

# Texas Game and Fish

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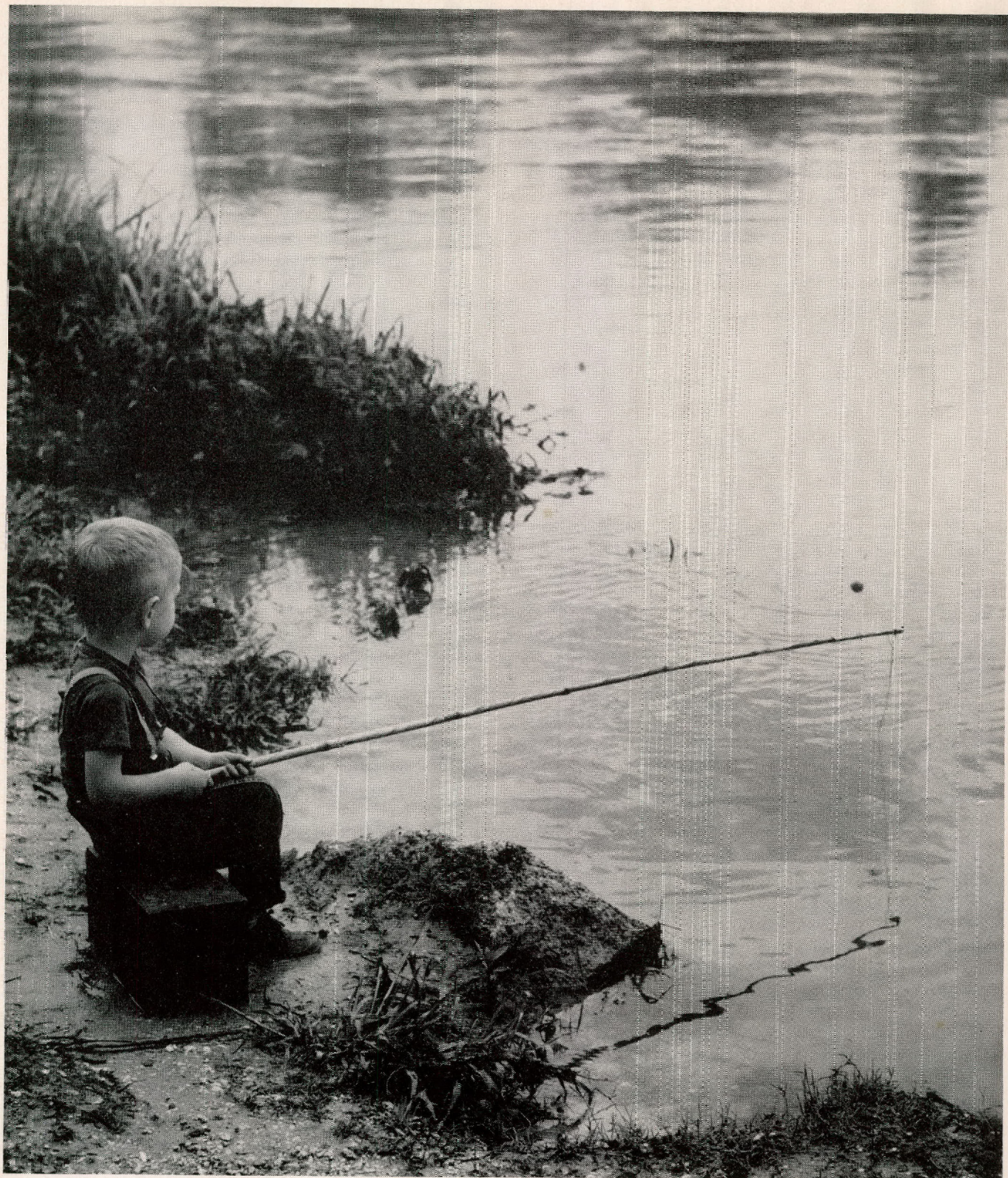
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*Photo by Tom Diltz*

**WAITING FOR THAT BIG ONE.** On a quiet river bank, a young fisherman—silent and serious—watches the water surface for signs of life, even a small ripple. At an early age he is learning the satisfaction that can come from a day on a river bank. Whether or not he catches a

fish is unimportant—but if he should get even a small perch, the thrill would be just as great as if he had a record bass. There will be other days when spring and summer weather will tempt fishermen of all ages to try their luck. And long strings of fish await the patient angler.



# Texas Game and Fish

THE OFFICIAL MAGAZINE OF THE GAME AND FISH COMMISSION DEDICATED TO THE PROTECTION AND CONSERVATION OF OUR NATURAL RESOURCES; AND TO THE IMPROVEMENT OF HUNTING AND FISHING IN TEXAS.

April, 1958

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EDITOR.....Jean Richmond  
 ASSISTANT EDITOR.....Janey Bell  
 CIRCULATION.....Bill Hayden

## ★ In This Issue ★

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### INFORMATION AND EDUCATION DIVISION

Director.....E. T. Dawson  
 Ass't. Director.....T. D. Carroll  
 Information Specialist.....L. A. Wilke  
 Chief Photographer.....Lon Fitzgerald  
 Ass't. Photographer.....Tom Diltz  
 Business Assistant.....Louise Kreidel

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## The Cover



One of the most elaborate nests in America is claimed by Bullock Orioles, who live in western United States down to Mexico and Central America. The vivid orange and black male guards his home, but the paler yellow female weaves it alone. (See related story, page 12.) Cover painting by Anne Marie Pulich.

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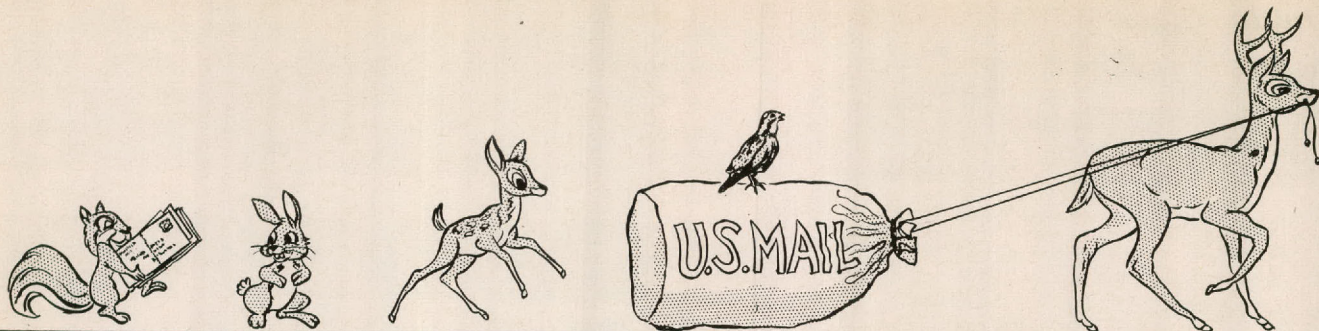
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## Long Flight

Editor:

I thought the following information would be interesting to our duck hunting readers. I sent it to the U. S. Fish and Wildlife Service, Bird Banding Office, Laurel, Maryland.

Band Number: 596-30136

Species: Redhead Duck

Taken At: Mouth of the Arroyo Colorado, in Laguna Bay area of the Lower Rio Grande Valley, Cameron County, Texas.

Their reply on the data I sent them was:

Species: Redhead, local male

Banded at: Malta, Montana

Date: August 16, 1957

Banded by: Bowdoin National Wildlife Refuge.

Jack W. Wallace  
Harlingen

## Disagreement on Deer

Editor:

While sitting in on a bull session with some of my uncles and friends, an argument arose. The argument was probably a foolish one, but one of the men said that he had read somewhere some time ago, that if a spike buck's spikes were over so many inches long he was a legal deer. He agreed that the present law states that the deer must have a third point to be legal, but he thought there might have been some law considering freaks. I would like to know if this question has arisen before, and what is the right answer.

Strain Armstrong  
Corsicana

(There is no provision in present laws for deer freaks as far as antlers are concerned. This applies to antlered does as well as obviously matured bucks which have only spiked antlers. It is necessary that the horns or antlers be pronged for the deer to be legal.

(The Texas Game and Fish Laws, 1957-1958, under the heading of does, fawns, young bucks, on page 33 reads as follows:

It shall be unlawful for any person to take, kill, wound, shoot at, hunt or possess, dead or alive, any wild

female deer, wild fawn deer or any wild buck deer without a pronged horn, or to possess any deer carcass or green hide with all evidence of sex removed. Any person violating any of the provisions of this article shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in any sum of not less than fifty (\$50.00) dollars, nor more than two hundred (\$200.00) dollars. (Art. 910, P. C. 1925)

(You are quite correct in assuming this question has arisen before. Answers can be based only on the laws as they have been passed by our State Legislature.—Ed.)

## Hill Country Defense

Editor:

These six fine bucks were killed on my ranch the first week of the 1957 deer season in Llano County by hunters in the "Paul Hightower Party" from Van, Texas.



It has always been said, "Hill Country deer are small compared to South Texas deer." Please compare these. For the past two or three years, the bucks have shed their horns before deer season opened; therefore, they were not killed. This gave them more age.

This year, then, was a fine year with no drouth to stunt them or cause them to shed. These are much larger and are finer trophies. I didn't get the weight of these fine bucks, but they are beauties.

Grover Medlock  
San Antonio

## Crows vs. Owls

Editor:

I was just reading your picture article on the Great Horned Owl, printed on the back of the January issue of TEXAS GAME AND FISH. I liked the article, but I would like to disagree on one point. You said the Great Horned Owl has no known enemies other than man. What about crows?

I have observed crows in very large numbers attack large owls for hours on end. Although I have never witnessed the outcome I would assume that the owl was finally overcome. What about this?

B. A. (Buddy) Mitchell  
Gainesville

(Actually, the statement that the great-horned owl has no known enemies other than man is correct. Crows will tease and harass owls; however, they are always careful to stay just beyond reach. Even screech owls and other small owls are occasionally bothered by jays, mockingbirds, or other belligerent birds. Here again there is no known case of the owl losing the battle.—Ed.)

## Feral Cats

Editor:

A friend of mine told me that he had heard that a common alley cat was among the worst for destroying young quail. Would you answer this for me in one of your issues?

R. F. Lamb  
Lake Jackson

(Feral cats definitely do take their toll of young quail. However, there is no evidence that they are any worse than a lot of other factors in quail destruction. Some of the hawks are well known predators on quail populations.

(The best protection for young quail is plenty of cover near their food supply. When this is lacking, quail become easy prey not only for feral cats and hawks, but also for other predators such as skunks, and feral dogs.—Ed.)



*Outdoorsmen of the Americas get together to exchange plans, thoughts, and research.*

# Trade in Ideas

By HOWARD D. DODGEN  
Executive Secretary  
Game and Fish Commission

On the morning of March 3 of this year, more than 1,000 people gathered at a hotel in St. Louis, Missouri, to listen to about 60 of their number discuss in detail equally as many subjects concerning the wisest use and care of the water, soil, trees, and wildlife of the Nation.

This occasion occurs annually. It is known as the North American Wildlife Conference and is sponsored by the Wildlife Management Institute, a private organization. There is no membership, no dues, no registration fee, no voting, and everyone interested in wildlife or natural resources is invited to attend.

This was the twenty-third such conference held. The variety of subjects discussed, covering everything from field mice to fur seals, and politics to pollution, and the interest in each subject, seems to grow as surely as the general interest and participation in hunting and fishing. Any outdoorsman would be amazed at the number of organizations, supported by both public and private funds, that have a direct interest in the proper care and management of game and fish.

The 60 people who appeared on the program at this conference were all professional workers in the field of natural resource conservation. Most of them are doing, or have done, intensive research, and each had some important recommendation to make or discovery to report that would aid in the effort to help man use the earth, its waters, its vegetation and wild creatures. It was apparent that each speaker recognized that all of these things are closely related and interdependent upon each other.

After all of the investigations to find out facts regarding such relations, action programs must be devised that will put into use the things that have been learned through this investigation. As an example, the use of valuable timber involves the cutting of trees. The cutting of trees may also involve laying soil bare to be eroded, or the waste of water through quick run-off, and the destruction of a home and a part of the food supply of the wild creatures that live in the forest. Everybody knows that the trees are valuable and should be used. It is the *wise use* of them, or at least, the *wisest possible use* that is to be considered.

If one will try thinking someday how all of these things are tied together, it will be recognized at once that it is a complex matter and one that must be studied continuously, and our methods and our attitudes improved so that we may ultimately accomplish maximum use with the minimum harm.

Those sponsoring the work of the Wildlife Management Institute are to be commended for their outstanding accomplishments in bringing together the vast numbers of leading conservationists in the United States, Canada, and Mexico in a single conference, where controversies are laid aside, where no resolutions are passed, but where information is freely exchanged for only one purpose—to gain knowledge to be converted into effort for the improvement and perpetuation and wisest use of the renewable natural resources of North America.



# Unseen Deer

by TOM GUYANT  
The Milwaukee Journal

*Reprint from West Virginia Conservation*

**B**ETWEEN THE VILLAGE of Shingleton and Lake Superior in Michigan's upper peninsula is a square mile of hardwood forest, conifer swamps and open pine barrens surrounded by a fence 11 feet high. This is the Cusino deer enclosure, an experiment of the Michigan department of conservation.

Within this 647-acre tract a known number of deer were placed. From three to 10 hunters spent 18 days over a three-year period trying to kill them off. It became a model of a deer hunt. And it became apparent to the hunters that deer—even thickly populated—are hard to get.

On a clear, calm day in 1954, six hunters entered the enclosure. A light snow had made the ground ideal for tracking. The hunters knew there were 39 deer—seven bucks, 14 does and 18 fawns—within the enclosure. Most of the deer had never been fired at. But it took them four days, 15½ man-days of hunting, to even see a buck.

R. C. Van Etten, a Michigan technician, tells the story.

"We wanted to point out that the deer a hunter sees may be only a very small portion of the entire deer herd," Van Etten said. "In four days of hunting, these six hunters killed eight deer: Two were bucks."

On the 18 days the area was hunted, an average of seven hunters spent an average of five hours within the enclosure. This, according to Van Etten, is the exact hunting pressure that upper Michigan receives. The deer herd varied between 26 and 39 animals, averaging 34 at the beginning of each year's hunt. All hunts were in late November or early December.

Hunters were department personnel, experienced woodsmen with a good knowledge of the terrain. They were told to hunt as they normally would on the outside. Kills and sightings of deer were tabulated at the end of each day. Some days an any-deer season would be in effect and on others it would be buck only. Hunters would stand, stalk, trail or organize drives.

After three years, Van Etten cites these figures:

During buck-only hunts, shooters saw one deer for every .9 hour and a buck each 10.2 hours, 27% of the available deer but only 10% of the available bucks. Under "any deer" regulations, hunters saw 17% of the available deer and only 3% of the bucks.

Fourteen hours were required to shoot a deer during any-deer seasons and 51 hours for each buck during a buck shoot. Driving was the most effective means of seeing and killing deer, although 20% of the drives failed to produce a single buck.

"We grant," concludes Van Etten, "that methods of hunting in the enclosure differed somewhat from that outside. We had generally supposed that it would be easier to shoot a deer inside a fence than out. When you consider the small number of deer our hunters saw and shot at, maybe it's about time we revamp our ideas on the number of deer in the woods."





# PINES

# Profits with Problems



**Balance of good pine forests,  
hardwoods and wildlife  
rewards the careful landowner.**

by DANIEL W. LAY, Biologist

**M**ONEY DOES GROW ON TREES—but so do squirrels and deer and turkeys. The landowner who plans properly can grow both.

The game itself has dollar value. Demand for places to hunt and the diminishing supply has brought leasing of hunting rights to East Texas. Many of the leases bring a dollar an acre and the trend is upward.

Many landowners want to have wildlife for reasons other than the income. They enjoy hunting or seeing it on their property. They have

friends and relatives who would welcome invitations to go hunting. They see opportunities to do more with their land than to just earn dollars.

Good forestry and good game management can be practiced on the same land. But a pure stand of pine produces little game. The landowner must decide to what degree he wishes to approach full pine stocking. That decision will determine how much wildlife the land will be capable of producing.

