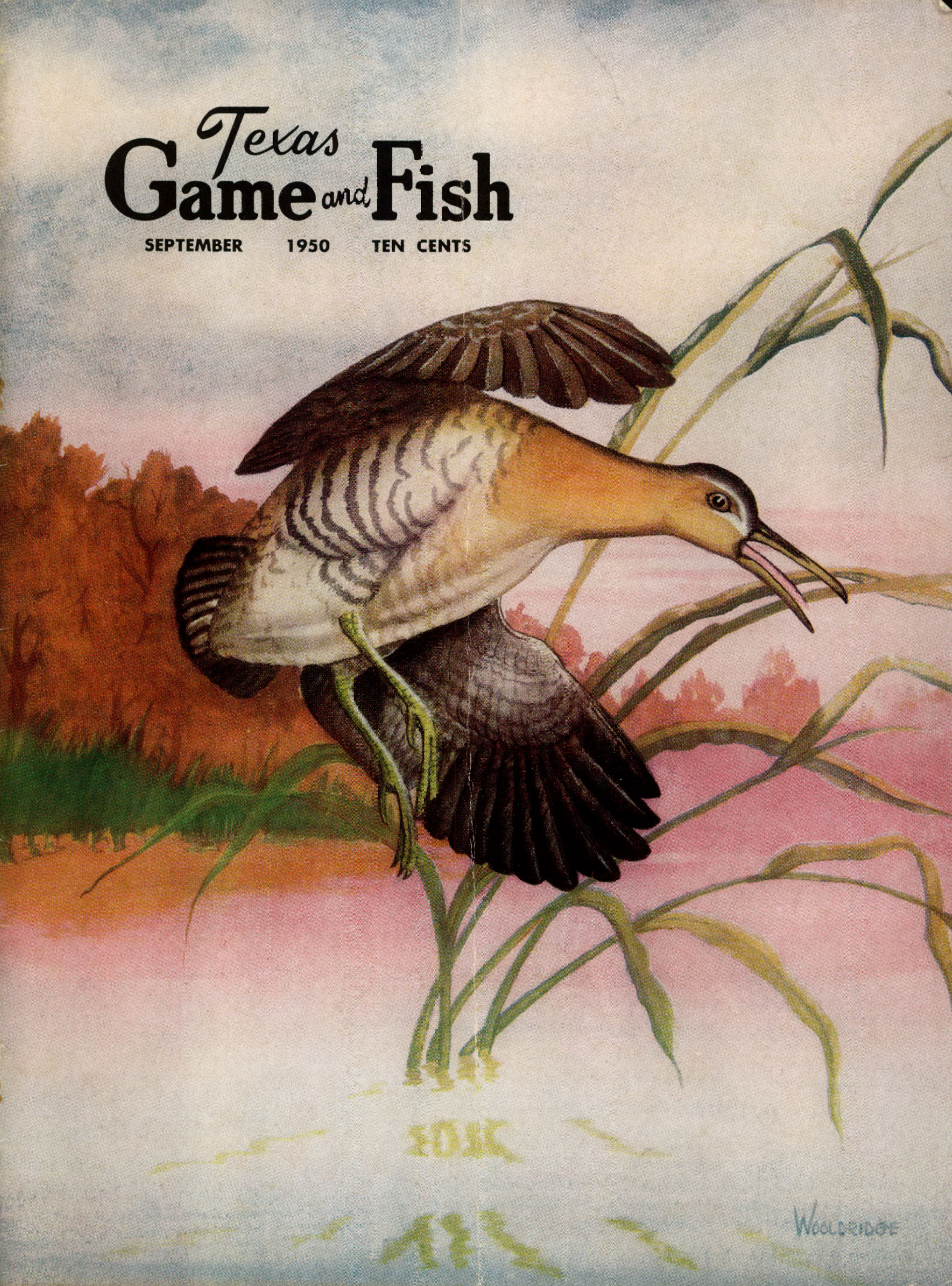


Texas Game and Fish

SEPTEMBER 1950 TEN CENTS



Woolbridge

PICTURE OF THE MONTH



For story see page 12

Texas Game and Fish

A MONTHLY MAGAZINE DEVOTED TO THE PROTECTION AND CONSERVATION OF OUR NATIVE GAME AND FISH; AND TO THE IMPROVEMENT OF HUNTING AND FISHING IN TEXAS.

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COVER—By Sidney Woolldridge

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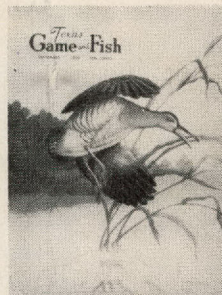
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ROBERT G. MAUERMANN
Editor



The Cover

The surprise element, so far as marsh hikers and hunters are concerned, is apt to center around the dainty shore bird on this month's cover by Sidney Woolldridge. It is the King Rail. It is noted for its secretive habits, shyness and ability to be exposed and yet not seen until it rises feebly. Then flying with legs dangling for a short distance, it drops back to the water's edge. And perhaps there is a cry of bup-bup-bup or chuck-chuck-chuck punctuating the erratic aerial effort.

On the Legal Front

HUNTING and fishing privileges for a 28-county block of the Texas Panhandle have been established by the Game, Fish and Oyster Commission under the regulatory authority granted the Commission at the last special session of the state legislature. The counties in which the following regulations apply are: Dallam, Sherman, Hansford, DeWitt, Lipscomb, Hartley, Moore, Hutchinson, Roberts, Hemphill, Oldham, Potter, Carson, Gray, Parmer, Wheeler, Deaf Smith, Randall, Armstrong, Donley, Collingsworth, Castro, Swisher, Briscoe, Hall, Childress, Cottle, and Motley.

The major provisions included in the Commission's proclamation are:

"Open Seasons: Except on State game preserves, statutory wildlife sanctuaries, United States Wildlife Sanctuaries, within the corporate limits of any city, and on public roads and highways, the open season for taking game animals, game birds, fur-bearing animals, and fish, in the above named counties, shall be as follows:

"Wild Deer — Open season, November 17th to November 26th both days inclusive. Shooting hours, sunrise to sunset. Bag limit, one buck deer with pronged horns. Possession limit, one buck deer with pronged horns. Means of taking, rifles only, except that 22 caliber rifles using rim-fire ammunition shall be unlawful. (No open season in Armstrong, Randall and Briscoe Counties.)

"Wild Turkey—Open season, November 17th to November 26th, both days inclusive. Shooting hours, sunrise to sunset. Bag limit, two turkey gobblers per season. Means of taking, shotgun not larger than ten gauge, or rifle. (No open season in Armstrong, Randall and Briscoe Counties.)

"Wild Quail—Open season, December 1st to January 16th, both days inclusive. Shooting hours, sunrise to sunset. Daily bag limit, ten; possession limit, twenty. Methods of taking, shotgun, not larger than ten gauge, or rifle.

"Squirrels—Open season, May 1st to July 1st, both days inclusive and October 1st to December 31st, both days inclusive. Bag limit, five squirrels per day. Posses-

sion limit, five squirrels. Shooting hours, sunrise to sunset.

"Buffalo—No closed season.

"Javelina—No closed season.

"Antelope—No open season.

"Prairie Chickens—No open season.

"Pheasants—No open season.

"Fur-Bearing Animals—Open season, December 1st, to January 31st of each year on all species except muskrat. The open season on muskrat shall be December 1st to February 28th, both days inclusive. It shall be un-

lawful for any person to possess a green hide of a fur-bearing animal at any time after fifteen days following the close of the season.

"Migratory Birds—

The open season on migratory birds will be stipulated by the Game, Fish and Oyster Commission in a separate proclamation.

"Fishing Regulations:

Crappie—No closed season. Daily bag limit, fifteen crappie, any length; possession limit, thirty crappie, any length.

"Channel or Blue Catfish—No closed season. Daily bag limit, fifteen channel or blue catfish of any length. Possession limit, thirty channel or

blue catfish of any length.

"Bass—No closed season. Daily bag limit, six bass, not less than nine inches in length. Possession limit, twelve bass not less than nine inches in length.

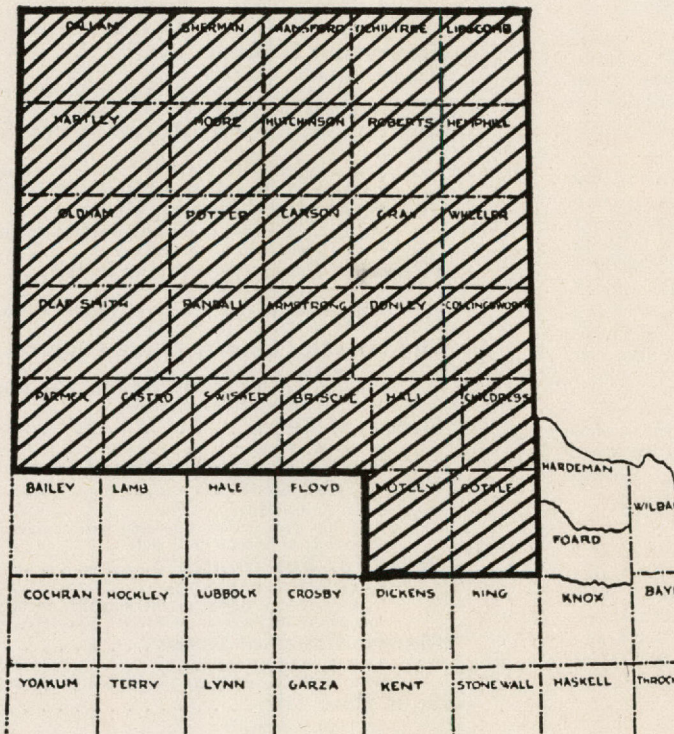
"No Closed Season or bag limit on sunfish, perch, bream, and mud catfish.

"Minnows—Not more than two hundred minnows shall be taken or possessed from any of the waters of the above named counties at any one time by any one person.

"Means and Methods of Taking—Ordinary pole and line, set line, artificial lures, trot lines. Not more than one trot line may be used by any one person at any one time with not more than twenty hooks. An aggregate of not more than twenty hooks may be used by any one person, at any one time. Twenty foot seine may be used for taking minnows. Traps, except the common funnel fruit jars, shall not be used.

"Dynamiting—Dynamiting, poisoning, gigging, or grap-

● Continued on Page 26



1950 Antelope Hunt

THE FIFTH open season on pronghorned antelope since the West Texas herds were restored under modern game management techniques has been approved for the area West of the Pecos, October 2 to October 10, both days inclusive.

The decision was made by the Game, Fish and Oyster Commission under regulatory powers given it by the State Legislature. Hunting will be allowed in Brewster, Jeff Davis, Pecos, Reeves, Presidio, Hudspeth and Culberson counties. El Paso and Terrell counties were not included because of a shortage of antelope in those counties.

Careful studies by wildlife biologists provided the basis for the antelope hunting season. Indications are that the take from the herds, estimated roughly at around 9,000 head, will be something under the 1948 harvest of 629 pronghorned bucks. The herds are counted by airplane census. The bagged game is carefully counted, animal by animal, by special Commission crews supervising the hunt.

The hunting season has been arranged in three-day periods similar to the previous system. This is to permit maximum supervision by the concentrated game wardens and wildlife supervisors. The overall hunt covers from 30 to 35 ranches in the nine counties. The kill on the individual ranches ranges from five to 60 male antelope. Only one male antelope may be bagged by each hunter. More than 90 per cent of the hunters usually get their game.

Successful applicants for antelope hunting permits will be notified within a few days after September 1. The routine of issuing the permits began shortly after the Commission, at its July 7 meeting, authorized the 1950 open season. Announcement was made then that first priority for the \$5 permits would be given permit holders for the 1948 hunt who withdrew their names in time for assignment of an alternate. The alternates were those whose names were not selected in the drawing which was required when the applications exceeded the number of authorized permits. Second priority was awarded persons who did not apply for an antelope shooting per-

mit in 1948. Persons receiving shooting permits two years ago have number three priority.

The game department promptly notified first priority hunters and enclosed application blanks. Others will get blanks by writing the game department. Permits are not transferable nor is the cost of the permit refunded if not used by the permit holder.

Under the official regulations, landowners are allotted 20 per cent of the permits for their own use, their families and friends. The rules stipulate that they may charge

each hunter not more than \$40 for permission to shoot on their land.

Because of the limited harvest allowable, strict rules govern the hunt. Camping will not be permitted except on remote ranches and only then in cases where a game warden can be assigned to camp with the hunter groups. Hunting will not be allowed before sunrise or after sunset. Antelope may not be chased by an automobile and hunters will not be permitted to shoot from an automobile or fire into moving herds of antelope.

Hunters will not be permitted to carry a gun afield after he has killed

an antelope. The supervisors will determine that every effort is made to kill wounded antelope. Hunters will not be permitted on the hunting range before sunrise of the opening day. Shooting of game, other than antelope, shall not be permitted during the antelope season on ranches to which antelope hunters are assigned.

Before starting to hunt on the ranches to which they have been assigned, each hunter is required to report to the game warden. He must have his permit signed by the game warden before leaving the ranch with an antelope. Any hunter who fails to check in on a designated ranch by noon of the second day of hunting there, or to make suitable arrangements with the landowner or landowner's representative, will forfeit his privilege of hunting on that ranch and will be replaced by another applicant.

With all of the supervision, some hunters shoot female instead of male antelope. In such cases, the game wardens have been instructed to accept no excuses. Fines,



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White-Winged Dove

WE ARE AGAIN approaching our annual whitewing season or maybe it could be better termed "Operation Whitewing 1950." Prospects for a fair hunt are indicated by the number of breeding birds now finishing their nesting period. Summer censuses have just been completed in those areas supporting nesting birds. The lower Rio Grande Valley and

that scope of country north of the valley as far as San Antonio and Del Rio, have shown marked increases in populations in some sectors over those of 1949. This is especially gratifying since just a few years back, it was thought by many that the whitewing as a game bird was on its way out.

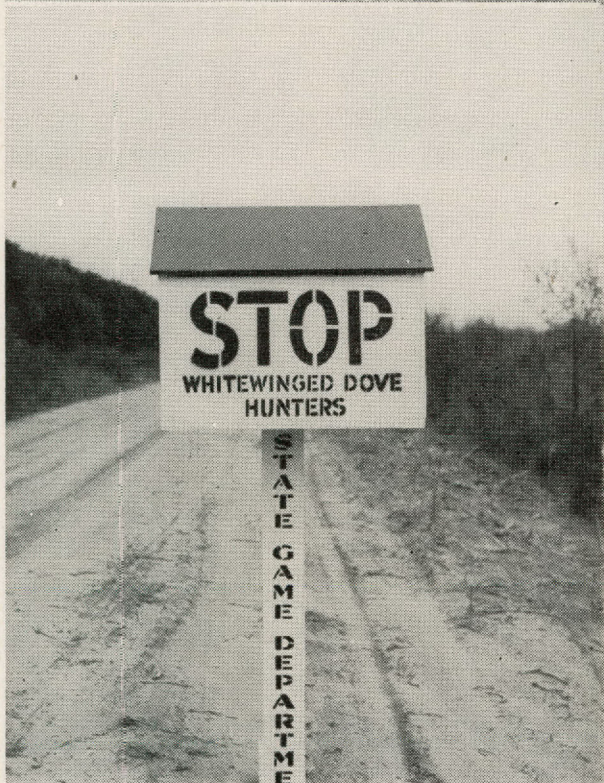
This brings us to problems at hand. To be able to properly and wisely

set hunting seasons to the advantage of both birds and hunters, we must determine the annual breeding success, the pre-hunting season population of birds, the annual harvest by hunters and the per cent of the birds killed that are young of the breeding season just finished. You as a hunter, and only you, can give us the information necessary to accurately answer the latter two items. This is the means by which it can be done—*hunter cooperation in the field during the days of the hunt*. This hunter cooperation is made easy and facilitated by the use of data boxes (bird-like houses) and information signs at entrance and departure routes of areas to be hunted.

