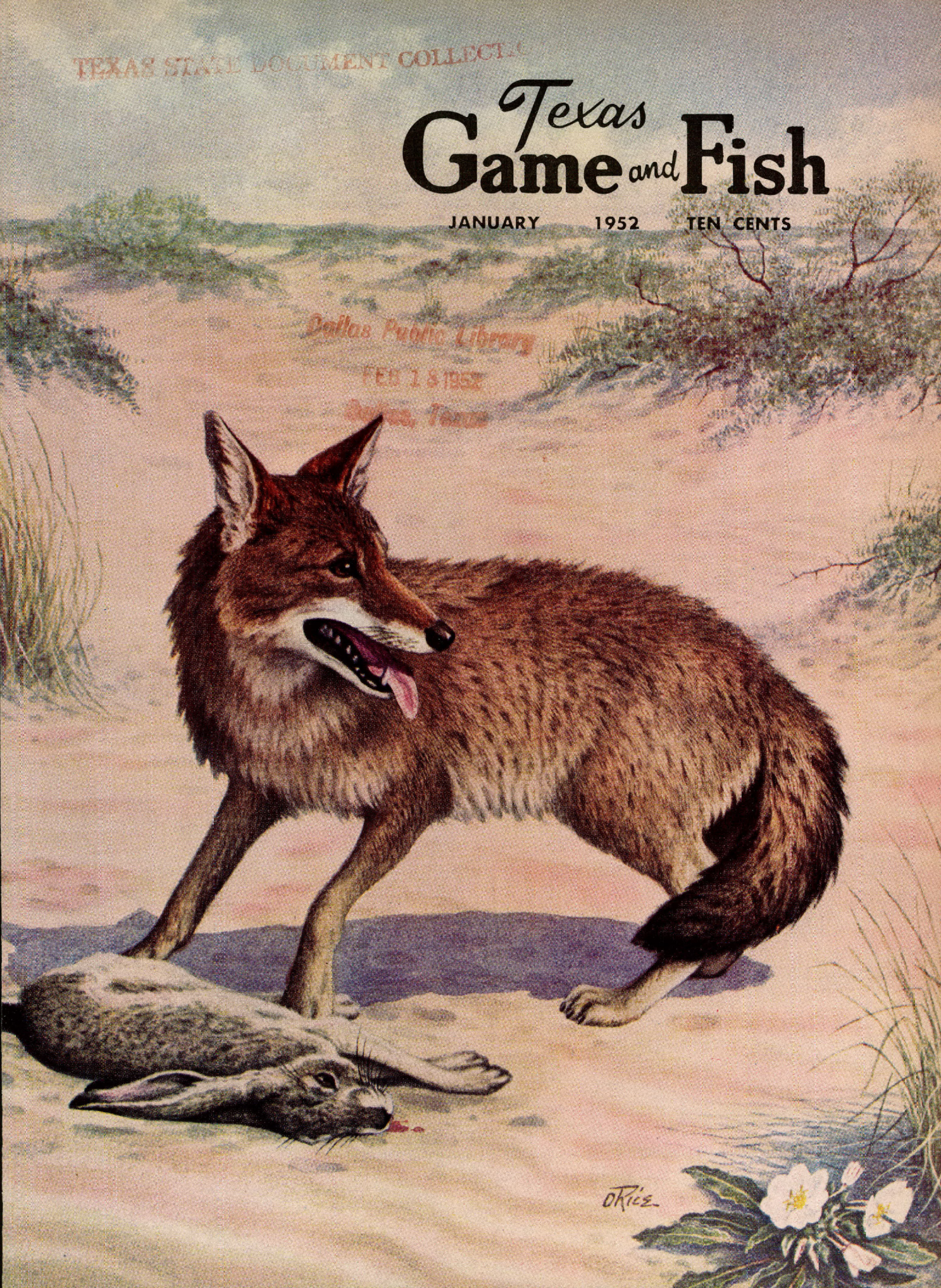
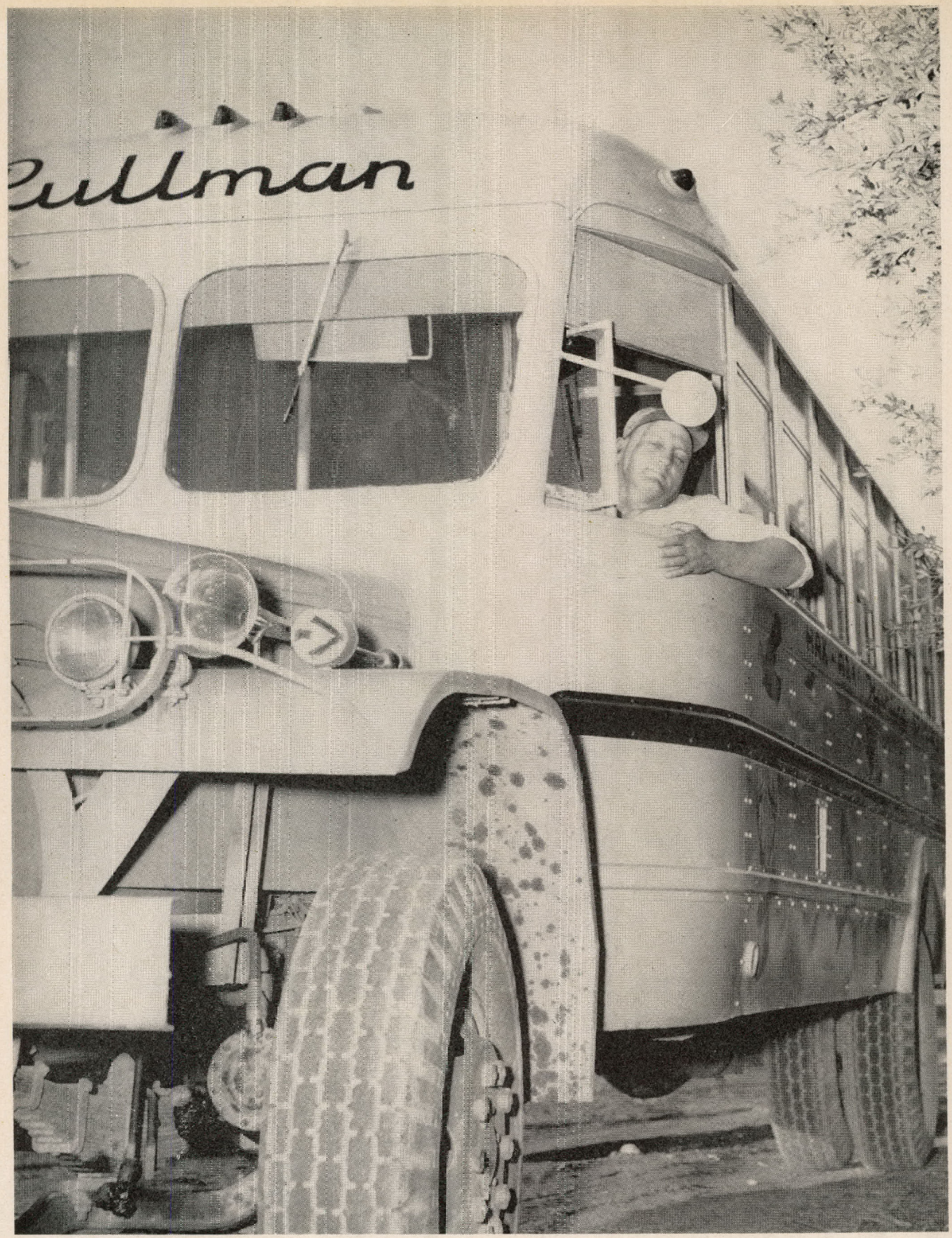
Texas Game and Fish

JANUARY 1952 TEN CENTS





READY TO ROLL—Here's the "Hak-Ark Hunting Special" with its sponsor, Harley Kern, at the wheel. The converted Army bus is used by sportsmen from Killeen, Temple and Belton for outdoor excursions. The longest trip last fall was to Jackson Hole, Wyoming, for moose, elk and deer. It has eight Pullman-size bunks, space for nine others and a complete galley. See Page 14 for more photos.

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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TEXAS GAME AND FISH is published monthly by the Texas Game and Fish Commission. Subscription price $1.00 per year. Single copies 10 cents each.

TEXAS GAME AND FISH regrets that it cannot continue subscriptions beyond date of expiration. Checks and money orders should be made payable to STATE GAME AND FISH COMMISSION, Editorial and Advertising Offices, Walton Building, Austin, Texas. Entered as second-class matter May 19, 1943, at the postoffice at Austin, Texas, under the Act of March 3, 1879.

Postmaster: If undeliverable, please notify TEXAS GAME AND FISH on form 3578-P at the Walton Building, Austin, Texas.

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Manuscripts should be addressed to Editor, TEXAS GAME AND FISH, Walton Building, Austin, Texas. All manuscripts should be accompanied by photographs. TEXAS GAME AND FISH always is interested in pictures of game and fish catches, unusual hunting and fishing scenes, bird dogs, and in group pictures of hunting and fishing organizations. Photographs used in TEXAS GAME AND FISH will be returned after publication.

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TEXAS GAME & FISH invites republication of material since the articles and other data comprise factual reports on wildlife and other phases of conservation.

★ In This Issue ★

January, 1952 • Vol. 10, No. 2

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The Cover

The Texas coyote, this month's cover by Orville O. Rice, doesn't fool the wildlife veterans but it could be mistaken by laymen for a wolf. A general distinguishing characteristic is the smaller size of the coyote. However, some large coyotes will equal the size of small individual red wolves. The latter is restricted largely to East Texas, the Coastal Prairie and adjacent sections. The coyote occurs throughout the remainder of the state except where eliminated through predator control programs.

At The Foot of The Rainbow

IN ALL nature, what sight so stirs the human senses or appears more beautiful than that of a living forest? Trees, lush in the delicate green lace of early springtime, or dressed gayly in the shimmering red and gold of autumn. A pine forest in all its splendor against a mountainside, its rich dark-green archways so mysterious yet so inviting. Or still more spectacular, those towering mighty monarchs, the ever-living redwoods, God's silent sentinels pointing heavenward.

Yet there are still other forests—forests turned to stone. And to those who look to nature for pleasure, to those who truly see the grandeur and beauty of the earth, and to those who seek to understand as the rocks yield up their treasure of knowledge and history--to these, forests of stone or petrified woods are intensely interesting.

Quite by accident our family started a collection of Texas petrified wood.

Returning to our home in Fort Worth from an agate hunt on the Old Mexico border, we arrived late one night in Austin, the Texas state capital. Less than a hundred miles east of there, according to information given us by some brand-new rock friends, was a deposit of petrified wood. The strata of wood presumably ran from the western tip of Texas, near the Big Bend, through South Texas, on through the eastern part of the state, and thence into Louisiana.

"While we are this near," I suggested to my husband the next morning, "let's drive on over and investigate this location. If we don't, you know you won't rest until you get back down this way to see if you did miss something interesting." This was an oddity—I, who just trailed along on my husband's hobby, urging *him* to hunt rock! At this time, however, his one love was agate. Petrified wood, even though it might be good cutting material, did not sound particularly alluring to him, because it would not contain the enchanting pictures of plume, or moss, or sagenite.

But investigate we did. And my idea of economizing by looking while we were near back-fired on me. For this was to be the first of numerous trips to search for still more beautiful specimens of petrified wood—once the bug bit.

It was not until a day or two later, after we returned home and got around to washing the chunks of petrified wood we had found, that we suddenly realized what a gorgeous thing a piece of opalized or agatized wood can be.

By
KATIE and JOHNNIE CASSTEVENS

Dug from the banks of a small creek, and thickly coated with sticky white clay, the fact it was wood had only been determined by its general appearance. Now, washed clean, we beheld in wonder pure glistening mother-of-pearl with an entrancing darker bark outline. Other pieces were nearly black, with opalescent rainbows shining out in splendor. Orange pieces with brown streakings fluoresced a beautiful rose. A gray piece with darker gray markings fluoresced purple with greenish hues.

It was almost unbelievable that so much variety could have come from such a small area.

Agate was almost forgotten in our rush of interest in Texas petrified wood. It was not difficult for me to turn into an enthusiast, and our 12 year old son David soon developed a quick sure eye for spotting the best on the field when we were hunting. Even Joy, our 15 year old daughter, had to admit its fascination. With us, as with most Texans, it was difficult to realize that Texas produces the quality of opalized wood that lies within its boundaries.

"Why, it's ever so much better

Co-author Johnnie Casstevens astride a whole petrified log. It is more than four feet across and 27 feet in length. This log is *not* of the golden wood, but comes from the vicinity, and is of a semi-opalized nature. Mr. Casstevens is assistant superintendent of parks in Fort Worth.

GOLDEN WOOD

quality than Arizona petrified wood," a geologist exclaimed in wonder. (One man's opinion, of course!)

And the fact it is so varied in coloring, content and quality makes a tantalizing lure that continually beckons to another hunt. For the next find might be something entirely different, or better, or prettier.

What a thrill to a gem hunter, deep in a pine forest, to stumble on a whole petrified log, more than four

Reprinted from

THE MINERALOGIST

feet across, with twenty-seven feet in length exposed before either end buries itself up in the earth. Or to gaze in awe at a private rock "flower garden" of petrified palm stumps that have stood in stoic silence throughout the centuries.