The landowner must plan before he kills all of his hardwoods whether he wants a pure stand of pine and little wildlife, or 90 to 95 per cent pine and some wildlife.

The current emphasis on deadening hardwoods to favor pines is sound forestry. The various methods of killing hardwoods—prescribed burning, girdling and poisoning, and aerial spraying of herbicides—all may be used moderately without serious wildlife damage. The problem is to save enough hardwoods for some wildlife and to remove enough to produce a satisfactory stand of pine.

Pines bring a better price than most hardwoods at present but this may change as hardwoods become scarcer. So a landowner who saves sound well-formed hardwoods may find a strong market for them later. Thus, the hardwoods saved for wildlife may also produce merchantable

logs. Squirrels like acorns on a sound tree just as well as those on a cull; and the better quality tree may produce more acorns.

If the landowner wants some wildlife, the habitat requirements of forest game species must be considered. I'm thinking of deer, turkey, and squirrels but quail and ducks may be included on some tracts.

Acorns are the most important wildlife food in the southern forests. More than a hundred species of birds and animals use them. They are the key food for all of the game species listed.

Even deer, which are considered to be browsing animals, are dependent on acorns. They can subsist entirely on browse, but there is always less browse in fall and winter. So a supplementary supply of acorns at this time has the effect of raising deer carrying capacity.

All fruits and seeds produced in the forest are used by some kind of wildlife. Several hundred deer pellets collected monthly in East Texas have been examined with interesting results. Few species of shrubs, tree, or vine do not produce mast used by deer. Some of the common ones found besides acorns were: dogwood, yaupon, black gum, blackberry, French mulberry, red haw, blue haw, black haw, grape, rattan, green briar, sumac, and holly.

More than 75 species of hardwoods occur in East Texas forests.



Girdling too many hardwoods may eliminate a possible source of income, as well as valuable wildlife food.





Small hardwoods brush fires may give new life to pine stands and lower browse. However, only small areas at a time should be burned if the owner wants wildlife on his land.

Most of them are not recognized by laymen but it doesn't matter. The important thing is that they all add variety to the habitat. This increases the chances of producing food for game every month of the year.

We can't say how many trees will produce a given number of units of game. Even in the best stands of oaks, mast production is irregular and often the crop is cleaned up by December, so it is impossible to have too many oaks. The practicable answer is for the landowner to leave all he can. He can't leave too many. Neither can the minimum be set—even one per acre is better than none.

One aspect of the habitat which needs emphasis is the value of variety. Every species has some value. Among the oaks, the post oak, white oak, and over-cup make acorns in one year. The others require two years to mature a crop. A late spring freeze often kills all acorns set that spring. Such a freeze would not eliminate the acorn crop for either the first or second years if a mixture of the two groups of oaks

were present.

I am talking about the problem of preserving wildlife habitat. The amount of game on a tract will increase rapidly with protection, if the food supply is adequate. But no amount of protection will grow game in the absence of adequate habitat. It is important for the landowner to consider if he might want game in the future before he destroys too many hardwoods. The landowner who desires game should preserve the habitat, whether or not he can control excessive hunting at present.

#### Some Methods of Preserving Wildlife Habitat in Hardwood Control Programs

Burning has been demonstrated as an efficient means of removing hardwood brush. This may be desirable in stands where natural regeneration of pine is needed.

The effect of burning on wildlife varies. The sprouts and weeds and grass which come on after most fires usually are attractive to game. The protein and phosphoric acid con-

tent of browse is increased significantly by fire and the benefits last at least until the first winter. Spring and summer fires are best because these nutritional benefits are greater in winter when they are most needed.

The use of fire is most likely to increase browse supplies in thickets which have grown too tall for deer to reach. Fire lowers the canopy so deer can reach more of it.

A series of small fires over a period of months is better than one large fire. Fires reduce mast production at least 70 per cent on the understory species small enough to be affected—less than 3 inches DBH (diameter breast high or about 4½ feet from the ground); so this loss of mast must be weighed. On some tracts it might be important because no other mast is available. On other tracts with good numbers of larger hardwoods, it might not be serious.

The kind of brush present may be important, also. If yaupon is predominant, fire might hurt. This is a key winter deer browse which fire kills. Loss of yaupon would be important on some ranges. In fact, it could force deer to start eating pines.

Deadening of individual hardwoods by girdling or poisoning is the common practice in timber stand improvement. This practice may be modified to minimize damage to the wildlife habitat.

1. Do not kill any hardwood not actually over-topping an existing pine.

2. Uncommon species, with a density of less than three per acre,

• Continued on page 27



One year after fire, only grass has regrown in this pine plot.



Yaupon and small hardwoods have appeared after three years.



# Unsuspected Outlaw

by FRANK BANKS

illustrated by Carol Ham



**To starvation, accidents, and disease  
add one more butcher—the stray dog  
left in the country by thoughtless citizens**

*Reprint from Michigan Conservation*

Friday, March 23, at 7 a.m., the telephone rang.

"Frank? This is Johnnie. My cutting crew has been working in the center of the Weidenhammer swamp for the last three weeks. We have noticed dog tracks in the vicinity quite frequently so yesterday I took the shotgun and looked around the area. What I found, you won't believe unless you see it. Can you come out this morning?"

"I sure can, Johnnie. I'll meet you at the Blair Town Hall at 8 o'clock.

At 8 a.m., I was at the Blair Town Hall and Johnnie was there waiting for me.

"Frank, the dogs have killed off half the deer in the Weidenhammer and will probably get a good share of what is left if we don't do something quick. There are trails made by dogs that are padded down like deer trails." He had his shotgun. I had my rifle. We started in.

The Weidenhammer is a large timbered area about three miles wide and six mile long, composed of poplar flats, hardwood ridges with cedar swamps between the ridges. It lies seven miles south of Traverse City. The

swamp area has a paved highway at either end.

On the trail to the cutting, Johnnie stopped the car at a spot where fresh deer and dog tracks crossed in the knee-deep snow. There was a crust on the snow and the deer were breaking through while the dogs were running on the crust. We put on our snowshoes and followed the trail.

Within 100 yards of where we left the car we found the first deer. Both gambrel cords had been cut and the throat torn out. The other deer and the dogs went on. We followed and in another 100 yards found the second deer killed and uneaten. A short distance on, we found the third deer. Here the dogs had eaten their fill and had curled up in the sun to sleep. The sound of our snowshoes crunching on the crusty snow had awakened them and they were gone.

We returned to the car half sick from the sight we had just seen. We drove silently on to the cutting and parked the car, loaded up and started into the swamp.

Johnnie spoke. "It's worse back in here." I did not answer. We left the trail and went about a mile to the south when we came upon the dog trails. They were

• Continued on page 25



by THERON CARROLL

illustrated by Clay McGaughy



# FACTS ON HUNTER'S CHOICE

## *Statistics show scientific cropping in Texas improves ratio of sexes in deer herds*

**A**NTLERLESS DEER were legally killed in parts of thirteen Texas counties during the 1957-58 hunting season.

Leading the field in the number of antlerless deer taken was the Hill Country region which included the counties of Llano, Bexar, and Medina. These three counties produced a harvest of 915 does and other antlerless deer. Llano County produced a harvest of 527 antlerless deer to lead the Hill Country region in their special antlerless deer season—opened from December 1 to December 15.

Since Texas' first antlerless deer season, in 1953, 10,211 antlerless deer have been bagged in the Hill Country counties of Gillespie, Mason, Llano, Medina, Kerr, and Bexar. The Trans-Pecos region has its first antlerless deer season this year—November 20 to November 27. A total of 36 antlerless deer reported to be in "good-to-fair" condition, were taken. One of the does was a whitetail, field dressed at 75 pounds, killed in the Davis Mountains area.

From the Possum Kingdom region comes the report

of 295 antlerless deer killed in the counties of Jack, Stephens, and Bosque. Jack and Stephens County hunters had their special season November 26 to December 5. Bosque County antlerless deer hunters had an earlier season—November 16-25.

Doe hunting was authorized in but two counties of the Northeast Texas region—Red River and Bowie (Red River arsenal only). For the period November 16-24, a total of 231 antlerless deer were taken. The largest doe reported from that region, to date, field dressed 92 pounds.

On the Engeling Wildlife Management area in Anderson County a "hunter's choice" system of harvest was conducted during a 10-day season opened November 16. Two hundred hunters tried their luck and bagged a total of 45 deer, of which 24 were antlerless.

Public hunts, by permit only, have been conducted on the Engeling area since 1955. Ladies have participated in the hunts from the beginning, but the past season marked their first success in bagging deer.

One of the two lucky ladies arrived 30 minutes late on her assigned hunting day dressed in "party clothes and high heels. She stuck her car at the edge of the pasture where she was to hunt, walked 100 yards into the woods and killed a magnificent buck that field dressed approximately 130 pounds!

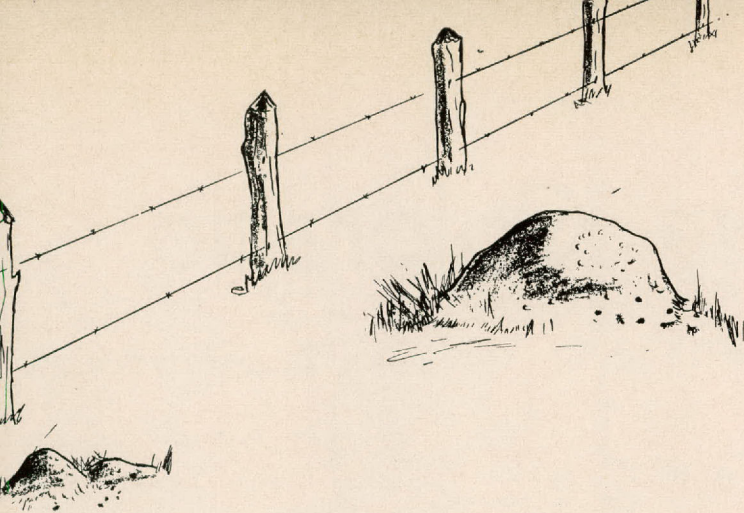
The most recent estimate of the Texas deer popula-

• Continued on page 29



by JEAN RICHMOND

illustrated by Joe Strongbow



# Mounds of Menace

**The imported fire ant gains new ground—  
new enemies.**

**T**HE FARMER looked at his rows of corn. Only a few days ago the small green shoots were showing above the ground. Now, almost all were withered and dying. It seemed incredible. Apparently there was no reason for his vegetables to suddenly die.

Then he saw it. The low mound over near the fence line. As he walked over to investigate, he noticed other similar mounds around the fields. These were mounds of imported fire ants—a highly destructive pest that is spreading throughout the southeastern states and has invaded counties in south-east Texas.

There are several types of fire ants native to this country. The designation *fire ant* refers to the extremely painful, burning sting of these insects. As far as we know, the native fire ants do not cause any significant damage to crops and wildlife and are primarily only a nuisance.

On the other hand, the imported fire ant is highly detrimental to crops, wildlife, and even invade homes to get foodstuffs. The imported fire ant has been known to feed on okra, cabbage, egg plant, germinating seed corn, collard, and citrus trees. Serious damage is done to vegetable crops by ants feeding on

young, succulent plants. They soften the tender stems just below the soil, then suck the plant juices. They gnaw holes in roots, tubers, stalks, buds, ears, and pods.

Fire ants often attack newly hatched birds, and seem particularly fond of quail and baby chickens. They enter the piped eggs to get them or may even chase brooding hens off their nests and eat the chicks. These pests may extend their attacks to young, unprotected animals, such as newborn calves and pigs.

In homes, fire ants will eat meat, butter, cheese and nuts. On occasion they have been known to gnaw holes in clothing.

It is commonly believed that the imported fire ants slipped into this country as cargo stowaways on a ship from a South American port docking at Mobile, Alabama. The largest concentrations of these pests is still in that area. From Mobile they spread rapidly to other parts of the South by flying and crawling; drifting downstream in logs; with cargo and freight aboard cars, trucks, trains, and airplanes; and being transported in nursery stock. Judging from the spread of these ants, it is doubtful they can survive north

of Tennessee and North Carolina.

Because the imported fire ants closely resemble native species, they remained undetected for a number of years. But about 1930 entomologists identified them as a separate species.

A particularly distinctive characteristic of the imported fire ant is the habit of building huge, hard-crusted mounds to house their colonies. These mounds may be built in almost any kind of soil—some colonies being found on sandy and marshy lands near the Gulf of Mexico shoreline and others in rich river-valley soils. Generally mounds are in open areas, such as cultivated fields, pastures, parks, and lawns. Often mounds may be found in rotting logs and around pine stumps. Occasionally the ants will build under buildings.

Wherever they are, mounds create special problems. In parks and on lawns they mar the landscape and cause annoyance. Children and pets may walk into them and get severely stung. In fields mounds are unsightly and cause damage. Blades of har-

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transformed from a devastating flood threat,

# the *Sprawling* Colorado

has become a force useful to both industry and recreation

by L. A. WILKE

**T**HROUGH more than a century of engineering, the Colorado River in Texas has been changed from a flood menace to one of the most important factors in the economy of the State.

The Colorado rises in Dawson County, at the New Mexico line. It winds its way 600 miles to the Gulf of Mexico, carrying the overflow of 37,000 square miles of watershed.

Resembling somewhat a huge inverted bottle, the Colorado basin pours more than two million acre-feet of water a year into Matagorda Bay at flood time. During the remainder of the year the stream furnishes water for coastal rice growers and to generate millions of kilowatts of electric energy.

With all this, the Colorado is the playground of hundreds of thousands of Central Texans and their visitors every year. A dozen good lakes furnish about the best fishing in a State famous for its piscatorial assets.

The Colorado Basin came about a few hundred million years ago when the great Permian Sea vanished. An oil pool was left below the earth; above was prairie land that eroded to create the river basin.

Geologically, the river flows through half of the soil belts of Texas, its headwaters draining the southern tip of the high plains. It dashes briefly across the redland prairie and skirts the northeast side of the Edwards Plateau. In Central Texas it has sawed its way through the solid granite formation and limestone beds to the forested prairies below Austin, where it briefly touches the blacklands and finally

sweeps across the coastal prairie to the tidelands.

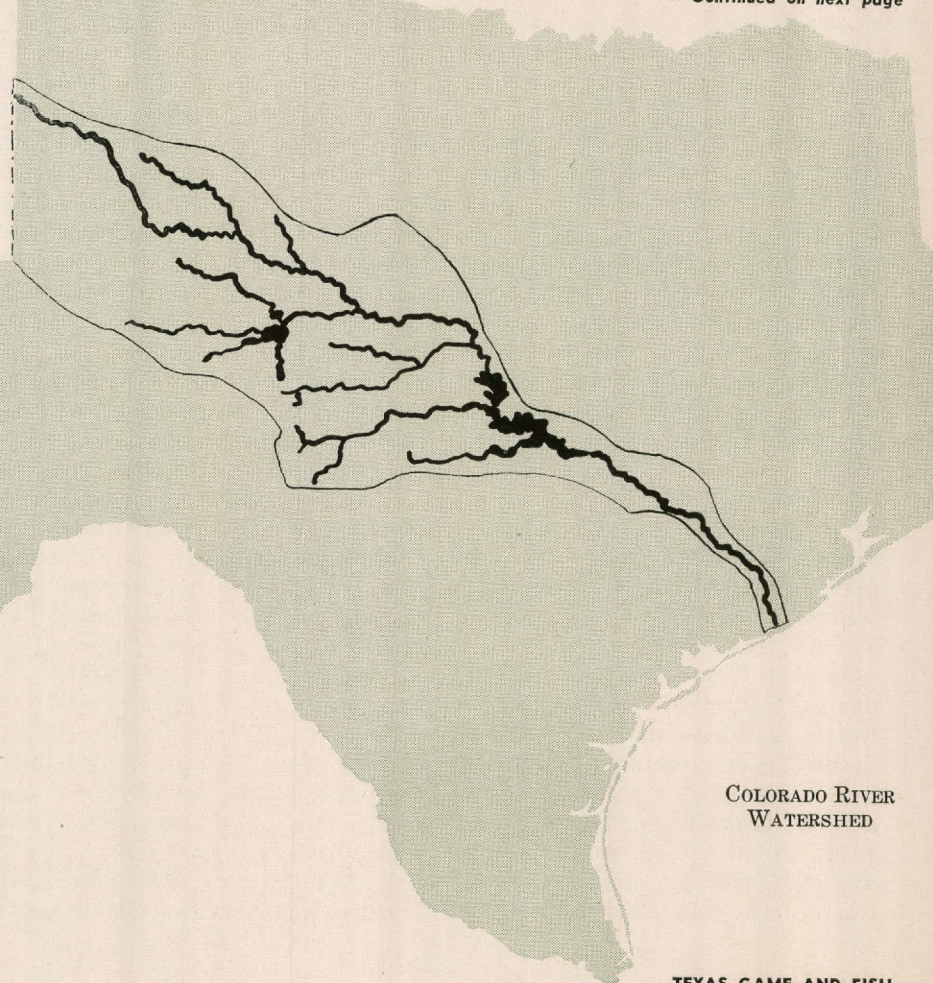
There is enough alkalinity in the water to sharpen the fins of bass and toughen the hides of catfish, but not enough to affect its drinkability.