By **P. B. UZZELL**
Wildlife Biologist

The signs give preliminary instructions, and the boxes with paper sacks inside contain the final instructions as to what the hunter is to do.

If you see a sign reading "SLOW," "White-winged dove hunters," "Please secure bag from box ahead" and next a bird house with "STOP" "White-winged dove hunters," drive near enough to be able to reach in the box for a paper sack—take only one sack per car. The sack will have a form printed on it. After the hunt, count the number of hunters in your party, the number of whitewings which they killed and also the number of mourning doves taken and put the two separate totals in proper spaces. These 4 totals, number of hunters per car, number of whitewings bagged, number of mourning doves bagged, and number of whitewings wounded and killed and not recovered, will be averaged in with data from other sacks. The number of cars in that area are counted from an airplane and entered on maps for that particular sector. Thus, the total kill per day and season can be determined.



Hunter cooperation is made easy and facilitated by the use of data boxes and information signs at entrance and departure routes of areas to be hunted. From the box pictured above, a hunter obtains a paper sack which contains final instructions as to what he is to do. To the left is a closeup of that box.

Hunters, "Attention Please"

After the hunter makes the entries in spaces on the sack, there is one other operation necessary and that is to cut one leg (either leg) from each of the whitewings and put the entire lot in the paper sack. Now, on your departure from the area when you pass the data box or another like it, toss the sack to the base of the box stand and your cooperation for that day will have ended. Well, maybe there is a warden down the road that would like to check over your bag.

From fair hunter cooperation during "Operation Whitewing 1949," it was possible for us to gather data from our data boxes and correlate with our airplane count of all hunters' cars and evolve important whitewing hunt statistics. The results are given in the following sentences. For the three afternoons of the open season in the lower Rio Grande Valley, a total of 10,161 cars were counted bearing 28,940 hunters. They bagged a total of 218,365 whitewings for an overall average of 7.6 birds per hunter. Average reported daily loss of critically wounded and killed whitewings which were not retrieved per hunter for the three day hunt was 1.65 birds. The overall total loss was 33,936 whitewings. Therefore, the total number of whitewings bagged and lost by hunters amounted to 252,301 or 31.5% of the 800,000 estimated to have been in the lower Rio Grande Valley region on September 10, 1949. Cooperating hunters put 13,359 legs in their paper sacks. The age of the birds can be determined by an examination of their legs. When aged, these legs gave an adult to young ratio of 1 adult to 2.14 young.

A few items for serious thought and consideration can be injected at this point. The above paragraph gave actual loss figures as turned in by hunters. It takes very simple mathematics to show yourselves that if the average bag for the 1949 hunt was 7.6 birds, the 33,936 birds lost would have furnished 446 additional hunters an aver-

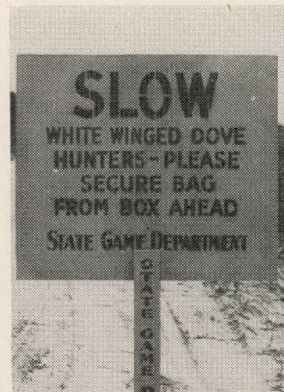
age bag. Or if the birds lost had lived and reproduced in 1950, they could have raised approximately 20,000 additional whitewings for the approaching season. Whitewings do not have the backlog of reserves to warrant such heavy waste. Loss can be greatly reduced if care is taken in locating a shooting site. It is likely that countless whitewings will be lost if you shoot hurriedly or if you shoot from brush, from roads between brush tracts, and from roads with one side clear. Nor is it a good idea to shoot birds over dense foliated small grain crops. It is important to retrieve each fallen bird immediately after having downed it.

The 1949 kill was exceptionally heavy. It would appear, offhand, that

the meager resident whitewing population we now possess could not stand that sort of hunting pressure. However, it is partially explained by results from the 1949 nesting success studies in citrus groves, from a census of breeding pairs in citrus for the same year, by possible migration of birds from Mexico during fall season, and from the relatively long life span known to be possible for whitewings. Band returns have revealed birds 8 years of age. Their lives were ended by violent means (shotgun fire) rather than by natural causes. The citrus grove census gave a total of 343,737 nesting pairs of birds. Each pair produced an average of 1.16 young during the breeding season for a total of 398,735 young birds. This

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Pictured to the right is more information for the hunter. He will have no difficulty in knowing what procedure to follow. Below are 13,359 legs which hunters turned over to Game Department officials during the 1949 hunt. The age of the birds is determined by an examination of the legs.



OPERATION FISHTRAP

By ERNEST SIMMONS

Marine Biologist

A GREAT DEAL of attention has been given to the role played by passes leading from the Gulf of Mexico to the inland bays. They serve as passageways by which fish may travel from bay to gulf, or vice versa, and for the interchange of water between the gulf and the bays. The statement has frequently been made that the number of passes along the Texas coast is inadequate to permit passage of fish to the inland bays, and the idea of opening more passes has been uppermost in the minds of fishermen for more than a quarter of a century. In accordance with this theory approximately \$115,000 was spent to cut new passes along the Laguna Madre section of the Texas coast. These passes were, without exception, failures due to rapid silting

action in the area. Nevertheless, the argument has persisted, based largely on conjecture, and without any real knowledge.

In order to arrive at a correct evaluation of the role of such passes in the economy of our bays, as well as to have a permanent tagging station, where biological data of all kinds could be gathered, it was decided to install a two-way fish trap in one of these passes.

Cedar Bayou, a shallow natural pass between St. Joseph Island and Matagorda Island, was selected as being the best suited for the operation. This pass is roughly two miles long and connects Mesquite Bay with the gulf. Both entrances are shallow and sandy but a depth of nine feet is attained near Grass Island where the

trap is located. Mud bottom is prevalent on the west shore and oyster reefs are scattered throughout the area. Near the center of the pass lies Grass Island, a small bar 830 feet long and 120 feet wide. On the east (Matagorda) side of Grass Island is a body of shallow water 180 feet in width, and on the west (St. Joseph) is the main channel 140 feet wide and nine feet deep. Long, slanting wire wings were extended from each end of Grass Island to Matagorda Island thus shutting off the shallow area completely.

The trap proper was placed in the deep channel. Wings 212 feet long were placed at an angle from St. Joseph Island to Grass Island. At the end of each wing was situated a trap box and in each trap box a removable net was placed. In this manner, by using separate trap boxes, the fish passing from the gulf to the bays could be kept segregated from the fish going in the opposite direction.

Construction of the trap was begun in November, 1949, under the supervision of William L. Haskell and was completed by A. W. Anderson. The present biologist took charge January 23, 1950, and the trap was soon put into operation. At this time high winds occurred which destroyed the wire on portions of the trap. No sooner was this repaired than high winds, strong tides, and great masses of vegetation again destroyed the trap. It was decided that much stronger material should be used in the rebuilding project. Accordingly,



By lifting one section of the trap, the fish will work towards shallow water.



A spotted trout is removed from the trap. After the game fish are removed, the remainder of the fish are lifted from the water.

pilings 26 feet long and 14 inches in diameter were driven 12 feet into the ground and extra heavy wire was stretched over and fastened to these posts. All of this required several weeks but the work was completed and operations were resumed on March 16, 1950.

The trap stayed in good condition until the first week in June although the instability of the bottom necessitated constant repairs. There was a decided tendency for the soil to wash away from the posts until claypan and shell was reached. Whenever this occurred the wire was merely lowered by hammering the connecting 2x4s deeper into the ground. During all this time, however, wood borers were at work, and during the early part of June several key sectors gave way. It was found, at that time, that both untreated wood and copper painted panels were equally affected. Because of this all wood used in the restoration was treated with creosote. Smaller mesh wire was used on this occasion, and a section of heavily weighted webbing was tied to the bottom of the wire to alleviate the problem of openings below the wire due to the shifting bottom. This webbing promptly fills in any washed out portion, particularly near the posts. Operations began anew on June 21, 1950.

The trap was built with certain key objectives in mind. These are as follows:

1. The determination of the exact time of migration of various species through the pass, i.e., when do trout, redfish, and drum utilize the pass.

2. The determination of the magnitude of the migrations. How many fish of a given type pass through the bayou at these times?

3. The determination of spawning times of species utilizing the pass. Little is known of the spawning habits of certain species. For instance do all trout spawn in the bays or do some spawn in or beyond the passes?

4. The determination of the size and age of fish utilizing the pass. This is usually correlated with spawning activities and food habits.

5. The examination of the stomachs of various species utilizing the pass in order to determine the role played by food habits on migration, and the difference in food habits between bay and gulf fish of the same species.

6. The tagging of certain fish in order to ascertain their rate of growth, movements, and other phases of life history. When a trout, redfish, drum or flounder (*Paralichthys sp.*) is taken in the trap in good condition it is tagged and released on the other side of the fence. Flounders are

tagged on the gill flap (operculum) and all other species have a tag clipped to the left jaw. Other fish tagged are tarpon (on the dorsal fin), large croakers (*Micropteron undulatus*), and spot (*Leiostomus xanthurus*). The rust-proof metal tag does not harm the fish and will easily catch the eye of the fishermen. The fullest cooperation is needed from fishermen in returning information on any marked fish taken. Only in this way can successful data be accumulated.

7. A comparative study of the number of species utilizing the pass to determine the role played by a pass in the repopulation of the bays.

Seine hauls have been made over various bottoms in the pass to determine the population densities in these areas. Hydrographical and meteorological data have been kept and efforts are being made to determine the actual volume of water interchanged by this pass. Floating postcards have been released to the study of the currents of the region. Information gained from this project should be valuable in the study of the ecology of the bays. It must be remembered that all phases of this study are interrelated and should be used to supplement each other.

Very few fish were taken in the trap during its infancy, but the catch increased steadily during the follow-



ing months. For a time it was thought that the trap was not functioning properly as few fish were taken. Thorough coverage of the bayou with seines and trammel nets, however, revealed that there were very few trout and redfish in the area at that time. No method of fishing captured many of the important species but those captured were usually tagged and released. Some of the fish from the trap were tagged; others taken furnished information regarding food habits, sexual condition, spawning activities, and age. Scales were taken from all fish to be used at a later date. As the population density increased in the bayou so did the size of the catch in the traps increase.

The traps are raised from the water every day at 7 a. m. and at 6:30 p. m. thus giving a check on diurnal movement and nocturnal movement. Records are also kept of the direction and velocity of the tides and of the wind, of the general weather conditions, and of the water conditions in regard to temperature and salinity.

Conclusions may not be drawn at this early date but certain summarizations may be shown. Some of these are:

1. During the time the trap has been in operation, the greatest movement has been at night.
2. The vast majority of the movement in March, April and the first two weeks in May was from the bays to the gulf. During late May and early June this situation has been reversed.
3. Croakers, yellowtails (*Bairdiella chrysura*) and spots have passed through the bayou in very large numbers as have commercial shrimp and blue crabs. Yellowtails went toward the gulf in a spawning condition in April and returned after they had spawned in June.
4. Approximately three hundred trout, redfish, and flounder have been taken and tagged.

In the upper left photo, a monel tag is placed in the left jaw of the large trout. In the lower photo, the trout is measured.



Immediately after tagging, all trout, redfish and related species are released. These tagged fish give information on the growth and movements of the species as a whole.

5. During the early part of June large numbers of shrimp came from the bays to the gulf. At that time more trout were secured than had been taken on previous occasions.

6. Direction and velocity of the tide and wind had little or no effect on the directional movement of the fish.

7. Salinity and temperature variation seem to have some bearing on the movement.

Movements of blue crabs were also observed and much valuable material was obtained on this species.

As so often happens when an effort to solve one controversial issue is undertaken, another controversial prob-

lem rears its head. There has been much speculation and some criticism of the project on the grounds that fish will not pass the trap but will remain near the fence or will return whence they came. It has even been stated in some quarters that the trap is ruining fishing in the bays. While no concrete proof has been offered to back up this latter statement, proof can be offered to the contrary showing that the trap does not stop the movement of fish. Fish tagged near the gulf entrance to the bayou and released at that point have later been taken in the trap as they worked toward the bay areas. If fish turned back or would not enter the trap these certainly would not

have been retaken. It remains an undisputable fact that whenever fish are abundant in the bayou the catch in the trap was large; when fish were scarce the catch was small. If fish would not enter the trap the catch would always be small. Of course all fish of value were released to go their way after being checked or tagged. It is realized that the proof offered herein may not be accepted for, to quote Mr. J. G. Burr, "it is doubtful that evidence gained in . . . prolonged effort is acceptable to certain individuals who do not wish to be convinced."*

* Burr, J. G.—1950—Pass Cutting on Padre Island, Texas Game and Fish.

Current Wildlife Resto

IN 1938, the Game, Fish and Oyster Commission inaugurated steps leading to a state-wide wildlife restoration program. Since that time, through benefit of experience and additional information, the work has been broadened and intensified. This program, organized as a series of Pittman-Robertson Projects, operates through provisions of the Federal Aid in Wildlife Restoration Act.

Immediate responsibility for the planning and execution of the restoration program rests with the Commission's Division of Wildlife Restoration. Individual restoration projects are set up on the basis of recognized needs and certain established standards to assure practical results. Examples of five different types of projects will be noted in subsequent paragraphs.

In the period from 1938 to 1950, a number of restoration projects have been completed. However, there are now eighteen currently active projects in operation. Presented hereafter is a brief statement on each, covering the location, scope, nature of activities, and object involved. Additional articles by project leaders will appear in this magazine from time to time, giving more details on these projects.

Project 14-C, Wildlife Management Coordination

This constitutes an administrative unit to plan the state-wide restoration program. It also covers selection and assignment of field men, supervision of their work and the preparation and submission of reports and findings to the Game Commission. Headquarters for the project is in the Austin Office of the Game, Fish and Oyster Commission. Personnel include W. C. Glazener, Coordinator, E. G. Marsh, Jr. and W. C. Parker, Assistant Coordinators, Mrs. Martha West, Statistician, and Miss Doris Whittington, Secretary.

Project 1-R, Statewide Wildlife Survey, Game Management and Demonstration Project

H. C. Hahn of Kerrville is compil-

ing data on white-tailed deer gathered through various projects conducted from 1938 to 1950. He is organizing pertinent portions of this material for use in writing a bulletin on the status and management of white-tailed deer in Texas. When completed, the bulletin will be available to interested sportsmen and landowners.

Project 18-R, Postoak Wildlife in Relation to Land Management

Reaction of bobwhite quail to changes in land management is the principal line of investigation under this project. Intensive studies center on a block of Wise County postoak range, much of it unproductive crop land, being reverted to grass land by the U. S. Soil Conservation Service. A. S. Jackson, Alvord, is the project leader, assisted by Clyde Holt of Decatur.

Project 20-R, Relation of Wildlife to Land Management in Southeastern Texas

This project centers on cut-over longleaf pine land in Newton County. The object is to determine what quail habitat management methods are feasible for inclusion in local land use programs throughout southeastern Texas. Development of improved pastures is an important trend in the section involved. D. W. Lay of Buna, project leader, has experimented extensively with bicolor, kobe, and Korean lespedeza, multiflora rose, and other food and cover species.

Project 21-R, Relation of Bobwhite Quail to Mesquite-Grassland Type

An area in the Pandora-Union Valley section of Wilson County serves as a testing ground for quail food and cover experimental methods under this project. Most attention has been given to experimental development of properly distributed and suitable woody cover to keep quail on land where native food is ordinarily adequate. A. J. Springs, Jr. of Nixon is the project leader.