How it stirs your imagination to reflect on the mystery of how, millions of years ago, these giant monarchs of an ancient forest met a violent death. Yet in the strange manner of their destruction, they were preserved for all time, evidence of one of the most curious of nature's miracles—the transformation of wood into stone. Scientists cannot concur, apparently, in their theories of whether replacement or deposition is responsible for the petrification, but they do seem to agree that silica is the agent that has fossilized the fallen trees.

To the American tourist some petrified forests are better known than others, but almost every state in the United States has its deposits of petrified wood. Many deposits consist largely of stumps and broken fragments; other forests contain the huge trunks, almost entire, of ancient trees molded in stone. Still showing, in instances, the structure of the wood, even to microscopic details in the heart.

According to recorded information, deposits of three ages are known—Paleozoic Age, more than 185 million years ago; Mesozoic Age, approximately 60 to 185 million years; and Cenozoic Age, up to 60 million years ago. The wood in Texas is supposed to be of the latter two periods.

You see what merely picking up a pretty piece of wood can start—you have to do research taking you back 185 million years, so you will know what you are talking about when you are called on to do a paper for the Mineral Club on "Forests Turned to Stone"!

But back to our collection. Even though we had a nice variety of Texas woods we were not content. For we had heard of and had seen a piece of a beautiful golden wood, a Texas wood, quite rare. It was lovelier, we thought, than anything we had. Hundreds and hundreds of miles we drove, and many, many were the miles we walked, searching. For like the other treasures of the earth, opalized and agatized petrified wood are fast diminishing. Even though its specific gravity of 165 pounds to the cubic foot makes it quite, quite heavy to carry away, man is doing just that.

Teaming up with a geologist friend, we finally struck pay dirt. There on the eastern end of the rainbow, we found the golden wood. Amber, honey-colored, golden—what can describe its beauty as it nestles there on the shelves in our Rock House?

With our sense of satisfaction of accomplishing something desired, mingles pleasant memories of our rock hunts. And long to be remembered are the sounds of gentle earth music—the lilting, joyous songs of birds, the splash of rippling water, and the haunting melody of wind soughing through the tops of tall pines.

Best of all is the knowledge that by sharing something in nature as a family unit we are closer to each other, and closer to God.

Rock-hunter Casstevens and his son, David, are shown with a representative section of their wood collection. Mr. Casstevens cut the stone and made the tiny house and church (center, second row from the top) in the above photo. That's Tuffy, the family boxer-bulldog on the far right.

The Wildlife Conservation Education Program Past, Present

By THERON D. CARROLL
Supervisor of Conservation Education

AUTHORITIES agree that efforts to conserve wildlife have gone through several stages:

1. One of the first steps was that of *restriction*—passage of laws and regulations concerning the harvest of various game animals. This step was brought about by the exploitation of our wildlife resources.

2. *Protection* came next. Preserves and refuges were established to give certain species complete protection—to save some from extinction, and, in some instances, to allow those in protected areas to increase so that the overflow would re-stock the surrounding areas.

3. It seems logical that *restoration* would follow. Trapping and replanting of decimated game species became the vogue. Game farms came into being. Many thought this would be the final step necessary to bring game back to its previously plentiful status.

4. These various stages plus the growth of the new science of ecology brought about our present practice called *management*. Here emphasis is placed on improving the environment for wildlife. Scientific harvesting is employed; research in life histories of animals is a necessity. Protection, restoration and refuges are, in many cases, necessary to the program, as *well as the manipulation of the habitat.*

5. Today the wildlife managers, the ecologists, the educators, and various conservation agencies are beginning to realize the importance of man in these activities, and they are finding, in all too many instances, that in the human element lies the missing link to a chain that could otherwise be strong and secure. Unless man understands his role in life in relation to the role played by wildlife, soil, water, and all the other natural resources; and unless he is made to realize the interdependence of these natural resources upon each other, he will never be conservation conscious, nor will he develop the favorable attitudes which we believe are necessary if we are to maintain in any appreciable degree the wild " . . . animals, wild birds and wild fowl within the borders of this state . . . " that are declared by law to be " . . . the property of the people of this state." But here we are into the present and prophesying the future when we should be examining the past for the happenings which influenced, or were influenced *by*, the activities of Texans years ago.

Let us accept the fact that wildlife was here for the taking in the days when Stephen F. Austin with his 300 family colony founded San Felipe de Austin, on the banks of the Brazos in 1821. Shortly after the Republic of Texas exchanged certain rights and privileges with the United States to become a part of this nation of ours an examination of the records reveals that one trading post near Waco had shipped over 75,000 deer hides and a large number of bear and bison pelts to New York in one ten year period.

With such exploitation, it followed that some thinking people would sooner or later take measures to prevent this slaughter of their wildlife and so in 1861 Texas had its first game law—a two-year closed season on bobwhite quail on Galveston Island. That was not much of an effort for a state as large as Texas but it was a start.

Thirteen years later Texas had its first law protecting fish and prohibiting seining in certain coastal waters.

This started the ball rolling and five years later, in 1879, with the United States Fish Commission interested in stocking anadramous fishes such as shad and California salmon in the waters of coastal states, Texas rose to the occasion and enacted legislation requiring fish ladders to be constructed over mill dams. These fish were not to be impeded in their up-stream spawning runs! J. H. Dinkins was appointed to the office of Fish Ladder Commissioner. He served without pay or funds. Texas was one of the last of the Southern States to enact a general game law. We did it in 1879 and 83 counties claimed exemptions. By this time the southern bison herd had been eliminated as a game resource.

In 1881 the first fish hatchery in Texas was constructed at Barton Springs (Austin) for the propagation of German carp. Sport or game fishing was not considered, the idea being to raise and fatten carp "like hogs" for food only.

Another year passed and with it all traces of some three million shad, two million herring, 250 thousand California salmon, and 4,000 rainbow trout stocked in Texas waters by the United States Fish Commission. Commissioner R. R. Robertson noted this unsuccessful stocking effort and reported that the state commission was concentrating on the propagation and distribution of German carp which he referred to as *the* fish for Texas.

Game laws were tightened in 1881 with such legislation as a five months closed season on prairie chickens, buck and doe deer, and three and one-half months closed season on turkeys. This started a revolt which reached a boiling climax with the meeting of the 1883 legislature when *130* counties claimed exemptions from all game laws.

The next meeting of the legislature found the public opposition to carp so intense that the Fish Commission was abolished—so the first concerted wildlife conservation effort in Texas was wrecked by an outsider—The German Carp.

With no wildlife administrative body active, hunters and fishermen had a field day. Mr. John Thornton of Austin commenting on the game situation along the Nueces River in South Texas in 1887 said, "In one

of the Texas Game and Fish Commission and Future

day's hunt I killed 27 turkeys, 67 ducks, 2 coons, 2 muskhogs, and one wildcat. I did not shoot any deer as I had no use for so much game. I took the game home and divided with the neighbors."

In 1895 the office of Fish and Oyster Commission was created and Mr. I. B. Kibbe appointed Commissioner. Needless to say, Mr. Kibbe and subsequent Commissioners and Commissions have been working to turn the tables and abolish the carp which is now considered a poor fish detrimental to preferred game fishes. With the game situation somewhat improved, only 77 counties claiming exemptions, the attention was focused on marine fisheries.

The year 1903 saw a five-year closed season enacted on the pronghorn; headlight hunting outlawed, the bag limit on deer placed at six bucks a season and on turkey, quail and doves at 25 "at any one time." This was two years after the famous Spindletop gusher came in, starting oil developments which were soon to lead to water pollution problems on all major watersheds. The rent on oyster bed locations exceeded licenses receipts by nearly $300.

A game department was added to the office of Fish and Oyster Commission in 1907, provided it could sell enough licenses to pay its own way. The limit on deer was reduced to three bucks a season. The turkey seasonal limit was also reduced to three.

Two years later brought the passage of the first hunting license law and, exceeding expectations, 5,000 were sold the first year. The fiscal report for 1909-1910 revealed that there were over 5,500 acres in private oyster beds in Texas coastal waters.

Two years later Commissioner Sterett urged the passage of laws permitting the killing of pelicans, terns, gulls, and an animal he called a "sea pigeon" because they destroyed fish. The greater prairie chicken of the Texas blackland prairies was last reported. In 1914 Commissioner Sterett reported " . . . I must say that it is due to the public opinion which has been aroused to game protection that the highly satisfactory administration of the law is attributable."

The year 1915 saw the newly appointed commissioner, Will W. Wood, urging legislation to assure the quail and dove seasons running concurrently. He, too, urged the killing of pelicans, "blue cranes" and loons to protect fish life. The bag limit on quail and doves was reduced from 25 to 15 per day.

(Editor's Note: In reviewing 1951, some sportsmen may want to backtrack all the way in Texas. If it's hope for conservation they seek, here's a guide way back to 1861 when the first game law became effective. The following, in part, was presented to the officers and directors of the Texas Wildlife Federation at their meeting at Texas A. & M. College, October 20-21, 1951.)

Waterfowl got just consideration with the passage of The Migratory Bird Treaty Act with Canada in 1916.

In 1919 we find a five-year closed season on wood ducks; turkey hens protected; and only six game wardens to patrol the entire state. It was in this year that World War I conditions were instrumental in the Federal Food Administration establishing rules and regulations, contrary to state conservation laws, for the purpose of alleviating the food shortage, substituting fish for beef. Certain interests, local and foreign, began a systematic exploitation of our marine fisheries resources. The price of fish rose to the luxury level and it took the State Commissioner, the Attorney General, and U. S. Senator Culberson to bring Federal interference with our fishing affairs to an end. In this year Commissioner Sterett urged the creation of a state conservation department. He also advocated the operation of state game farms on penal institution lands with supervision furnished by Texas A. & M. College.

A year later a new Commissioner, J. R. Jefferson, urged the establishment of public hunting grounds. He also believed that ring-necked pheasants which ". . . are very closely related to the bobwhite quail in that they will stand intense civilization and thrive in any climate" should be stocked by the State. He anticipated a state-wide open season on pheasants.

The 1923 legislature turned over the entire game fund to the department with the authority to hire any reasonable number of wardens. Forty-five were employed much to the surprise and chagrin of many previously unmolested violators who made their unexpected acquaintance under embarrassing circumstances.

Two more years went by and we saw the creation of the first state game preserves. The warden force was increased to 100. Bass and crappie were taken off the list of marketable fish. Commissioner T. E. Hubby praised the cooperation of Boy Scouts and other conservationists and noted "a general wave of conservation seems to be sweeping over the state."

In 1926 Mr. H. Fred Smith, Director of Education, Publicity and Research, voiced his opinion that the people of Texas were natural conservationists. He urged the establishment of at least ten game propagation farms and public shooting grounds. Mr. Smith expressed his concern over crows, roadrunners, hawks, and snakes and " . . . others of the predatory breed which the public has been asked to exterminate."

The following year brought the passage of the first artificial bait licenses law. It also ushered in the first conviction for stream pollution.

In 1929 the first overlapping, nonsalaried commission was authorized and six commissioners were appointed by the governor. Wm. J. Tucker was appointed the first Executive Secretary. Deer trapping and re-stocking were begun two years later, and in 1933 Mr. J. G. Burr delivered wildlife addresses to 30,000 pupils in 77 public schools.

• *Continued on Page 28*

Sul Ross Sponsors Range Recovery Program

Buck Owens, Barnhart, Texas.

By JAY VESSELS

Assistant Director, Departmental Publications

THE motley group of hunters stood around the Game Warden Supervisor Ray Williams in a half circle.

Dawn was fast fading into full daylight. Shafts of light streaked high above the eastern horizon. The pending sunrise illuminated the warden's face as he began:

"Men, this hunt has to be very closely supervised. You will be able to understand that. We are hunting these antelope on other people's property. Their livestock are out in the open, oftentimes close to the antelope."

The warden supervisor raised his right foot to the jeep bumper and leaned an elbow on his knee. Some hunters shuffled their feet.

"This hunt has to be closely supervised because of the limitations on the number of antelope to be killed. No female antelope can be killed. That is why we have to forbid you from shooting into herds. Furthermore, you cannot race your car. The limit in stalking the animals is fifteen miles per hour.

"The safety angle is paramount. Be careful about your gun. Be exceptionally careful in getting into and out of your car with your rifle. These guns pack an awful load.

"When you get your antelope, we suggest that you dress it out immediately. Bring the carcass back here to be checked out and we suggest that in view of the heat that you hang up the meat in a locker as soon as possible."

Then he went on to explain that a hunter has to give up his gun but may accompany his party, after he has bagged his buck. He assured them that the game commission personnel were present for the hunters' benefit as well as for the protection of the game.

"We are here to help you all we can. We hope you all have good hunting."

As the 20 odd hunters dispersed, two youths dressed in range clothing like they knew how to wear it, drifted back toward the game warden. They stood quietly until the warden assigned them to conducting cars occupied by warden assistants.

These chaps are students at Sul Ross State College at Alpine. They are studying wildlife conservation and management.

The sport of the hunt was not the objective of their presence. They were assigned to observe the methods of hunting and the results.

So, during the rigidly conducted nine-day hunt for roughly 500 hunters, thirty of these young men and women observed the proceedings. Because to them such hunting is like harvesting a crop—any crop. Thus they needed to study both methods and outcome. The briefing of a game warden or the antics of a rifleman would be incidental detail to them.

Sul Ross, you see, is located in the heart of the vast open spaces, and naturally, the residents look to Sul Ross to help them find the answers.

And all the questions out there date from the soil—or the lack of it. Out there, the folks may look in any direction and see Nature's scars from misuse—from overgrazing, from erosion.