Recorded history of the Colorado dates back to 1690 when Alonzo de Leon made his report to the viceroy of Mexico about conditions on the Texas coast. At that time he apparently made the first map of

any part of the Colorado, covering the area from Matagorda to the site of the log jam near Columbus.

In 1839, the founders of the Capital of the Republic chose Austin on the Colorado for home of the State government, because of its water possibilities. At that time a survey was made of the river as a navigation project, but the report was unfavorable despite the fact that keel boats already were being operated between Austin and Columbus.

• Continued on next page





Five years later, the Republic became a part of the United States and navigation talk was resumed. In 1846, the entire city of Austin gathered on the banks of the Colorado to watch the Kate Ward, a 115-foot side-wheel steamer, come puffing up the river powered by two 70-horsepower engines. This first boat drew only 18 inches of water and could carry 800 bales of Central Texas cotton to seaboard.

For nearly a quarter of a century, navigation continued in some form up and down the river. In 1871 the Houston, Texas, Central railroad came to Austin from Houston. This occurred before rail transpor-

Downstream a way, there is Hord's Creek Dam, also an Engineer project; and Lake Brownwood. Below these lies the picturesque chain of Highland Lakes, extending from Austin almost to Lampasas.

These dams, under control of the Colorado River Authority, controlled the 1957 floods on Colorado to prevent millions in property destruction and loss of lives. This was their primary purpose. In the economic structure, however, the dams pay for themselves and their operation by their generation of hydroelectric power. This is fed into high lines which service Central Texas with adequate power and lights.

public facilities. Cabins and boats for rent.

**LAKE NASWORTHY:** Tom Green County, covering 1,000 surface acres. Fishing permitted. Public access and facilities. Boats for rent.

**HORD'S CREEK:** Coleman County, covering 510 acres. Hunting and fishing permitted. Public access and facilities. Boats for rent.

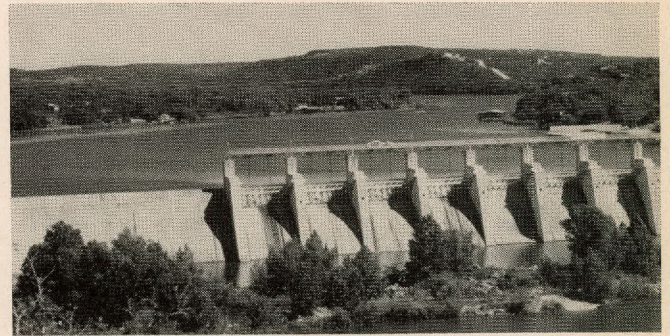
**LAKE BROWNWOOD:** Brown County, covering 7,000 surface acres; hunting and fishing permitted. Public access and all public facilities. Cabins and boats for rent.

**LAKE COLORADO CITY:** Mitchell County, covering 1,635 surface acres. Hunting and Fishing. All public facilities. Cabins and boats for rent.

**LAKE J. B. THOMAS:** Scurry and Borden Counties, covering 8,000 surface acres. Hunting and fishing per-



SAN ANGELO LAKE



LAKE AUSTIN DAM

tation had reached either Dallas, Fort Worth, or San Antonio.

The river winds its way from far West Texas, in the 18-inch rain belt, into the 35-inch rain belt on the Coast. It is fed by many other "dry streams" which pour flood waters into the main river.

The middle fork of the Concho brings down the water that rises in springs along Mertzon Creek in Irion County. The north fork of the river has its headwaters in Sterling County. It flows through a shallow underground water area in Tom Green County, where it is held in check by a dam built in recent years by the U. S. Engineers. The middle and south forks have been held in check for many years by the Nasworthy and Ben Ficklin Dams at San Angelo.

Farther to the north, three other dams are effective, not only in holding back floods, but in providing municipal and industrial water. The first of these was on Morgan Creek near Colorado City. Later came the J. B. Thomas Dam in the Snyder oil field area, and the dam across Oak Creek near Bronte.

The lakes created by these dams afford recreational areas, too, for all of Central Texas. Largest of the lakes is Travis. The next is Buchanan, in Burnet County. Other lakes in the chain are Inks, Granite Shoals, Marble Falls, and Lake Austin.

Lake Austin comes into the heart of the city, providing a municipal water supply, power generation and play spot for the entire population. Each of the lakes has been stocked from hatcheries of the Game and Fish Commission. Biologists check them regularly and carry on a tremendous amount of work to make better fishing.

City, county, and state parks surround these various lakes. Independent camp operators have provided lodges, individual cabins, and trailer facilities.

A list of the major lakes on the Colorado follows:

**MOSS LAKE:** Howard County, covering 144 surface acres. Hunting and fishing. No public facilities.

**LAKE SAN ANGELO:** Tom Green County, covering 5,440 surface acres. Hunting and fishing. Public access and

mitted. All public facilities. Cabins and boats for rent.

**OAK CREEK RESERVOIR:** Coke County, covering 2,000 surface acres. Hunting and fishing. All public facilities. Cabins, boats rented.

**LAKE BUCHANAN:** Llano County, covering 23,000 surface acres. Hunting and fishing permitted. All public facilities. Cabins and boats for rent.

**INKS RESERVOIR:** Burnet and Llano Counties, covering 900 surface acres. Hunting and fishing permitted. All public facilities; boats and cabins for rent.

**GRANITE SHOALS:** Burnet and Llano Counties. Hunting and fishing permitted. All public facilities. Boats and cabins for rent.

**MARBLE FALLS RESERVOIR:** Llano County, covering 900 surface acres. Hunting and fishing permitted. All public facilities. Cabins and boats for rent.

**LAKE TRAVIS:** Travis County, covering 41,900 surface acres. Hunting and fishing permitted. All public facilities and boats and cabins for rent.

**COLORADO:** From Austin to Gulf. Excellent fishing and river hunting. Public access in many places. Excellent fishing and hunting also between Matagorda and mouth of river at Matagorda Island. Public access and facilities are available from Bay City to mouth of river. Boats and cabins for rent in the coastal area. \*\*



# Nestful of Splendor

by EDGAR KINCAID

**B**IG GAME hunters in the more southern portions of Africa occasionally notice odd "haystacks" in acacia trees scattered over the veldt. Are these objects hunting blinds or native huts? Perhaps. But some of them are natural bird houses, built by English sparrow-like birds called Sociable Weavers! This species makes the biggest grass nests in the world: members of one colony may build up to 200 individual nest chambers under a single thatched roof.

The Western Hemisphere also has birds that can weave spectacular nests. Most grandiose of these is the Montezuma oropendola, a crow-sized member of the American oriole family whose address is humid forest regions from southeastern Mexico to Panama. The male bows, lifts his wings, and erupts sounds like a mighty gurgling fountain while his several mates are busy constructing their long swinging nests.

A large colony of industrious hen oropendolas may deck out branch tips of a 150-foot-high silk cotton tree with nearly a hundred pouches, each of which is anywhere from 2 to 6½ feet long. The whole thing looks like a monstrous fruit tree that should be growing on another planet.

The Montezuma oropendola has several small cousins in Texas that build shorter versions of its swing-

ing pouch. The Texans, though, are non-communal, non-colonial, rugged individualists. The Bullock Oriole is a widely distributed example. This 7½-inch-long oriole, named in 1827 for the naturalist William Bullock, encourages saving for outdoor enthusiasts. Persons living in the western half of the United States and in southwestern Canada don't have to spend money traveling to see this bird and its architecture. It comes to them. Each spring Bullock Orioles desert their bugs and berries in the western parts of Mexico and Central America and migrate north to the Great West.

Like so many other songbirds, the male Bullock normally comes north a few days ahead of his future mate and settles down in the area where the nest will be. While he perches within his territory he is more conspicuous than at other seasons of the year. At this time a bird student can readily locate him by his more frequent singing. His plumage also is at its best: brilliant orange underparts and side of head, yellow outer tail feathers, black top of head, back, middle tail feathers, throat, and streak through eye. Setting off this costume is a large white patch on each wing. Song and bright feathers seem to attract females as well as bird watchers. Anyhow, almost every fully adult male soon has an olive-backed, yellow-breasted,

pale gray bellied female building a nest on his property.

She starts at the top and works down. First, with her bill she wraps and ties plant fibers, inner bark, string, or horsehair around each arm of a forked twig. When the rim is secure she weaves strands downward to form the sides of the pouch. Last major construction is the floor. When finished, the 5½-to-10-inch-long sack is thick enough to be shower repellent but thin enough for good ventilation. Lastly, the working bird puts in a lining of cotton, wool, plant downs, or feathers. These soft materials presumably prevent the fragile eggs from banging together too hard when the wind rocks their cradle.

Sometimes persons who like bright bird nests in their yards put out multicolored strips of yarn in places where a building oriole can pick them up. A "Technicolor" nest may or may not result, for sometimes the bird seems to have her own ideas about what is proper construction material.

The eggs appear even more artistic than the nest. No two in the usual set of four or five are exactly alike. In color they may vary from grayish-white to pale bluish-white, and each has its individual network of purplish-black, brown and gray blotches, scrawls, and thin wavy lines. Many of the marks look like



## *The Bullock Oriole,*

*of sweet songs and vivid dress,*

*has a home to match its beauty.*

the work of a penman with an unsteady hand. The mother incubates these eggs without any help from father.

The male does, however, guard the nest. Dr. Clarence Cottam, now director of Welder Wildlife Refuge near Sinton, Texas, witnessed a successful defense at Green River, Utah, in 1927. He watched a male Bullock knock an intruding young Black-billed Magpie from the edge of his nest to the ground. The magpie was so stunned that Cottam was able to pick it up. Ten minutes passed before the bird was able to fly away.

Just-hatched orioles are rather ugly looking little mites with closed eyes, much naked skin, and a little sparse down. Mama and even papa keep poking soft-bodied grasshoppers, measuring worms, and other insects down the nestlings until after they leave the nest. All of the young look a good deal like the female, but by the time spring comes again the males will have black throats. Some of these adolescents try to breed, but usually fully adult males take over the choicest nesting territories and mates.

The Bullock has as very close relatives the Baltimore, so named because it wears the black and rich orange colors that were the coat of arms of Lord Baltimore, founder of

• *Continued on page 28*

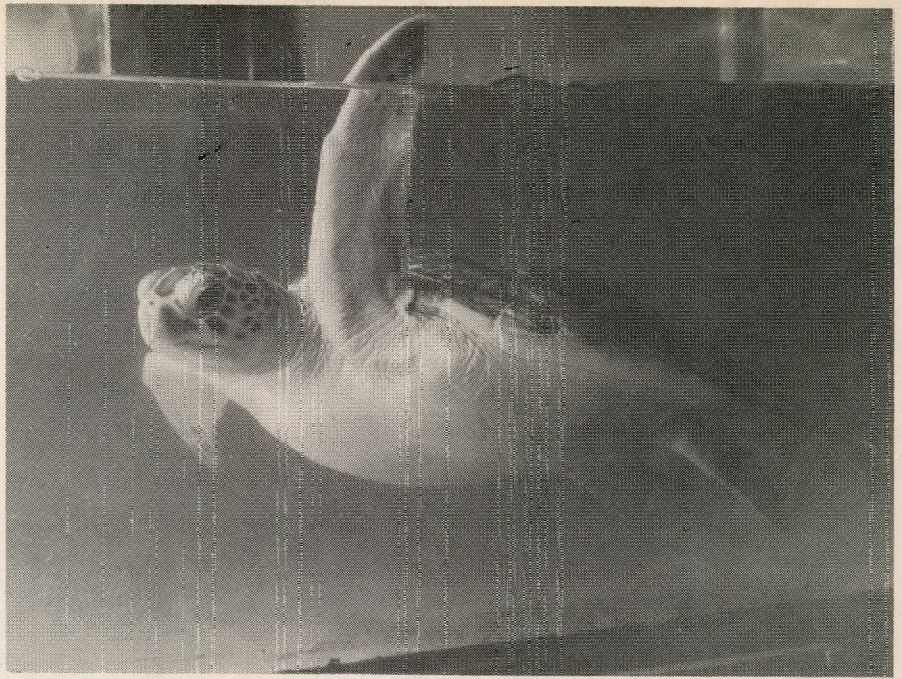


*Karl H. Maslowski from National Audubon Society*

Bullock Oriole preens by its nest and young ones. The male guards; the female incubates the eggs alone. When the newly hatched birds need food, however, the parents share the task of feeding them. The young look like the olive, gray, and yellow female for awhile, but by the first spring males have the bright orange and black plumage.



**O**NCE UPON A TIME there was a small green turtle named Terry. Terry was young and most of his memories were filled with his crawling over the sand to the first murky, then clear, Gulf of Mexico and the many tales of his older, wiser friends about the wild seas and disastrous experiences of his cousins.



He had heard stories of his brethren being captured various ways by strange, sound-uttering, upright land animals called humans. This had not worried him until one day while resting on the bottom of the Gulf he found himself entangled in a strange contraption which completely encompassed him and pulled him to the surface. And, for the first time since his birth, he was out of the water.

Lying on his back, Terry still did not worry because he'd been told that he was not big enough to be eaten by these strange creatures. For once he was thankful he had not the maturity he longed for. He had a slight qualm occasionally that the stories might be wrong. He wondered what would become of him.

His fate was a strange one he had never heard of, although it was not the worst that could come to pass. After being handled many times, he found himself all alone in a tiny sea of water. He could swim only a short distance before running into an insurmountable wall. Above him was light which shone about the same length of time as the familiar sun, but it stayed a constant brightness instead of changing as the sun.

Terry thought his new home was indeed an odd place; he could see through one of the walls. While the light shone he saw many of the animals who had captured him, each stopping near him to stare a while.

His greatest hope at first was to return to his brothers to tell his tale—the first such experience ever related. After some time Terry quit worrying about going back, as the thought crossed his mind that his story would not be believed anyway.

After the light had gone and come many times, a small black fish suddenly appeared in Terry's cage. At first he did not recognize the visitor, but then it swam to him and attached to his underside with the broad disc on its head. Terry then remembered the small one that had once hitched a short ride with him, and far back in his mind he also remembered being cautioned that some of these strange fish had a line on them which a human used to pull you out of water, once the fish was securely attached. This he did not fear since this danger was in faraway waters.

The fish was annoying, but did not really do any harm. But Terry—having been a vegetarian in a vegetable-scarce part of the Gulf, and since he had been fed nothing but meat since his arrival—had come to hate free-loaders. He began to make plans to rid himself of his passenger. More of his strange captors came and stood outside of his window with a little black box flashing lights at him. This unnerved Terry no end, even to the extent that he put off his plans for his visitor one more day.

The next day the fish still clung faithfully to

# Tale of a Turtle



The little-understood hero of this story is an Atlantic Green Turtle, *Chelonia mydas mydas* (Linnaeus), which resides in an aquarium at the Marine Laboratory in Rockport. The movement of the turtle and the attached fish (remora, *Echeneis naucrates* Linnaeus) is true, although we cannot guarantee intent on the part of Terry. Green Turtles are uncommon in Texas waters, but a few are picked up accidentally in shrimp trawls.