Project 29-R, Coastal Waterfowl Survey

Project activities include surveys to determine species, numbers, and distribution of waterfowl along the coast at various seasons of the year. Investigations also cover food and water supplies available to waterfowl, and the extent to which they are utilized. At the same time, personnel seek and compile information on dependable and practical methods for improving waterfowl habitat. Records of waterfowl harvest by hunters comprise an essential portion of the work. Project personnel are J. R. Singleton, Leader, with G. A. Engeling and W. S. Jennings, Assistant Leaders. Headquarters is at Rockport, Texas.

BY W. C. GLAZENER,

Project 30-R, Status of the White-winged Dove in Texas

This is a survey covering the range of white-winged doves throughout southwestern Texas. Factors under study are numbers and distribution of the birds, location of nesting concentrations, nesting success and survival of young, changes in vegetation suitable for nesting, and hunter harvest during open seasons. Information secured serves as a guide in recommending hunting regulations. P. B. Uzzell of McAllen is the project leader.

Project 31-R, Food Habits of Furbearers in Relation to Texas Game Species

Over a period of several years, fur trappers collected a considerable number of stomachs from various furbearing animals taken in good game country. Under this project, technicians analyze the stomach contents and de-

Projects Based On

ration Work in Texas

termine the extent to which the animals utilize game species as food. Dr. George A. Petrides, Leader of the Texas Cooperative Wildlife Research Unit at College Station, is supervising the laboratory work and preparing a final report on findings.

Project 38-R, The Relation of Surface Water to the Distribution and Abundance of Scaled Quail

Through an investigation undertaken in El Paso County, Tom D. Moore, project leader, is attempting to ascertain how scaled quail are influenced by readily available surface water. Should water distribution prove effective in increasing and holding scaled quail on the areas under study,

Director. Wildlife Restoration

a water development program will be initiated to encourage better quail populations there.

Project 42-R, Panhandle Predator Control Survey

Both State and Federal agencies have conducted predator control programs in the Texas Panhandle. The object of this project is to determine the effect of such control work on other wildlife species, antelope in particular. Coyotes are the principal predators involved. The work includes systematic population checks on both predators and game, prior to and following the control work. Project leader is P. V. Jones, Jr. of Amarillo.

Project 44-R, Survey of Wild Turkey Transplanting in Texas

Through the past ten years, many transplanted wild turkeys failed to establish themselves on selected areas.

In some cases, good flocks developed only to decline after three or four years. E. A. Walker of Austin, leader of this project, is investigating representative turkey transplants over Texas. In the process, he will begin evaluating the factors on the restocked areas to determine reasons for success or failure of each transplant. Along with this work, he also inspects new areas proposed for stocking, and recommends action on stocking requests.

Project 45-R, Panhandle Game Management Survey

A measure enacted in the recent Special Session of the Texas Legislature authorized the Game, Fish and Oyster Commission to regulate hunting and fishing in twenty-eight counties of the Texas Panhandle. The measure also instructed the Commission to conduct surveys to determine the status of wildlife species in the region. This project is designed to inventory all game species in the region, and to determine range conditions of the various species. Information on these points, together with data on the hunter harvest and weather conditions, will serve as a basis for setting up hunting seasons and bag limits from year to year. A. S. Jackson, Project Leader, and P. V. Jones, Jr., Assistant Leader, will work in close cooperation with J. H. Maggard, Game Supervisor, and wardens under his supervision.

Project 24-D, Lower Plains River Basin Wildlife Development

Through predator control, supplemental feeding at critical periods and some habitat manipulation, native wild turkeys along the Brazos Clear Fork have been increased. Surplus turkeys are trapped and transplanted on promising ranges throughout north and north-central Texas. The work is supervised by A. S. Jackson, with assistance of Talmage Palmer of Albany. The project area lies in Shackelford and Throckmorton Counties.

Project 27-D, Eastern Wildlife Development

This project involves a series of

deer-turkey restoration areas in Polk, Tyler, Sabine, and Hopkins Counties. One of the areas includes a portion of the Sabine National Forest in Sabine County. Fire lane construction, controlled burning, fallow strip plowing, spot clearing, food planting, and supplemental feeding are conducted to hold game on protected restocked areas and to stimulate their increase. Project Leader J. M. Carlisle and Assistant Leader A. L. Steele, Jr. work out of Lufkin. They are assisted by T. S. Cole of Woodville, J. M. Kuykendall, of Livingston, J. H. Johnson of Hemp Hill, and K. O. Shoulders of Sulphur Bluff.

Project 28-D, Game Trapping and Transplanting

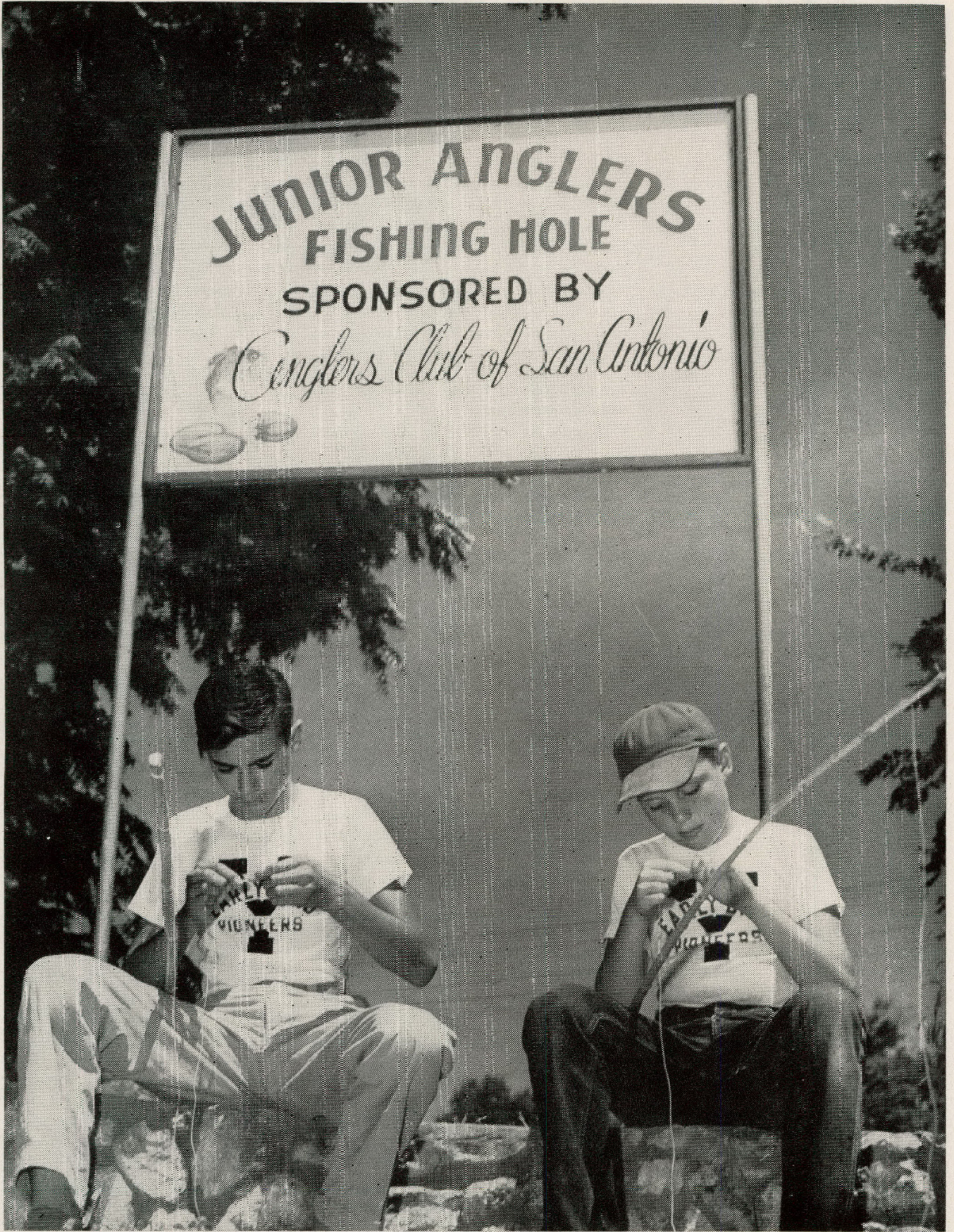
Through the development of efficient methods, big scale trapping and transplanting of surplus native big game has become common. Under Project 28-D, considerable numbers of white-tailed deer, wild turkey, and raccoon, as well as muskrats and beaver, are handled each year. Selected areas of suitable range have been restocked in nearly every section of Texas. Since 1940, most of the deer, turkey, and raccoon trapping has been done on the Aransas National Wildlife Refuge, Austwell, Texas. In the season just past, deer and turkey were also trapped from the King Ranch in Kenedy County. G. E. Colbath is the project leader, and Emmitt Smith is the assistant leader. Matt Whisenhunt conducts population studies to determine the effects of trapping on overall populations.

Project 41-D, Western Big Game Development

O. F. Etheredge of Alpine, leader of this project, supervises trapping and transplanting of antelope and mule deer in the Trans-Pecos region of Texas. He also conducts an aerial census of Trans-Pecos antelope each year. Controlled antelope hunts are scheduled by the Game Commission on the basis of census data. Tom D. Moore works with Etheredge through the fall and winter months.

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Recognized Needs



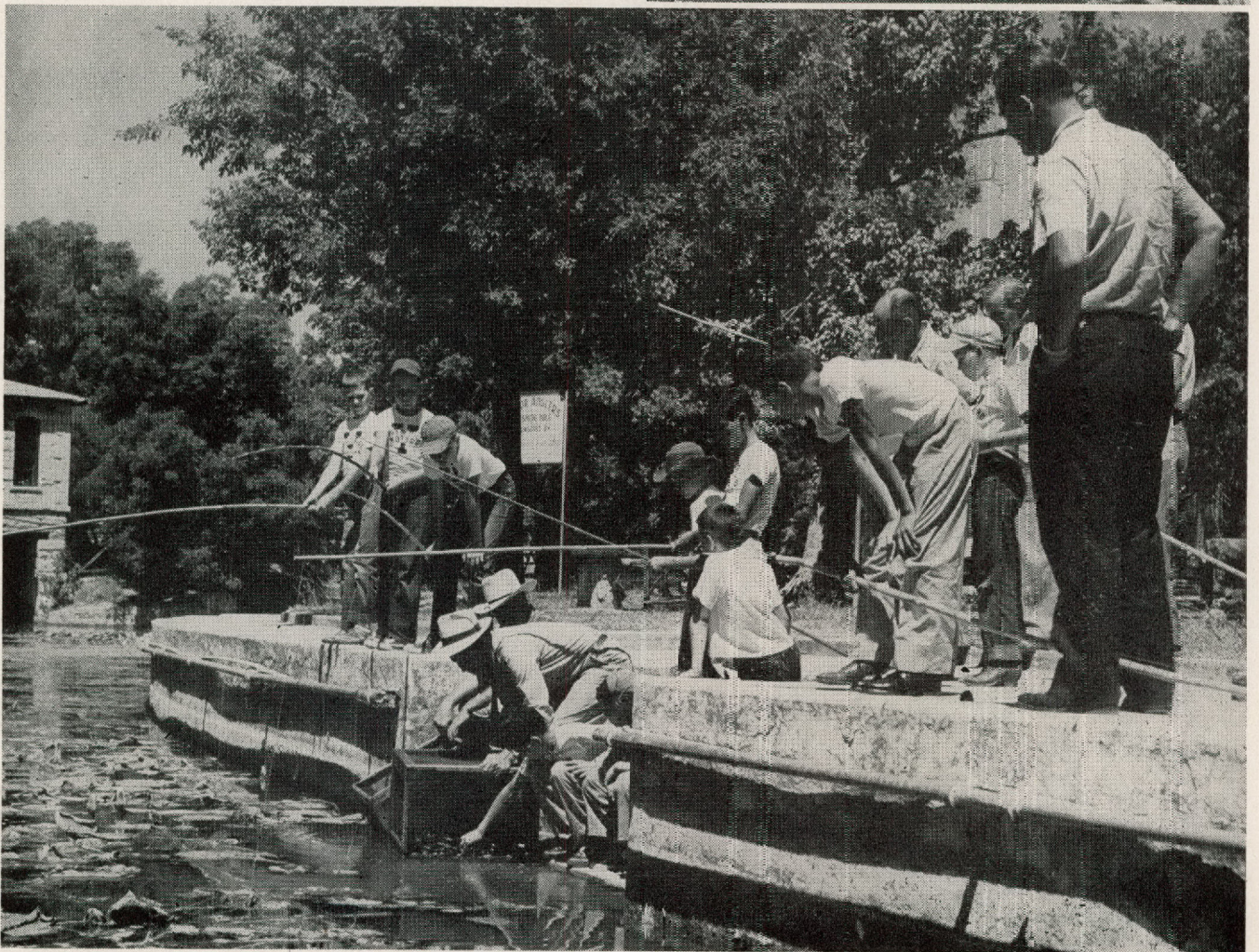
Roger Rodriguez and Jack Fowell find that the old fishing hole provides a wholesome vacation sport for them.

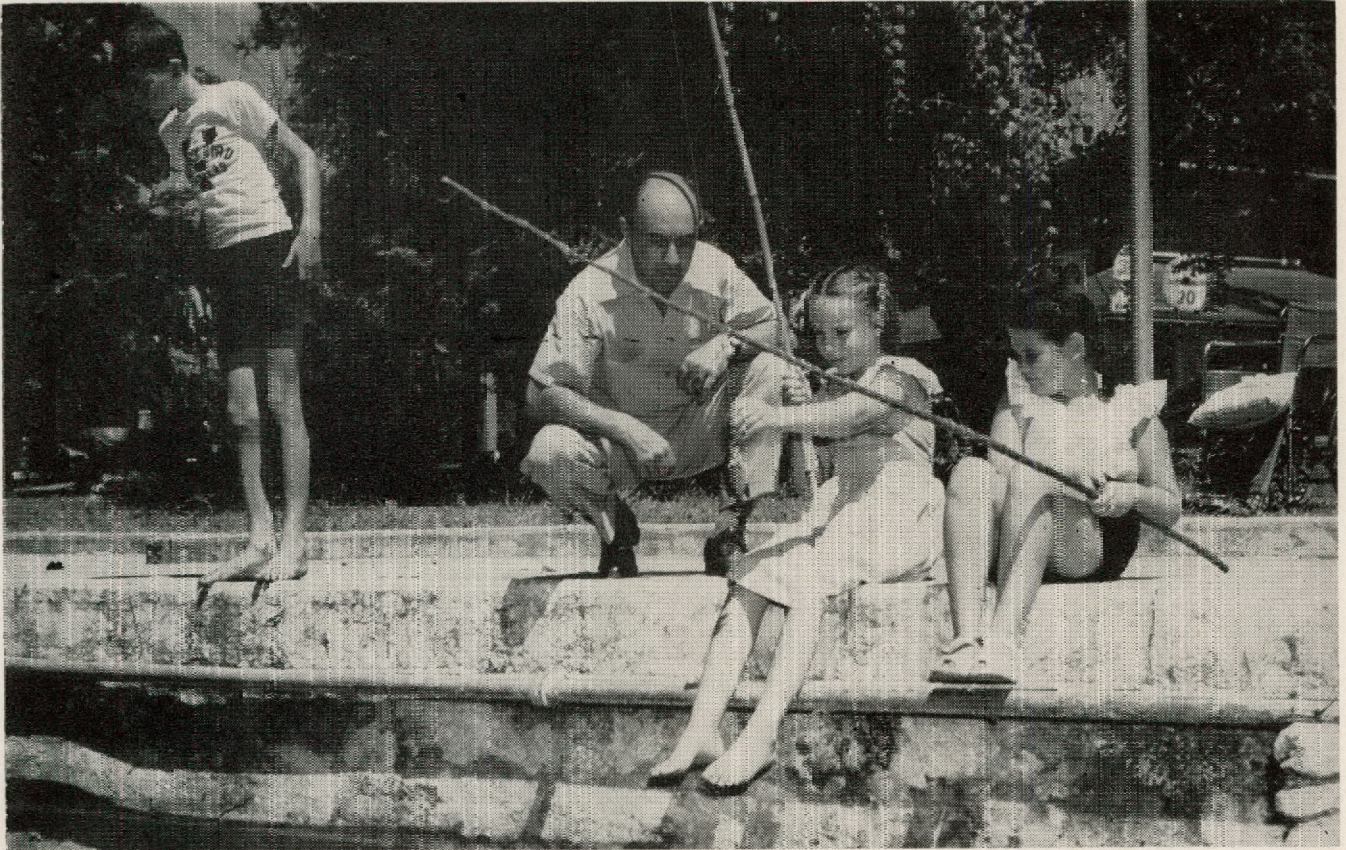
THE Game, Fish and Oyster Commission recently cooperated with the Anglers' Club of San Antonio by providing fish for the Junior Anglers' Fishing Hole.