No region provides a more vivid example of the wrongs of the past. No region provides a more sensitive attitude toward its current challenge.

At least, the keenness is apparent at Sul Ross.

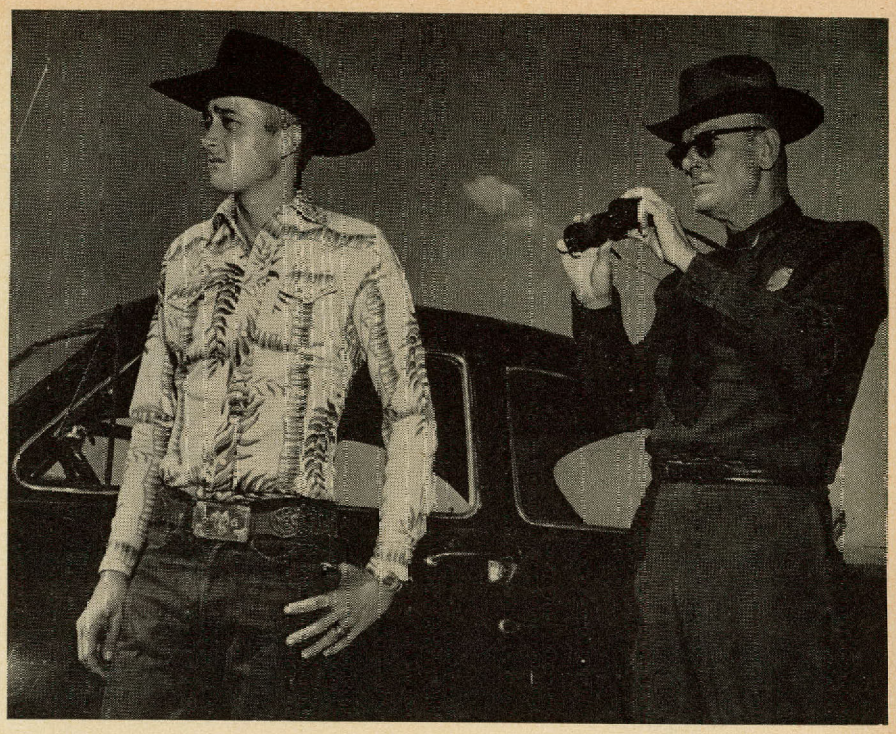
And there was unmistakable fervency in the voice of W. E. (Bill) Williams as he briefed a visitor on college tactics.

"We teach them about grasses," he said, emulating the zeal of a missionary stating his Biblical approach.

"If our generation can comprehend the reason for the range depletion, they will have no difficulty understanding the needs. Therefore our approach is fundamental."

Sul Ross has gone ahead from the statement of purpose given to its agriculture department in 1948, by Dr. R. M. Hawkins, college president:

"If an educational institution is to be outstanding it must offer courses of studies that equip its students for useful living in a democratic society, and afford training that trains for maximum wage for available jobs."



Sul Ross student, Wobbler Wilbanks, Big Spring, observes the antelope hunt with Game Warden Ed Lacy, Sanderson.

At the time, Sul Ross was contemplating reorganization of the agriculture department.

Then, Williams, director of the division of vocations, suggested to the administration and to the staff:

"Sul Ross should limit its offerings to meet the needs of the ranching section and to train its students to return to their home ranches and to put into practice the things they learned through college training and experience . . ."

Williams recommended that the

Professor W. E. (Bill) Williams gets down to his favorite subject, the grasses, during a field trip with June Ackel, Beaumont, left, and Mary Green, San Angelo.

Professor Williams on location with students, left to right: Thomas Redford, Odessa; Jack Skiles, Langtry; C. W. Cox, Alpine, and Harold Haynes, Sanderson.

department should be called the Range Animal Husbandry department since its offerings would be in the field of solving range problems. Thus, Sul Ross undertook a distinct service to the Big Bend country through the students serving the livestock interest.

Now, Sul Ross combines the study of range plants and range management with the production, management and marketing of livestock, with full recognition to the conservation of all natural resources as a vital part of the combined study.

Long before, Sul Ross had concentrated on these goals. Under the leadership of Professor A. J. Bierschwale, the Alpine college pioneered in teaching conservation in college, back in 1937. He continues to offer his course—"The Conservation of Human and Natural Resources." It is estimated that he has taught over 600 teachers the importance of conservation.

Sul Ross now moves ahead in its own geographical empire and in its own distinctive, forceful way. Its momentum was accelerated when Williams joined the faculty, bringing with him over 20 years of experience in teaching game conservation and management to students in vocational agriculture classes and to farmers and ranchers in the brush country of South Texas.

Although directing the division of vocations, it was natural for Williams to continue his interest by teaching the students enrolled in the range animal husbandry department.

During his long South Texas experience, Williams worked with all agencies in strengthening understanding between the ranchers and the Game Department. He collaborated with the department in developing a course of study designed for teaching game management to students enrolled in vocational agriculture.

Reasoning that wildlife should be of commercial as well as aesthetic value for Texas ranchers, Williams introduced two new courses in the range animal husbandry curriculum. These courses were divided in two semester courses, and were called "Wildlife Conservation and Management."

The first course provides for:

An introduction to wildlife resources of the United States with specific reference to Texas;

A study of game regions of Texas;

A study of the habitat, food, hunting, and transplanting of pronghorned antelope and mule deer;

An account of what has happened to North American wildlife and the part it has played in the development of the nation;

A study to determine the place of wildlife in a farming and ranching program.

The other course in Wildlife Conservation and Management deals with:

Brief history of game management in the United States;

A study of quail, doves, turkey, fur-bearing animals, non-game birds, predators, and fish production as a part of farm and ranch economy;

A study of game laws and game regulations;

A study to develop a wildlife program of production and conservation to meet farm and ranch needs.

But behind the detail—behind the window dressing—is the mighty motto at Sul Ross:

"We teach them about the grasses."

Getting at the roots are A. J. Bierschwale (upper left, top photo), head of the Sul Ross Range Animal Husbandry Department, and student John Gill, Chase, Kansas. Below are Charles Bradfield, Lampasas, and Professor Williams, Director of the Division of Vocations. Here a Sul Ross foursome (bottom photo) studies a tank experimental project on the college ranch. They are, left to right, Harold Haynes, June Ackel, Professor Williams, and Jack Skiles.


POSTED
SHOOTING PRESERVE
(Licensed by the State of Texas)
PENALTY FOR TRESPASS $10 TO $200
Game, Fish and Oyster Commission
State of Texas

What Is It?

By W. C. GLAZENER

Director, Wildlife Restoration

LOOKS a little like that testing chart in the eye doctor's office, doesn't it, Neighbor? Big letters, medium-sized letters, small letters and some almost too little to be read—do these make sense to you? It was quite a puzzle to me, too, the first time I ever saw one of these markers.

What, you ask, is a Shooting Preserve? "Preserves" should be "non-shooting," shouldn't they? Well, that's what I used to think, too. There have been some changes made! Nowadays, you even read about wingless chickens, as well as hairless dogs.

Now, more about this "Shooting Preserve" thing! It all goes back to Article 908, Penal Code 1925, as enacted by the 39th Texas Legislature, Regular Session. This measure said that anyone acting as owner, manager or lessor of a shooting club or resort must secure a "Shooting Preserve License" from the Game, Fish and Oyster Commission before he could make any charge for hunting privileges.

Shooting Preserve Markers Are Prepared by Club

The Act stipulated a penalty for anyone convicted of accommodating hunters "for reward" without having first secured such a license. It also required the manager of each "club," "resort," or "shooting preserve" to keep a registration book for all guests or members. Each guest or member was required to list the species and numbers of game killed each day he hunted on the preserve premises.

Shooting preserve markers, such as the one shown, are prepared by the club and erected around club premises. They are not supplied by the Commission. Not all clubs make use of them, however, since they are not a part of the legal requirement.

Why is the word "POSTED" included, you want to know? It is just for emphasis. Actually, any area enclosed by "any structure for fencing either of wood or iron or combination thereof, or wood and wire, or partly by water or stream, canyon, brush, rock or rocks, bluff or island" is automatically posted under the Texas laws.

There's another point involved here, too. The marker depicted is an old one, and the current penalty for trespass doesn't necessarily begin at $100. For a second or third conviction, the cost may be increasingly higher.

Do you have any idea as to how many shooting preserve areas there are in Texas? For the fiscal year ending August 31, 1951, there were 4,212 in effect. In 1935, there were 1,335; in 1945, a total of 1,958. What the number will be in 1955? Your guess is as good as mine.

This growing number of shooting preserves reflects the increasing competition for places to hunt. Directly, it has resulted in the execution of more and more hunting leases, some by the season and some by the day, and the end is not yet in sight.

Shooting preserve areas are most numerous in the Edwards Plateau where deer and turkey hunting hold the stage. They are also very common on waterfowl ranges along the coast, and even extend into the whitewing country of Cameron and Hidalgo counties. Some now exist in portions of East Texas, as well. Whatever our other reactions may be, we can agree that in the space of 25 years, the pattern has become firmly established in Texas.

Owl Chicks Reaching Henhood

☆

By

ED BRYSON

THEY didn't give a hoot when they were little and they still don't give a hoot.

That's the attitude of two owl-raised chickens at Bogata toward anyone who thinks the relationship between them and their big-eyed foster mother is uncommon.

And Hootie the hook-nosed hoot owl, that sat on the hen eggs until they hatched and then reared the baby chicks from chirpy biddy-widdies to full grown Bantams, has the same feeling.

She also doesn't give a hoot.

Hootie, a four-year-old hoot owl belonging to Newt Bryson, Bogata barber and wildlife lover, was caught when a featherless baby in an owl's nest on the old Red-Mar Lake, now the Humble Lake near Talco. Mr. Bryson took the tiny owl home with him and put her in a cage.

He thought she was a "he" until last spring when she laid a couple of eggs and showed a desire to set. The eggs were infertile, however, so Mr. Bryson, more to please the owl than anything else, slipped five chicken eggs under her and marked his calendar.

Hootie took to the nest like a duck to water. She had been showing the "setting" symptoms for several days. Mr. Bryson said she would come to the door of the cage and try to "talk" to him. Then she would cast fond glances toward her nest in the corner. One day they found her sitting on a rubber ball that had been put in the cage for her to play with.

Hootie stuck to the nest like a bur in a cow's tail, refusing to leave it for either food or water. The Brysons—Newt and his wife—carried the nourishment to her.

At the end of the necessary time, the eggs began to pip open and Mr. Bryson was pleased to count four baby chicks out of the five eggs.

Hootie took over like an old hand. She hopped around inside the cage with the chicks, alternately hovering over them and backing away to attempt hoarse clucks. She gave them most of her own food, and when turned out into a grassy lot, she tried to scratch for worms.

"She acted just like a mother hen," Mr. Bryson recalls. "She had an intense hatred for the family cat and when it appeared she would fly at it like a bullet and rush it away."

The chicks showed the same affection for their foster mother. If her odd appearance and great eyes seemed unusual to them, they didn't show it.

Only two of the four baby chicks reached henhood, however, and they are named Speck and Shorty. Both are pets but both answer to "kids" instead of "chick."

Mr. Bryson says the two young hens are as fond of Hootie now as they were when they were babies. They prune her feathers and one of them tries to imitate the low hooting voice of her foster mother.

"We let them out of the cage in the morning, but they are always eager to get back in at night," Mr. Bryson explains, adding that he plans to re-set Hootie just as soon as she gets the "setting fever" again.

Neighbors of the Brysons have quit coming to the back fence to peer at the strange mother and her brood. They have come to accept the owl and her chickens as part of the community life.

They don't give a hoot, either.

Paris News.

Hootie and her baby chicks make up the strangest and possibly the proudest family in Bogata. Here the mother owl is shown with the chicks just a few days after they were hatched last year. Their owner, Mr. Newt Bryson, was afraid the owl might turn on the chicks and eat them, but the wise old bird never had a cross word for her children. Instead, she hooted happily as the chicks scampered around her during the day and nestled under her feathers at night. (Photo by the author.)

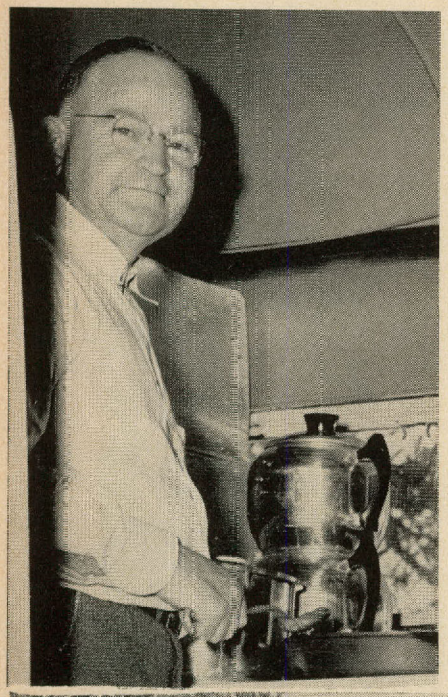
Only two of the four baby chicks have grown to henhood, but Hootie still stays with them and the family relationship couldn't be better according to Mr. Bryson who made this picture recently. The hens are named Speck and Shorty but answer to "kids." They prune their foster mother's feathers and one of them even tries to imitate her low hooting voice. (Photo courtesy Mr. Newt Bryson.)