The meat is considered a delicacy. Furthermore, Archie Carr, well-known biologist and author, has said that the Green Turtle "is the most valuable reptile in the world." Presently its populations exist in highly reduced numbers due to the destruction of nests and the capture of laying fe-

males, easily caught as they come ashore to lay their eggs in the sand. They are not in danger of extinction, but they are scarce enough to warrant research to restore the one-time large fishery in Florida waters. The main fishery today is around the Cayman Islands, where the natives have fished for them for many past years.

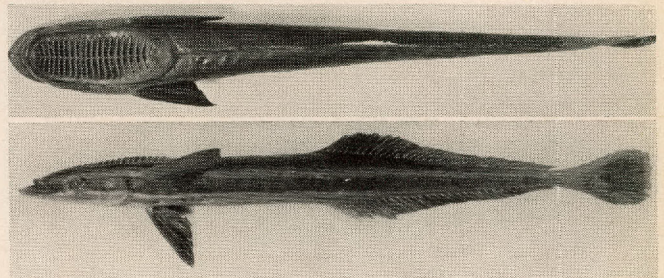
The remora is a poor swimmer, commonly found attached to large sharks and other large fishes, and occasionally turtles. It attaches by means of a laminated disc on its head, which is a modified dorsal fin. The remora does not harm its host, but eats scraps of food its host loses while eating—a habit in the animal world termed "commensalism."

by DICK HOESE, Marine Biologist

Terry's underside as he pondered how to get rid of it. As he thought, he swam, but he didn't notice that he gradually swam lower and lower until—thunk!—Terry sat on the fish. He was somewhat embarrassed at this point because he did not intend to hurt the fish, and he hoped no one outside had seen his act of cruelty. He felt a certain kinship with the beings outside, and he was beginning to like the shrimp they fed him. Besides, he even enjoyed the company of his clingy visitor—but what good was company if you could not see or feel it, just know it's always there depending on you.

The fish swam away with nothing but his pride showing damage, and time told Terry that the fish had learned its lesson. For a while, the fish lay upside down attached to Terry's upperside where it felt safe. But it tired of this upside-down feeling and resigned

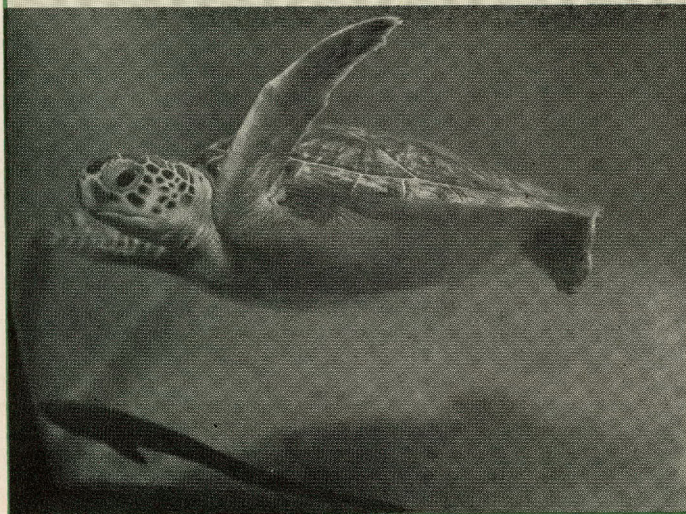
REMORA: TOP AND SIDE VIEWS



itself to a sideways view of this small world attached to the side of the window.

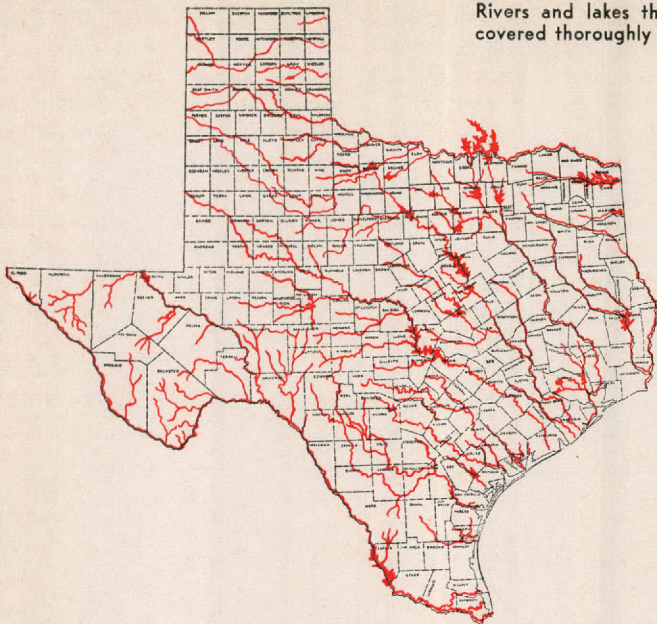
So, as Terry lay on the bottom of his home after the light had disappeared, and his company was resting comfortably in a corner, he wondered many things and wished he could tell his story to someone who understood.

Terry in his aquarium with the remora attached to the glass in the lower left corner.

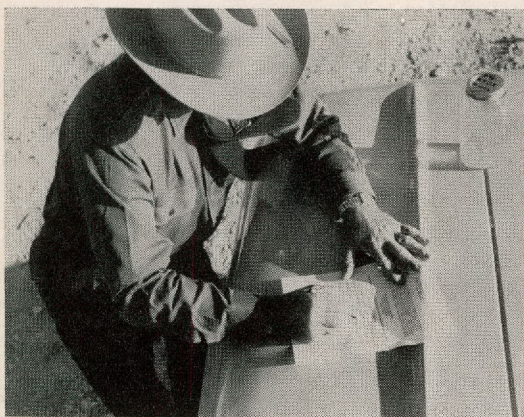




Rivers and lakes throughout Texas are being covered thoroughly in the current water check.



Game warden fills a small bottle with water from a stream, as part of the water pollution control program.

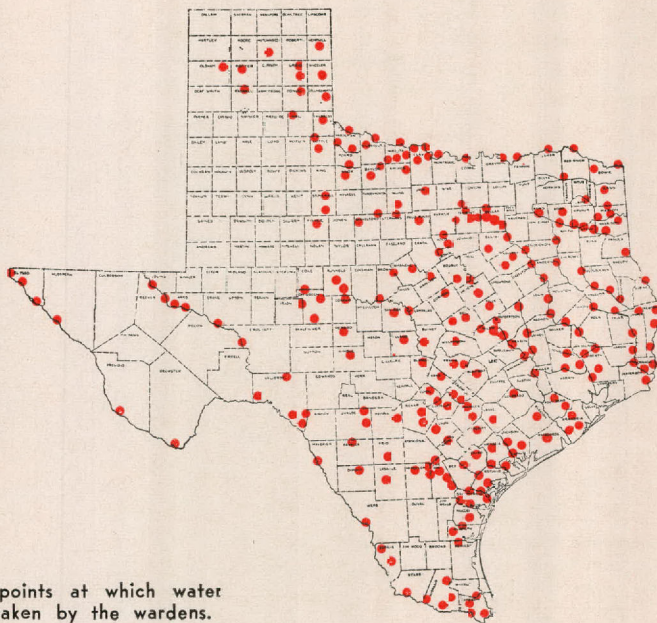


Time and place the sample was taken is recorded along with any comments the warden may want to make.

**To halt pollution, water analyses are underway by health officials and co-operating game wardens.**



Record attached, the bottled water sample is ready for shipment to the State Health Department's laboratory for complete analysis.



Dots represent the points at which water samples are being taken by the wardens.



# Streams Under a Microscope

by JEAN RICHMOND

AS THE WARDEN carefully filled the sample bottle with water from the river, he didn't realize that this water sample he was taking was something of a record. It was the two-thousandth sample of water from Texas streams and rivers to be taken by game wardens for analysis by the Texas State Department of Health laboratory.

It is all part of the vital water quality survey to detect and eventually check sources of pollution in all of Texas' major river drainage areas. An inter-agency project of the State Health Department, Game and Fish Commission, Attorney General's Office, and Railroad Commission, the survey may have a direct effect on future Commission activities on Texas waters.

In September, 1957, the first of the water samples arrived at the State Health Department laboratory. These samples were only a few of the many that were to come in the succeeding weeks, until today more than 2,000 samples of water from various streams and rivers throughout Texas have been collected by the game wardens. Of the Commission's more than 200 game wardens, 111 are participating in the water pollution control program.

A total of 268 water sampling stations throughout the State have been selected by the State Health Department and Attorney General's Office. These sampling stations were selected, as much as possible, at points where a highway crossed a river or stream. This was in order to have a definite location at which the samples were to be taken, as well as to make collecting the samples as easy as possible. Of the 268 sampling stations which have been selected, 251 are being handled by

game wardens. The other stations are located in the Dallas-Tarrant County area and are being handled by the local health departments in those areas.

The Health Department furnished the Game Commission with a list of sampling stations, and wardens were assigned to take water samples at each station every two weeks. The Health Department furnished sample bottles and report forms to the wardens.

After taking the sample, the warden fills out the report. In completing the report forms the wardens record the point where the sample was collected, county, date, and time of sampling; stream flow—dry, low, normal, high, or flood; and any comments as necessary, including such observations as excess water caused by melting snow, high water due to water being released from Lavon Lake, or stream excessively muddy because of recent rain runoff. The report and the water sample are expressed to the State Health Department laboratory in Austin, preferably on the same day the sample was taken. The water sample is then analyzed in the Health Department laboratory.

For the sake of evaluation of the water samples, certain specifications were set up to establish quality limitations of the water. These limitations coincide closely with the standards established by the United States Public Health Service for quality of raw water to serve as a source for municipal surface water supplies; consequently, even though the analysis of any given sample might be rated as "poor," it does not necessarily imply actual gross pollution conditions.

The types of tests chosen for the

water sample analysis were those which could be quickly adapted to laboratory procedures and at the same time get an indication of chemical or organic pollution. Because some of the terms may not be familiar, and to better understand the method of analysis, a definition of terms of the test specifications is in order.

**Specific conductance** of the water: fresh water often contains in solution relatively small quantities of mineral salts, but in waters polluted by brines and various chemical wastes the salt concentration may rise to levels harmful to living organisms. In studies of waters for use in irrigation and fish production, the salinity is often expressed as specific electrical conductance and measured in micromhos.

**Chloride**: includes presence of common salt, often the direct result of oil field salt water pollution.

**Sulphate**: includes a cause of malodorous gases, as well as an indication of acids contained in the water and industrial wastes.

**Chlorine demand**: a test for organic pollution and an indicator for certain industrial wastes.

**BOD, or Biochemical Oxygen Demand**: another test to indicate the amount of organic material in the water from sewage effluents, land runoff, or other organic wastes.

The specifications or limitations set up by the Health Department are:

Specific Conductance—2000 micromhos or less

Total solids—1000 ppm or less

Chloride—250 ppm or less

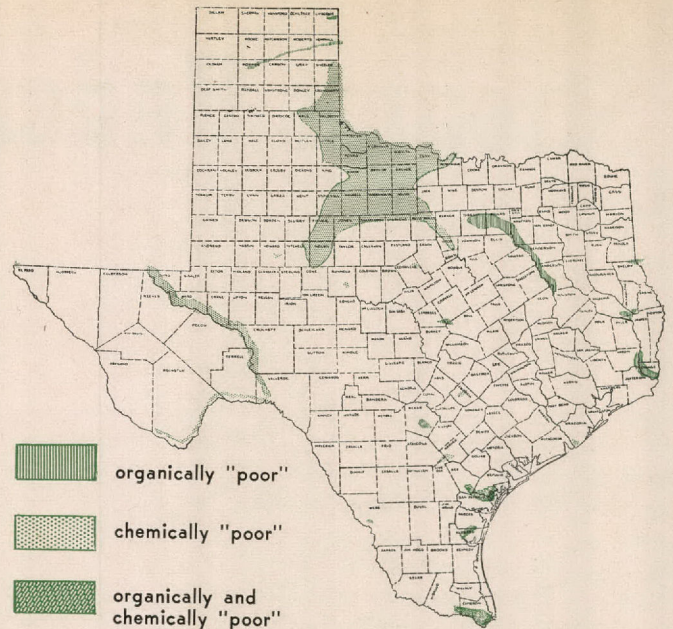
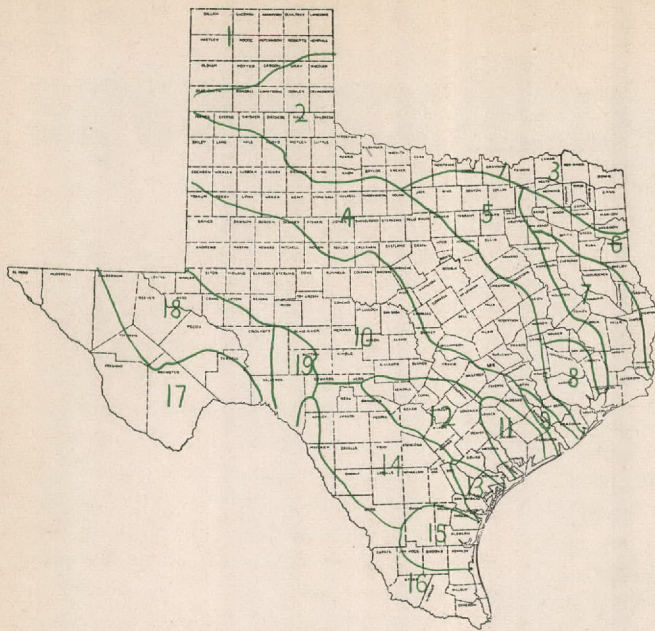
Sulphate—250 ppm or less

Chlorine demand—6.0 ppm or less

BOD—5.0 ppm or less

For the purpose of this survey,





Areas in each watershed, left, have so far shown the degrees of pollution at right: 1. Canadian; 2, 3. Upper and Lower Red; 4. Brazos; 5. Trinity; 6. Sabine; 7. Angelina, Neches; 8. San Jacinto; 9. San

Bernard; 10. Colorado; 11. Lavaca; 12. Guadalupe; 13. Mission; 14. Nueces; 15. Lower Gulf Coast; 16, 17. Lower and Upper Rio Grande; 18. Pecos; 19. Devil's Lake.

water analyses falling within the listed limitations are classified as "good," whereas water analyses exceeding any of these limitations are classified as "poor." A further classification is made depending on the result of the samples as "poor chemically," which would involve the chemical characteristics of the water, such as natural salt and oil field brine; and "poor organically," which would indicate presence of organic material, such as sewage effluents and certain industrial wastes.

Laboratory workers record the data from each sampling station in a card file, microfilm them, and then forward the information to the Water Pollution Control Division of the Health Department. Copies of the wardens' reports and results of analyses are sent to the Game Commission and the Attorney General's Office.

As the results from the laboratory analyses of the water samples come in, they are recorded on a pin map. This map, through the use of varied colored pins, indicates all of the sampling points, the number of samples taken from each one, and results of the analysis of each sample. For example, in the Dallas-Fort Worth area a large number of "poor" organically results have been received and are indicated through the use of red pins on the map.

Other areas found "poor" chemically are also indicated by the use of black pins. Samples resulting in good reports, both chemically and organically, are indicated by the use of gold-colored pins, which outnumber the reds and blacks about three to one. So a quick glance at the map will show the types of pollution and the location of such pollution throughout the state.

In certain cases, particularly with chemical pollution, a stream may show an excess of chemical content in one analysis, and in a later sample taken by the warden from approximately the same point, show no appreciable pollution. This may be due to a number of physical factors, such as floods, or in the case of a low flow, the release of stored water which would dilute the concentrations of chemical. Also, steps may be taken by industry or municipal government to reduce pollution.

The pollution studies will not be concerned with the presence of insecticides, herbicides or other agricultural poisons in the water. These would not show up normally, and it would be extremely difficult to pinpoint the source of pollution. The survey is concerned primarily with constant pollution, such as that from industry, cities with inadequate sewage treatment plants,

or oil or gas well salt water release.

The study is being conducted in three phases: the "detect" phase, which includes the warden's sampling program; the "check" phase, which will be started as soon as an accurate pollution picture is obtained, and which will be carried out by field crews going into pollution areas to pinpoint sources of pollution; (game wardens may assist the crews from the Health Department in the pinpoint phase of the program); and a "correction" phase, in which corrections will be sought through the office of the Attorney General.