The idea for the junior club originated in 1946 with Dr. Frederick Weston, who is a former president of the Texas Wildlife Federation. While fishing one day, he noticed a small boy standing a little distance away without any fish on his stringer. The expression on the boy's face suddenly made Dr. Weston realize that youngsters need a place to fish where they don't have to compete with more experienced anglers. From that moment on, he began work on the idea, and as a result, San Antonio today has two Junior Anglers' Fishing Holes with more in the planning.

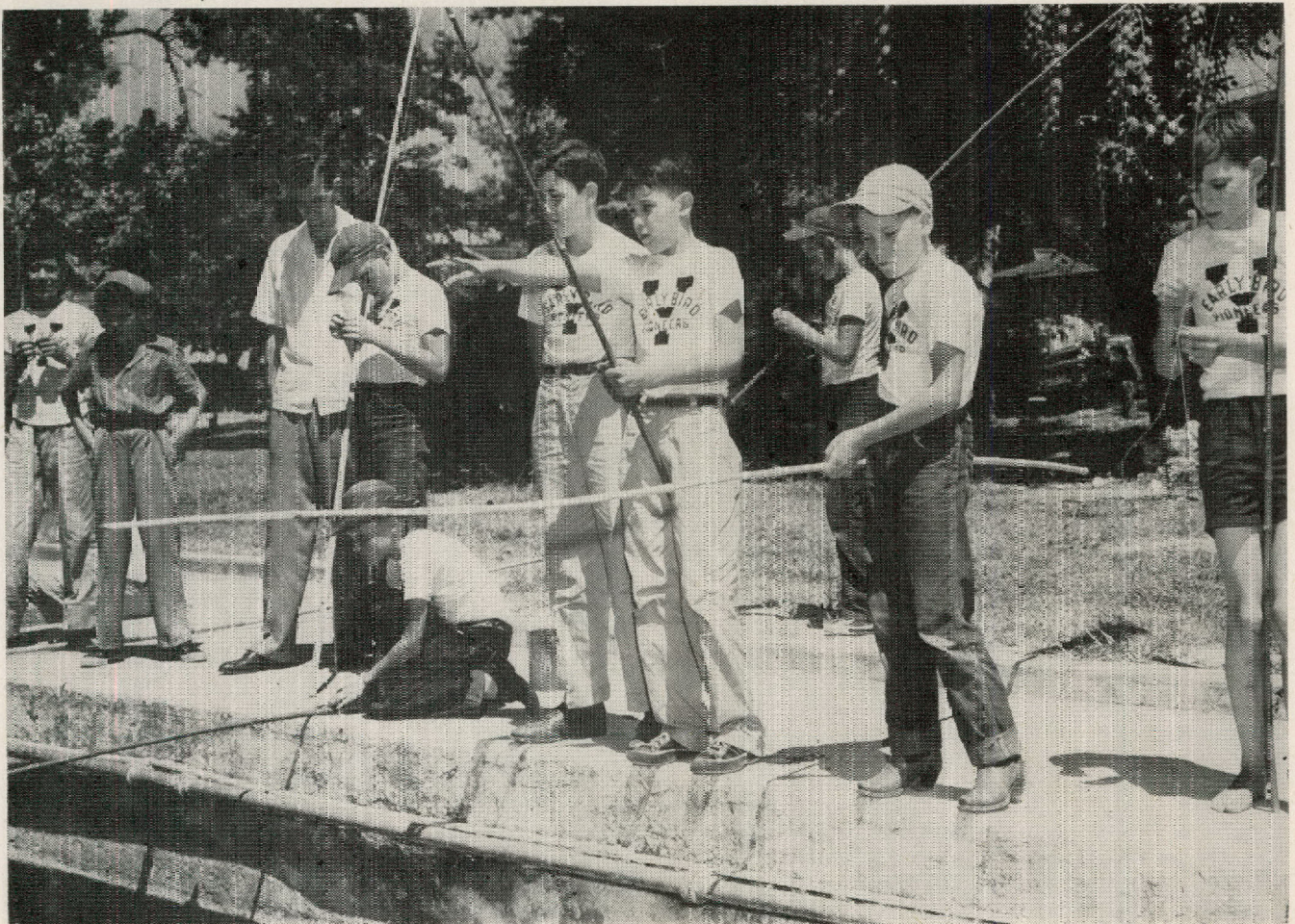
City officials, and interested groups of sportsmen in addition to the Game Department cooperated in the project; their purpose was to teach the youngsters the principles of sportsmanship and an appreciation of the outdoors. And, too, they figured that a boy absorbed in some wholesome sport wouldn't have time to get into trouble.

The success of the fishing hole can be evidenced by the accompanying photos. To the right, Harmon Henderson releases the fish he brought from the San Angelo Hatchery. Below, Henderson is being assisted by Grady Walker of the Ingram Hatchery, while junior anglers, poles in hand, eagerly await that first nibble. Jim Moses, foreground, is a member of the San Antonio Anglers' Club.





Left to right: in the photo above are Jackie North, Dr. Fred Weston, his daughter Jucy, and her friend, Sue Riley. Below, Lane O. Barnett, a leader of the club, watches to see that the young angler properly baits his hook.



Fisheries Biology — What Is It?

By J. L. BAUGHMAN
Chief Marine Biologist

A YEAR ago, in Miami, I listened to men from forty countries discuss fisheries, in forty different accents. For five days, an average of 10 speakers per day discussed everything from fisheries education to crab pots, from fisheries economics to tuna. All of these men were biologists, all of them engaged in fisheries work, and yet not one talk was on a similar subject.

Listening to these authorities, I came to the conclusion that fisheries biology was many things. Probably, if we want to define it, we would say that it included all sorts of systematic knowledge regarding fishes. Certainly the field includes many kinds of knowledge. However, in the stricter sense, fisheries biology means that body of organized knowledge regarding the natural supply of fishes commercially exploited or forming the basis of a sports fishery, the variations in supply and their causes, and the ways and means of managing the fishery resources.

Fisheries biologists are men who make use of this knowledge which, as a general rule, is found in books of reference, tabulated and available, just as a lawyer's knowledge comes from his law library, where various cases are listed as precedents. Just as the lawyer must find in his reference books laws or knowledge which he applies to the case in hand, so do the fisheries biologists obtain from their reference books methods and techniques of investigation by which they may be able, with native ingenuity and common sense, to fit to their problems, and to use to work out a correct answer.

There is this difference. There are law schools but there are none in fisheries biology.

It is true that there are schools in ichthyology (or the science of fishes), in taxonomy (or the naming of fishes), in oceanography, in biology, and in a dozen other allied subjects which will aid the fisheries biologist,

but there is no school anywhere, that actually teaches fisheries biology, as defined here, as a course. Consequently most fisheries biologists, and particularly marine ones, are the result of a little training in basic biology and methods, and of a great deal of actual work in the field, under men who know their work, and the best modes of approaching a problem, whether it be the life history of a fish, or the best method of catching it.

Human biology, or that of birds, known as ornithology, or of animals, known as mammalogy, is comparatively simple compared to any fisheries biology, and very much so compared to that of marine fishes. A little reflection will show why this is so. All animals, except the fishes, may be observed visually. We can see what they eat and how they act, and even, in the case of the fresh water fishes, because of the comparatively small areas which they inhabit, observe them closely enough to arrive at a sensible conclusion as to their needs.

In the case of the sea fishes, however, practical difficulties make it impossible for the fisheries biologist to determine the characteristics of a species or a population of fishes by observation, and the method of sampling is resorted to. Samples of a fish stock are selected over a period of time, from different areas, in order to make the samples truly representative and these samples are then studied in detail. The characteristics shown by this detailed study are then taken as being representative of all fishes of the same kind, *in the same area and at the same time of year, provided that weather, temperature, salinities, and all the other things that enter into the life of a fish or shellfish are the same.*

Fisheries biology and agricultural science have much in common. However, the aims of both of them vary widely from their parents, zoology and botany, which deal with fundamental biological principles. Both fisheries biology and agriculture are

applied sciences, with their research activities primarily pointed towards the most practical objectives. Fisheries biology, therefore, is concerned with useful aquatic or marine animals and the fisheries which they support, and every investigation dealing with other than economic forms falls into some other field of hydrobiology unless it possesses a real relationship to the animals (fish and shellfish) that supply man's economic needs.

The major problems of the fisheries biologists are two, namely, the understanding of how a fish population untouched by man maintains a certain level and the understanding of how an artificial level may be maintained after man and his fishing gear have begun to have an effect. This latter problem entails a knowledge of the life history of the fish or shellfish, the detection of over fishing, the tracing or foretelling of fluctuations in abundance, and the instituting of a system of management so that man may derive a maximum benefit without destroying the resource.

One of the most outstanding examples of good fisheries biology is the work of the Pacific Halibut Commission.

When the halibut fishery first started, it was carried on by comparatively small boats, close to shore, off the coasts of the Pacific states and British Columbia. Each year the boats had to travel further from home to produce the same catch. Boats became larger and stayed out longer as the nearer fishing grounds were exhausted, until at last they were fishing the waters off Alaska, and the halibut catch had dropped off to almost nothing.

Biological studies by the commission determined where and how halibut lived, the ways in which they were caught and the effect of this fishing on the fish supply. These studies showed that different populations of halibut inhabit different

● Continued on Page 26

The Newton County Quail Project

By DANIEL W. LAY
Wildlife Biologist

More study has been devoted to the bobwhite quail in Texas and the southeast than to any other game species, yet it remains one of the toughest problems facing game managers. Species primarily limited by hunting pressure are much easier to manage. Restocking and protection in suitable range is about all that is necessary for them. Quail, on the other hand, are intricate mechanisms sensitive to habitat changes, intolerant of crowding (to densities greater than about one per acre), and ready to move momentarily to new range for obscure reasons.

Hunting pressure occasionally affects quail numbers locally; but a species with about 80 percent of the winter population consisting of birds of the year can stand a lot of hunting or predation. Without any hunting, the annual turnover continues to be about 80%. When intensive study of quail restocking in Texas was undertaken in 1939, very little benefit was found and the Department abandoned the program. Habitat appeared to be far more important than restocking because there existed a wide distribution of breeding stock capable of increasing rapidly under favorable conditions.

Several experimental projects were set up to test food patches and other habitat improvements for quail. Food patches with peas, benne, millet and other annuals proved too expensive to cultivate and replant every year for the limited results. The war interrupted this program. Since 1945, the Texas quail program has consisted of three study areas in Wise, Wilson and Newton counties. These have been operated in three different agricultural areas in an attempt to learn how various land use practices affect quail and how they might be adapted to increase populations.

Land usage is determined by the

capabilities of the soil and by the landowner's choice of farming programs. The type of farming being done has more influence on the quail crop than any other one factor. Naturally, landowners can't operate their agricultural program primarily for quail; yet many do like to have quail and are interested in favoring them where it doesn't cost much, if anything. Quail hunting rights probably cannot constitute a source of farmer income comparable to what has developed on deer in the Texas ranch country. Each active quail hunter requires too much acreage for a full season of hunting. What the hunter could pay would never be significant income from the farmer's acreage.

Since land use is the major factor in quail management, these three projects were designed to observe quail reactions to various types of land use and to search for minor changes that would increase the birds. As was expected, results have shown that the landowner who wants game can plan his program in such a manner as to have it without reducing his cash crops. This appears to be the only practicable way to improve quail conditions over the State as a whole.

For those who want quail at any cost, there are intensive ways of managing them. But intensive quail management, producing quail as the primary crop, will never be applied to enough acreage to provide any significant amount of hunting. The real opportunity lies in a coordinated land-use program which is practicable on any and all acreage, thus producing quail as a secondary crop.

The Newton County Project* 5 miles east of Buna, is located in the cutover longleaf pine region. The study began in 1946, just as the major landowners began to fence and improve the cutover land. The principal

land use opportunities are timber, beef, and dairy production. Pasture improvement and hay production are the farming operations which primarily affect quail. Kobe lespedeza has been found an ideal quail food that fits into the pasture program perfectly. An example of the type of land use adjustments that can be made for quail, turned up by this project, is a demonstration of grazed firelanes. It has been found that fertilizing firelanes and seeding them to grasses and lespedeza produces enough grazing pressure to keep down combustible litter, prevent erosion on the strips, and in addition yields enough lespedeza seed for quail in spite of the heavy grazing.

Another adjustment of land use that has proved useful for quail is deferment of hay mowing until July 1, in order to save nests. Also, deferment of grazing in hayfields until after seed have set about October 1, makes it unnecessary to replant the next year, provides wide distribution of the seed that cows ingest, and provides excellent quail food conditions during the winter.

The distribution pattern of pasture developments has much to do with quail populations. If a landowner plans to develop 200 acres of improved pasture, planting it all in a solid block would not benefit quail as much as planting it in several smaller blocks because quail only use the edges adjacent to cover. From the crop standpoint it has been demonstrated that developing pastures in scattered spots and strips enables the use of the best soils for improvement and encourages the cattle to scatter over the whole pasture unit and make maximum use of the undeveloped native range.

There are many other timber and farm land use adjustments which benefit quail and increase income.

These will be outlined more fully when reports on the three projects are published.

Another phase of the work on the Newton Project has been the study of quail numbers and movements. Censuses have revealed marked increases in numbers of quail since 1946. Trapping and banding studies were begun this year in an effort to learn more about covey composition and why some coveys move about more than others. Having the history of a quail covey range for five years permits some valuable deductions about the effects of changes in the range. During this study there have been excellent demonstrations of the serious effects of excessive grazing, uncontrolled fires, and extremes of weather. There occurred the wettest year on record and the second driest, the effects on quail seemed to be only as the weather affected the food supply.

A number of plants are being tested to determine their value for quail. Multiflora rose, the species used for fencing in some States, promises to be ideal for increasing quail cover on farms with clean fence rows and at the same time gives the farmer a cheap living fence. At least two more years of testing will be necessary to fully evaluate this plant.

Bicolor lespedeza, or shrub lespedeza, has been tested for five years with encouraging results. Quail make good use of it, three different coveys having been trapped and banded at one bicolor strip last winter. Unfortunately, bicolor is not a perfect answer for quail food. It requires fencing against livestock and it must be cultivated the first year after the plants are set. But for those who can give it this attention, it appears to be the best quail food that can be planted. One of its advantages is that it is a perennial and does not require replanting each year. Also, its deep roots make it very drought resistant once established.

After testing bicolor for three years, it was distributed on a limited basis to the public at no cost the next two winters to further test it. Some 60,000 plants were distributed in 1949, and over 300,000 were shipped in 1950. Results based on reports from some of the recipients are encouraging. A thorough check of these plantings is

planned for late summer and after that, if results continue to be good, plans call for considerable expansion of this phase of the Texas quail program. In spite of some bad luck with excessive rains and deer damage on the Newton Project, it looks now (July 20) like perhaps half a million plants will be grown this year for distribution next winter. Those who fence and plant an eighth of an acre of bicolor in some field edge or wasted corner may expect an extra covey of quail.