Hunting Lodge

LIVING in an ultra-modern home must be tremendously boresome to some of the fellows from Killeen, Temple and Belton, now that they have converted a second-hand 37-passenger Army camp bus into a mobile hunting lodge.

"Even have our own TV," proudly reported Harley Kern, Killeen farmer and real estate man and mainspring behind the project.

"Yep, our own TV is one of the main reasons we have worked this thing out so successfully. Don't waste any precious time between shoots. The boys not only talk about their exploits going and coming but they have room in this rig to act out their parts."



Kern said they haven't a bug left in the entire system:

"Even my wife thinks it's a good idea; helped us pick out and put up the window curtains."

Her reward is a share in the name of the rig. It is called the "Hak-Ark Hunting Special." The "Hak" is for Harley Andrew Kern. The "Ark" is for Arlo Ruth Kern.

Kern also is proud of the portability of the big machine with its eight bunks, complete kitchen, storage space and seats for nine. "We rolled from Denver to Temple—over 1000 miles in 24 hours, on our way back with a load of game from Jackson Hole, Wyoming," he explained.

Kern, stocky, amiable promoter of the luxury limousine, said high speed was not the purpose of the machine.

"We just roll along within the speed bracket for commercial buses," he said. "But we do keep in motion. We change off at the wheel. At night there's always one of the men to co-pilot with the man doing the driving."

He went on.

"One thing we don't do is to compromise safety. Why, we took that long haul to Jackson Hole—1650 miles one way—and just kept plugging along without a hitch."

Kern said convertability was the inspiration behind fixing up the machine.

"We have spare seats fore and aft," he explained.

By JAY VESSELS

"Now those bunks—they sleep eight men. The bottom ones can be pulled out, folded up and stacked against the wall to make room for game."

"That," he chuckled," may mean somebody has to sleep sitting up on the way back home."

Kern said he is proudest of the kitchen "and the pardner we have to run it."

The head cook was identified as Claude Jacks, Belton cafe operator. (Note coffee pot shot at left.)

"You ought to see how that man turns out flapjacks," drooled Kern. "And the way he makes hot biscuits. Everybody gains weight on the trips

THIS RUBBER-TIRED bundle of hunting happiness provides background for some of the Texas sportsmen who ride on the boom-boom circuit. They are, left to right, on the ground: Claude Jacks, Belton; J. W. Seastrunk, Temple; Sam Garth, Jr.; Woodrow Holder, Killeen; Laurence Sladovnik; Clifford Dockrey; on the hood: A. H. Curtis and Harley Kern.

on Wheels

even though we do a lot of hard work hunting."

He also recommended Jacks' mulligan stew.

The galley includes a four-burner butane stove and a gas refrigerator.

"That refrigerator is a honey," bragged Kern. "On the way back when the chow is out of there, we turn her up and use the refrigerator for a deep freeze. Works good, too."

Assistant Director Departmental Publications

Kern thought one of the best features of the stove is the flange-equipped stove burners.

"Keeps that coffee pot on there, in motion or not," he said. "The flange holds her down and maybe you think that coffee doesn't taste good to the driver in the tough morning hours after a long trip."

The "Hak-Ark" shareholders foresee a great fishing future for the rubberized motel. "We plan to hit Buchanan (Lake Buchanan) during the winter months and also will use it for the salt water fishing. Got a spot in the Galveston area picked out for parking."

The crew has designed a tarpaulin to provide a lean-to when the bus is parked at the summer fishing spots and there's a folding table and six folding chairs.

"We will be able to take our wives along for fishing," added Kern. He said it with the air of a man who senses the need to somehow include the patient little woman in an occasional trip.

For Texas sportsmen impressed with the Temple-Killeen-Belton project, Kern said the cost is remarkably low.

"We've got between $3500 and $4000 invested in the bus," he explained. "Friends say it's worth at least $15,000."

Defying the old one about upkeep and not the original cost being the problem, Kern said they use regular gas in the portable lodge.

"It took about 440 gallons of fuel for the roundtrip to Jackson Hole," he added. "But split up eight ways, that isn't bad."

Kern described the party as including a farmer, a real estate man, a store keeper, a cafe man, a health department worker, a lumber yard manager and so forth.

Reminded that the charter membership included no mechanic for the lodge's power plant, Kern retorted:

"Shucks we're all good enough to service that truck motor. That's simple."

He implied that something or another might not be so simple, possibly such as how to cover overhead while "Hak-Ark-Hunting-Special" stands idle during the long intervals between trips.

"One of the fellows suggested we pacify the women folks by using the lodge for their bridge parties between trips," he said. "But somehow that didn't seem right."

"I mean," he hastily explained, "the women folks might object to the masculine traits—oh, such as an old pair of socks left hanging over the end of a bunk."

BUNK MATES—Demonstrating the built-in bed facilities are: left, lower, Laurence Sladovnik, Killeen; upper, A. H. Curtis, Killeen; right, lower, Sam Garth, Jr., Temple; upper, Clifford Dockrey, Killeen.

Wildlife and Man

By EVERETT F. EVANS

THE title of this little treatise could be misunderstood, but a couple of definitions may prevent such a tragedy. We use the term "man" in a broad sense, which also includes the "deadlier of the species." As for wildlife, it shall have the usual meaning of "all living things other than domestic animals and plants."

It is true that human influence on wildlife is often negative; but this does not mean that man is an irresponsible creature who destroys for the sake of destruction. The use of wildlife, like the use of all natural resources, depends upon some definite factors. Four of these factors will be considered here: (1) basic human needs, (2) availability, (3) science, and (4) war.

The principle of "first things first" operates very positively in the use of resources. Food, shelter, and clothing are primary human needs, and the problem of securing these is man's first concern. Throughout the settlement of the United States, wildlife was a readily available source of food in most new communities before agriculture could be developed.

Before 1870, the clearing of forests was dominated by the demand for cropland. More timber was cut than could be used economically. There were few sawmills, and fuelwood had little market value. Fire was considered a necessary aid in carving farms out of the wilderness. Contrary to popular belief, this was not deliberate destruction; it was a normal human response to an urgent human problem. The rapid growth of lumbering between 1880 and 1920 brought about a substantial reduction in the area and timber volume of the commercial forests. Regardless of motives, the clearing and burning of forests over a long period of time were generally unfavorable to wildlife.

Unfortunately, many published accounts of American history have merely recorded and lamented the depletion of resources without explaining the principles underlying their use. The interpretation of these principles is one of the objectives of conservation eductation.

Terraces and contour cultivation conserve soil and water. (Photos on these two pages courtesy Soil Conservation Service.)

Grasslands, like the forests, yielded to the pressure of increasing numbers of people in search of food and homes. During the first century of settlement there was enough grass for livestock and the big game animals. Slowly at first, then rapidly, the scene changed. Cattle and sheep replaced the bison and many of the antelope on the ranges of the Southwest. In competition with wildlife, livestock had the double advantage of being a more dependable source of food and cash income. Livestock could also be managed more effectively than wildlife. Economic rather than aesthetic values dictated the use of the range.

Farming developed along a pattern comparable to that of lumbering and ranching. For a few years all of these enterprises were beneficial to some species of small game. After 1900 the growing domestic and world markets for grain, livestock, and cotton encouraged intensive cultivation of land in every agricultural region.

One inevitable result was the constant shrinking of the area of wildlife food and cover; but this does not mean that farmers deliberately discriminated against wildlife. Rather, the land was used for purposes which were most productive.

It is probable that many who tilled the soil were not even aware that they were destroying the native plant and animal life. Man is not always a mercenary creature without a sense of values, as some of the conservation literature describes him. However, man is a land-based creature whose primary needs determine his use of the earth and its products.

Availability of wildlife is another factor which affects its use and management. The American Indian had no reason to take more game than he needed immediately for food and clothing. There were more deer, wild turkeys, and squirrels in the forests and plenty of fish in the streams. Besides, the Indians probably had no way to preserve meat except by drying. It is interesting to note that the availability of game apparently did not give the Indians a false sense of security. They knew that game was more abundant during some years than others. They also knew that intensive hunting of certain areas one season could make game scarce the next. For the most part, however, the Indian was a part of the balance of nature, and his negative influence was of minor importance.

Availability of water and wood, as well as wildlife, was a matter of great concern to people who lived in the Colonial period. It was the need for water and wood which caused settlements to be established near forest streams. While most natural resources were abundant in proportion to the total population, the use of these resources was limited by the distance which they could be transported.

As forest clearings widened around farms and villages, wood became "scarce" when men could no longer carry or drag it to their homes. The forests would not move toward man, so his only alternative was to move toward the forests. Only the mountain forests have escaped human invasion. The timber in some of the rugged areas is still too inaccessible to be harvested economically. It is in the mountain forests that the black bear and some members of the cat family have taken refuge in their struggle for survival.

The principle of availability has always operated in the harvest of wildlife. Decline of game animals was generally most rapid near the villages, and hunting expeditions extended as far as the existing methods of travel permitted. It was the depletion of

Indiangrass, little bluestem, switchgrass, lindheiman muhly, and other good grasses are abundant on this excellent range.

Oats and sweet clover provide supplementary pasture in Dimmit County, where the annual rainfall is about 20 inches. (Photo courtesy Texas A. & M. College Extension Service.)

wildlife on many small areas and the eventual consolidation of these areas by settlements which made the conservation of wildlife a regional and national problem.

Perhaps no resource has been affected more by the principle of availability than has water. The use of streams preceded the digging of shallow wells. As the water table was gradually lowered, deeper wells were necessary. It was the availability of water rather than grass which set the pace in the settlement of the Southwest. Grazing was at first limited to the land which had surface water. Later the invention of the windmill permitted the livestock industry to spread throughout the region. This in turn displaced most of the grass-eating big game animals on the ranges. Science, or technology as it is sometimes called, affects both the availability and usefulness of resources. For example, the invention of the steam engine led to the building of railroads and the opening of the West to agricultural development. The railroads also stimulated the hunting of wildlife for the eastern markets.

Fences helped to extend man's control of the grasslands. The invention of special plows for the breaking of the prairies hastened the removal of the native grasses. Wind and water erosion followed, and the mixed grass region of Texas and Oklahoma became the great "dust bowl" of the 1930's.

Irrigation is one of the important developments of science in the Southwest. Windmills had done much to encourage ranching, but they could not tap the great reserves of ground water at deeper levels. The volume of water required for irrigation is far greater than windmills can supply. Powerful motor-driven pumps now deliver millions of gallons of underground water daily to areas where surface water is not available.

There are approximately nine thousand irrigation wells on the High Plains of Texas. The total daily output of these wells during the growing season is about three hundred million gallons of water. At this rate the annual volume of irrigation water on the High Plains would be enough to cover an average southern county to a depth of one foot.

The growth of irrigation agriculture has been paralleled by the increased use of power machinery. Power farming has made possible the cultivation of large areas where comparatively low crop yields make small-scale operations unprofitable. Irrigation and power farming have greatly increased the amount of land devoted to agriculture.

How are these developments related to wildlife? That depends to a large extent upon the way in which the land is used. In some places the rotations of grain, hay, and legume crops have increased the food and cover for upland game. Other areas which are farmed intensively may provide food and cover only during the summer months. A satisfactory population of wildlife can be maintained only on land which affords a good habitat throughout the year.

There was a time when wildlife was comparatively safe a few miles away from pioneer settlements, but those days are gone forever. The airplane, automobile, bus, and train have almost eliminated distance. Motorboats, too, are helping to extend the range of hunters and fishermen. While hunting pressure is still greatest near large centers of population, modern transportation enables present-day

sportsmen to reach any part of the nation in a few hours.

There is one other influence of science which should be considered. Research is constantly developing new products and finding new uses for raw materials. This has a tendency to increase the pressure on the soil, and therefore, to intensify the competition between wildlife and agriculture. On the other hand, technology is raising the level of living for people everywhere, and this compensates for some of the negative effects on certain natural resources.

War has always had a terrific impact on all natural resources, including wildlife. The effect of war on the expansion of agriculture, with the inevitable destruction of grassy and woody cover, has been discussed in previous articles of this series and need not be restated here. Some of the damage to the soil, forests, and grasslands is almost irreparable.

The world program of military preparedness is extending the influence of war beyond the periods of open hostilities. Agriculture and industry must remain geared to peak production, and the conservation of natural resources will be affected by the prior claims of economic necessity.

There is a brighter side to the relationship between people and wildlife. Man's resourcefulness and "know-how" are already at work in the restoration of the renewable resources. Human ingenuity has mastered many difficult problems; and as long as this quality exists there is hope that the experiences of the past have not been in vain.

Let's take a look at the credit side of man's ledger to see how human activities are beneficial to wildlife. The last twenty-five years have brought a steady awakening of public interest in all fields of conservation. Out of this growing awareness of the need for the efficient use and management of resources have come strong programs to arrest soil erosion, to improve ranges, to prevent depletion of ground water, and to restore some of the natural habitat for game.

Improved land use is one of the most promising trends. Thousands of acres of land are going back to trees, and large areas of range land are getting a well-earned rest and a new coat of grass. Watersheds are being managed on a multiple use basis, which includes wildlife.

Research is helping to take some of the guesswork out of conservation. In the state program of wildlife restoration, for example, eighteen biologists are studying the needs and status of wildlife and are working with landowners to improve the habitat for game birds and mammals.

Finally, education is helping to change the national philosophy of resources. People are learning the futility of condemning the past, and they are tackling the problem of making the most with what is left.