As another part of this vast program, the Railroad Commission sent questionnaires to more than 60,000 oil and gas producers concerning the amount of salt water produced along with oil and gas. Replies indicated that more than five million barrels of salt water are produced daily in the oil industry, one-half of which is reinjected or used for water-flooding in secondary recovery operations. The vast majority of the remaining salt water is disposed of in surface evaporation pits. Some of this water, however, is known to escape into and contaminate some fresh water streams.

Because the streams all are full, due to the rains of 1957, and recent

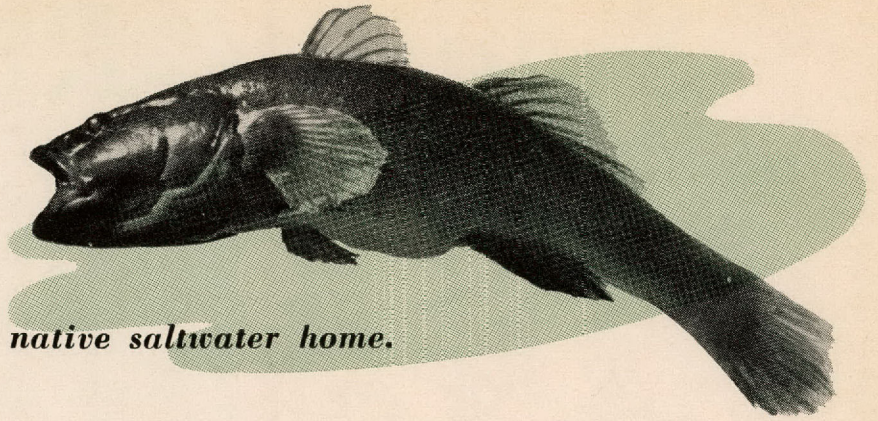
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The "sleeper"

baffles fishermen as it

swims away from its native saltwater home.



## Weird Wanderer

by LOU GUERRA  
Biologist

As night crews worked on the construction of Falcon Dam, they noticed thousands of fish flocking toward the lights. The men gave me many a midnight call to come catch the "pike" attracted to the lights near the water's edge at the site of the powerhouse outlet. But, each time I went out, nary a pike was caught. We found the curious fish to be sleepers—or *Electris pisonis*—making their first appearance in the semi-brackish and fresh streams of Texas.

Sleepers normally ranged from the Texas coast to the shores of Brazil. But somewhere along the line they managed to get lost; they started coming closer inland. Their wandering from natural habitat has caused considerable confusion, as well as a new fishing thrill which delights the "spinning" fisherman.

Fish experts Charles Breder, S. E. Meek, and J. Alvares give the sleeper's maximum length as one foot and its weight as two pounds, but Texas—which does everything bigger—can brag of sleepers two feet long and up to five pounds in weight.

Strange and ugly-looking, the sleeper has defied identical description by any two fishermen. It has been called everything from Mexican trout to bowfin. The body of the sleeper is shaped and colored like that of a gar, except the scales are of the ctenoid type, mouth like that of a bass, head shaped like a catfish, and fins like a bowfin. It

looks as if, when the fish parts were passed out, this fish got the remains in the barrel.

Why such an interest in this odd critter? The sleeper found in the Rio Grande provides a fight when caught unequalled by any other fish including the highly-touted largemouth bass. These fish can be taken on minnows, shrimp, plugs, and spoons. Caught on a spinning rig, the sleeper has given many a fisherman a heretofore unknown thrill with a great fight, excellent fun, and a few moments of doubt—as well as occasional burned thumbs, cracked rods, and broken lines.

Typical hang-outs of the sleeper are deep holes in the river channel. During low water stages, it will take most any type of lure if it's in a striking mood. Once it has taken your bait or plug, you will see a display of aerial antics, tail dancing, sudden plunges, runs, and fish tailing as you have never seen before.

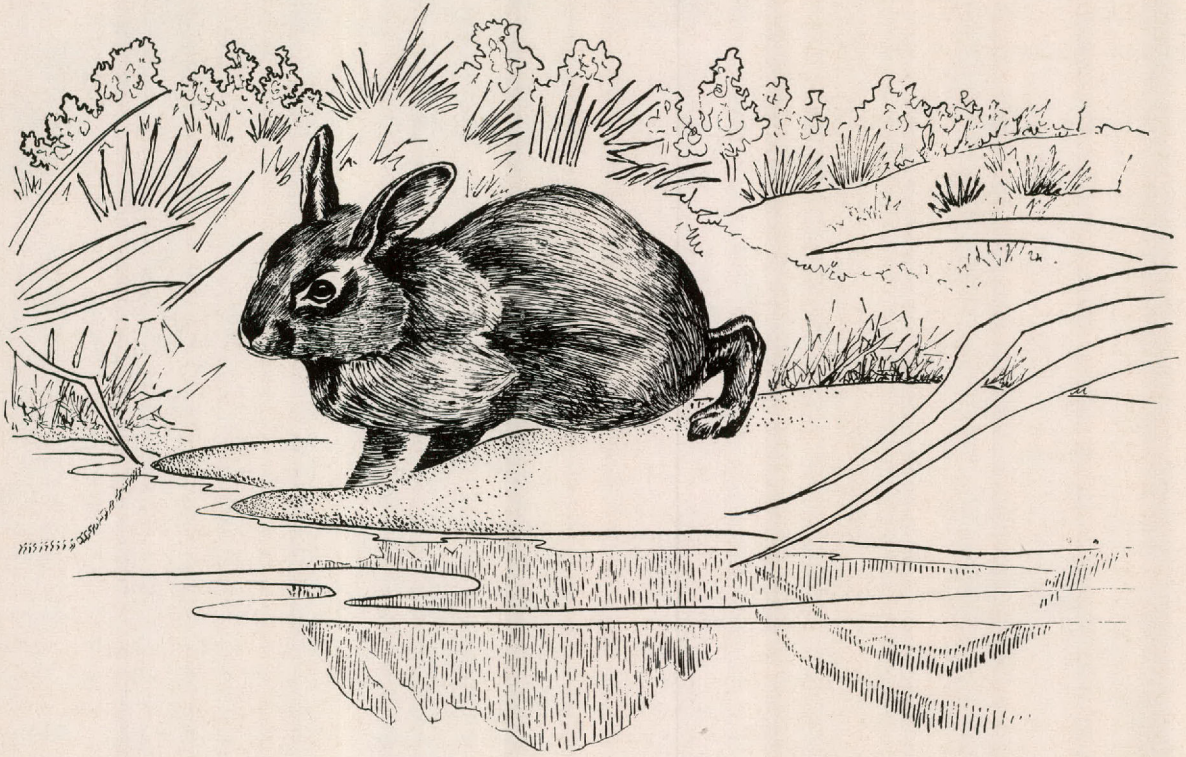
The fight alone is well worth any time you might spend on it. And, as if sheer pleasure of the fight is not enough, you find a rare eating delicacy in sleeper filets, when they are properly cooked in deep fat. The flavor of the meat is incomparable.

So, when you are at your fishing best, try for a sleeper. His name belies his actions. When you do catch him, don't let his weird shape and ugly expression persuade you to return him to the water, since that's only his means of defense. Head him straight for that frying pan.





# Swamp Rabbit



Swamp rabbits, largest of the "cottontails" in Texas, are found generally in the swampy, marshy regions in the eastern half of Texas. In appearance they resemble the common cottontail, except they are darker in color and do not have the distinctive "cotton" tail. Swamp rabbits have adapted to life in wet, marshy regions and although plentiful, may be seldom seen. Their diet appears to consist of roots of various aquatic plants, grass, and green plants.





# FISHING

by CONRAD FATH

## Lures for crappie □ □ □

**T**HIS is the time of year for the crappie fisherman to load up his boat with big crappie caught on artificial lures. I don't know all the reasons, but Spring is the only time of year when crappie will tear up artificial lures—both top-water and underwater. The rest of the year crappie can be taken readily only on minnows.

I understand that "lure fishermen" take crappie very successfully all year long in the Deep South and in eastern United States. In Texas, however, lures only prove productive in the early Spring months from February through May. Of course, there are exceptions to every rule, and fish have a disconcerting way of making liars out of the "experts."

Not claiming to be an expert, I am merely trying to pass on some of the ways to catch fish that have been most successful through the years. I hope some of these methods prove successful to you. If they do, then I have achieved my goal. If they don't—well—that is what makes fishing the most interesting of all outdoor sports. The "unexpected" often seems to be the rule rather than the exception. With this in mind, let's look into crappie fishing with lures.

All the lures used on crappie should be small. Most spinning lures are just the right size for this type of fishing. Among the lures that have been very successful are Pico Perch, Swimming Minnow, Abu Spinner, Heddon Chugger, Creek Chub Plunker, Heddon Midget River Runt, Barracuda Midget Spinner, and spoons. All these should be not more than  $\frac{3}{8}$ -ounce lures. As for color—red head with white body,

solid white, shad, yellow or brown with dark splotches have all proved successful.

It is important to cast these lures as close as possible to brush, rocks, or trees in the water. Hold the rod tip straight up in the air and give the lure an up-and-down motion while retrieving. Turn the reel crank as slowly as possible and do not jerk the rod when a fish strikes . . . simply hang on. The fish will set the hook when he strikes. Of course, you must reel at enough speed to let the lure wiggle and have some action.

The above method applies only to underwater lures. With top-water lures there should be very little action. Cast the plunker next to a bush, let it sit still for 30 seconds or more, then just jiggle the rod tip slightly so the plunker wiggles. Don't jerk the plunker hard and splash the water. The lure should act like a crippled fish trying to swim but unable to submerge.

Don't be surprised if you catch both white bass and black bass, too, for this technique is deadly on all game fish at this time of the year. Be sure to play the lures, both underwater and top-water, all the way to the boat. Sometimes the fish will follow your lure all the way in before striking. If you play the lure only half way in and then reel fast the rest of the way, you will miss a

lot of strikes. Be sure to keep the rod tip straight up in the air. There are many reasons for this and they are all important.

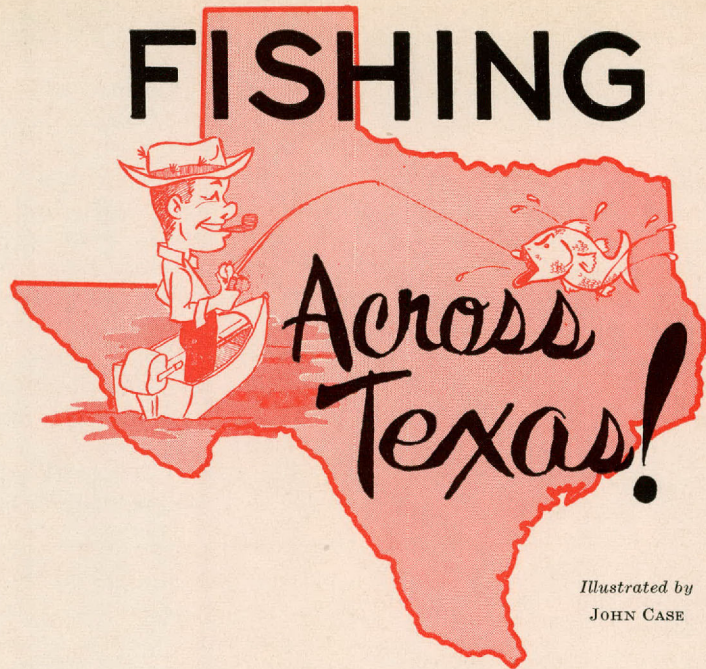
First, if a fish strikes close in while the rod tip is down, the strike might break the rod tip.

Second, when a fish strikes and the rod tip is high, the length of the line from the tip of the rod to the lure PLUS the length of the rod itself PLUS the flexibility of the rod gives the fisherman a safety factor that lets him play the fish without endangering his tackle. And also gives him a much better chance to land the fish. A fish cannot fight the flexibility of a rod for long. Steady tension of the rod and line on the fish will help prevent him from throwing the lure or tearing it out of his mouth. A steady pull of only three pounds with a flexible rod will soon kill any fish.

The third reason for the rod tip being held high is that this is the best position for playing the lure. The fisherman has room to move the rod and give action to the lure without hitting the boat or getting in the way of someone else in the boat. He also has much better control over the lure at all times.

A fly rod fisherman can have a picnic fishing for crappie at this time of the year. Crappie love a white streamer bucktail or a feathered

Illustrated by  
JOHN CASE





streamer fly fished slowly. A small silver spinner in front of the fly is also very effective. A fly rod Chum spoon and a Johnson silver minnow are other good fly rod lures for crappie.

One thing about crappie is that they hit fast and frequently. When you catch a few and then there is a lull in the fishing, you might as well move around until you locate them again. Crappie probably won't move very far away or "sound" for long. If you don't find them within half an hour, go back to the exact spot you found them before and fish there again. The chances are they will be right back in the same spot. Most crappie fishermen always go to the same place every week and nearly always find crappie in the same location.

Still another method of fishing for crappie is the slow, deep technique using an Abu Spinner or a Barracuda Midget Spinner. The main disadvantage to these lures is that they hang up very easily. But their effectiveness offsets this. These lures should only be used in very deep water along a steep bluff or in the middle of a deep slough close to tall trees or underwater rocks.

Stop the boat about 25 feet away and cast the lure over to the target. When the lure hits the water, let it sink straight down for about 15 seconds. Give the lure a slight jerk in order to start the spinners working, then force yourself to turn the reel handle so SLOWLY that the lure seems to be sinking down instead of coming toward the boat. The lure should be at a depth of at least 10 feet and should STAY at that depth during the entire retrieve. This works well in depths up to 35 feet. It is a good idea to make a few casts and fish the 10-foot depth. Then, if you don't get any strikes, fish at 15 feet for a while . . . and so on every five feet down until you get a strike, or else reach the 35-foot level. Once you get a strike, continue fishing at that same level, and you should catch a good mess of fish.

After you get a strike, it is very important to try to cast your lure in EXACTLY the same place every time. If you miss that spot by as much as two feet, you probably will

## Firearms, Water Safety Meeting Planned

Plans for the first state-wide Governor's Conference on Firearms and Water Safety were laid in Austin last month by Sportsmen's Clubs of Texas, sponsor, and other interested persons. Attending the preliminary meeting were representatives of the Game and Fish Commission, Texas A. & M. College, all branches of the Armed Forces, Girl and Boy Scouts, 4-H Clubs, Red Cross, veterans' groups, boating associations, and State agencies.

The Conference itself was set for May 5. James O. Musick of Austin,

fail to get another strike. I have seen many fishermen catch crappie in one exact spot next to a bush while their partner, fishing in the same boat with the same lure, didn't get a strike . . . mainly because the partner fished a few feet away.

The most successful locations now for crappie are back in the sloughs around trees, brush piles, or rocks. Crappie are easily scared, so be very quiet. Move your boat smoothly and gently or the crappie will "sound" and swim away . . . fast! Spinning rods, casting rods, and fly rods are all fine for crappie fishing.

There is one other thing that is important to all fishermen . . . every time you cast, play the lure all the way as if you expect a strike. This attitude will keep you alert, and you will make every effort to play the lure to the best of your ability. You can never "let down" when you are fishing. To catch fish, you must work hard, but this is the kind of "work" I really like!

Good luck!



general manager of the Texas Safety Association, was appointed chairman of the attendance committee. He was named by Cecil Reid, executive secretary of SCOT and organizational chairman of the Conference. George Whittington of Amarillo, president of the National Rifle Association, was appointed chairman of the program committee.

Emphasis at the preliminary meeting was placed on reports by National Rifle Association representatives that states pioneering in gun safety programs have substantially reduced field accidents. The need in Texas for standardized boating regulations was pointed out by men from the Boat Trades Association and Coast Guard Auxiliary.

Howard D. Dodgen, Executive Secretary of the Game and Fish Commission, said he hoped to have Commission personnel at the Conference, particularly "supervisory personnel." Lewis Spears, safety consultant for the Texas Education Agency, foresaw adaption of the gun-water safety program to the schools on the same basis as driver safety courses.