The Newton County project in southeast Texas is serving as a base of operations in quail management for East Texas as a whole. Over 2000 quail wings were collected from the

region last winter for an analysis of the sex and age ratios in various counties.

The law enforcement division of the Department attempts to keep the harvest of quail within the law and fair for everyone, but even closing the season doesn't increase quail. We know that restocking hasn't paid off either in Texas or in other states. Habitat improvement is the only proven approach, and that must be done on private land by the landowner and his quail hunting friends. Quail come only from the land. To guide East Texas landowners in producing quail is the general objective of this project.

* Federal Aid Project 20-R.

A hedge of multiflora rose in Newton County, Texas.



A one-year-old bicolor hedge, also in Newton County. Photographs by D. W. Lay.



Fishes of Texas

THE GOLDEYE

By ED W. BONN

Aquatic Biologist

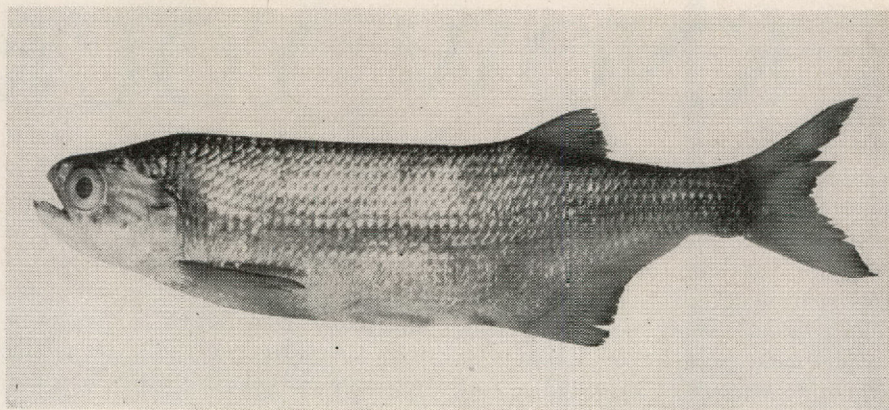


Photo courtesy Yell Studio, Denison, Texas.

FEW TEXANS have ever heard of a goldeye, or much less seen one. Yet this fish is very common in a favorite Texas fishing spot, Lake Texoma. The goldeye, *Amphiodon alosoides* (Rafinesque), or toothed herring as it is sometimes called, ranges from the Ohio Valley west to Wyoming and Montana and from Texas north to the Saskatchewan River in Canada. This species occurred naturally in the Red River and has thrived in Lake Texoma since the construction of the Denison Dam. In recent years it has also become common in streams near Wichita Falls.

The goldeye, together with a similar fish, the mooneye, make up the family *Hiodontidae*. It is closely related to the shad family and its specific name *alosoides* means shad-like.

The color of the goldeye is olive above with brilliant silver sides and a large golden yellow eye. It has a medium-sized mouth with slender, sharp teeth on the jaws and tongue. They commonly attain a weight of over two pounds, but in Texoma they grow to approximately 15 inches in length and seldom weigh more than one pound. The goldeye is one of the few fish whose external characteristics enable the most inexperienced angler to distinguish between the sexes. The anal fin of the male fish has a decided lobe; while the female's anal fin is nearly straight-edged, as can be seen in the sketch. The above photograph is that of a female goldeye.

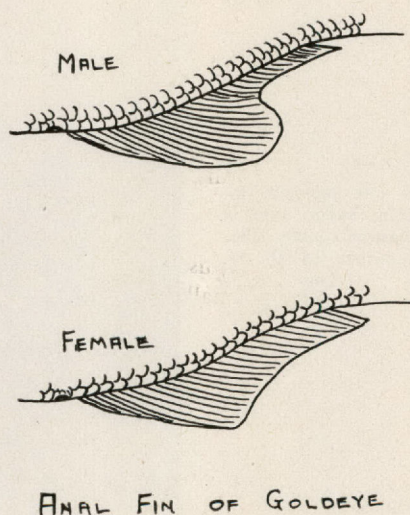
The adults feed mostly on small fish and surface insects. Stomach

analyses show that in Lake Texoma they feed almost entirely on insects such as ants, beetles, grasshoppers and leafhoppers that fall into the water. Stomachs from goldeye collected in January when the air temperature was 35 degrees were also found to contain insect remains. One fish, also collected in January, had eaten a small frog. No trace of any underwater insects have been found in the stomachs analyzed. These fish feed during the twilight and dark hours in the quiet bays and sloughs of the lake.

Little definite information is known about the spawning habits of the goldeye. William M. Sprules of the Central Fisheries Experiment Station in Winnipeg reports that the goldeye

spawn in the muskrat marshes along the Saskatchewan River. The writer has taken many goldeye along with gizzard shad and white bass at the head of Lake Texoma in mid-March. Apparently they were also waiting for a sufficient rise to ascend the Red River in an effort to complete their spawning. An interesting note is that the females taken were ripe and heavy with eggs, while none of the males collected and observed were sexually developed for spawning. Very few small goldeye are found in the lake. As far as is known only four goldeye fingerlings have been found in Texoma. One was recently collected by the writer at the head of the lake and the remainder were taken by members of the University of Oklahoma Biological Station. Possibly the undeveloped condition of the males may lead to a decline in population of this now abundant species in Lake Texoma.

In Canada the goldeye when smoked is considered a table delicacy and brings a good price. In recent years Manitoba alone has produced a commercial catch of over one million pounds annually. Here in the Southwest, it is not considered an edible fish and only a few fishermen attempt to catch them for sport. However, the fact that it is a surface feeder and fights gamely when hooked makes it attractive to the sportsman with light tackle. An angler using a dry fly or small bass bug could certainly spend a few very enjoyable hours at his favorite pastime.



KNOW YOUR GUN

By H. C. LAWSON

NOW that the opening of the dove season is almost upon us again, let's put the fishing tackle away for a while and look at that shotgun in the corner and at that box or so of shells on the shelf which have been gathering dust for these past several months.

How is that gun bored? Is it full choke, modified, or improved cylinder? And what number is printed on the box of shells. Right there are two of the most important factors which enter into our ability to use our guns cleanly and efficiently on our small, light feathered game. The bore, or gauge, of the gun is not of great moment, within reasonable limits; type of action, whether automatic, pump, double, or single barrel is immaterial.

Now, here we go 'way out on the limb, but please don't condemn us too heartily until we have presented our side of the argument. About 95 percent of the users of the full choked guns are definitely overgunned. In other words we simply do not have the requisite skill to take advantage of the close pattern which this choke gives us. It is the tool of the expert shotgunner, a specialist's arm, and as such is more or less out of place in the casual dove hunter's armament. It is perfectly true that the full choked gun is entirely capable of making consistent clean kills at 50 yards and possibly a bit more, but how many of us can do our part under these conditions? And why should we penalize ourselves with the typical narrow, dense pattern of these chokes at the shorter ranges where we take 90 percent of our game?

For a brief consideration of the modified choke shotgun, we should say that it is a very satisfactory all around piece, a sort of betwixt and between proposition which does most all things well. It widens the killing pattern considerably and still retains enough density of shot distribution to be effective at quite long range. It can be used for most any purpose for

which a smooth bore gun is intended, and the user need never feel too greatly handicapped in any company. The modified pattern is almost invariably a smooth, uniform one, and in it we have a compromise boring which for general use is a great improvement over the tight full choke.

We shall now steal a page from the book of the quail hunter of the deep South and delve into a matter which those sportsmen have known for a long, long time and which we have only recently begun to consider in these parts. This is nothing more nor less than the cylinder bore gun barrel, the same type of boring that was used on all smooth bores until a mid-western market gunner some few years after the Civil War, in an effort to improve his equipment to the point where he could kill 250 ducks a day instead of a mere 200, hit upon the idea of constricting his gun muzzle, thereby giving birth to the basic principle of the choked bore as we now know it today. This statement about the bores being the same is not strictly true, since most gun-makers today put about five one thousandths of an inch constriction in the muzzle of their cylinder bored barrel and call it an improved cylinder bore. And improved it is, too, because this slight amount of choke serves to round up the pattern at the edges, and gives the barrel the ability to place about 40 percent of the shot charge in a circle 30 inches in diameter at the standard testing range of 40 yards. This type of boring, coupled with the use of small, and we mean small, shot will prove to be an honest-to-goodness eye-opener to those gunners who have not used the combination before on small, thin-feathered targets.

As a matter of fact, a gun with an improved cylinder bore and loaded with number 9 shot will place as many pellets in a 30 inch circle at the standard testing range of 40 yards as will a full choked tube loaded with number 7½s. Too, it will put the

smaller shot in a 52 inch circle at this distance with the same density as the full choke and 7½s will in the 30 inch circle.

This may seem a pretty radical departure from old accepted usage, and we can hear from here the not so muted thunder as the brethren rise from their haunches in bitter and maybe vituperative denial, but, keep an open mind, fellows, and give an open bore and some skeet loads an honest trial on mourning doves or whitewings at average distances and watch that game bag fill with far fewer shells expended and fewer crippled birds lost to the varmints. An open bore and these same skeet loads can do wonderful things to a hunter's ego, too, for a man who kills one bird in three with a full choke will, up to 35 yards at least, drop two of the same three with the improved cylinder gun.

Our use of such equipment as outlined can add up to several very important advantages, not the least of which is the conservation angle. If we knew the exact number of birds which are wounded and lost to the hunter each year during the open season the figure would fairly stagger the imagination. We don't mean, of course, that the simple use of the improved cylinder gun and number 9 shot would prove a panacea for all the conditions which cause this annual loss, but it stands to reason that if we do our killing cleanly at reasonable ranges with equipment fitted to the job we shall at least have contributed some small part to the efforts which our State is making to maintain an adequate game supply.

The points which we have tried to bring out in this little effort may be, and probably are, open to considerable argument, but it is our considered opinion based upon some experience and quite a good many years of observation that they are essentially sound. Give the open bore and the small shot a whirl some time, and good hunting to you!

WHAT FER YOU HUNTIN'?

By

LEIGHTON B. DAWSON

LAST YEAR more than 12,750,000 citizens of the United States took out hunting licenses. That is an army comparable to the one that our country had in the field during the last war. Every one of these people is out to kill some form of game. Obviously there won't be enough game to go around, unless the hunters themselves help solve their problem.

It would be impossible to examine the motives of every one of these 12,750,000 hunters. Some of them perhaps go hunting to get away from it all. Some of them go to "escape" business worries or domestic trouble. Some of them go just because they plain love to hunt. But regardless of what motivates them, the effect is very much the same, insofar as the game is concerned. A deer is just as dead whether it gets shot by a hunter who is trying to get away from it all, or by somebody else.

Every now and then you hear somebody say, "I like to go hunting whether I get anything or not." That's all very well and good, and the person who says that may be perfectly sincere. At the same time, if anything crosses that person's path, brother, he's going to shoot it if he can. The result is that regardless of what we might have in mind when we go hunting, the game supply takes a terrific wallop each year.

The attitude of the average hunter

is pretty well summarized by the title to an article that appeared in one of our national magazines not long ago. This article was written by a very noted author, and was entitled, "I Just Like to Kill Things." That is stating it rather baldly, but reduced to the very simplest terms, that's about the way it is, whether we admit it or not.

However, this very fact puts a terrific pressure on our wildlife. Here is a vast army of hunters, every one of whom is out to get his share of the game. It's a wonder there is any game left at all.

The fact that there is any game left is certainly a tribute to our game departments, our wildlife services and other related agencies. The word is CONSERVATION. That is the main thing that stands between us and total extermination of our game.

But the pressure is not only on our game, it's on our game departments, too. Not long ago one of the officials in the game department of another state, was talking about the antics of some of our so-called sportsmen, and in a moment of temporary disgust, said something like this:

"What we ought to do is divide our hunters into two groups. Line one group up on the eastern border of the state and the other group on the western border. Then let them both advance, simultaneously, shooting everything before them as they go, until they both reach the middle, and have annihilated everything. That would save them a lot of time and trouble, because that is what it appears they want to do anyway."

He might have added that the two groups might just as well finish the whole thing off by shooting it out with each other.

That is almost what they did up in Colorado two years ago. The game commission of Colorado had managed to build up a very nice surplus in their deer herds, through carefully managed conservation projects. They decided to open up what is known as the Uncompahgre plateau for a special season of two weeks before the regular season opened, and thereby "harvest a surplus of deer." Licenses were issued which read two animals regardless of age, sex or appetite.

The result was that seventeen hunt-

ers were killed and thirteen seriously wounded, along with the 72,000 deer that were slaughtered. Not to mention an unknown number of deer that were left to the blowflies and coyotes.

It is clearly evident that regardless of how fine the work of our game departments may be, or how successful they are in building up a plentiful supply of game, wildlife simply cannot stand against the ever increasing onslaught of our modern army of gunmen.

Even the game in the "good old days" could not stand up against the unrestricted use of the gun. Witness the decimation of the buffalo herds, and the antelope herds, the latter being slowly built up now through conservation methods.

But we are not living in the "good old days." We are living in A. D. 1950. A time when the borders of game-land have been so pushed back that the areas where game can thrive is now very limited. We have scarcely any true wilderness left in this country. Most anywhere you go, you will find that "Kilroy was there" already, in numbers.

The result is that our game departments are hard put to carry out their plans of conservation and restoration. It must be remembered that any given area in a given time will support only so much wildlife.

When we realize how slow and tedious is the work of building up our reserve of wildlife, we would think a lot longer about tearing it down. The guns and the gunners are on the increase but the game is not and can never increase fast enough to supply the growing army of hunters. For instance, Ithaca, one of our famous makers of shotguns, is currently turning out 1,200 guns per week. If you don't think that's a lot of guns, just lay them all end to end and see.

The other arms manufacturers are mass producing them too. But our game is not being mass produced. Not at the rate of hundreds and thousands a week anyway.

Our game departments and wildlife agencies are doing their part. But there's not enough money or game range in this country to produce the free and unrestricted shooting they had back in the 80's. It's just up to us hunters, that's all.

Sure, we like to kill things. To pit our wits against something wild and wily. Something that is animated and moves in ways that are unpredictable. That's what makes hunting one of the grandest sports in the world. But unless we can take the pressure off our game and our game departments, we are going to all meet some day in the center of our state, and find out there's not any game left.

One way to take the pressure off our game supply is to hunt something besides game that is strictly edible. We have had it ingrained within us from time immemorial that a hunt is no good unless we bring back something to eat.

That was true perhaps in the early days when hunting was an absolute necessity in order to produce food. But nowadays hunting is downright uneconomical, if we look at it from the standpoint of getting food. And yet we continue to try to justify our hunting on the basis of what we bring home to eat. At the rate of \$5.00 to \$10.00 per pound that ought not to be the test any longer.

Have you ever tried to stalk a blue darter hawk? You will find him a match for the best woodsman.

What about fox and wolf hunting? Or 'coon hunting? You'll get a thrill there you never had before. Sitting around a camp fire on a cool, crisp autumn night, listening to old "Ring" pour it on out there in the dark.

And don't overlook the small game either. Some of our hunting is getting so high-powered and highly publicized, that we are inclined to lose sight of the good old stand-bys like rabbits and squirrels, which have always provided good hunting. A rabbit or a squirrel is sometimes a lot harder to hit than a deer. And if it's sport you want, just try going after them with a rifle—where there's plenty of room and no danger.

Oh yes, there's still a lot of game left in this country. Not enough, however, if we concentrate on just a few of the species and always try to bring back a full bag of game. A good sportsman recognizes that the law says you may kill up to so many game birds or animals; it does not require you to kill a full limit. Nor does the true sportsman have to kill a limit of game every time he goes hunting.