A thicket of sumac, red bud, wild plum, wild grape, briars, hackberry, and other plants (above) have been left for wildlife on this farm near Gatesville. (Photo courtesy Soil Conservation Service.)

A fox knows the importance of good cover. (Photo courtesy Texas A. & M. College Extension Service.)

SPORTSMEN'S

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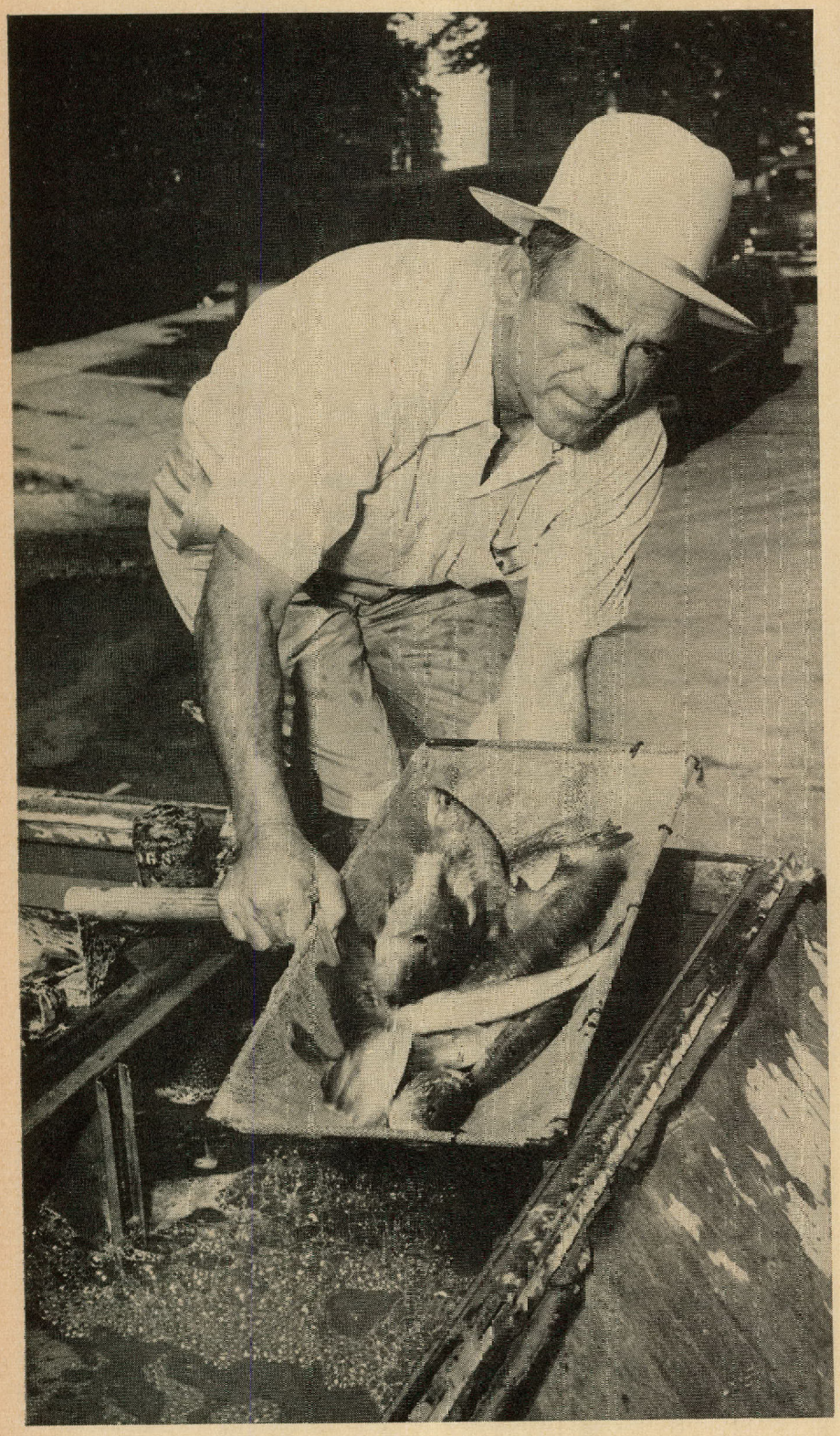


Haskell White, assistant superintendent of the state fish hatchery at Dundee, Texas, displays some of the perch and bass which were used to stock the lake at Boys' Ranch, near Amarillo, Texas. Boys' Ranch is sponsored by the Panhandle Outdoor Sportsmen's Club of Amarillo. (Photo by J. Howard Miller.)

THE spirit of the sportsmen inspires many projects that bulwark wildlife conservation in Texas.

Direct and indirect procedures are used by volunteer groups to augment the official forces.

Some groups provide game cover and game feed, as well as fish advancement programs. That is the direct method.

Many organizations work through clubs and children's groups, such as Scouts, to teach nature subjects.

Volunteer and official authorities agree that a vigorous public interest is the only hope for hard-pressed wildlife.

Here are some examples of direct and indirect methods:

The Panhandle Outdoor Sportsman's Club of Amarillo maintains an active and agressive interest in better hunting and fishing for all. The club sponsors fish rodeos and keeps a Boys' Ranch located some 60 miles northwest of Amarillo. Here approximately 135 unfortunate boys live under new and different conditions from those experienced in the homes from which they have come. The Game and Fish Commission has helped stock their lake and Haskell White, of Dundee, has counselled them in the program.

Under the auspices of Con-

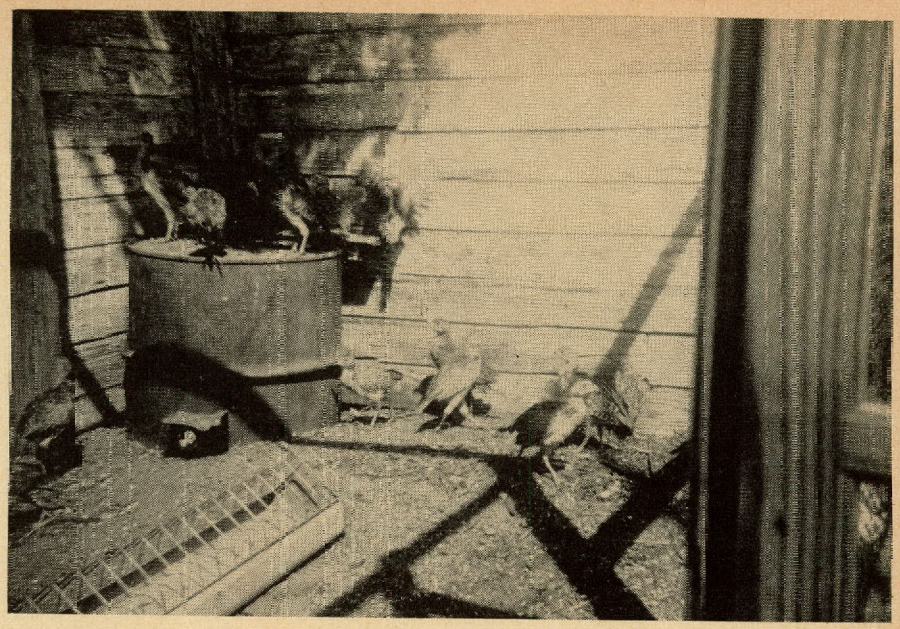
LUBS

onservation

servation of Texas Fish and Game, Inc., a game sanctuary was dedicated last year in Grimes County. It is a new move to conserve and propagate game. Cotfag intends to trap quail and start a series of coveys on the 1,320 acres of land. Again Game Department personnel aided with the program on Upland Game Sanctuary Number One.

The Rita Blanca Outdoor Sportsmen's Club of Dalhart, organized three years ago, has undertaken several projects, always with the thought in mind of game conservation. Members are pledged to train the younger generation to be true sportsmen. The slogan is: "Take a boy with you."

One project, designed to stock the Panhandle with pheasants, was started strictly on an experimental basis. By trial and error, some satisfactory results have been accomplished.



These pheasants, in the upper photo, are being raised by members of the Rita Blanca Outdoor Sportsmen's Club of Dalhart, for release in the Panhandle. The inverted barrel provides shelter for the young birds which are released around the first of September, giving them time to get located before the severe cold weather. Below, Carlow Greenwood and Arthur N. Crais at the dedication ceremony of Cotfag's Upland Game Sanctuary Number One in Grimes County. Quail restoration is being emphasized on the 1,320 acres of land.

Benefits of Hunter Cooperation

By JAY VESSELS
Assistant Director, Departmental Publications

THE part the sportsmen take—or could take—in aiding modern scientific efforts to improve hunting is typified in studies of bobwhite quail made possible by quail wings forwarded from the hunters' bags.

This Texas Game and Fish Commission project got considerable momentum through cooperation provided during the 1950-51 quail season.* It was renewed with vigor this last fall when all of the persons helping out the year before were used to bulwark an effort to recruit greater assistance.

* Projects under the Pittman-Robertson Program.

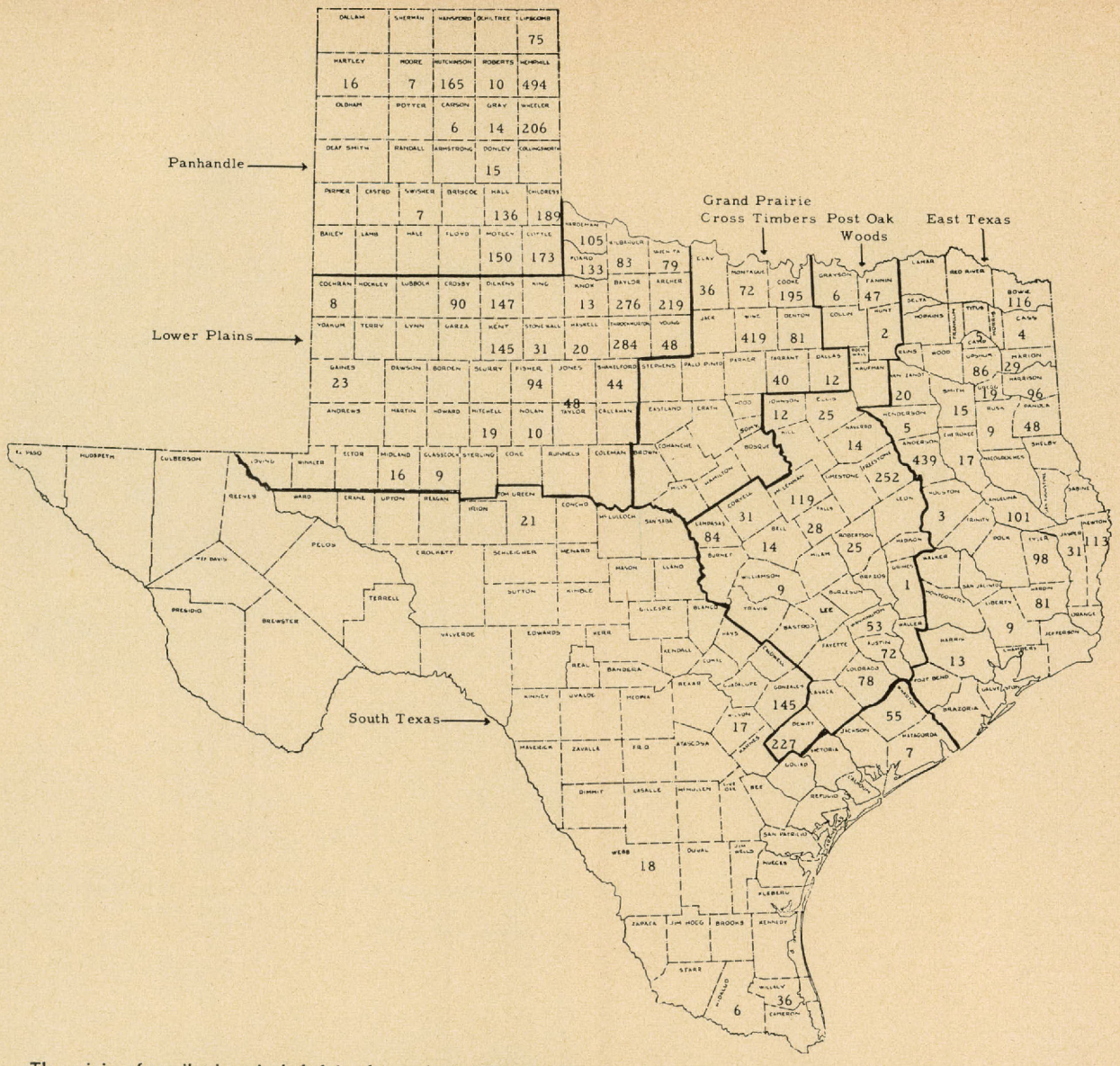
W. C. Glazener, Director of Wildlife Restoration for the Texas Game and Fish Commission, said sportsmen are showing increasing interest toward advancing studies of breeding, feeding and migration habits of wildlife.

He said this progress is borne out by growing support of such undertakings as collecting whitewing dove wings, collecting bands placed on mourning doves and collecting bobwhite quail wings.

"More and more hunters are coming to realize that protecting and propagating our wild game is a matter of teamwork," said Glazener. "I know more sportsmen will cooperate in these studies when they realize how vital the work is."

In literature forwarded to Texans participating in the bobwhite field project, Glazener pointed out that quail wing feathers tell the approximate age of the birds harvested. He explained that sex and age data on a good sample of birds from a locality indicate rather definitely the extent of hatch and survival for the year.