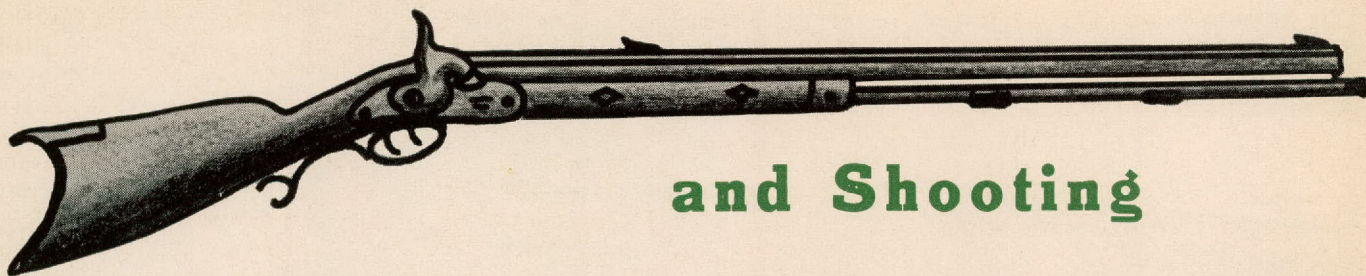
## Port Aransas Schedules Saltwater Fishing Meets

The Annual Deep Sea Roundup has been set for July 15-17, and a new, weekend schedule for the Tarpon Rodeo in October has been announced by the 1958 Rodeo Committee in Port Aransas. Tarpon competition will be held October 3-5, the first weekend in that month, unless bad weather postpones it until the second weekend.

This year's committee, headed by Lloyd Dreyer, took no chances with the Tarpon Rodeo, which had to be cancelled last year because of bad weather. The Tarpon Rodeo is for tarpon only, whereas the Deep Sea Roundup features the offshore fishes, including sailfish and marlin. Committee officers this year, besides Dreyer, are Don Roy Farley, secretary-treasurer, and Joe Tracy, Jr., entertainment.



# GUNS...



## and Shooting

by JOHN A. MASTERS

### This Month : New Savage 110 Gun

It has been several years since a really new bolt action has been introduced on the American market as a purely American engineered and designed device. The seemingly insatiable demand for bolt-action, high-powered rifles, barreled actions, and actions to be barreled by the purchaser reached monumental proportions. One large mail-order house bought so many F N Mauser actions in the white to build their rifles around that I hesitate to report it.

During the building of the several rifles I own, I have often wished for an American-built action, but since no one seemed interested in selling me one, I always had to resort to a converted military rifle action or a foreign-built one to get the job done.

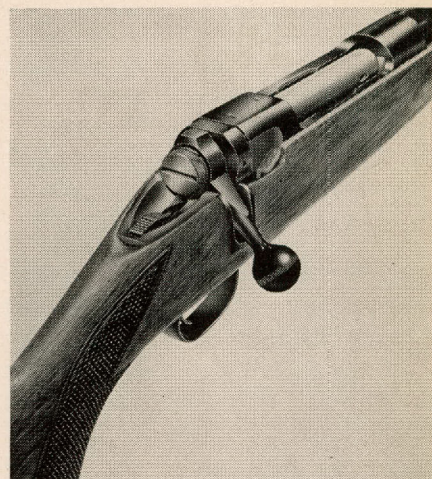
Savage as yet hasn't done anything about permitting one to buy an American-built action alone, but they certainly have come out with a fine new one. It is the heart of the racy new Savage 110 rifle, a real slick, beautifully-done entry in the high-powered rifle field.

Let's consider it piece by piece. To begin with, it has a very nice adjustable trigger, which, for the first time to my knowledge, is adjustable without removing the stock from the rifle. Just ahead of the tang shotgun-type safety, there is a little metal cover that can be lifted up, exposing the adjusting screw. The trigger is a wide grooved design that gives one the feel of a trigger shoe. I found my sample permitted just about any range of adjustment that could be desired.

As already noted, the safety is the tang type, and is quite similar to the safeties found on double-barrel shotguns. It is equally accessible and convenient to either a right or left-handed shooter, and is quite positive in operation.

The really new part of the rifle is the bolt assembly. The head of the bolt sports two massive locking lugs which rotate into recesses in the normal manner. The bolt face is recessed so that the case head is almost completely enclosed in steel when the gun is at battery. A solid

band-type extractor functioned perfectly in my gun, and looks like it will stay with one for quite a spell. The extractor has long been a problem on bolts designed to enclose the case head; this one looks like it has it. The second set of lugs, behind the first, serves as gas shields in the event a case does let go. Gas ports



Trigger of new Savage 110 is adjustable without removing stock from rifle and is wide-grooved. Safety is the tang type.

## Shootin' Shorts

Mossberg has announced a line of bolt-action .22 rifles in which the bolt is completely contained in the receiver. The result is a very trim looking rifle. I have not yet test fired the new design, but it certainly looks good.

I keep hearing rumors that the .308 Winchester case necked to .270 is going to turn up any day now. Personally, it looks like it might make a real fine cartridge. That would just about fill out the line of cases based on .308 brass.

Winchester has announced a new single-shot .22 that has several interesting features. The gun automatically ejects when fired, and the action cocks. When the loading gate is depressed to insert another round, the safety automatically goes on. Looks like a good first gun for a boy.

I have the new Remington 725 on hand to give a shakedown. This one is a living doll for looks and feel. More about it later.

are provided also to bleed the gas off.

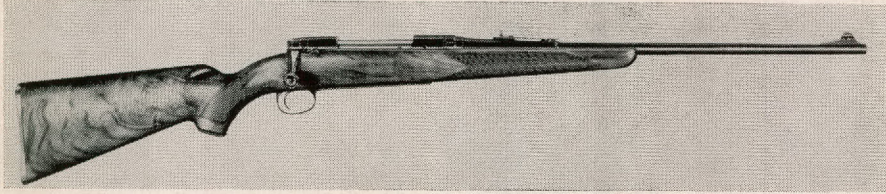
Moving to the rear, we find a bolt handle that seems to have been added as an afterthought; actually, putting the handle at the extreme rear permitted Savage to build a bolt that is perhaps the easiest in the business to tear down. A large screw in the rear of the bolt may be withdrawn, permitting the entire bolt to be taken apart for cleaning. Directly ahead of the bolt handle there is a flange that appears to float around until one notes that it is in an excellent position to deflect any gas from the shooter's face that may get this far back.



On the right, there is a handy little device that looks like a safety but isn't. Savage has always been long on firing indicators and this rifle has one too. When the rifle is cocked, the little metal arm raises up, and falls as the trigger is pulled.

removable until one removes the stock screws. This represents no real sacrifice, since few shooters ever make use of the removable floor plate on a rifle.

If you insist on using open sights, you will find the sights on this



Savage 110's stock has light checkering, and an oil finish. Bolt assembly is easy to take down, and bolt handle is at rear to protect shooter's face from gas.

The receiver of the Model 110 is drilled and tapped for scope mounting. The overall appearance of the receiver is very similar to the Remington 720 series. It appears massive enough to satisfy even the most cautious shooter.

Stock design is excellent. Just enough checkering is used to be functional and give a finished appearance. Like all Savage rifles, the wood is oil finished. The barrel is free-floating, and is not secured to the stock at any point.

Savage has a different method of attaching a barrel to a receiver. A lock nut is used once the barrel is screwed into the receiver to the proper headspace. Thus the barrel is absolutely certain not to back out.

While the trigger guard and floor plate are nicely milled, they are not

rifle to be the finest. The rear sight, which folds down for scope use, is a shallow "U" type, with a white line instead of a notch. I know Uncle Herkimer is deadly with his buckhorn Rocky Mountain rear sight, but wait 'til he tries this one. The front sight is the typical gold bead.

The staggered column magazine holds four rounds, and is of the typical Mauser design. Savage has added a "buffer," a ridge that rests against the cartridge shoulder, and prevents bullet point deformation.

Accuracy-wise, the 110 has proven capable of 2-inch groups quite regularly, about as good as you could expect from a 6¾-pound rifle. It is a nicely built, thoroughly functional rifle, one that any shooter can exhibit with pride. The price looks reasonable.

## East Texas Outdoorsmen to Enter Competition To Improve Quail Habitat in Harrison County

Harrison County sportsmen combined forces with about 200 members of Future Farmers of America and 4-H Club in competition to improve quail habitat throughout the county. Opening meeting of the contest was held in February, and the judging was set for August.

The East Texas Wildlife Association had six tons of fertilizer on hand, donated by local firms, and had ordered two and a half tons of seed. The seed would be planted by FFA and 4-H boys, adults assisting boys, and adult competitors. Each group is asked to plant at least five food plots at different locations for quail. The plots are to be small

—not more than 40 yards long and 10 yards wide—and must be located where quail will have access to them.

Ed Cooper, extension service wildlife supervisor for the State, said that this program was "one of the finest ideas for wildlife conservation" in Texas. He added that it was also the largest such program.

Prizes offered in the youth division will be \$75 for first; \$50, second, and \$25 for third. A plan to promote school competition is also being worked on, with an additional \$25 given to the winning pair of county schools. Adult competition winner will get either a 12-gauge shotgun or an outboard motor—

*Tom Browning*



## It Happened This Way . . .

A game warden observed a slow-moving car flashing a strong spotlight on the woods beside the road. He drove up alongside the car full of hunters and called to them to stop their car. The warden got out of his car and strolled over to do some checking.

"What seems to be the trouble?" the driver asked the warden. When the law officer told him that headlight hunting was against the law, one hunter exclaimed, "Why, sir, we weren't headlighting. My wife sent us out here in the country to find some fresh eggs. There's a sign alongside of the road here some place, and we're looking for it with this spotlight!"

The warden laughed to himself at the thought of a carload of men going egg-hunting in the dark. Then he checked the surrounding area and found the rest of the evidence—dead deer—he needed to arrest the men.

\* \* \*

One night during hunting season some wardens set up a road block to try to catch some known violators. One car came along and stopped. The driver said, "Boy, are we glad to see you. We accidentally shot a doe down in — County, and we've been looking for a game warden so we can turn it in."

Since the place of shooting was a number of miles and three counties away, the wardens became somewhat suspicious. The man opened the trunk of his car, and sure enough, there was a deer. Only it was a spike buck instead of a doe, and it had not been cleaned. The wardens, even more curious, questioned the men, who admitted they had been headlighting and hadn't taken time to determine the sex of the animal they had killed.



## With guns and traps, we hunt the killers.

Unsuspected Outlaw

• Continued from page 7

pped into runways similar to those made by deer. A half-eaten deer carcass lay across the trail with bits of deer hide and broken bones stripped off the flesh. From there on the woods was a maze of blood-spattered trails and parts of half-eaten deer scattered about. We left at noon without sighting a dog.

That evening I called Glen and George and on the morning of the 24th accompanied by them, Lloyd and Johnnie, we went into the swamp to hunt the wild dogs. About 10 o'clock away to the south I heard George's rifle crack and then nothing more until noon. He and Johnnie came out of the woods with six pups about three weeks old wrapped in George's coat. He had had a shot at the mother of the litter and missed and while waiting heard a whimper in a den under a fallen tree. Johnnie stood guard while George entered the den and removed the six pups. We left and returned that night and placed a barricade across the entrance to the den and set a number four steel trap about three feet from the hole.

At daylight on the following morning George and I returned to look at the set. While we were still a quarter-mile away we knew she was there in the trap. She sent out to the surrounding hills a long mournful howl. It was the most eerie sound that I have ever heard in all my years of wandering the forests of Michigan. We stopped and listened while the skin on our backs drew up into tight little knots. Far to the south a dog answered the call and then far to the northeast another and then silence. It was the last call of a wild mother to her grown offspring.

We went on and found her waiting in the trap. The bullet from George's 30-06 stopped her in mid-air as she tried to leap at his throat, pulling the heavy steel trap and the drag with her as she lunged at him.

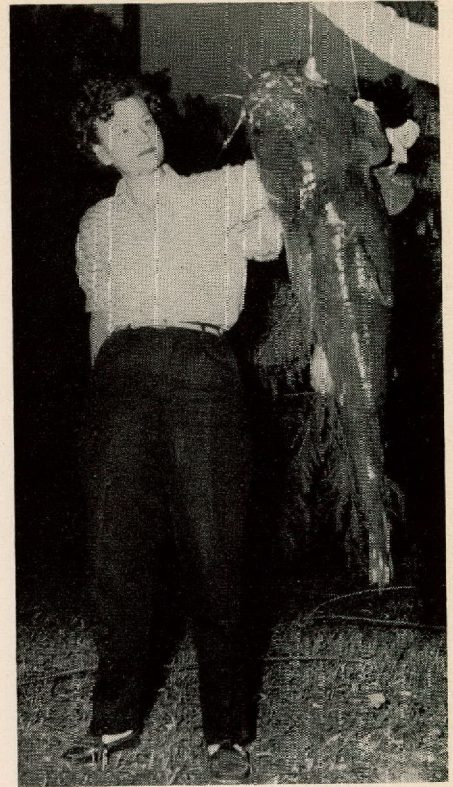
A short time after dinner that day after the rest of us had gone, Johnnie heard a dog running off in the swamp to the south. He went in alone and killed two males as they

closed in on a deer for the kill. A third got away.

On March 31, Johnnie called again and I went back to the swamp where he had just killed the largest dog I had ever seen in the wild—measuring 28 inches high at the shoulder and 61 inches long from nose to end of its stubby tail, apparently a cross between a collie and a police dog. The dog had just killed a deer and was guarding it from a smaller dog that was doing a lot of barking. The big fellow stood across the runway and looked so much like a deer that at first Johnnie thought it was a deer and that the little dog was trying to tackle it alone. Then it turned its head and looked down the runway and as Johnnie said, "It looked like a lion." He squeezed the trigger. The dog came toward him with fangs bared and he shot again. The big dog dropped a few feet from him. We examined the deer. It had been killed by a single bite from the huge dog. The little dog that did the barking ran away.

In the afternoon on that day Lloyd discovered the second den not 50 yards from the first. We set the trap and departed leaving all the pups in the den. At six that evening, Johnnie tended the trap. The female had been there, turned the trap over, torn out the barricade, fed her pups and left. This time Johnnie set a trap inside the den, replaced the barricade and placed another trap outside the den. At midnight he went in to the traps and she was there. She had sprung the outside trap, torn out the barricade, and jumped in through the opening into the second trap.

In the area surrounding the two dens were the carcasses of eleven deer within one hundred yards. During the next few weeks, five more dogs were killed in the area and on April 26 George called and said that he, Ronnie and Doc had just seen two dogs run a deer into a small swamp on the west end of the Weidenhammer. We took the guns and went after them. Ronnie and I had just loaded up when the



## Double or Nothing

**PERSISTENCE PAYS**—Geneva Vessels, wife of the laymen wildlife authority, "Gus T. McMammal," poses with her latest piscatorial conquest. Last year Mrs. Vessels, who formerly was librarian for the Game and Fish Commission, caught a 23-pound yellow catfish at her Lake Austin home. Now the weight has doubled with a 46-pounder. *Jzy Vessels*

the big dog came sneaking out of the woods and across the road, having scented George in the swamp. We both shot. He was the one big killer left. The little dog that barked is still alive in the swamp. It was through her excitement of the chase, and her loud barking that continually tipped us off to the real killers. In the neighborhood of 100 deer had been killed in one winter by this band of outlaws, within seven miles of a city.

George and I went over to Johnnie's and told him of getting the last big one. He said, "It sort of makes you feel all good inside when you've got a job well done." \*\*

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**HEAVY CATCH**—Catfish weighing 17 and 70 pounds respectively are displayed by James Monk, left, and D. J. Knighten, right. Using small catfish for bait, the fishermen hauled in their catches from the Neches River near Silsbee. —Jerry Zuber, Silsbee Bee

## Hybrid Quail Reported

A quail hunting trip to an area between Matador and Paducah turned up an extremely rare find for Jimmy Nettlet and Dr. W. E. Boynton, both of Denton. One of the birds they killed looked like a hybrid.

Back markings and breast markings were those of a blue quail, although the feathers on the breast were colored more like those of a bobwhite. The bird's head was identical to a bob, yet he had a top-knot like the blue. Dr. J. K. G. Silvey of North Texas State College, an authority on birds, has verified the fact that such a cross was possible, but not probable. In fact, it's extremely rare.

The hunters headed back immediately for another try at the rarity.