There's a Lot of Difference In Gun Powders

HANDLOADERS of sporting ammunition, who experiment with various powder charges in the reloading of factory ammunition, take some pretty long chances when they have no positive means of powder identification.

Ammunition loading is recognized as being a somewhat hazardous business. As such, extreme precautions are taken to protect not only the operating personnel but also the users of the product.

One of the focal points of precautionary measures is the proper identification and use of the many different types of powder used in loading modern ammunition. In order to obtain the performance which is required of modern ammunition, it is necessary for the ammunition and powder maker to match the powders to the load, with the result that there are many different kinds of smokeless powder, far more than the average shooter has any idea of. Most of these problems are concerned with obtaining powder with the proper ballistic characteristics, in particular, burning-speed.

There are a number of ways in which the powder manufacturer can modify a powder in order to control this burning-speed characteristic. One of these is by the size grain in which the powder is made. This characteristic, being a physical one, is the most obvious and the shooter who is at all familiar with powders can see at a glance the difference between,

WHIP-POOR-WILL

Antrostomus Vociferus Vociferus
(Wilson)

Other names: Night Bird, Night Jar, Night Hawk.

Description: Length 9-10 inches. About the size of the robin, but with wider wingspread. General color of upper parts, brownish gray, streaked and flecked with dusky black. Shoulders have large irregular blotches of black. Three outer pairs of tail feathers white on the ends. Head flat with short bill. The male has an irregular white band across heart.

Range: Eastern United States and Southern Canada, ranging westward to Great Plains. Winters in Gulf States and southward to Mexico and Central America.

for example, 4198 and 4350, from the standpoint of grain size. The other methods, however, are less obvious, and it is impossible in most instances to tell the difference between powders of the same size except by carefully controlled ballistic tests.

These less obvious ways concern changes in the chemical composition of the base grain, as for example the relative percentage of nitrocellulose and nitroglycerine, or by changes in the so-called "coating" of a powder. None of these changes, if made to powder having the same granulation, can possibly be detected except by chemical and performance tests. Consequently, it is extremely risky for the handloader to pull down a cartridge, look at the powder, and then, based on his necessarily very limited acquaintance with smokeless powders, to classify the powder which is in the cartridge under examination.

A particular example of the danger involved in jumping to conclusions concerning powder identification is the recently announced 222 Remington. This cartridge is loaded with a powder which, to the casual observer, appears to be 2400. However, this is very definitely not the case. The 2400 powder, at the charge used in the commercial loading of this cartridge, would develop dangerously high pressures, and in order to obtain the performance desired in this cartridge, it was necessary for an entirely new powder to be developed. This cartridge was not intended for use with 2400 powder and under no circumstances should 2400 be used in it.

Other examples could be quoted. However, the above should be sufficient to show conclusively that powder identification is not a game for the amateur. Under no circumstances should a handloader "guess" at the identity of a powder and then proceed to load up cartridges on the basis of his identification. The fact that there have been no more accidents than have been recorded because of this sort of thing is a tribute to the American gun maker and the ruggedness of his product.

Marine Fishes of Texas

THE DOGFISH, DOG SHARK OR SMOOTH DOG

By J. L. BAUGHMAN

Chief Marine Biologist

NORMALLY this dog fish is abundant as far north as Cape Cod, and has been recorded as a stray in the Bay of Fundy (Hilderbrand and Schröder, 1929). From there it ranges south to Brazil and Uruguay. The species also occurs in South Africa (Fowler, 1941), and seems to be fairly common off the coast of Natal (Biden, 1934) and in the Mediterranean.

This shark is known in Cuban waters, around Jamaica, and at Trinidad, and is to be expected throughout the West Indian-Caribbean section. Very little is known about its occurrence there. By contrast it is one of the commonest sharks along the coast of the United States from North Carolina to southern New England, where it is a regular migrant north in spring, southward again in autumn. Present indications also are that there is but little interchange between the northern and southern populations, for it does not seem to occur at all along the east coast of Florida (Anon, 1945).

Reed (1941) lists this species from Texas, giving no locality. A female, containing embryos, taken on March 24, 1940, off Freeport, Texas, was identified by Mr. Springer as belonging to this species, and one of the embryos was deposited in the National Museum.

Oddly enough, this shark, which is little

known in Texas, appears to be plentiful in Louisiana. Fowler (1933) states that it is common in the Calcasieu River in summer as far inland as Prien Lake.

Color is a plain olive-slaty or brownish gray above, with the margins of the fins paler; yellowish or grayish white below.

Dogfish are 14 or 15 inches when born, and mature at three feet or less, occasionally growing to above five feet.

This is an inshore species that usually occurs in less than 10 fathoms and often close to land in bays and harbors, occasionally entering fresh water. Field (1907) examined the stomachs of over 300 individuals, finding lobsters, rock crabs, lady crabs, spider crabs, hermit crabs, menhaden, razor clams, Nereis, and various species of small fish. His estimate of the damage done to the various species of crustaceans and fish is most revealing of the enormous destruction caused by these sharks. A more recent article on the same subject is that by Jessup (1943).

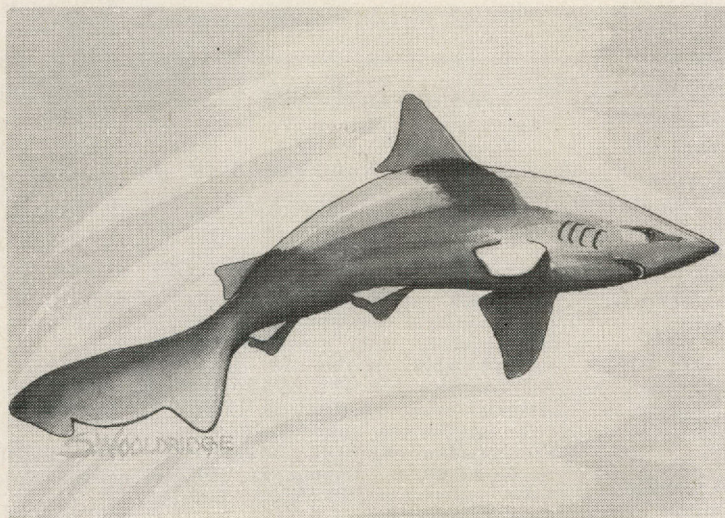
On the northern part of its range, mating takes place in late summer

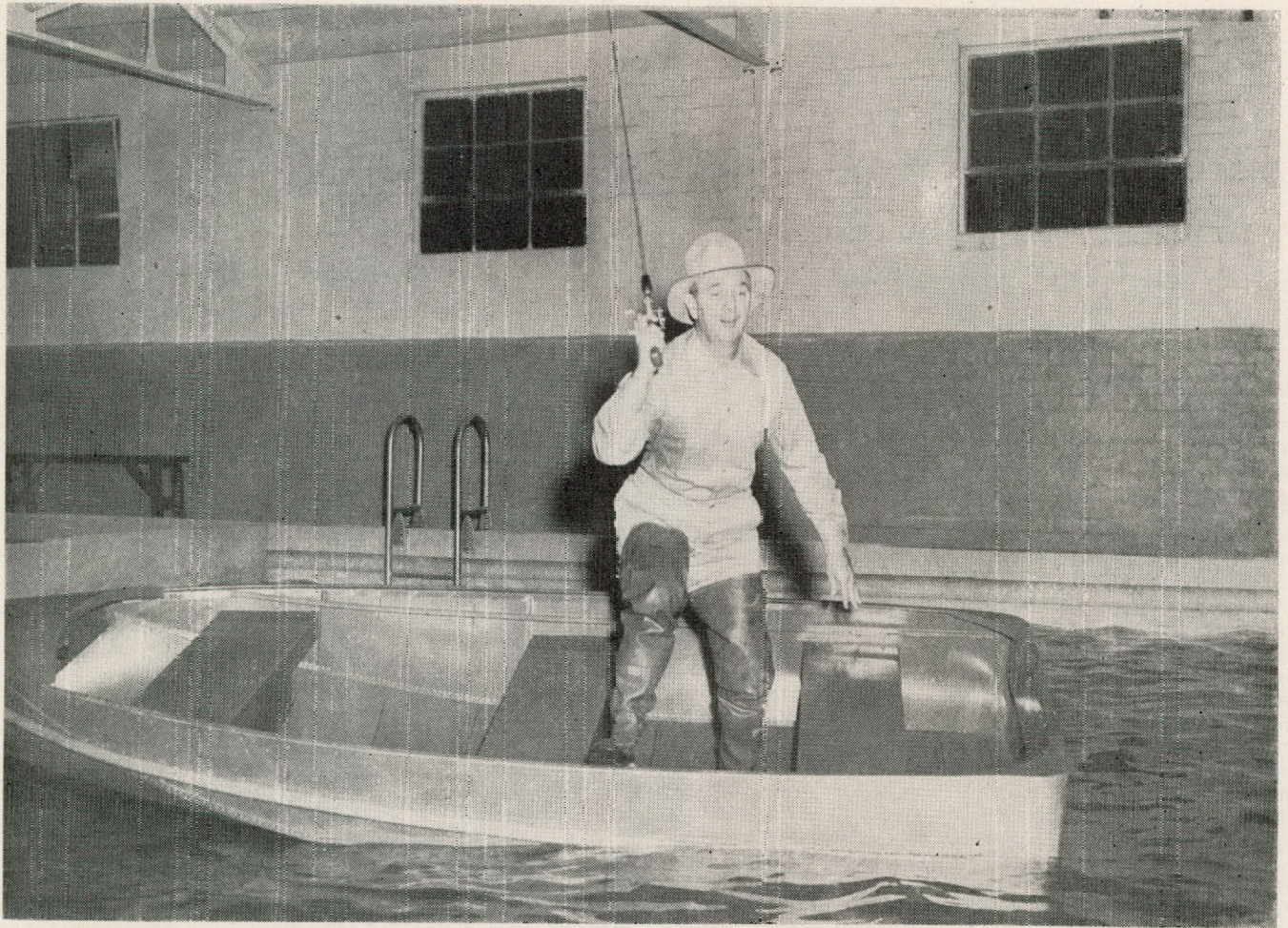
and the young are born between early June and mid-July. The breeding season of the southern stock of the species is not known. "The eggs are fertilized internally, and the young are about twelve inches long when born. From 4 to 12 fish are produced at one time," (Smith, 1907). One female, with almost completely developed embryos, was caught on the 32-mile Bank, Freeport, Texas, March 24, 1940. Springer (1938) examined a number of females taken early in February, at Norfolk, Virginia, which contained an average of 11 embryos each, all at about the same stage of development.

In this species the embryo is not attached to the uterus by a placenta (Jordan and Evermann, 1896-98).

Lawson (1709) says that dog fish were accounted good meat in the Carolinas, but, because of the abundance of better meat, were rarely eaten. In Bermuda it is called the "Nurse Shark," and is highly esteemed by the Negroes as food. At Folkestone, England, dog fish is dried and goes by the name of "Folkestone beef" (Goode, 1884). Oil was formerly obtained from their livers and used for the tanning of leather.

Extensive efforts were made at one time, by the Bureau of Fisheries, to introduce this species as a canned food under the name of gray fish. Unfortunately the attempt did not meet with any success.





How to make your wife a "fishing widow," for keeps, is demonstrated by Les Kilgore, Amarillo youth center director, in a water safety demonstration for members of the Panhandle Outdoor Sportsmen's Cl.b. The demonstration was staged in the youth center swimming pool. There are at least three things wrong in the picture. If standing up to cast doesn't guarantee a quick spill, resting one foot on the gunwale will assure it. The hip boots clinch the deal, assuring a tragedy.

SAVE YOUR LIFE

By PAUL TIMMONS

Outdoors Editor, Amarillo Globe-News

YOU HAVE at least a dozen life preservers with you, when you climb into your boat to go fishing, Les Kilgore, director of the San Jacinto Youth Center in Amarillo, told members of the Panhandle Outdoor Sportsmen's Club recently, in a water safety demonstration.

The clothes on your back can save your life, if you keep your head, said Kilgore, who was an army swimming and water safety instructor during the war, training troops in amphibious operations.

Besides your clothes, your minnow bucket, tackle box, hip boots or several other items of equipment can be

used to keep you afloat until help arrives, or until you drift ashore.

"Don't try to swim ashore, if the boat capsizes," says Kilgore. "That's the sure way to drown. Unless it is a short distance and you are accustomed to swimming such distances, don't try to swim ashore," he told the Panhandle sportsmen.

The only way to be really safe is to buy a good life preserver, and keep it on—don't use it for a cushion, Kilgore said.

The boat itself is the best life preserver, even though it is capsized. Even filled with water a good boat—either a wooden boat or a metal

boat equipped with air chambers—will keep several people afloat. Don't try to climb onto the boat—just hold onto it enough to keep your head above water. Or, ease yourself onto the boat and lie across it.

Your minnow bucket will keep you afloat, if you use it right. Don't worry about the inner, perforated section; let it go. Swing the bucket into the air and jerk it down on the water, upside down. The trapped air under the bucket will keep you afloat. Wrap your arms around the bucket and rest your chin on the upturned bottom. It will keep your head above water. Now rest and drift. You'll

• *Continued on Page 28*

Letters

NATURE LOVERS

Dear Sir:

A friend gave me the June copy of your magazine, and I was delighted with the article, "Hunting Birds With Binoculars." For the past fifteen years that has been a hobby and very interesting study of mine. At present, I send the records for this area to the Bird Conservation Department of the Fish and Wildlife section of the Department of Interior.

May I congratulate you on the conservation note of the whole magazine, but I am sure that more articles like Mr. Thompson's would appeal to a great many of us so-called "Nature-lovers." However, there was scarcely an article in the magazine that I did not enjoy. It is most informative, and I am enclosing a dollar for a year's subscription.

From the redfish on the cover to the information on Bobwhites, I liked it. And, by the way, Bobwhites seem to be on the increase in this area this year.

Mrs. T. E. Winford
1022 S. Windomere
Dallas 11, Texas.

Dear Sir:

My enclosed check for \$5.00 payable to the order of TEXAS GAME AND FISH, is for a "five whole years" subscription to your fine publication "starting with its next issue" for delivery to me at the address given below.

As a devotee to the sometimes illusive elf, Truth, I am constrained to confess that the motive for making this small investment should not be attributed to a desire on my part to aid your laudable enterprise, as your masthead reveals, to protect and conserve our native game and fish and to improve hunting and fishing in Texas. I am not a Nimrod, although I look forward with lip smacking anticipation each season to the receipt of a haunch of venison, a brace of ducks and a mess of quail from generous friends who overtly demonstrate their prowess in the hunting field by sharing the evidence of their expert marksmanship with me. Too, the allure that Izaak Walton's vocation had for me as a lad, has been relegated to the delightful nostalgic dreams of the days

when the cane-pole, sans reel, and bobbing cork, or a trot-line with a can of worms from the garden, constituted the standard equipment to hook sun perch, crappie and "channel cat," which, when caught, were strung through the gills on a line to be fetched home.

To the contrary, my interest and enthusiasm should be attributed entirely to the delightful and soul-warming article that a kind fate has just called to my attention in my desultory magazine browsing, in your June issue by Fred D. Thompson, entitled "Bird Hunting With Binoculars" with its fine and deserved tribute to my cherished, fascinating, and always intriguing old friend, Roy Bedichek, whose hunting technique has never been impinged upon by our salutary game laws. Its publication by you has caused me to enjoy the warm inner glow produced by the feeling that your activities have been wisely extended to the protection and conservation in Texas of my friends, the non-game birds, that joyously and faithfully perform their allotted tasks in our fields, gardens and orchards, to insure bountiful yields therefrom. As Mr. Thompson aptly phrased it they add an indefinable ingredient "somewhere in a sense other than physical."

