave in to the weight of the hook and began sinking to the bottom.

He sank a ways and fought to reach the surface again. He could not make it and sank again. After the third try, he sank to the bottom. The bait fisherman felt a heavy bump on the line. He released his line so the fish could run.

But Sampson did not run. He had crushed the minnow and swam away. Finally the fisherman reeled in, and wondered why the fish had only killed the minnow.

In late summer, the preacher had occasion to fish the stream again. He was using a small popping bug on his flyrod this time. He fished the hole where he had hooked Sampson and took two small bass plus four bluegill.

As he made his way up the creek, he came to a quiet pool and approached it carefully. He cast the popping bug into the riffle above the hole and chugged it down along the bank.

Sampson sucked in the bug and crushed down with his jaws. He felt the hook, but too late and once more he felt its sting and the pull of the line. He charged the line and it looked to the preacher as if Sampson were charging him. He stopped his charge just below the surface of the water and paused. The preacher paused, too, for just an instant, and seemed to see a glint of hatred in the eyes of the bass. Sampson waved his head as the preacher pulled harder and it seemed the big bass was saying "NO."

He turned and made a run into deeper water; then upward and out of the water with every fiber in his body shaking as he tore the hook from his mouth.

The preacher stood in the weeds below the hole and tingled all over. He somehow felt the bass and he were now on a personal basis.

He felt that he and that bass, Sampson, were bound in a pact demanding the destruction of one of them.

Throughout the fall, the preacher fished the creek and returned time after time to the hole of water where he had last hooked Sampson. He caught fish, but never hooked Sampson.

He saw Sampson on two occasions, but both times Sampson saw him also and retreated beneath the roots of a large willow tree.

★

During the winter, the preacher changed churches and moved away. The other fishermen in the vicinity talked about Sampson, but in time no one fished for him anymore. His name had become a joke to some and to others it was an expression meaning a large bass. No one really believed he existed any more, no more than they believed in Santa Claus.

Then in Sampson's eighth summer, the preacher returned for a visit. He had not forgotten Sampson and at his first chance went to the creek alone to try once more for the big fish.

Sampson weighed 8 pounds, 3 ounces now and had a rather fat appearance. But even so, he was streamlined the way a bass gets when he spends his entire life in a stream. Sampson was now the biggest bass in the creek and only one fish, a channel cat, was any larger than he. He was lazier now and seldom went in search of things to kill. But he never allowed a minnow, crayfish or small fish to pass before him without a deadly attack. He no longer leaped out of the water to catch insects, but ate his share off of the surface when they fell.

And now it was breeding time for bass in Elderberry Creek. For some reason, Sampson had never bred before. Perhaps he was too rough with the females and drove them away rather than over the nest. But this year, Sampson did not get so aggressive and in time he and a lady bass were making love, to whatever extent bass make love.

She was large for the creek also, weighing about four pounds. On the day the preacher started up the creek for the bridge, Sampson drove her over the nest and the eggs were laid and fertilized.

★

By late morning, Sampson had the task of nest guarding well in hand. The area around the nest was littered with the dead remains of small fish and crayfish who had dared come too close.

The preacher came quietly through the brush as he approached the pool in which Sampson had his nest. As he knelt on the bank and looked over the wa-

ter in the pool, he suddenly spied Sampson across from him, fanning the nest in the shallows off the gravel bar.

As he watched, a sunfish got too close and Sampson killed him with a sudden lunge and crush of his jaws. The preacher watched for 15 minutes and then carefully made his way to the lower end of the pool—to a spot from which he could cast.

He tied on a small spinner and cast. The spinner lit beyond Sampson and the retrieve carried it within a foot of Sampson's jaws.

It did not look real to Sampson and he felt that it might have a stinging hook and pulling line attached. But Sampson had never done anything halfway and now he was guarding the nest. He hesitated only a split second before deciding to kill the shimmering piece of metal that semed to be threatening his nest.

Sampson fought the relentless pull of the line with all his might and with more strength and weight than he had ever had before. And the preacher fought to keep the hook embedded, the line from snapping, with more skill than he had ever mustered before.