A. S. Jackson and A. J. Springs, wildlife biologists with the Game and Fish Commission, along with W. C. Glazener (right), director of the Division of Restoration, use quail wings sent in by hunters to determine the age of the quail.



The origin of quail wings included in the study for 1950-51. The numerals indicate the number of wings secured from the various counties.

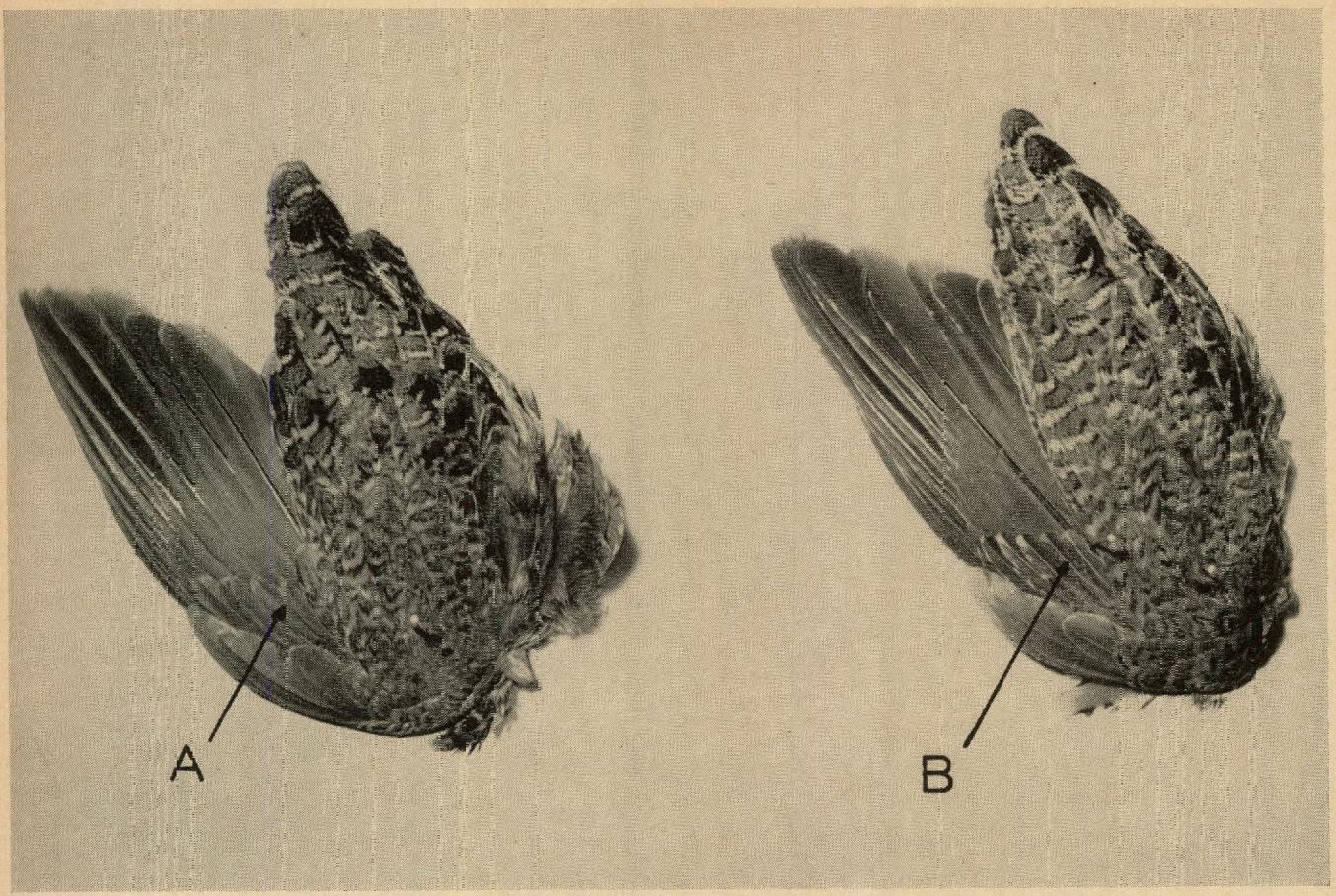
He assured cooperators that help in collecting quail wings will facilitate compiling data to help guide quail management.

Here are the basic instructions stated on the back of the heavy paper envelope distributed to sportsmen whose names are available through their previous cooperation:

1. Separate the birds killed by your party into cocks and hens.
2. Remove one wing from each cock quail and place all such wings together in an envelope marked "COCKS."
3. Similarly, put one wing from each hen quail in an envelope marked "HENS." *It is important that the sexes be kept separate.*
4. Fill out the information form to the right, hereon, and seal the envelope.
5. Given your name and address, we will be glad to inform you as to our final analysis figures.
6. As soon as possible, mail your collection to the address on the reverse side of the envelope. You do not need to add any postage.

Use this envelope for one day's hunt only! Include wings from all birds killed by your party on this date.

"Envelope contains wings from COCKS ( ) HENS ( ) *Check which.*



Bobwhite wings; (A) adult bird, primary coverts with dark shafts, tips and edges; (B) young of the year, primary coverts with buff shafts and white to light buff tips and edges. Approximate age of young, up to 150 days, is determined by molting pattern of primary flight feathers (not shown).

County hunted: _____

Date of hunt: _____

Number of hunters in party: _____

Number of bird dogs used: _____

Number of coveys found: _____

Number of hours hunted: _____

Name and address of collector (optional) _____

If the wings in this envelope do not represent all the birds killed by your party on this date, what was the total number killed?"

The following tables (next page) which are largely self-explanatory, present the most significant points brought to light by the study of wings from the 1950-51 quail season. Glazener emphasized that other important factors may be recognized later.

In connection with Table I, it is of interest that young-of-the-year quail made up the major portion of the bag in each region. Also, the percentage of young was highest in those sections where quail populations were known to have shown the most increase during 1950. This also applies to the column headed "Number of Young Per Adult Hen." This does not mean that each hen quail in the respective regions raised the designated number of young, but the survival up to and through the hunting season was in the proportion given.

In each region, the bulk of the 1950 bobwhite hatch came off prior to August 15. Quail production after August 31 apparently dropped very low or ceased entirely. The number of samples for the South Texas region was probably too small for a high degree of dependability. Even so, the tendency toward a more even rate of hatch reflects the possibility of consistently good quail population there from year to year. That is, provided conditions are not strictly prohibitive up to the beginning of September.

Table III gives a tentative clue as to how quail hunting in various areas compared with the various regional "averages." Biologists suspect that the comparatively higher find on "coveys per man hour" in South Texas may have been influenced by sparser hiding cover than in other regions.

TABLE I

Sex-Age of Quail as Determined from Wings Collected During the 1950 Hunting Season

Region	Males	Females	Sex Unknown	Total	Percent Adults	Percent Young	Number Young Per Adult Hen
East Texas	636	571	149	1,356	24.0	76.0	7.3
South Texas	143	142	20	305	26.1	73.9	5.3
Post Oak Woods	614	585	339	1,538	20.7	79.3	8.3
Cross Timbers—Grand Prairie	386	420	....	806	13.9	86.1	13.6
Lower Plains	961	884	119	1,964	14.4	85.6	13.5
Panhandle	779	785	99	1,663	14.8	85.2	14.2

TABLE II

Hatching Dates for Young Quail in 1950 as Determined from Wings Collected by Hunters

	East Texas	South Texas	Post Oak Woods	Cross Timbers Grand Prairie	Lower Plains	Panhandle
Prior to August 15	89.8	69.5	86.3	85.1	94.2	86.7
August 16–31	8.0	30.5	11.4	9.8	4.5	12.4
September 1–15	1.6	....	2.0	3.2	0.8	0.5
September 16–30	0.6	....	0.3	1.6	0.3	0.1
October 1–15	....	....	....	0.3	....	....
October 16–31	....	....	....	....	0.2	....
No. Young Quail Involved	670	200	....	693	1,565	1,411

TABLE III

Hunting Success During the 1950 Quail Season

	East Texas	South Texas	Post Oak Woods	Cross Timbers Grand Prairie	Lower Plains	Panhandle
Bag per Man Hour	1.2	1.1	1.1	1.4	1.0	1.0
Coveys per Man Hour	0.3	0.5	0.35	0.4	0.4	0.4
Killed per Covey	3.2	2.1	3.1	3.1	2.6	2 8

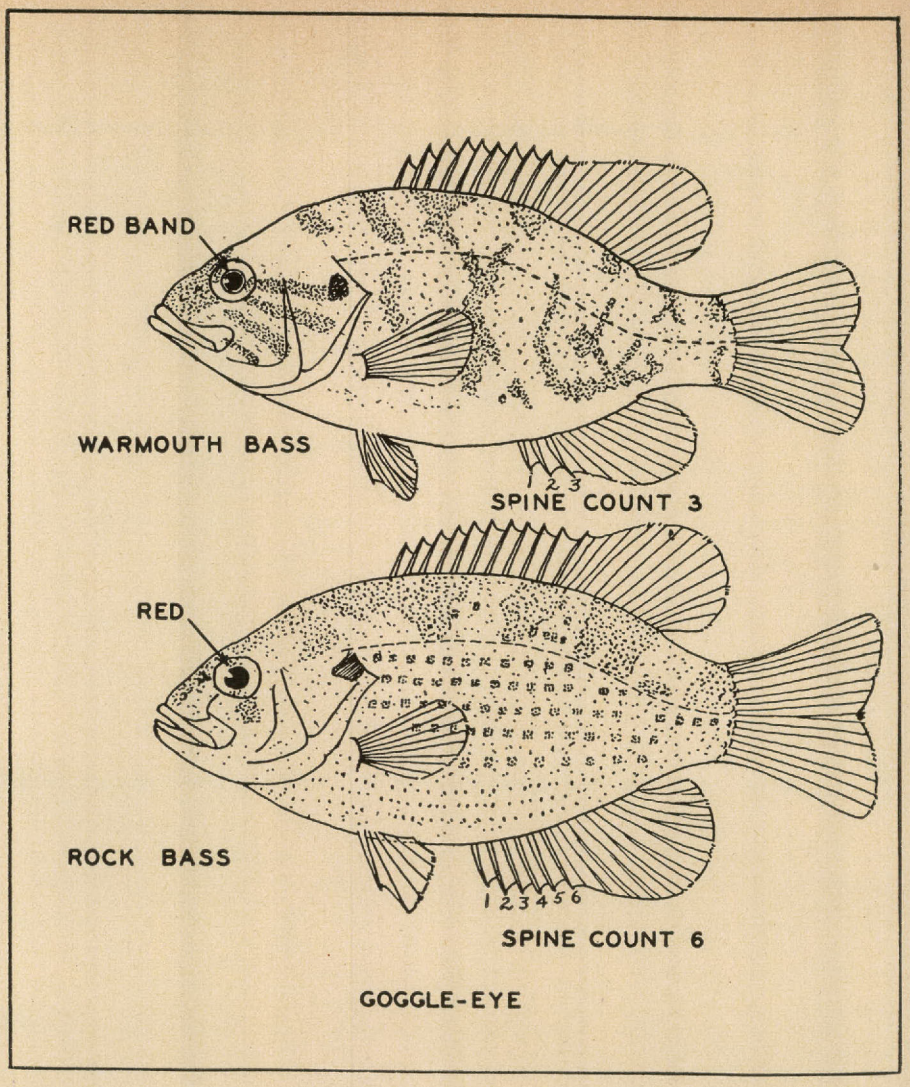
Fishes of Texas

THE GOGGLE-EYES

By MARION TOOLE
Chief Aquatic Biologist

WHEN many of the anglers of Texas catch a fish belonging to anyone of three genera and four species, they usually call their fish a goggle-eye. One fish that many anglers mistakenly call a goggle-eye was written about in the November issue of TEXAS GAME AND FISH. This is the green sunfish. Their mistake can probably be attributed to the fact that the green sunfish has as large a mouth as do the other two sunfishes known as goggle-eyes.

The two genera of sunfishes called goggle-eyes by the majority of people are the warmouth bass and the rock bass.



Warmouth Bass

Chaenobryttus coronarius (Bartram)

Although this fish is looked on with disfavor in some sections of the United States, the Warmouth bass is one of the favorite fish in Texas. It is called a rock bass or goggle-eye by Texas anglers. Warmouth bass attain a fairly large size, since ten-inch specimens are frequently caught.

The Warmouth bass has a large head and mouth. The body color is dark olive green to brown, sometimes flecked with red, blue, brassy or gold spots. Its cheeks have dusky bars or streaks running from the eye downward to the back of the gill cover. The eye has a crimson band around the pupil. As the illustration shows, the Warmouth bass has only three sharp hard spines in the anal fin.

Warmouth bass spawn like other members of the sunfish family. They seem to prefer thick weed beds for nest sites. Their nests are placed in water at a depth of two or three feet. A pair of these fish that was held in an aquarium at the Heart of the Hills Hatchery near Kerrville spawned three times during one year from April to October and each resulted in a large hatch of fry.

Warmouth bass show a decided preference for soft mud and bottom lakes, ponds and rivers, with muddy water present. Their preference for a muddy environment has caused people in many localities to call Warmouth bass mud sunfish. These fish also like to live in and around dense vegetation.

The food of these fish consists of fishes and insects.