Not only will this addition to your field of coverage evince your departure from the usual policy of State Game Commissioners of interest restricted to game birds and animals, but you will reap incalculable golden gains in the satisfaction of knowing that you are adding not only to the joy of living of the grownups but are contributing immeasurably to the spiritual development of our youngsters. In doing so I feel that you will be enriching the latter's lives like my life was in my childhood when there was ingrained into me the wholesome and precious belief that has accompanied me through the years that my feathered friends were my shy and aloof playmates in the orchard where they nested and twittered and sang, and in the garden where they found satisfying meals in a succulent "diet of worms," slugs and grubs, which they enjoyed to the delight of their hosts of growing vegetables and budding flowers to the strains of a pollenization waltz played by a band of honey-bee musicians.

The impression that they really were my

pals was impressed in a measure too upon my mates and me in the public schools where I recall two songs we learned and lustily sang in the Third Grade, inspired by our lovely, understanding teacher, who smilingly led us with her warm and lilting contralto, one verse of which I remember being:

"Bob'o Lincoln, gay and free
Sang as sweet, as sweet could be
Daylight faded, eve grew pale,
Then sang out the nightingale."

The other in a humorous vein ran:

"Ah! There's the rain piped Robin Red
Perched in his peach-tree tower.
'You, keep away,' the posies said
'This is our private shower.'
The Robin looked and looked again,
And then he thought a spell.
'Why that's no more a real live, rain
Than pumping at the well!'"

I trust you will not think me "brash" in voicing the hope that the publication of Mr. Thompson's series of articles will be followed by your inauguration of a regular department dedicated to "Nature Lovers." I make bold also to express another fond hope in that connection that you will "go all out" to enlist your readers and the public generally in aiding the promotion of the praiseworthy undertaking of The University of Texas Press to publish soon Harry C. Oberholser's book on Texas birds (a monumental work as it will take four volumes of 1,000 pages each to present it in proper form). This is quite an undertaking as it will involve, I gather, its being subsidized to the extent of about \$75,000. True, that's a lot of money, but the cost thereof, it seems to me, will be offset many fold by the satisfaction of the underwriters' knowing they will have "Auduboned" Texas birds.

Edward Crane
4005 Gaston Ave.
Dallas, Texas.

The State Game Commission is responsible for the conservation and protection of our non-game birds as well as our game species. Although very little publicity has been given this phase of our activity, efforts are being made to encourage public interest in these important species.

Our conservation education specialist is now preparing brief illustrated life histories

of some of our more common song birds for use in the various grade levels of our public school systems.

We feel that in order to completely cover the varied responsibilities of this department in our monthly magazine, *TEXAS GAME AND FISH*, we must include information on Texas song birds as well as on other species. From time to time, feature articles on the song birds of Texas will appear in our magazine.—The Editor.

SNAKE ARTICLE

Gentlemen:

TEXAS GAME AND FISH is a good magazine, and we enjoy it greatly. I am a Scoutmaster and appreciated the article in the April issue about tents and camping equipment. So much Scout literature is designed for the North and is unusable here.

When may we have reprints on the Snake Article (February issue)?

Robert Duncan
203 Aztec Building
San Antonio, Texas.

We very much appreciate your interest in our magazine and your comments concerning the article, "Camping's Different in Texas" which appeared in the April issue. As to the Snake Article, several thousand reprints have been made available to interested groups and individuals.—The Editor.

Dear Sir:

I am very much interested in hunting and fishing and do as much of it as I can in my spare time while going to Southern Methodist University. I have just finished the February and April issues, and I think they are the best hunting and fishing magazines on the market today. What I like about this magazine is that it gives so much information that a hunter and fisherman should know. I enjoyed the article in the February issue on the Poisonous Snakes of Texas and the first aid treatment of their bites. Although I have a little knowledge of snakes and first aid treatment of their bites, this article impressed me with the value of such information. This is the type of information that every sportsman should know.

I would appreciate it if you would give me some information on hide tanning or write an article on this subject, telling just what process should be used to make a nice hide. I have tried every suggestion, but there is always something lacking.

I am enclosing one dollar to pay for a one year's subscription, because I do not want to miss any more of these wonderful magazines. I am very much interested in the work you are doing and I know that you will have many successful years to come. Thank you for your consideration and time.

William C. Nichols, Jr.
7115 Denton Drive
Dallas, Texas.

We hope to include an article in a future issue on hide tanning. For detailed information on this subject, we recommend the U. S. Department of Agriculture's Bulletin

No. 1334 "Home Tanning of Leather and Small Fur Skins."—The Editor.

FISHHOOK FOR SMALL FISH

Dear Sir:

What is the price of a three-year subscription to your magazine? I want to subscribe for three years. Let me know and I will mail a money order.

I would like to know what you think of a special rigged up pair of hooks for small fish such as perch, crappie, and bluegills? Several days ago, I took my small daughter and granddaughter for an afternoon fishing trip. One of the things that bothered me about the small fish was the fact that too many of them were injured and died after swallowing the hooks. At least thirty per cent of the fish we caught were small and were wasted because they had swallowed the hook.

I decided to experiment with a double perch hook on my next trip. I took two perch hooks and soldered them together off setting the hooks. Every small and large bluegill or crappie caught were easily taken from the hook without injury to fish or loss of time. None of them swallowed the double hook. We kept what we wanted and no small fish were wasted. I figure this is a big saving towards our fish for tomorrow.

John A. Gray
P. O. Box 252
Laredo, Texas.

The subscription rate for one year is one dollar (\$1.00) or three dollars (\$3.00) for three years.—The Editor.

YOUNG AND OLD

Dear Sir:

Enclosed, you will find one dollar for a year's subscription to *TEXAS GAME AND FISH*.

I just saw my first copy of it recently and enjoyed it very much. Especially did I enjoy the article, "The Young and Old of It," in your March 1950 issue. I don't know that I can add anything to the idea—as you suggested to readers—but I am offering below a list of names of baby animals. I wonder how many of your readers can identify them? Anyway, if you can use this list—you're welcome.

Adult	Name of Baby Animal
1. Kangaroo	Joey
2. Chicken, Turkey, Quail	Poult
3. Sheep	Yeanling
4. Rooster	Cockerel
5. Cat	Catling
6. Pigeon	Squab
7. Duck	Duckling
8. Eagle	Eaglet
9. Mule	Dicky
10. Hare	Leveret
11. Oyster	Set
12. Frog	Tadpole
13. Elephant	Calf
14. Rhinoceros	Toto
15. Eel	Elver

Jack Hampton
3737 29th Street
Port Arthur, Texas.

Next N. American Conference To Be Held in Milwaukee

Milwaukee will be the site of the 16th North American Wildlife Conference on March 5, 6, and 7, 1951.

Headquarters for the international meeting, which will be devoted to a discussion of problems and progress in the restoration and preservation of renewable natural resources, will be the Hotel Schroeder. In announcing its selection, the Wildlife Management Institute, sponsor of the annual Conference, stated that the choice was a tribute to the outstanding progress that Wisconsin and neighboring states had made in the field of conservation within recent years. This will be the first time within three years that the Conference has been held in the Midwest and the first time since 1944 that it has been held in one of the Lake States.

All phases of natural resource conservation are discussed by the outstanding authorities, and an attempt is made by the program committee to select a panel of experts who can present all sides of major problems. Usually more than 60 papers are presented during the three-day meeting. There are three general sessions at which the broader phases of conservation are discussed and six technical sessions dealing with new techniques and improved methods of wildlife and fishery management.

Forest Industries Form Oak Wilt Committee

America's lumbermen have thrown their weight into the battle against oak wilt, which has caused grave concern to foresters and wildlife scientists.

A committee recently was formed within the American Forest Products Industries, Incorporated, to cooperate with representatives of the Division of Forest Pathology of the Department of Agriculture. Representatives and foresters of the industry already are working closely with government scientists in mapping damaged areas. Oak wilt poses one of the serious threats to the forests of the East. The disease was recognized in the upper Mississippi Valley as early as 20 years ago, but its recent accelerated spread southward and eastward caused growing alarm among lumbermen, foresters, and scientists.

Canadians Report Brant Comeback

Reports from Canada indicate that the brant is staging a strong comeback after its close brush with extermination a few years ago.

Large flocks of the dark-colored birds, midway in size between ducks and geese, migrated northward along the Bay of Fundy this spring on their way to sub-Arctic breeding grounds. New Brunswick game officials report that flocks numbered in the thousands and that brant were more numerous than at any time since the 1930's. Key to the restoration lies in the recovery of the marine eelgrass, a staple food of the brant, after its depletion by a disease epidemic which all but wiped out ancestral feeding grounds. A cooperative planting program has been conducted for several years by the Fish and Wildlife Service, Ducks Unlimited, the Wildlife Management Institute, and the various Atlantic States and provinces within the range of the brant to restore depleted grass beds.

Legal Front

• Continued from Page 2

pling shall be unlawful in any of the waters in any of the counties named above, except by the Game, Fish and Oyster Commission in the management of the fish resources in the aforesaid counties.

"There shall be no open season or period of time when it shall be lawful to take any of the wildlife resources in the above named counties, other than during the open seasons hereby proclaimed.

"Senate Bill No. 47, First Called Session, 51st Legislature, State of Texas, provides for a penalty of not less than Ten (\$10.00) Dollars, nor more than Two Hundred (\$200.00) Dollars, upon conviction of any person who shall violate any proclamation, order, rule, or regulation issued by the Game, Fish and Oyster Commission, under the provisions of said Act, for the automatic forfeiture of his hunting, trapping or fishing license for the remainder of the license year, and for the forfeiture of his right to hunt, fish or trap for such period."

Fisheries Biology

• Continued from Page 15

banks, grow at different rates, and possess different characteristics and by following from year to year the intensity of the fishery and the yield therefrom, the commission has been able to determine when depletion set in. Moreover, it has been able to determine how heavily a given bank could be fished without such depletion and to set up and enforce regulations which stopped the decline in the fishery and to increase the stock of fish on the banks.

Thompson and Bell, who wrote the eighth report of the commission, make a statement that all of us here on the Texas coast would do well to study and remember for, while it is true that much of our fisheries decline is due to the change in our bays due to silting and erosion, much of it is also due to overfishing. They say, "The conclusions from the investigations of the commission are most striking and of profound importance to the regulation not only of the halibut fishery but, it hopes, also to many other fisheries. They indicate that in each stock the major changes are due to the fishery itself. They show, as might be expected from the history of many other fisheries, that the more

intense the fishery the fewer fish survive to a spawning size. They also show that an intense fishery takes the available fish while they are still small, and that a lessened intensity allows them to grow to a larger size, but takes them just the same. Consequently, the ultimate yield obtained by the less as compared to the more intense fishery, from what young do come into the commercial catch, depends upon whether the growth in bulk exceeds or is less than the loss by natural death during the additional period they are allowed to live. Accordingly, where growth is rapid and the weight of living fish increases with time, the great intensity of the fishery is sheer economic waste in that it does not increase the total catch, but actually decreases it, as well as prevents the growth of fish to spawning size. It does not increase the yield, but lessens it, and destroys the supply of spawners."

The lesson in the foregoing may well be taken to heart by the sportsmen of the coast who take their thousands of undersized red fish and trout, and by the shrimp fishermen destroying millions of undersized shrimp.

White Wing Hunters

• Continued from Page 5

would mean that if the known ratio of 2.14 young birds killed (171,565), were just subtracted from the 398,735 young raised in citrus, 227,170 young would be left not counting those reared in native cover. By the same token, the known ratio of adult to young kill handled in the same way, reveals 303,369 adult pair left from the breeding colonies in citrus. These figures, of course, are excepting other loss factors as predation, accidental death due to striking wires, death from parasites, diseases, and natural causes.

Whitewing research has shown that even though the white-winged dove kill was high the harvest for that particular year was not too excessive. Hence, our present length of season is justified, but an increase of bag limit or an increase in the number of days to hunt would dig into the reserve of adults and young just when

they are apparently beginning to show a measure of readjustment and recovery from the past destruction of their native habitat and the previous extended open seasons.

In order to continue the compilation of pertinent data on which to base the open season and bag limits of this fascinating game bird, hunter cooperation is essential. Therefore, an earnest plea is made to all white-wing hunters to take time, during the approaching season, to participate in the game department's study of the whitewing situation. Watch for our information signs and data boxes, and do your part to help in the important program. For the best interests of conservation, retrieve or make a real effort to retrieve all wounded, lost and killed birds.

(Based on work conducted under Federal Aid Project 30-R.)

SEARCH IS UNDERWAY FOR RARE GUNS

A NATIONWIDE search for 123 rare historic rifles of the 1870's has just been sparked by **THE AMERICAN RIFLEMAN**, official publication of the National Rifle Association.

The 123 guns are the only ones ever made of the little known "One of One Thousand" variety of the Model 73 lever action repeating rifle. Western pioneers said it could be loaded on Sunday and fired all week.

In its May issue the magazine described in detail for the first time this high-accuracy rifle about which few of the country's leading gun experts ever knew. The magazine asks gun lovers and collectors who own lever action rifles to examine them carefully for the words "One of One Thousand" engraved on the top of

the barrel just in front of the receiver. Owners of these rifles have been asked to notify the magazine, giving the serial number of the rifle and any available facts.

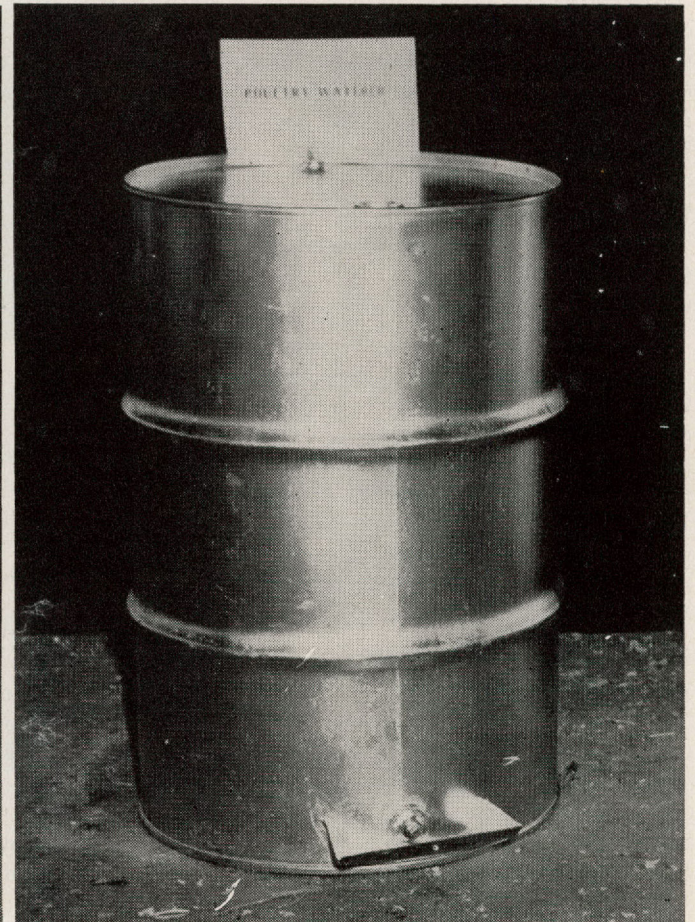
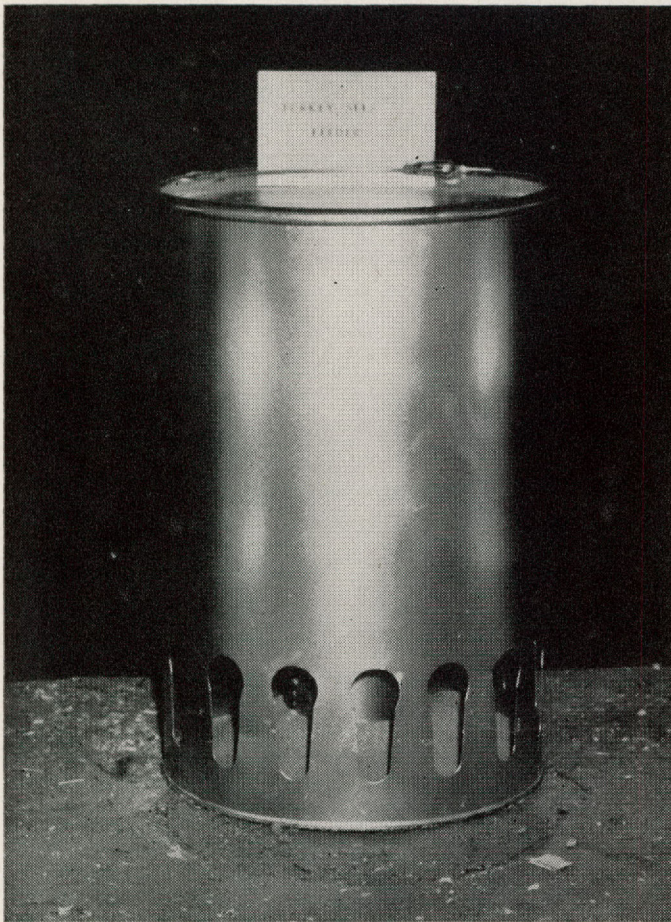
The year 1950 is the seventy-fifth anniversary of the introduction of the "One of One Thousand" which was made by Winchester from 1875 through 1881. How many of these rifles are still in existence is not known. The "One of One Thousand" is a variety of the famous Model 73, "the gun that won the West," of which the New Haven company made 720,610 from 1873 until 1924, when the model was discontinued. It was the second rifle to bear the name of Oliver F. Winchester, pioneer firearms manufacturer.

