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TEXAS Game AND Fish

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



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ROGER M. BUSFIELD
Editor

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10 CASTS —10 BASS

By L. A. WILKIE

WHEN you can stand in one place and catch your limit of ten bass in ten casts, then brother you have a fine fishing lake. And you can add any kind of expletive you care, but the best word I know for a fishing place like this is a rather large DAM.

This newest dam has just been completed on the Red River, between Texas and Oklahoma, near the town of Denison, Texas, at a cost of \$54,000,000. It was built by the U. S. Army Engineers, primarily for flood control on the great Red River basin. Secondary in importance, to have been constructed by the government, is its power output of around 200,000,000 KW for the average year.

The dam has a maximum height of 165 feet; length 15,350; top width 40 feet; base width 1100 feet, with an elevation of 670 feet above sea level. The water is expected to stand at 617 feet above sea level.

This dam will impound approximately 95,000 surface acres or 140 square miles of water. At normal fill the water will extend 44 miles up the Red River, the distance between Denison and Gainesville, and 29 miles up the Washita River in Oklahoma from Denison to Tishomingo. It has a 1200-mile shore line.

This lake, in addition to its flood control and power production, will afford a playground for approximately 10,000,000 persons, and that's what we will talk about from now on.

Although there was no closed season on the Oklahoma side of the Lake, Texas held its season off until last Oct. 20, when it announced an open season, with a catch of ten bass, ten inches, as the legal limit. The same limit is observed in Oklahoma.

Opening of the lake so early was a surprise at least to Texas fishermen, and I have the word for it that even W. J. Tucker, veteran secretary of the Texas commission, was a little surprised himself.

"Those fish just grew faster than anyone had expected," he said. "We opened the lake to let the people catch the fish and now we are prepared to put in ten fish for every one caught."

I was one of the skeptics myself. I didn't see how fish planted as fry the same year would be large enough to keep, and it took evidence to convince me. In fact, I was so hard to convince I had to go fishing a dozen times dur-

THESE TWO Gainesville fishermen found it easy to take their limit in the new lake.



ing the first month of the open season. I assured not only myself, but all others concerned, the trips were entirely scientific, because I had to know about those fish.

You can take my word for it, they were there. I have caught my limit of bass weighing more than a pound and a half each in less than thirty minutes. I saw one man stand in his tracks and catch 31 bass in that number of casts before he missed getting a strike. He threw them all back.

Two friends of mine fishing on the Oklahoma side, near Madil, put their limit on the string in such short time they didn't want to quit. They agreed to cast until one missed a catch and then they would quit. They stopped their count when they had pulled out 60 bass in as many casts. Not all were legal size but they put up a game fight that kept the pair fishing. By that time, however, they were tired counting, but they agreed they had caught more than one hundred each before they finally decided to quit without missing a cast.

Such fishing in a new lake surrounded by ten million persons, and most of them fishermen, sounds almost unbelievable, but it is never-the-less true.

Probably some accounting for this fine fishing can be had from figures of Marion Toole, chief aquatic biologist of the Texas commission.

"Fish for this lake were planted from

ALL BOYS like perch fishing and the plentiful planting of bream will supply them.

SUBMERGED STUMPS and old tree tops make fine fishing places for either the pole fisherman or the caster.



four state hatcheries. The Dundee hatchery placed 1,380,000 bass fry in the lake; the Cisco hatchery planted about 450,000 bass fry; the San Angelo hatchery planted 400,000 bass fry and the Lake Dallas hatchery put in 300,000 more. This gives a total of 2,530,000 bass fry planted. All of these fish were planted along the Texas shore line," Mr. Toole reported.

"Another innovation was introduced by the Texas Game, Fish & Oyster Commission on this lake. A special boat was designed for planting these fish. The boat has water circulating through a well that keeps the fish to be planted alive and in good condition for hours. This permits us to spread our fish along all of the shoreline rather than placing them at only a few spots as we formerly did. By spreading the fish thin we also prevent predation to a great extent.

"These bass fry were planted during the month of May. If any natural hatch occurred, which I am sure did occur, it would have taken place in June. This means that the fry we planted would have all of the early microscopic food necessary for their rapid growth without too much competition from other fishes. By the time a natural hatch occurred the bass would have attained

sufficient size to start eating the newly hatched fishes.

"As you know the growth of the bass was phenomenal since most of them had attained a length of at least ten inches when the lake was opened on Oct. 20, 1944. Many of these bass were 12 inches in length. All of the larger bass that have been taken, that is bass of two or three pounds, were already in the lake when the gates were closed."

According to Dr. Toole, channel cats are now being planted from the Lake Dallas hatchery. Later Texas expects to stock again with bass.

Texas first experimented with stocking lakes with bass fry in Possum Kingdom lake, near Mineral Wells. The successful survival and growth of the fry planted in that lake proved to the commission such a plan was best for newly impounded lakes.

We have had the opportunity to observe fishing on the Oklahoma side for the longest time, since there had been no closed season there. Fishermen began wetting their hooks in the new lake as the water began to rise there, when the first part of the dam was completed well over a year ago.

Numerous clear streams flow into the lake on the Oklahoma side, and these streams also had been stocked by the Oklahoma commission. Principal of these streams is the Washita, although one prong on the north end of the huge lake extends almost to Lake Murray, just south of Ardmore. Murray itself is a fine fishing lake and no doubt many of these fish escape in flood times into the stream that will carry water directly into the long arm of Texoma.