These fish can be caught by either pole and line fishing or by fly casting. Good baits for pole and line fishing are earthworms, grubs, grasshoppers and shrimp. Flies, small spinners, etc., can be used for fly casting. You should fish for Warmouth bass in dense weed beds and around stumps and brush; they usually stay in shallow water.

Rock Bass

Ambloplites rupestris (Rafinesque)
Ambloplites ariommus (Viosca)

It will be noted that two species of *Ambloplites* are listed under rock bass. *Ambloplites rupestris* is the Northern rock bass, and *Ambloplites ariommus* is the shadow rock bass described and named by Viosca in the May 10, 1936, issue of *Copeia*. The shadow rock bass was found in southwestern and central Louisiana and was a native fish. Thus far, rock bass have been found only in the Guadalupe basin although they have been propagated in most of our state hatcheries and released throughout Texas. It is the writer's belief that the rock bass is not a native species but rather an introduced species from hatcheries. A check is now being made to determine where the brood stock was obtained. In any event the two species are very similar

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The Marine Fishes of Texas

Dogfish, Spiked Dog* *Squalus acanthias*

By J. L. BAUGHMAN
Chief Marine Biologist

THE range of the dogfish extends from Labrador to Cuba, on the American coast. It also occurs on the eastern side of the Atlantic, and it has been listed as occurring in Texas.

Dogfish are slate colored above, sometimes tinged with brown; the sides irregularly marked with small white spots, (except in very large specimens on which they may be lacking); grayish or pure white below.

Born at a length of nine to 13 inches, males mature at 24 to 32 inches, females at 28 to 40 inches; adults (both sexes included) average from two feet to three and one-half feet long and seven to 10 pounds in weight; a few grow to four feet, perhaps longer.

An inhabitant of the continental shelf, the Spiked Dogfish is rarely found in water deeper than 100 fathoms. It often occurs in large schools and at times is extremely common locally. In the northern part of their range, dogfish migrate northward and inshore in spring, southward and offshore in autumn.

They cover from three to eight miles per day. One tagged dogfish migrated from St. John's, Newfoundland, to Massachusetts, at least 1,000 miles, in 132 days. The limited results from tagging and general information on the sizes of the young indicated the possible mixing of dogfish stocks on the eastern coast of North America.

Dogfish feed upon squeateague, menhaden, croakers, mackerel, and other fishes smaller than themselves, crabs, squid, worms, shrimps, prawns, and even jellyfish.

*Abridged from Baughman, J. L., and Stewart Springer, Biological and Economic Notes on the Sharks of the Gulf of Mexico, Amer. Midl. Nat., July, 1950.

De Kay asserts that in Scotland the poorer classes have long utilized this species as food, and it may be that it is to *Squalus* that Jessup alludes, saying: "It has been a custom among Orkney Islanders for generations to accept dogfish as no more out of the ordinary than eggs and bacon. The method of preparation is a trifle unusual. After cleaning and skinning the fish they break it up and spread the pieces out on the rocks to sun and dry. Even the squeal, so to speak, is put to practical use, the skin being used as sandpaper."

Prince gives an account of the spiny dogfish in Norway—says that this fish when eaten fresh should be skinned before being cooked. Compared with bony fish such as cod the flesh of elasmobranchs such as the dogfish and skate contains very large amounts of urea, not, however, in large enough amounts to be at all injurious to the human.

The presence of ammonium carbonate together with the odour of the fish makes it exceedingly disagreeable to the taste and smell, and accordingly dogfish used as food must be used soon after caught, or else be frozen and kept frozen in order to prevent transformation of urea into ammonium carbonate.

Field states, "The Commissioners on Fisheries and Game of Massachusetts have personally reported its palatability, the lack of odour or 'strength' and the good consistency when cooked or canned. They say it closely resembles halibut. The spiny dogfish has in recent years been exploited in England as a valuable cheap food. A writer in a London paper states that the Plymouth council engaged an expert cook to prepare dogfish for the table with and without sauce, and that those who partook pronounced it excellent as to colour, flavour and firmness. The dogfishes are not only palatable in the fresh condition, but are as good as many other fishes when preserved by the standard methods. The horned dogfish *(Squalus acanthias)* being in composition most like the salmon is best adapted for canning and is considered as good as the medium grades of salmon. A packer in Petit de Grat, Cape Breton, in 1904 sent me a dozen cans of dogfish he had packed. I passed them round to my friends, who prepared the contents in different ways (fried, scalloped, creamed, etc.). In these forms the canned article was highly praised for flavour and palatability. Samples were also sent to several hotels where the fish was served to the guests as 'Japanese halibut' and was pronounced most acceptable. An establishment at Halifax has been canning large quantities and putting them on the market labelled 'Ocean Whitefish.' A firm at Charlottetown, Prince Edward Island, has been successful in selling the canned article as 'Sea bass.' "

In Canada and the United States the name "grayfish" has been adopted as the trade name for dogfish and during the first World War a considerable amount of grayfish was canned in the United States but, apparently owing to the urea present, there was considerable trouble with the cans and the experiment was not a success.

It has been stated that the dogfish is a far better food when fresh than is generally appreciated and that it would offer a tremendous

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Wildlife Conservation Program

• Continued from Page 5

In 1935 the Texas Wildlife Research Unit was established with Texas A. & M. College, the Bureau of Biological Survey, the American Wildlife Institute, and the Game, Fish and Oyster Commission cooperating. Our educational materials and services were termed inadequate but it was noted that " . . . the division must eventually grow into its rightful proportions."

The following year the National Wildlife Federation was organized in Washington, D. C., at a meeting called by President Franklin D. Roosevelt. Texas A. & M. established a department of Fish and Game.

In 1937 a Coastal Division was established. The Pittman-Robertson Federal Aid for Wildlife Restoration Act made available to the states a share in the 10% (now 11%) excise tax on sporting arms and ammunition for game restoration.

The next year game wardens were required to wear uniforms. Moving pictures, radio, and news services were added to the educational aids and media of the department.

Pronghorn antelope trapping and restocking were begun near Alpine in 1939. The peccary, or javelina, was elevated in prestige to join the elite game mammals. Restocking with Mexican bobwhite was discontinued due to unfavorable results. For the first time general conservation courses were offered to students in all of the State Teachers Colleges.

World War II had curtailed many services and supplies of the Department; however, the strain was lessened somewhat and in December of 1942 the first issue of the departmental magazine, TEXAS GAME AND FISH, appeared.

The year 1944 saw the first open season in 41 years on pronghorn antelope in the Trans-Pecos. A controlled hunt was held. This supervised harvesting is a phase of scientific wildlife management.

The following year the Coastal Division completed its short eight year life's span. The first land purchase for game restoration was made in Culberson County. H. D. Dodgen became Executive Secretary of the Commission. Elementary schools showed an unprecedented demand for films and wildlife instructional materials.

THINGS YOU MAY NOT KNOW

The owls have an external ear, or conch, covered by feathers, which exists in no other bird.

☆

In swimming downstream a fish must swim faster than the current or be suffocated by water entering its gills and remaining stationary.

☆

The parrot does not build a nest but lays its eggs in the soft dust that accumulates at the bottom of the trunks of decayed trees.

☆

The pupil of the dolphin's eye is heart-shaped.

☆

A deer's antlers grow so fast that the process is almost, if not wholly, without parallel in the animal kingdom.

In 1946 the first game warden school was held at Texas A. & M. Sixteen of the 17 enrollees received commissions. I was the "black sheep" of the group. In April of that year a state-wide program of conservation education was begun in cooperation with the State Department of Education.

Two years passed; then came the dedication of the Marine Laboratory at Rockport, followed within a year by the dedication of the A. E. Wood Fish Hatchery at San Marcos.

In the summer of 1949 more than 1500 teachers and prospective teachers attended conservation education workshops and special conservation courses in some 20 senior colleges and universities. Teaching aids—guides, posters, pictures, and so forth—for classroom use, were produced in abundance. These teaching aids dealt with all natural resource fields. The departmental live wildlife exhibit was shown at the first annual Dallas News Sports Show.

The half way mark of the twentieth century found over seven and one-half million people living in Texas. Twenty-four senior colleges and universities sponsored conservation workshops for teacher-training. The game department's "teacher packet" containing some 40 pieces of instructional literature, came to be in great demand.

Master Whitetail, an educational moving picture on deer management, received state-wide acclaim and was the first departmental film to be televised. The Game, Fish and Oyster Commission was given regulatory authority over 28 Panhandle counties.

Over $73,496 was collected in fines from 2816 convictions for game, fish and pollution law violations.

The year 1951 brought another summer of teacher-training in conservation or "Resource-Use" education. *Outlaw of the Cameron,* depicting realism in South Texas lion hunting, was previewed before an outdoor audience of 7,000 in Austin.

The State-Wide Conservation Education Planning Conference, called by Dr. J. W. Edgar of the Texas Education Agency, was held at Texas A. & M. College to review what had been done — establish the status of — and make long-range plans for the conservation education program in Texas.

The word "oyster" was dropped from the state agency title for "streamlining." Receipts from oyster dealers licenses dropped from $1,910.40 in 1940 to $125.00 in 1950, and receipts from oyster bed location rentals dropped from $1,117.50 to $284.87 in the same ten years. Pollution, silting, and other causes have nearly eliminated the Texas oyster as a natural resource. Civilization and Time Marches On.

A nine-man Game and Fish Commission comes into being and we find ourselves in the immediate present.

We have seen some of the mistakes made by State and Federal agncies in the past. These agencies were acting with the best of intentions, but they were greatly handicapped because there was little or no factual information *available* to guide and direct them wisely. Before we become too critical let us remember that what was true then is true now—you accomplish nothing if you never try anything.

There is today more and more need for research, and possibly a still greater need to have people with the proper background, training, and skill to keep the public informed on the activities and results of these specialists doing the research.

There are, of course, some drawbacks or bottlenecks that are holding us up in our conservation efforts:

1. For one thing the role the United States is playing in world affairs—now please don't misconstrue this as a criticism of democracy—it isn't, as a matter of fact, it isn't even a criticism of our present administration. Our natural resources can only be used wisely—for the maximum benefit of the maximum numbers—only under a democratic system. The point I am trying to establish here is that in this unsettled world our preparation for defense and survival is causing an abnormal strain to be placed on our natural and human resources.

2. Another drawback is the reluctance of the people to acknowledge that conservation is the concern of all people—urban and rural alike, and that all of the natural resources benefit from a sound land-use program. Soil and water must be conserved in order that plant life, the basic food chain item of animal life, will be available. Soil chemists, nutritionists, and doctors know today that the soil is also the starting point in human health.

We find almost universal accord on one thing though—the need for an educational program.

The present program of the Game and Fish Commission is directed toward adult education—often referred to as "public relations," and youth education.

The adult education phase is the responsibility of just about every employee in the agency—everyone is an ambassador of good will in his own right. The game wardens work with sportsmen, landowners, businessmen, civic groups, youth organizations, public schools, and the like when they have time to spare from their law enforcement duties. The amount of time they can spend in these public relation activities is seasonal and usually rather limited. News releases go to all daily and weekly newspapers in Texas if they request them. TEXAS GAME AND FISH is available at a nominal subscription rate to those who want to be informed on wildlife in Texas. About 24 moving pictures are obtainable, without cost, for showing to civic, church, social, or school groups—and more are planned. Many bulletins, technical, semi-technical, and popular are available to the people who are interested enough to ask for them. The department has a live wildlife educational exhibit that is enjoyed by many people who attend the various fairs and sports shows held in Texas. Wardens, biologists, and other departmental personnel appear before groups in the capacities of speakers and consultants. The demand for these services and materials is very great. If the degree of interest shown may be used as a criterion this program is quite effective.

The youth education phase of our program has been demanding more and more attention of late. We believe that by reaching the school children of Texas with conservation education we will be helping them develop desirable attitudes toward the wise use of our natural resources—and confidentially—whether you realize it or not—junior often has quite an influence on dad. If he begins to *question* some of dad's *questionable* activities, he may cause the old boy to do a little serious thinking. Through the child the parents may be stimulated to learn more about their environment and the natural resources that are of concern to all.

Any educational program, to be sound, must be set up to fill, or attempt to fill, certain wants or needs of mankind. The educational field of Texas had to be surveyed to find what those wants and needs were. It was found that: First of all there was a dearth of qualified conservation teachers—this necessitated a teacher-training problem which is being dealt with, on an emergency basis, by the summer conservation education workshops—with all natural resource agencies cooperating.

Materials were needed for teachers and pupils. Each interested natural resource agency has been seeing to the development and provision of teacher and pupil materials in their own field. The demand for wildlife materials has been exceedingly great. We have repeatedly exhausted our supplies of literature, maps and pictures.

In addition to our regular school program we have been working with Future Farmers, 4-H Clubs, Boy Scouts, Girl Scouts and church organizations—yes, many Sunday School teachers have requested our teachers' packets.

We are now concerned with the evaluation of our efforts. This particular phase presents problems that practically defy solution. Our personnel and financial status gives little opportunity to carry out an effective evaluation study. Recipients of our teacher's packets have been given a questionnaire that allows them to judge the adequacy or inadequacy of what they have received. They are asked to examine, use, and criticize the materials. This procedure gives us a weak opportunity to feel the public pulse—we lack an effective, comprehensive evaluative instrument.

Well, that brings us up to date—where do we go from here?

1. Does our program merit continuation?

a. Are we doing a worthwhile job?