In announcing the "One of One Thousand," the company described it as follows:

"The barrel of every sporting rifle we make will be proved and shot at a target, and the target will be numbered to correspond with the barrel and be attached to it.

"All of those barrels that are found to make targets of extra merit will be made up into guns with set-triggers and extra finish and marked as a designating name 'One of One Thousand' and sold at \$100.00."

One of the few known rifles of this variety was loaned by New Haven firearms manufacturer for use in the motion picture "Winchester 73," in which it is used by the actors Jimmy Stewart and Shelley Winters.



Kerrville sportsmen have placed wild turkey feeders and waterers on the range in the Hill Country. The barrel-like device on the right is the waterer. Game Department officials plan to study results of the installations. The photos were provided by Hal Peterson.

Movement Under Way To "Plant America"

A new movement is under way which deserves the support of all interested in conservation and the future well-being of America. This is the "Plant America" movement sponsored by the American Association of Nurserymen.

The objective of the program, which had its inception at a dinner in New York City last winter, is "To conserve the land, make it greener and more productive for abundant life, beauty and recreation." The program is predicated on the promise that the land is our most precious heritage and that the objective in its entirety can only be accomplished by replanting our forests, farms, cities, roadsides, church and school grounds, homesites and factory lands wherever and whenever the need arises.

This new movement has been endorsed by representatives of the Extension, Soil Conservation, and Forest Services of the United States and by thirty private national conservation organizations. The program, would turn waste areas into wildlife coverts, eroded lands into woodlots, barren roadsides into garden spots, and factory yards into show places.

Wildlife Restoration

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Project 34-L, Maravillas Wildlife Area

The Black Gap Ranch, Brewster County, was purchased by the Game Commission to serve as a refuge and experimental management area. Some additional State and private lands are included in the block through leases. Principal game species offered encouragement are mule deer, antelope, peccary, and scaled quail. There are also good possibilities for bighorn sheep.

Project 40-M, Eastern Wildlife Maintenance

In 1949, development work was completed on the Devil's Pocket Restoration Area, Newton County, under Project 27-D. At present, the developments are being kept in effective repair and operation through this maintenance project, for the benefit of deer and turkey. Joe Murphy of Buna is doing the field work, supervised by J. M. Carlisle.

Things You May Not Know

The pupils of the eyes of rattlesnakes and other pit vipers, which are mostly nocturnal hunters, are spherical at night, but in daytime contract to a vertical slit thus cutting out bright light.

* * *

The hedge hog is notorious for its snake-killing proclivities. It bites the victim near the tail, then curls up and lets the snake strike repeatedly, injuring itself on the hedge hog's spine. After the snake is exhausted, the hedge hog simply bites his victim into pieces and eats it.

* * *

The anableps, a fish of tropical America, has two pupils in each eye. It swims with the top half of its eyes above the water, and with each pupil functioning separately can see above and below the water at the same time.

* * *

The common brown hare raises her young in solitary manner. After they are a few days old, she finds a separate form for each and visits them each night for suckling.

Antelope Hunt

● Continued from Page 3

and possible cancellation of shooting privileges for all game, follow.

There is a striking resemblance in adult males and females. The main distinguishing feature between the males and females are the horns. Females have horns but they are much shorter and never are longer than their ears. The horns of the bucks are longer and flare backward. One fool-proof test, for those with good eyes, rests with the fact that the male has a dark mark back of the eyes and beneath the antlers.

Despite the stiff supervision, the seasoned antelope hunters swear by the sport, and they furthermore contend that antelope meat when properly cooked is a delicacy.

Save Your Life

● Continued from Page 23

drift ashore, or stay afloat until help comes.

A hip boot is a good life preserver, unless you have it on—getting into a boat with hip boots on is one form of attempted suicide.

Hold the mouth of the boot open, with the boot stretched out on the water. Now, with the other hand, splash water into the boot. It sounds queer but that splashing will fill the boot with air. Push the top down and wrap your legs around it. Wrap your arms around it, too. Rest your chin on the sole of the boot and afloat—if the boot doesn't leak you'll float for hours.

Lacking hip boots, you can save yourself with your trousers. Get out of them the best way you can—easiest way is to grab a big breath of air and then go under while you slip out of the trousers. Tie a knot in each leg. Button the top button. Now, fill them with air, using the splashing method.

As long as the trousers are wet they will hold air. Take it easy. When they start letting you down you can inflate them again.

Your shirt will keep you afloat, if you keep your collar buttoned. Here's how it's done.

Unbutton the third button. Now, grab a big breath of air, duck your head, stick your mouth into the shirt front and blow. Do this two or three times and the back of the shirt will balloon up like water wings.

You can save your life, if you don't lose your head.

There's another point about keeping your head, Kilgore says. Alcohol and water are like alcohol and gasoline—they make a dangerous mixture. Drinking is a factor in a big percentage of drownings.

You have plenty of life preservers, if you keep your head. Practically everything but the boat anchor can be used as a life preserver.



DOVE HUNTING TIME

TRADITIONALLY, September in Texas marks a period of transition in the thinking of outdoor lovers, for, it is at this time loyalties change from fishing to hunting. Opening of the north zone season on mourning doves on the first day of September, followed shortly by the brief but spectacular season on whitewing doves, sets in motion the initial invasion of a bug which soon causes hunting fever.

September, then, becomes a time for re-evaluation and re-education for the sportsman ranging from safety precautions with firearms to game conservation in its various complex categories. And since September makes the mourning dove the first legal game for hunters, it may be wise to review some factors which should be considered in hunting this fine game bird.

Being the most abundant game bird in Texas, the mourning dove is a universal favorite with hunters. Swift and erratic in flight, it provides an attractive scatter gun target most difficult to hit because of its small size and twisting, rolling motion. Being migratory in nature, however, a difficulty arises in setting equitable open seasons in an expansive territory like Texas—equitable to the dove as well as the hunter.

The mourning dove's nesting habits add to the difficulty. Mourning doves hatch and rear their young in the period April to September and it is not uncommon to find nesting birds in mid-October. Accordingly, an open season in September results in the death of young birds that have just learned to fly while many others, hatched and unhatched, are left to die in nests after parent birds fall to the hunter's gun.

Although the status of dove populations in the various states has caused great concern, only an alarmist would say this condition will bring the mourning dove to the road to extinction. In fact this bird has increased his numbers in Texas in recent years in spite of increased hunting pressure but it would be foolish to be unmindful of what man did to the carrier pigeon and the whitewing dove by interfering with their nesting activity. Certainly, the present system of opening the season on September 1st interferes with the nesting activity of the mourning dove.

Just how much it interferes can be determined, to some degree, this year—if hunters cooperate. Officials of the Texas Game, Fish and Oyster Commission have been engaged in a comprehensive program of banding young mourning doves in nests during this nesting season. If hunters faithfully return these bands, data can be compiled which will permit our Game Department to recommend to the U. S. Fish and Wildlife Service open seasons and bag limits based on facts. This banding operation is designed to produce needed information on the life span of mourning doves, where they go after they leave their nests, where the greatest hunting pressure occurs, and the percentage of young and old birds killed.

It is important then for hunters to keep in mind the necessity for returning all bands found on birds killed by them. Hunters who kill banded birds are urged to return such bands to the Game Department in Austin, Texas. It would be better, of course, if the individual hunter imposed on himself a voluntary closed season as long as birds in his area are nesting. If he must shoot, he can at least shoot flight birds only—never a single which more often than not will be a nesting bird. This is particularly true early in the season.

By the same token, the individual hunter, the organized sportsmen, landowners—anyone interested in assuring that there will be no end to dove hunting—can also take a hand next year to eliminate the destruction of nesting areas while mourning doves are nesting. The landowner who is engaged in brush clearing can be encouraged to restrict such activity in those areas where mourning doves are nesting. By leaning trees and brush in fence rows, along creeks and eroded areas, the landowner will not only be providing nesty cover for doves but cover for quail and other desirable birds as well.

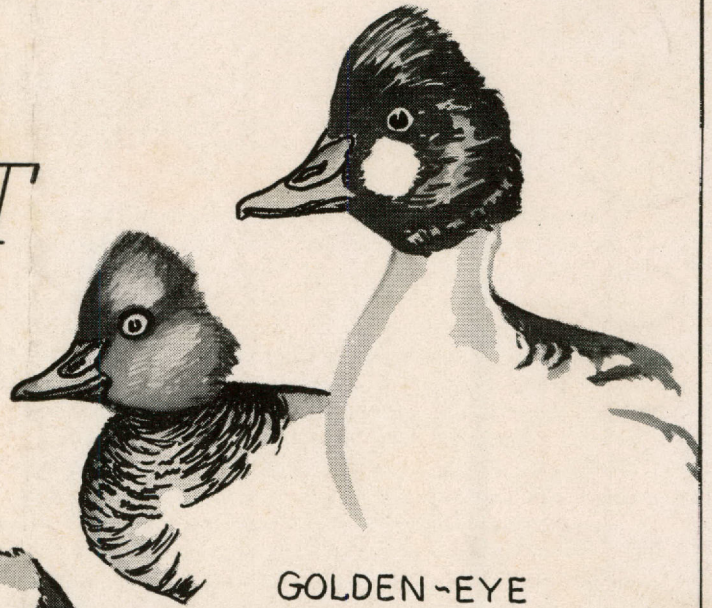
No treatise on this subject would be complete without an appeal to all concerned to eliminate the practice of abandoning house cats in suburban areas to become the most efficient of predators on nesting birds. Likewise, all must be reminded again to be careful of brush fires which are great destroyers of wildlife in general and nesting birds in particular.

With a little help like this from man, in season and out, the mourning dove will be with us long after other game birds have passed on because he has demonstrated his ability to adapt himself to the changes wrought in his habitat by the human race.

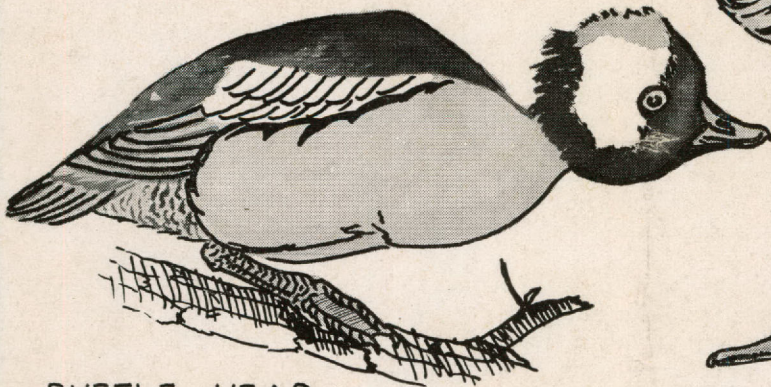
DR. FREDERICK WESTON,
Texas Wildlife Federation.

DUCKS

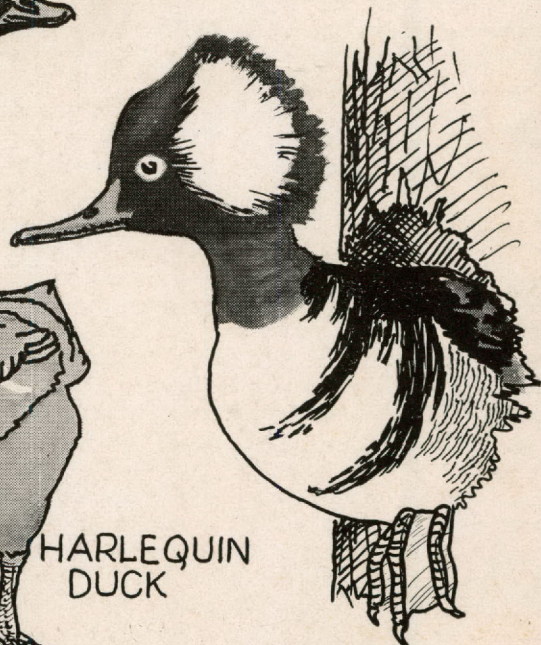
THAT NEST IN TREES



GOLDEN-EYE



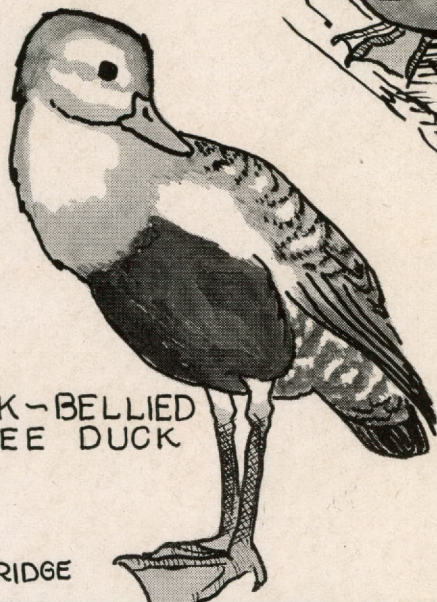
BUFFLE-HEAD



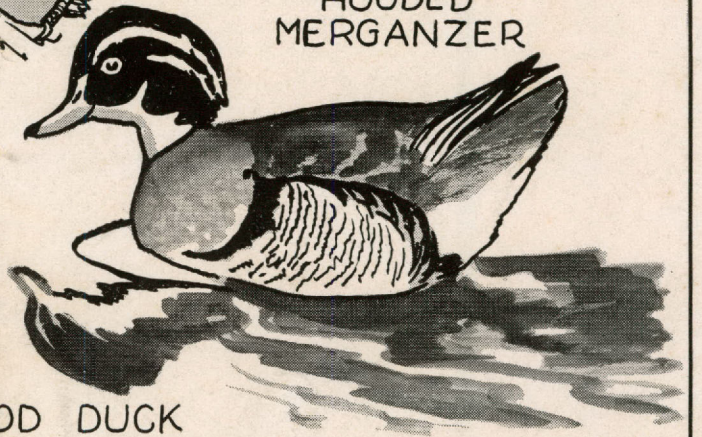
HOODED
MERGANZER



HARLEQUIN
DUCK



BLACK-BELLIED
TREE DUCK



WOOD DUCK