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# Two Lions Killed in South Texas

Two mountain lions killed in Medina County this past deer season put an end to the theory that big game hunting is over in Texas. Both cats were brought in the same weekend.

First news of the cat being in the area came from a fisherman who worked on the H. F. Richardson Ranch. The message was relayed to August Timmerman, county game

warden, who set out immediately with Tony Zerr, a hunter, and three hunting dogs. The dogs hit the trail and within an hour had treed the cat. Zerr beat to the tree and killed the cat with one shot from his .22 rifle.

The next morning Robert Luby of San Antonio spotted another lion while deer hunting on the Walter Conring place. Luby killed it with a shot from a .270 rifle.

The two mountain lions, both male, were shot within about a mile area, approximately 10 miles south of D'Hanis. The first one weighed 115 pounds, the second 111.—*Hondo Anvil Herald*

## Sportsmen Miss Challenge Of Stunt-Flying Jacksnipe

Many hunters do not know there is an open season on Wilson's Snipe, usually in December and January. The Snipe (called also Jacksnipe) is one of the few game birds wintering in Texas that are not subject to heavy gun pressure, even though its tricky flying would make it a challenge to any hunter. Recent rains on the Sheldon Wildlife Management Area attracted many of these birds to about 150 acres of plowed unplanted ground, originally set aside for a study of duck food.

The Snipe is from 10½ to 11½ inches long, and larger than a Spotted Sandpiper, according to the "Field Guide to Birds" by Roger Tory Peterson. It is brown with a striped back and an extremely long slender bill. When flushed, it makes off in a zig-zag, showing a short orange tail and uttering a rasping note. Preferred habitat for the birds is open margins of little streams and marshes.—*C. E. Beezley*

## Streams Under a Microscope

Continued from page 18  
rains, pollution is not as serious as it may be when the rivers return to their lower levels and what is termed a more normal flow. Determining the extent of brine pollution in rivers of the state is a vital part of the water sampling program.

As it became evident that additional steps would have to be taken to control stream pollution, this particular Water Pollution Control Program was initiated at the request of and in cooperation with the Attorney General, in the interest of the enforcement of anti-pollution statutes, which had been passed by the Legislature. These statutes are designed to insure Texans of a uniformly good water supply for municipal, industrial, and agricultural uses. \*\*

## Casting Demands Light Tackle, Experts Say

Nearly everyone knows how to cast, including children, but 75 per cent can't cast with the equipment they use. So say Billy Cullerton and Chuck Danforth, nationally known tackle representatives who recently completed a tour of fishing clinics.

First, lines in popular use are usually too heavy. The tackle experts saw some 50-pound lines on casting outfits. Rods were too stiff and too short, reels too big and too heavy.

"A 15-pound line will handle the biggest fish in the state," said Cul-

lerton. "And it will make casting much easier. A 50-pound line costs a lot more than a 15-pound line, but it won't do the job."

In most other sports, kids start out with new equipment, but somehow in fishing many of them wind up with bunglesome hand-me-downs that are a distinct handicap, Danforth and Cullerton decided. "The outdoors belongs to the kids but they can't really enjoy it if they have to see it through a back-lashed 50-pound line," Cullerton concluded.



## Hardwoods for soil

**Pines: Profit with Problems**

• Continued from page 6

should not be treated.

3. Save some of all species of oaks present. Save the quality trees that will grow merchantable logs, if available. Leaving 5 to 10 oaks over 10 inches per acre would be good, more would be better. This selection should be made before hardwood logs are sold, so it won't be necessary to keep culls.

4. Leave all vines unless damaging a quality pine.

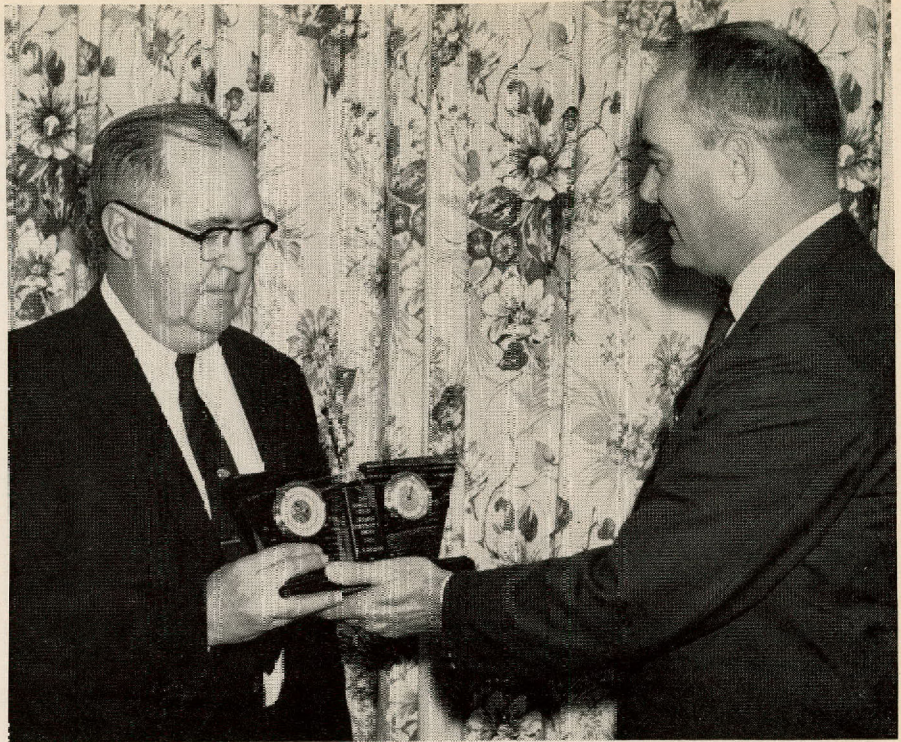
5. Hardwoods left should be distributed throughout the stand.

6. Leave any trees that have squirrel den holes in the upper trunk or limbs. A hollow at the ground level is not desirable.

When hardwoods are killed by the use of airplanes and helicopters, wildlife is likely to suffer severe loss of habitat. Such broad-scale spraying kills or damages almost everything in the stand but pines and grass. Because it is non-selective, the only way to protect wildlife is to leave strips untreated. These should include the creek and branch bottoms and total at least 10 per cent of the acreage.

If the landowner wants to have wildlife now or later, these modifications of his forestry program will help. Aside from his interest in wildlife, there are reasons to suggest that it is unwise to attempt to grow a pure stand of pine on East Texas land which originally had a mixed stand of pines and hardwoods. German experience with pure stands of conifers indicates that some hardwoods are necessary to prevent soil deterioration. Likewise, insect problems may be expected to increase with the decline of hardwoods. More insect-eating birds are present in mixed stands than in pine stands.

Where deer are numerous, proper management (including the best possible winter food supply) is necessary to prevent damage to pines. On one club in the Lufkin area, deer and cattle together ate 46 per cent of the pine forage less than 6 feet high last winter. Various management problems were involved; but a good supply of acorns would



O. H. Schram, left, accepts award from Cecil Reid, SCOT executive secretary.

## Peeler Sportsman Award Goes to Legislator

State Representative O. H. "Mugie" Schram was presented the first annual George B. Peeler Outdoor Sportsman's Award, sponsored by the Taylor Daily Press for his work in introducing the universal fishing license bill through the Legislature. The award was made by Cecil Reid, executive secretary of the Sportsmen's Clubs of Texas (SCOT), at a meeting of the Taylor Kiwanis Club.

The award will be made each year to an individual "who has made the greatest contribution to wildlife in Williamson County." Representative Schram worked on the universal fishing license bill throughout the last regular session. Two early versions of the bill were defeated, but when he re-wrote the bill a third time, it was passed.

have helped save a lot of small pines.

The landowner has the privilege of deciding the balance between hardwoods and pines. His decision will not be repairable within his lifetime, if he decides against the hardwoods. It takes more time to grow an oak than a pine. \*\*

The bill raised the individual fishing license fee 50 cents, and included saltwater fishing in its scope. Upon passage of the bill, Federal funds at a ratio of \$3 for each State dollar became available for use in the wildlife conservation program in Texas.

In accepting the award, Schram said, "I'm thrilled, proud, and grateful. . . . I sincerely appreciate this award in memory of a good friend of mine, George B. Peeler. I went hunting with him often. I knew of his deep interest in this cause so close to his heart. He was vitally interested in conservation and the propagation of wildlife in Texas."

—Bill Kennedy, Taylor Daily Press

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**KEECHI QUAIL AND  
PHEASANT FARM**

**ROUTE #2, BUFFALO, TEXAS**



## Elaborate ant city has a corps of worker ants to maintain it.

Mounds of Menace

• Continued from page 9

vesting machines strike them and become twisted.

A typical mound develops when the workers emerging from the queen's first brood begin enlarging her underground chamber. As additional worker ants appear, they join in the task until a mound is built to accommodate the large ant population. An average-size mound may contain 25,000 workers and only a few dozen winged forms.

The completed mound consists of a firm, honeycombed framework, about 15 inches in diameter and 10

inches in height. Living quarters are subterranean galleries constructed within a V-shaped pattern that extended to three feet downward. On the outside the mound appears to be a solid mass of earth—smooth and hard. But after a heavy rain, worker ants can be seen crawling out of several holes in the surface to make any necessary repairs. When the repair job is completed, the workers quickly close up the openings.

There are three adult forms of imported fire ants: 1) winged fertile females (queens), which lay the eggs and which provide the start of any fire ant colony; 2) winged fertile males, whose sole duty is to mate with the queens; and, 3) worker ants—usually wingless females that are sterile. (The few that are fertile lay eggs without mating.) The adult ants are usually  $\frac{1}{8}$  to  $\frac{1}{4}$  inch long for the workers, with the queens being slightly larger. They are reddish black in color.

Usually only the worker ants are seen. The fertile winged forms live

in seclusion until the mating flight. Marked increase of activity in the ant colony often precedes a mating flight. Workers make several holes in the surface of the mound through which the males and queens emerge. This is the only time the ants come from the top of the mound, the usual means of entrance and exit being through tunnels just under the surface of the ground and extending away from the mound for a distance.

The male ants, smaller and blacker than the queens, take flight quickly directly from the mound surface. Queens often climb on a nearby plant and slowly lift their bodies into the air. The ants mate in flight, and the male dies soon afterwards. Fertilized queens find suitable nesting sites, cast off their wings (which they no longer need), and begin digging an underground chamber in which to lay eggs.

The ant colony actually begins when the queen starts laying her clusters of smooth, shiny, white eggs that resemble finely ground meal. The first cluster may contain 10 to

• Continued on next page



With a 27 $\frac{3}{4}$ -inch antler spread, this South Texas white-tailed buck makes a good showing as the first deer killed by Jerry Hill, 15-year-old sophomore at McAllen High School in the Valley. Hill made a clean running shot at 75 yards with a 300 Savage to down the buck on the Cameron Ranch in Starr County. Game Warden Bill Frasier of San Juan points out proudly, "This is the reward for hunting in South Texas brushland."

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## And then there was confusion.

Nestful of Splendor

• Continued from page 13

Maryland. Life was much simpler back in this gentleman's day and for a time thereafter. A Baltimore Oriole was eastern, black-headed and had a little white in its wings; a Bullock was western, largely orange-headed, and had large white wing patches.

Big changes came after the white man arrived on the Great Plains. Over-grazing and fire control allowed brush to spring up. Settlers planted shade trees and shelter belts. No longer did open prairie separate the woodland Baltimore from the brushland Bullock. Today there is a broad band down the middle of the United States where eastern and western birds are intermingled. In western Nebraska and Oklahoma, Baltimore-Bullock hybrids abound. Often it is impossible to tell to which species an individual bird belongs. At Austin, Texas, half-breeds are seldom seen, but observers usually have to go east to see the western Bullock. Migrating Bal-

timores may be in any direction around town.

Amid the confusion of this crowded earth, I like to recall a scene from more spacious days. The location is in the brush country of southwest Texas. A steady breeze from the Gulf of Mexico sweeps clean air across miles and miles of grass, mesquite, and prickly pear cactus. This gentle wind rustles leaves of a pecan tree which partly shades a ranch house. Moving leaves sound like the rain that will surely come in a few days. But even if the showers miss this time, the windmill will keep on pumping plenty of water since nobody has yet lowered the water table with super-colossal pumps.

The only mechanical sound comes from the windmill. But from within the nearby pecan tree occasional soft chattering through the sunny hours indicate that a pair of nesting Bullock Orioles are hunting caterpillars amid the unsprayed leaves. It's all sort of peaceful. \*\*



## Mounds of Menace

• Continued from page 28

15 eggs, which she looks after almost constantly, carrying it with her wherever she goes. Later her output gradually increases to clusters of 75 to 125 eggs, but she does not attempt to carry these around. In all a queen will lay hundreds of eggs.

The eggs hatch into larvae in about eight to 12 days. The first batch of larvae, dirty-white grubs that can hardly move, are fed from food that is stored in the queen's body. Later, the worker ants hatched from the first brood take over the job of feeding the larvae.

Larvae soon transform to pupae, which resemble the adult ants in shape, but which are white. Those that become worker ants after the pupal stage change into pupae in six to 12 days. Ants that are to become winged females or winged males take longer to develop. Adult ants usually emerge in nine to 16 days.

Occasionally a whole colony of ants will abandon a mound and move to another location a short distance away. Such action is usually prompted by:

1. The colony locates a new food source and builds a mound around it.
2. A disturbance to the original mound causes the ants to vacate.

3. Other, more formidable insects drive the ants from the mound.

4. The older mounds become too big and unmanageable.

The worker ants take complete charge of the moving operation, guiding other ants through the underground tunnels and carrying eggs and immature insects to the new location. The new mound may be 25 feet from the old one.

After a mound is abandoned, rain soon levels it to the ground.

The means of control of the imported fire ants has become a problem. An experimental control program is being carried out in East Texas with the joint cooperation of the Game and Fish Commission, U. S. Department of Agriculture, U. S. Fish and Wildlife Service, Texas State Department of Health, Texas Department of Agriculture, and Texas A. and M. College.

## By not killing does, hunters are losing deer.

### Facts on Hunter's Choice

• Continued from page 8

tion conservatively credits the state with having 900,000 deer. In 1955, according to Crossley S-D Surveys, Inc., 107,000 deer were killed in Texas. Based on the above figures, it can be estimated that Texans are harvesting less than 12 per cent of their deer population. In 1955, biologists in charge of antlerless deer harvests in the state reported fewer than 2,500 antlerless deer bagged—less than 2½ per cent of the kill.

Stable deer herds on good range can be expected to have a natural turn-over rate of 40 per cent. Thus a harvest double that of 1955 would still leave a safety margin of 16 per cent of the population which might succumb to predators, diseases, parasites, accidents, and other mortality factors. All of these deer might be removed *before* the original broodstock would be affected!

Harvesting approximately 50 bucks for each antlerless deer bagged, in a state where the ratio of bucks to does is less than 1 to 5, holds no promise of alleviating the present out-of-balance sex ratio problems found in Texas' deer herds. The only results to be expected by continuing the practice is an annual waste of deer which will exceed the harvest. Rangelands, already overpopulated with deer, will

## Oldest? Hunters Club Celebrates Centennial

The Shelby County Deer Hunters Association of Ohio will celebrate its 100th anniversary in 1958 and has requested the National Wildlife Federation to find out if any other sportsmen's club in America can lay claim to a longer period of continuous history. Most of the older sportsmen's organizations were started in the early 1900's, about the time the conservation movement first took definite shape under the leadership of President Theodore Roosevelt and his chief forester, Gifford Pinchot.

Clubs that have documented evidence of being organized before 1858 are asked to send proof to the Federation, 232 Carroll Street, N.W., Washington 12, D. C.

continue to deteriorate and have a reduced carrying capacity for deer and livestock. Finally, with the reduction in the total number of deer through starvation and malnutrition, comes a deer herd of inferior quality.

It is easy to find a solution—on paper—but presenting a practical answer which will be accepted and followed by hunters and landowners is another matter. The facts, as gathered through years of biological research in our deer-producing states, indicate that scientific cropping is imperative. Where deer herds are well established they must be cropped back to a point below the established carrying capacity of the land. Harvesting bucks alone hasn't done it, nor will it.