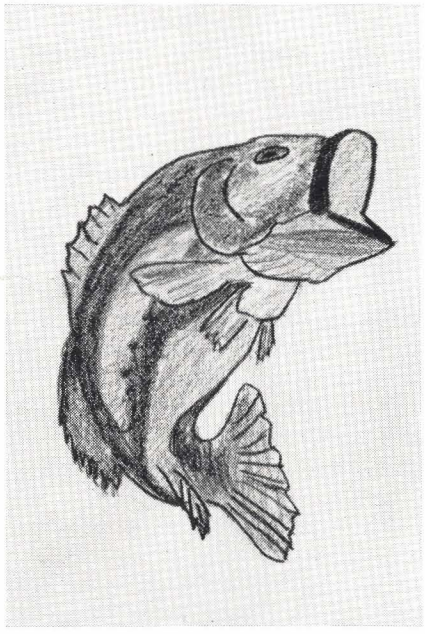
Sampson's great weight and strength was more than equal for the light leader, however, and the battle might have ended as it had twice before if it were not for the reappearance of the lady bass.

She swam from the depths of the pool, paused only for a moment to look at the life and death struggle, and then swam directly for the nest. She swam over it and around it and then pointed her jaws downward to taste the eggs in the nest.

Sampson's attention was thus divided and he lost precious inches to the pull of the line. He charged the female, but could not reach her with the line pulling so hard. He tried and tried and tried, but each time, as he turned for the charge, the line pulled hard and he lost more distance.

He glanced to the other side. There was still time and enough length of line out to make it to the roots along the bank. But Sampson tried once more to charge and drive the female away from the nest. As he turned the line tightened again and it became too late to reach the safety of the roots. Still Sampson tried.

He charged with all his might with fading strength and each time, as he turned, more line was taken in. Finally Sampson turned and as he did he felt air on his back as it came out of the water. He tried twice more to charge back up the pool and drive the lady fish from the nest. As he turned the third time he felt himself becoming entangled in the mesh of a landing net. He stopped fighting as he was lifted from the water



and lay in the net, his gills opening and closing rapidly.

The preacher backed away from the stream and sat down under a small tree to admire his prize.

"Sampson," he said softly, and that was all. He took a pipe, which he rarely smoked, from his pocket and carefully filled the bowl with tobacco. He lit the pipe and gazed at Sampson.

In a few minutes, glee and happiness left him and he felt guilt whelming up within him. He began to feel regret in his heart and looked to the creek. It seemed the creek had suddenly changed with Sampson gone.

In an instant the preacher stood up, carried Sampson back to the water and released him. He turned quickly, knocked the ashes from his pipe, picked up his rod and began walking back down the creek.

★

Sampson swam slowly to the nest. It was a nest no more. The lady bass had eaten many of the eggs and the sunfish and crayfish had eaten the rest. Sampson swam slowly down to the deep spot beneath the willow tree and rested. He had bursted blood vessels in his gills in the frantic struggle and ached in every fiber of his body.

That night, while a family of raccoons were searching the riffles below the pool for crayfish, the dead body of Sampson floated to them.

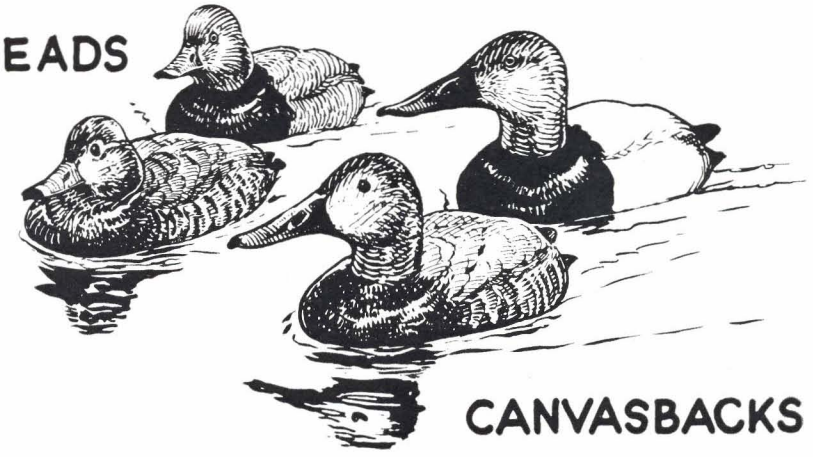
The preacher kept the events of that day in his heart. He told no one. People are skeptical about fish stories regardless of who tells them. And besides, the preacher just never felt the urge to relate what had happened.