• *Concluded on Next Page*

ESCHMEYER AUTHORS CHILDREN'S BOOKS

Dr. R. W. Eschmeyer, executive vice president of the Sport Fishing Institute, has demonstrated his versatility by penning one of the best-written children's books on conservation to come to the attention of the Wildlife Management Institute.

"Billy Bass," the first in a proposed series of juvenile books, already has been released and traces the life history of a largemouth bass from the time it hatches from the egg to its final demise as the biggest bass in the lake. Using language that can be read easily by any bright nine-year-old, Dr. Eschmeyer tells the story simply but interestingly, injecting into the narrative numerous biological facts and conservation ideas that will be found in no other work in the same reader-age bracket.

U. S. Trumpeter Swans Hit New High

Unless the restoration program hits a snag within the next few years, people can stop using the customary adjectives "disappearing," "rare," and "almost extinct," in referring to the largest waterfowl in the United States. The annual census reveals a national population of 535 trumpeter swans, 159 more than last year and 462 more than in the low year of 1935 when no more than 73 of these magnificent birds could be found.

The history of the trumpeter swan offers a perfect example of what modern wildlife management can do when given the funds and resources with which to work. Efforts in preserving the big trumpeter have been geared around the Red Rock Lakes Wildlife Refuge in Montana which is the population center of the swan in this country. The refuge was established in 1935 near Yellowstone National Park to save the dwindling remnant from extermination. Since then, birds have been transplanted to other refuges in Oregon and Nevada and to the National Elk Refuge in Wyoming. Increases were reported in all of these transplanted flocks this year.

The trumpeter, like the buffalo, was a victim of encroaching civilization into its wilderness habitat. With the destruction of its nesting, resting, and feeding grounds, it declined rapidly, and the restoration program which began in 1935 came just in time to save the birds from destruction.

Canada, simultaneously was active north of the border in preserving this spectacular bird. In the early 1930's the species was making what appeared to be a last stand in British Columbia and Alaska. Aggressive activity by the Canadian Wildlife Service and its departmental predecessor was responsible for keeping the numbers above the danger point. Dr. Ian McTaggart Cowan of the University of British Columbia estimates that numbers wintering in that province have never fallen much below four or five hundred birds. From this low the population has been built to around nine hundred. The trumpeter is a rugged bird spending the rigorous Canadian winters in areas where the only open water is that created by the swiftest rapids.

Wildlife Conservation Program

• Continued from Preceding Page

Are we justified in believing that Texas people are in need of a wildlife conservation education program? I believe we can answer "yes" to these questions.

2. Are there other avenues or channels which we should explore?

a. We believe that the fields of radio and television should receive more attention, but in order to satisfy all of the requests and demands, expansion would be necessary. To expand or not to expand depends upon whether or not the program satisfies the wants and needs of the people of Texas.

3. Who pays the bill?

a. This conservation education program of your Game and Fish Commission is *not* financed by all the taxpayers. It is financed by the *sportsmen!* In 1950 2.98% of the budget was devoted to publications and conservation education.

The licenses-buying sportsmen are in the minority in Texas. Our hope is that we can provide more recruits to swell the sportsmen's ranks by carrying our conservation education program to all of the children of Texas. Our over-all objective is to have conservation education taught in *every* classroom in the state.

We need your cooperation and support. When the public is shown the need for such a program then they will want it—in all probability they will demand it and the sooner this happens the better. We believe it is good business to take what we have in the way of wildlife resources and, through wise use, make sure that they at least hold their own—the more we exploit and waste what we now have—the longer and rougher will be the road to recovery.

The Texas Wildlife Federation has listed as its first objective "To foster the propagation and preservation of fish, game and the other reserves of Texas for the enjoyment and benefit of all the people of Texas." We are in complete accord with you in this and your other objectives which show your interest in education, public relations, research, management, and sportsmanship. Mrs. Roger King, your secretary, told me that you were considering the possibility of awarding a scholarship to some deserving student to allow him to receive college training in wildlife and journalism. I think it is an excellent idea. It would also be of immeasurable value to the youngsters of Texas if your organization or some of your component organizations could see it possible to award scholarships to summer conservation education workshops to the more interested and better qualified public school teachers. These summer scholarships would place trained personnel where they are needed most right now! I believe it would be one of the most significant moves that any state sportsman's organizations could make at this time.

Our objectives are fine but the future of wildlife is going to depend largely on the amount of action we delegate to the attainment of the ends we seek. We believe that our educational program is absolutely necessary in the long-range planning to reach our goals. People who know the facts and have developed the desirable attitudes toward our natural resources to the point where they are "conservation conscious" will be expected to act intelligently. What are we going to do? How hard are we going to work at this conservation job?

Letters

Dear Editor:

. . . Here's a fair-sized catch of flounder caught in West Bay during June. The old disputed argument that flounder can't be caught when the moon is full is disproved here. Below, from left to right, are Ray Tindel, Mrs. John Matsushita, Mrs. J. R. Dollar, George Mats, and J. R. Dollar, who by the way are all readers and subscribers of TEXAS GAME AND FISH.

MRS. TINDEL,
Alvin, Texas

Dear Editor:

Enclosed is a check for a one year subscription to TEXAS GAME AND FISH.

Seems to me that all Texas sportsmen should take advantage of reading more about their own state's wildlife. Or do they?

O. G. RAY
4222 Cambridge Drive
Corpus Christi, Texas

(Not nearly enough.)

Dear Editor:

I have read your book, and I would like to know what a sinkbox is? Is it found in the bay, on the land or prairie? Could we have a sinkbox any place?

O. L. BATTISTONI
Box 1132
Dickinson, Texas

(The Texas definition of a sinkbox is a floating container large enough for a person to conceal himself for purposes of ambushing waterfowl. Sinkboxes are outlawed in Texas.)

Dear Editor:

Your picture of the two ton blue cat (November, 1951) caused a sensation with the boys at the New Braunfels Textile Mill (third shift, weave). We had lots of fun with the picture and story. It netted you five new subscriptions too.

Keep up the good work. You have a mighty fine magazine.

S. J. KENNEDY,
332 W. Ireland St.,
Seguin, Texas

Dear Editor:

With our big game season over, maybe I'll find time to read the last two issues of TEXAS GAME AND FISH. I can hardly wait to read about that big catfish pictured on page 8 of the November issue. Golly, I thought we had big catfish here in Elephant Butte Lake. Umm—I wonder. Could there *possibly* be a *slight catch* to that picture?

JIM HALL,
Patrolman, Elephant Butte Lake,
Truth or Consequences, New Mexico

(There could be. Credits, inadvertently omitted on the photos accompanying the article, "Nueces Catfish Derby," by Ed Eakin, should have been as follows: the "two-ton blue catfish, Fay Barkley, Belton Studio, Belton, Texas; the 73-pound alligator gar hooked by Carl Bickham and Bobby Glenn, Ed Frenzel; and the remainder of the pictures, Forrest Shields. The latter two photographers are from Robstown.)

Dear Editor:

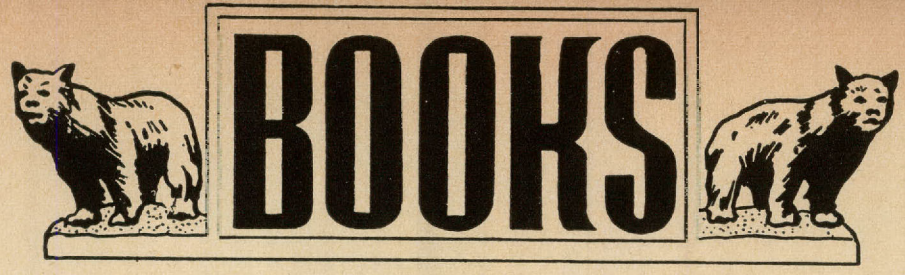
. . . Your magazine is interesting and a pleasant relief from the prevalent world confusion.

K. W. ALGER,
Crystal City, Texas

Dear Editor:

I have a sporting goods store in Hallettsville where lots of fishermen and hunters congregate to tell their tales of the big ones that got away or the big bucks they ought to have shot. But I have a little proof (picture below) that some of the big ones are still caught. These fish were caught in the Guadalupe River about 25 miles from Hallettsville, and the picture was taken by Virgil Minear. The largest two fish are yellow cats, one weighing 50½ pounds and the other, 27 pounds. These fishermen are from left to right, George Cervenka, Bootsie Ehler, and Guy Barnett.

CARL WERNER,
Hallettsville, Texas



PHOTOGRAPHY AFIELD by Ormal I. Sprungman, 449 pages. Illustrated. Published by The Stackpole Company, Harrisburg, Pennsylvania; 1951. Price $7.50.

This is both a beautiful printing job and an excellent book. Written by one of the top-line outdoor photographers, Ormal I. Sprungman, whose photographs are familiar to everyone interested in the out-of-doors, it presents in clear, understandable English devoid of technical terms everything that an outdoor photographer needs to know about cameras, exposures, and taking pictures. It covers stills and movies, both in color and in black-and-white. Not only does it outline the value and limitations of various types of cameras and lenses, but it gives clear and understandable tips on how to compose a picture, how to handle flashlight photography, how to get different lighting effects upon a scene or an object to be photographed. Some of the tricks of getting special effects with both movie and still cameras are disclosed. In other words, it is the answer to many a would-be outdoor photographer's prayers if he will but take it and study it.

It is well illustrated throughout by extraordinarily beautiful photographs, not only those taken by Mr. Sprungman but some of the best of those made by many other outstanding outdoor photographers. While the photographs are beautiful in themselves, they are used to illustrate definite points that are discussed in the book and thus have a double value. In addition to the black-and-white reproductions, there are a number of colored plates each illustrating a definite point in photographic technique. Altogether this is a topnotch book of which both the author and the publisher should be proud.

—Ira N. Gabrielson

Marine Fishes

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supply of cheap food if a satisfactory method of canning it were worked out.

Dogfish flesh can be made into meal in nitrogen or can be used as fertilizer.

In Newfoundland the principal use of dogfish is as winter food for dogs. They are usually split and dried hard, without salting. The presence of a considerable quantity of oil in the flesh apparently prevents attacks by fly larvae and thus can be dried without salting, which is an important matter when they are used for animal food. Perley says that dogfish were at that time often dried as food for cattle and that in Nova Scotia and Cape Breton they are dried in great quantities and in the winter fed to pigs which are said to thrive well on them. Dried dogfish has been used for fuel with good results. Dogfish with large embryos inside them contain from two to nine large yellow eggs from one to several times as large as the yolk of a hen's egg. In Norway the yolk of the eggs of dogfish and skate are used for puddings and other culinary purposes and they serve well as fowl's eggs. Eggs of the dogfish have been found to be a good substitute for hen eggs in the process of tanning.

Fishes of Texas

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in appearance and since these articles are being written for the anglers, it makes little difference as to which species an angler catches, as long as he can determine that he has captured a rock bass rather than a Warmouth bass or green sunfish.

The rock bass is similar to the Warmouth bass in shape. Its body color is olive above, becoming lighter on the sides. Usually the color is brassy in appearance. Brown mottlings are found on its back above the lateral line. Each scale on the sides of these fish has a small, square dark spot. These fish, like the Warmouth bass, have red in their eyes. The iris of the eye is red. Rock bass have six sharp hard spines in their anal fin. They do not have the streaks on their cheeks.

Rock bass spawn in nests that they fan out of gravel. The nests occur in water from one to four feet in depth, usually at the edge of some type of cover. Spawning occurs April to July.

Rock bass attain a larger size than Warmouth bass, since many reach a length of 12 inches. These larger fish weigh as much as one and a half pounds.

The environment for rock bass is partially different from the Warmouth bass. Rock bass, like Warmouth, require fairly heavy cover of stumps, boulders, plants and brush, but there similarities of requirements cease, since rock bass prefer lakes and streams with a hard sand, gravel or rock bottom and clear, cool water. Most of the waters in Texas are unsuitable for these fish, but some waters that meet their requirements that have been recently stocked are yielding catches of these fine fish.

Rock bass feed mainly on crayfish, insects and small fish.

AN EDITORIAL

There IS Hope!

Theron D. Carroll, Supervisor, Conservation Education, Texas Game and Fish Commission, grimly appraises wildlife in his stirring article inside this issue of TEXAS GAME & FISH.

Charting the Commission's educational course, he shatters any illusions about effortless attainment of objectives. Then, Carroll concludes:

". . . People who know the facts and have developed the desirable attitudes toward our natural resources to the point where they are 'conservation conscious' will be expected to act intelligently.

"What are we going to do?

"How hard are we going to work at this conservation job?

"It has been said that 'our fate is something upon which we wait—our future we ourselves determine.' "

It's too late for resolutions—that is those to conform with the pre-New Year deadline—but it is not too late to be posted accurately on Nature's graphic struggle.

One wildlife authority glumly said it is too late to convert the present generation of adults into a force for conservation. "Too many meat hunters: too few willing to even passively support the cause of conservation."

Thus, the unmistakable swing is toward youth. The approach has been established. The definite appeal has been confirmed. The road back will be long and tortuous. But . . .

THERE IS HOPE?

JAY VESSELS,

Assistant Director, Departmental Publications

THE MUSKRAT

THE MUSKRAT IS ONE OF OUR LEADING FUR BEARERS, A HIGHLY PROLIFIC ANIMAL, RAISING USUALLY FOUR OF APPROXIMATELY FOUR LITTERS PER YEAR.

THE MUSKRAT DEPENDS MAINLY UPON A CONSTANT WATER LEVEL WITH THE PROPER HABITAT PROVIDING FOOD AND PROTECTION