When the landowners and hunters accept the fact that the does in their herds are also deer and must be utilized as such, the buck law will begin to become a thing of the past. \*\*

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# Modern Farmers Include Wild Game in Their Land Use Program

If hunting today isn't like it used to be in grandpa's day, maybe there are good reasons. Dr. J. P. Linduska, wildlife management director of the Remington Arms Company, Inc., stated these reasons in a recent newsletter to *Texas Game and Fish*.

"For instance," Linduska said, "while production figures for some species of wildlife have been slipping off the bottom of the graph paper, corresponding statistics for man have been climbing straight up. In 1900 we were a population of 76 million well-scattered souls with lots of elbow room. At the last national census in 1950, things were a little cozier with a count of 154 million.

"Even with the same amount of game, it would divide up to only half as much. But we don't have as much game, and hunters have increased at a greater rate than the population as a whole."

Backing up his statements on sportsmen, Linduska points out that in just a 17-year period, from 1933 to 1950, combined sales of hunting and fishing licenses throughout the United States nearly tripled—from 10 to 28 million. In 14 years, from 1936 to 1950, the duck hunters increased fourfold. Clearly, competition is growing.

"And what about game supplies?" continues Linduska. "Guessing their population trend is considerably less

certain than plotting human population curves. One way of looking into the future for wildlife is to examine land use, a basic element of game abundance. The more fertile the soil, the more of everything it will produce, including wildlife."

Before 1934, according to the wildlife authority, we were losing our agricultural land through misuse at the rate of a million acres a year. Today, the American rural scene is undergoing a notable face lifting. Thousands of farms have been replanned with technical know-how to reduce erosion and restore fertility. The net effect should



**QUAIL FOOD JUNGLE.** Beside a huge marsh elder (*Iva Xanthifolia*) in the Canadian River bottom stand Biologists Eugene Walker, Director of Wildlife Restoration, Norrel F. Wallace, and A. S. Jackson. The marsh elder, major source of quail food in the Panhandle, was long stunted by drouth. The 1957 rains produced this tremendous growth.

be decidedly in the favor of wildlife and the sportsmen, as well as the farmer.

"Modern-day land planning recognizes multiple values even on private areas," said Linduska. "And while primary uses may emphasize cash farming, the encouragement of wildlife crops is an important part of progressive land management. Problem areas uneconomical to farm can be intensively managed for game by cultivating food and cover for wildlife."

Some farms can be adapted to waterfowl production, too. Nearly two million ponds have been built on farms and ranches in the United States in the past 20 years. Several million more are in the offing, Linduska pointed out.

Habitat management, though seldom spectacular, is the demonstrated method for building bigger game crops economically. Swiftly changing concepts of land-use make a place for wildlife on the farm and offer new possibilities for doing something about it.

## Things \_\_\_\_\_ You May Not Know

Using their poison to kill food, rattlesnakes will not attack a man unprovoked, and will very often crawl away rather than chance a human encounter.

The porcupine's quill is actually a hollow hair, three inches in length or longer.

The copperhead snake is also known as highland moccasin, chunkhead, rattlesnake pilot, death adder, poplar leaf, red oak, white oak, pilot and copper snake.

The guacharo (butterbird) of South America is so fat that natives melt it for use as butter.

The average time an otter can stay submerged is around four minutes.

Although the bison may attain weights of half a ton or more, he is capable of moving across the plains at speeds up to 40 miles an hour.

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After sharing their breakfast milk, Boots and Jo-Jo play and nap together.

## Unique Friendship Comes as a Surprise

Jo-Jo, a buck fawn, and Boots, a brindle cat, have formed an unusual friendship, even sharing their meals together. Although the fawn has an opportunity to run with other wild deer at the Bell Branch Ranch in Ellis County, he seems reluctant to forsake his little friend. He learned his almost-tame attitudes quite by accident, when a family claimed him for a pet.

"Some time ago," J. I. Gerganess relates, "en route to Mountain Creek Lake on a routine patrol, I saw a young fawn deer in the backyard of

a house in a thickly populated residential area in Grand Prairie. I stopped to investigate and was told that the family had acquired the fawn from some friends in South Texas.

"The little fawn had been starving, and they had brought him home to feed him, not knowing it was illegal. I explained the law to them concerning the taking and possession of a wild deer from his natural habitat, then took the fawn to the Bell Branch Ranch for release with other wild deer."

Apparently, the little buck knew where to get what he wanted, however, because he soon began going to the ranch house door to be fed. The ranch foreman, Ralph Jones, and his wife named him Jo-Jo. Shortly after Jo-Jo made himself at home, a stray brindle kitten came to the ranch, and the Jones' began feeding it, too.

Gerganess continues the story, "Recently Warden Stein and I went to our camp on the ranch on a routine patrol, and inquired about the little fawn. The ranch foreman told us that Jo-Jo and Boots the cat had become very good friends. Each day, they have their breakfast together, drinking milk out of the same bowl. Afterwards, they romp and play together. When they are tired Jo-Jo lies down in the sun to rest, and Boots cuddles up between his legs for a nap. It is very unusual for a member of the cat family and a game animal to develop such a companionship."

## Are Snakes Blind When Shedding Skin?

As snakes begin to respond to the warm April sunshine and come out of their hiding places, questions on their habits seem particularly appropriate. From Guy G. Griggs at Kerrville comes this query:

"I would like to know if it is true or false that snakes shed their skins in the latter part of August and the first part of September, and are therefore blind or partially blind, making them more dangerous than usual..."

Game Commission biologist Al Flury answered with the following information:

"Most snakes shed their skins in early spring just after coming out of hibernation, again sometime during mid-summer and then again in the fall just before going into hibernation for the winter. The dog days of August and September are traditional times when many snakes are found with discolored, milky eyes, the result of fluid which forms just under the old skin in order that it may be shed easily.

"During the three or four days that a snake is preparing to shed his skin, he is more or less blind, but he apparently can make out large moving objects close by. Such snakes are usually very lethargic (lazy), but may become hostile if disturbed.

"Rattlesnakes, about which we are mostly concerned because of their poison, often fail to rattle before striking when they are sur-

prised. Of course, when they are preparing to shed, their sense of sight being dimmed, they are more easily surprised than at other times and may therefore be considered more dangerous.

"Rattlers are very sensitive to minute degrees of heat through the nasal pits, and, blind or not, they can strike accurately at any slightly warm body which comes close to them. A snake preparing to shed may be more prone to stand his ground and fight an intruder rather than try to escape, because his blindness makes his escape more unlikely.

"Snakes shed their skins in order to grow. The younger they are and the more they eat, the faster they grow, therefore they need to shed more often. Some kind of hideaway is usually sought by the snake when ready to shed—a crevice, rock pile or armadillo hole. When fluid loosens the old skin, the snake rubs his nose against a rock or limb, starts the skin off at the nose, then crawls out of it, inverting it inside out as he goes. Such skins may often be found in the woods in perfect, unbroken condition.

"Each time a rattler sheds, a new rattle is formed on the tail, so the age in years cannot be told exactly by the number of rattles. If the rattle is not broken off and tapers down to the pointed button which the snake was born with, the age in years may be estimated as one-third the counted number of rattles."

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# Outdoor Books

ment, and many other land improvements are examined. Twenty years experience with the United States Department of Agriculture forms excellent background for Stallings' study. SOIL CONSERVATION is highly recommended for all men who work with the land.—J.B.

**CAMPING and the Outdoors**, by Larry Koller. 128 pages with numerous photographs. Published 1957 by Random House, Inc., 457 Madison Avenue, New York 22, N. Y. \$2.95

More fun than problems tags along with a camping vacation for the whole family. But CAMPING and the Outdoors takes those few problems, solves them for you, and tosses in enough extra advice to make your outdoor adventure a delight. In fact, if you want a really "soft" trip, the book can bring camping completely out of the rugged class; sometimes with children it's best that way.

For instance, looking ahead to those probable rainy days, the author suggests a small extra tent to give your children sheltered playing room without crowding you out. He tells how to cook on an open fire, and gives you choice recipes. He says where to go for camping, and safety rules to take with you.

Equipment you will need is listed in detail, amply backed up with photographs. Even a lesson on animals you may see on your trip is included.

If you haven't tried family camping, start planning now with Koller's book in hand. Vacation time is almost here.—J.B.

**GUIDE TO THE FISHES OF NEW MEXICO** by William J. Koster. 116 pages. Illustrated. Published 1957 by the University of New Mexico Press, Albuquerque, N. M., in cooperation with the New Mexico Department of Game and Fish. \$1.

Many fish claimed by our neighbor to the west are also common to Texas waters, and the handbook which identifies them serves fishermen from both states. Drawings illustrate the principal physical characteristics of the fish; detailed description of each fish's size color, distribution and habits helps to pinpoint identification. The book's capuled information covers some 85 species of fishes.

Accurate and concise, the book was prepared by William J. Koster, who is a professor of biology at the University of New Mexico as well as an enthusiastic sportsman. Koster introduces his data after a brief discussion of the why's and how's of fish conservation.

With a glossary of terms and a detailed index the GUIDE is handy for the lay fisherman. And its size is compact enough that he can slip it in with the rest of his fishing gear.—J.B.

**VERTEBRATES OF THE UNITED STATES** by W. Frank Blair, Albert P. Blair, Pierce Brodtkorb, Fred R. Cagle, and George A. Moore. 819 pages, including index. Published 1957 by McGraw-Hill Book Company, Inc., 330 West 32nd Street, New York 36, N. Y. \$12.

Written as a textbook for students of vertebrates, the highly technical VERTEBRATES OF THE UNITED STATES covers all species of amphibians and reptiles in this country. Each of the book's five authors, university professors, wrote in his specialized field, then read and criticized all other sections of the book before publication.

The text contains the only modern check list of freshwater species of fishes in the country. It also provides the only set of taxonomic keys for the identification of all United States species. The technical treatment of higher categories of birds and mammals is an unusual aspect of the book; it contains keys, descriptions, and geographic ranges of each species.

Line drawings and black and white photographs generously illustrate the vertebrates.

Invaluable to libraries, students, and

specialists for use as a reference work, VERTEBRATES OF THE UNITED STATES fills a long-standing gap in this field of study.—J.B.

**SOIL CONSERVATION** by J. H. Stallings. 575 pages. Generously illustrated with black and white photographs, charts, drawings. Published 1957 by Prentice-Hall, Inc., 70 Fifth Avenue, New York 11, N. Y. \$8.50.

The entire crop management program for farms and watersheds falls under study in SOIL CONSERVATION, as well as the much-discussed problems of runoff and erosion. The author combines a textbook's thoroughness with a historian's challenge to make a very readable resume of the work done in the past two decades in soil conservation.

An opening glance at stripped and useless acreage in Europe and America presents at once the dramatic reasons for a conservation study. Stallings then reveals, discovery by discovery, the inroads we have paved toward successful land conservation and cultivation.

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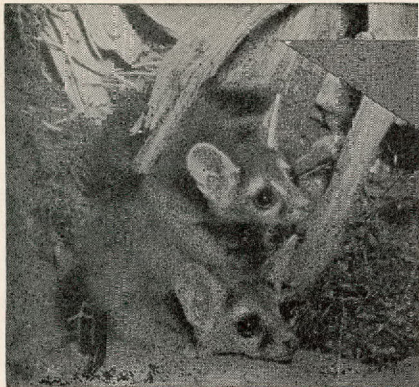
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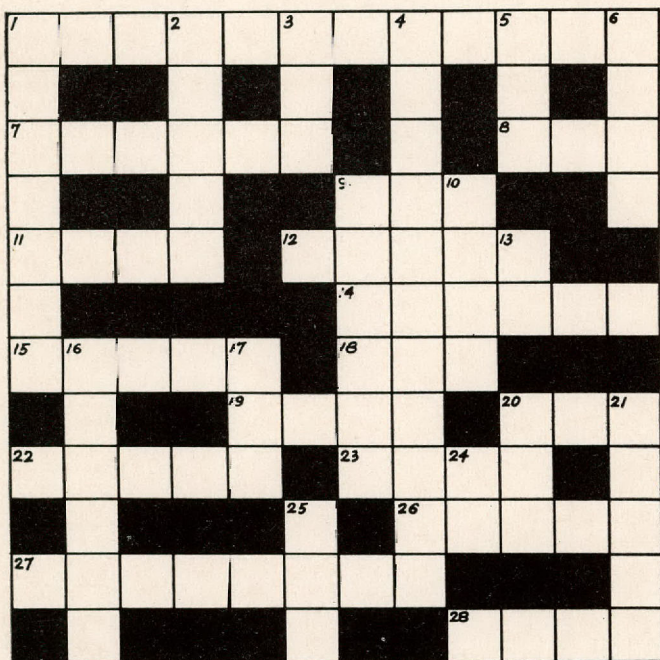


# Junior Sportsmen

*Wildlife Looks To You*

*For Help*

## Crossword Puzzle on the Outdoors



*Courtesy National Wildlife Federation*

### ACROSS:

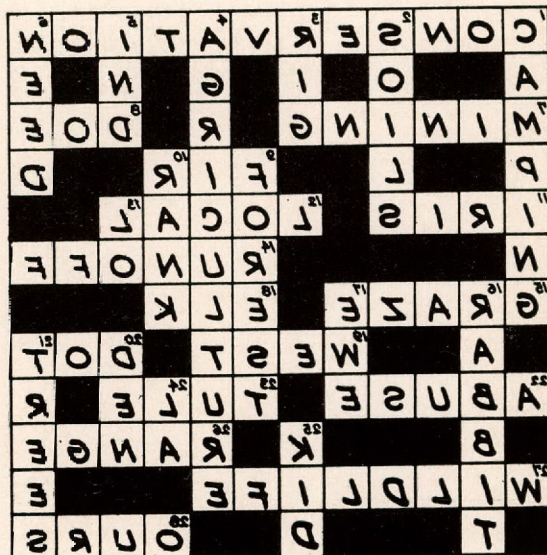
1. Protection and wise use of our natural resources.
7. Extracting ore from the earth.
8. Female deer.
9. An evergreen tree often used for Christmas trees.
11. A flowering plant commonly known as a flag; colored portion of the eye.
12. Conservation plans for your hometown, or nearby areas can be called this type of program.
14. Water running off the land.
15. The feeding of animals on grass and other forage.
18. Next to the moose, this is America's largest member of the deer family.
19. Region of the United States where most of our Federal public lands are located.
20. What some people forget to do to the second and sixth letters when writing the word "wildlife."
22. Misuse, such as mistreatment of our soils, minerals, waters, woods, and wildlife.
23. A large bulrush which grows in marshes.
26. Area upon which livestock and big game animals graze.
27. A collective term for wild animals, mammals, birds, and fish.
28. The public lands belong to you and me, therefore, we can say that they are \_\_\_\_.

### DOWN:

1. Making a home outdoors where we can eat and sleep.
2. The surface material of the earth in which plants grow (plural). This is a mixture of very fine rock particles, minerals, organic materials from plants and animals and microscopic living organisms.
3. Piece of equipment used in drilling an oil well.
4. The cultivation of the land; the department of the government under which the Forest Service is administered.
5. Abbreviation for the Hoosier State.
6. A necessity.
9. Large tract of land covered with trees.
10. Growing luxuriantly and vigorously; also means grade of official standing in the armed forces, conservation agencies, and various other organizations.
13. An interjection meaning look! behold!
16. A long-eared mammal which may live in brush piles.
17. A female sheep.
20. A burrow of a fox or coyote.
21. Forests are made up of large of them.
24. Abbreviation for the largest city in southern California.
25. Young mountain goat.

### Junior Sportsmen:

Try to figure out every single word on your puzzle at least twice. After you have done the best you can on your own, read the solutions below with a mirror.





# Pronghorn—American Antelope

The pronghorn is an attractive animal with its tan and white coloration and white rump patch. The only antelope on the North American Continent, it is found in the western plains states and in the western half of Texas from the Panhandle to the Trans-Pecos, preferring country with lots of elbow room and distance visibility. It thrives best where domestic sheep are absent.



The white rump patch can be used as a danger signal to other members of the herd. Special muscles just under the skin can be moved so that the white hair can be spread, thus producing a brilliant white flash that alerts the other animals.

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