The people over in the hills still talk about Sampson, but only the preacher knew Sampson well enough to speak the truth. The preacher is dead now too, and only the legend of Sampson remains. You can hear him referred to at night when fishermen gather in front of the small crossroads store to discuss how the season has been going and who's been catching big ones.

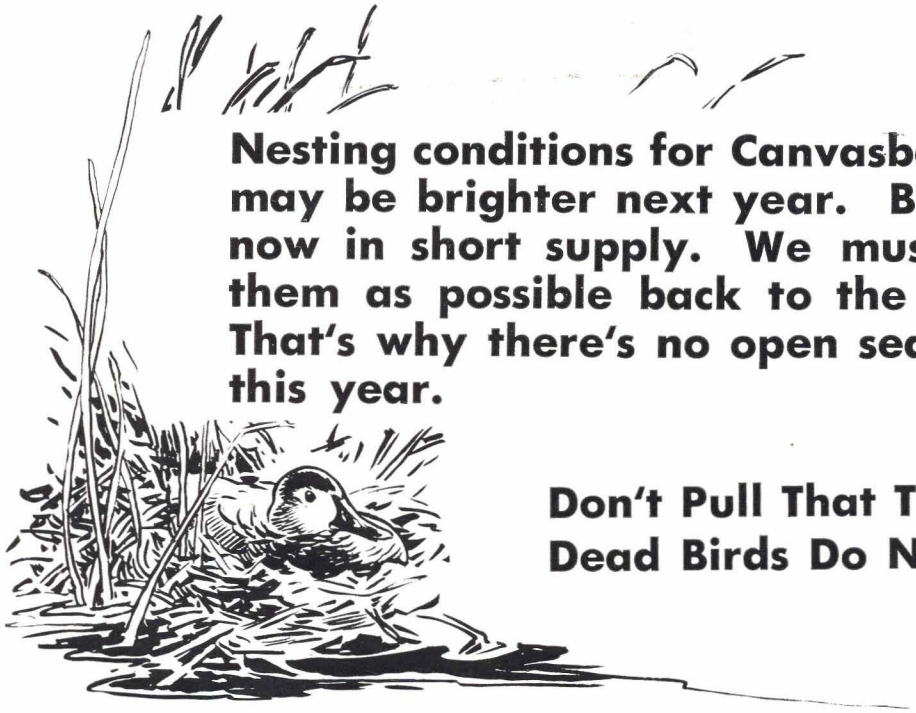
Incubation period for the eggs of the bald eagle is approximately 35 days. Both the male and female eagle help to incubate the eggs.

In migrating, the males of the red-wing blackbird travel together. The females follow a few weeks later.

DON'T SHOOT US!



Redhead and Canvasback Ducks Are Fully Protected by Law in the 1961 Season



Nesting conditions for Canvasbacks and Redheads may be brighter next year. But these ducks are now in short supply. We must get as many of them as possible back to the breeding grounds. That's why there's no open season on these birds this year.

Don't Pull That Trigger Too Quickly.
Dead Birds Do Not Nest.

U.S. DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

American womanhood takes to the field to stalk the wary prey. She goes forth in anything from her hubby's cast-off clothes to the latest in hunting fashions for women.

Most often she wears an old army coat which has more patches than original fabric. She wears blue jeans and an old wool shirt which she says scratches over most of its oversized length.

She does not wear high heels, but any other shoes will do. And no matter what she wears, she manages to get her feet wet.

She complains that she can't keep her socks up and can't keep the seeds and briars out of them. She complains that she can't keep her hair straight, her lipstick on. Her hat, if she wears one, blows off with each puff of wind.

Her gun is the one her hubby refuses to use any more. Besides being very old, the stock is too long. And horror of all horrors, it is apt to be a week before she feels she can wear nylons again.

But come Monday, following the hunt Saturday, she says to hubby, "Let's go hunting again this Saturday. I enjoyed it so much."

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