First of the best fishing was found in the vicinity of Madil, where it had been necessary to confine the Washita between narrow banks by protective dikes in the nearby oil fields. Fish that had come down the Washita fought to get back up the stream through the rushing water that flowed between the dikes.

Here fishermen found a paradise. With a few boats available all last summer they waded waist deep into the stream, and with every kind of fishing tackle known to man proceeded to catch their limits of fine large mouth bass. True, very few of them ever reached two pounds, but they were still good eating fish.

There were catfish and crappie, but the fishermen, for the most part, were after the bass. Only close watch by Oklahoma wardens kept thousands of illegal catches from being carried from the lake.

Even minnow and worm fishermen, with long cane poles and in many instances just willow poles, sat on the Washita banks for hours, catching fish and throwing them back in.

I watched one interesting fisherman who had rigged a seat suspended in the circle of an inner tube. He dropped into this saddle like seat and went out into the water with his casting rod. When he caught a big fish he would



THESE TWO nice strings were caught in Lake Texoma in just a few minutes, late in the evening. Note they are not big, just nice eating size.

put it on his own string, but when he caught a small keeper he would play it to the bank where interested bystanders would take them off. Many persons went home with their limits of bass which they didn't even hook themselves, because they weren't fishing.

The Oklahoma commission has done considerable fish planting, too, according to A. D. Aldrich, superintendent of fisheries. During the year of 1944 Oklahoma planted 36,000 two-inch channel cat; 1200 six-inch channel cat; 200,000 one-inch black bass and 16,800 three-inch Texas bream.

"The bass were planted last May and, as in the case of most all new lakes, they have grown to an average of one pound this summer," he reports. "Many of these bass weigh a pound and a half at this time and are 12 and 15 inches long. We examined the scales of many to verify this age."

Mr. Aldrich calls attention to the lack of bream and cat fishing in the new lake at the present time.

Most everyone is fishing for bass this season and naturally the anglers overlook the pan fish when the bass are biting. Several good streams enter the lake, which were stocked with game species and of course this supply of brood fish helped to stock the lake last year.

"We believe the present stocking along with the natural spawn will keep the lake adequately supplied. One thing is certain, and that is that the present fertile condition of the water will not last indefinitely and the growth of the fish will be slower in proportion.

"As the years go by the fertility of the lake will build back as plant life becomes established. The future stocking policy will be governed largely by

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Dry Lands **OF THE BRUSH COUNTRY** And Measures for Increasing Moisture

MUCH fun has been poked at the borderland of southern Texas as a land of briars, cacti, the coyote, the catamount and the mountain lion, with centipedes and rattlesnakes and other crawling and creeping things not essential to human happiness. But it has always been conceded that it is a healthful climate. There is even an old saying that people there do not die a natural death; they just dry up and blow away. If we go far enough back there was a time when many persons died with their boots on but the more recent custom is to die in bed.

It is certain that mosquitoes have little encouragement to live in that arid area which, fortunately, is a thousand fold preferable to the swamps of the Big Thicket of southeastern Texas with its chills and fever. Indeed the climate and the weather afford topics of conversation in whatever part of the globe one happens to be, and when the weather does get out of bounds it is natural to expect an emotional explosion.

In 1888 Mr. L. D. Coppock came down from the north country and took a job as train master for the Mexican National Rail Road at Laredo. He must have arrived in mid-summer, when the weather



MRS. F. W. ROBINSON "reeling it in" on O'Keefe Lake, near Laredo.

was at its worst, for he made himself famous by the remark that if he owned Laredo and Hell he would rent Laredo and live in Hell. This was possibly a paraphrase of some of the literature of earlier invaders of the frontier.

Now the climate at Laredo is still unchanged, and the O.P.A. has kept rentals down to an unattractive level, so there is

An irrigation lake provides excellent year 'round fishing for a group of 40 in a land of briars, cacti, the coyote, the catamount, the mountain lion, centipedes and rattlesnakes.

By J. G. BURR

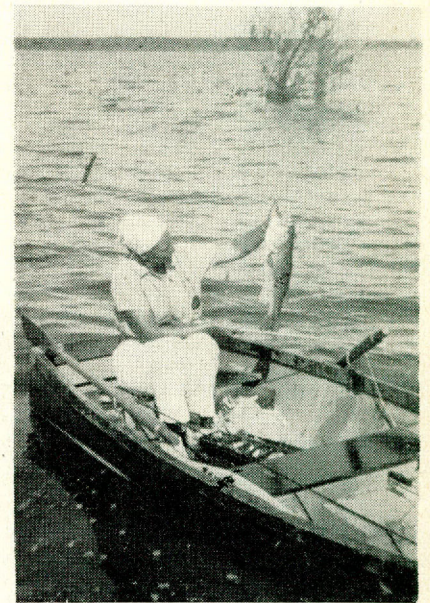
no trading advantage in exchanging abodes. Besides, Laredo now has paved streets and skyscrapers, air-conditioned hotels, many attractive homes and yards amazingly beautiful with flowers and shrubbery.

But in Coppock's time many people shared his view (with certain reservations) and it required real patriotism to be a booster. However, people kept coming into the town and took up the burden of building. August Richter, who established the great department store "El Preci6 Fijo," once remarked to me, "I believe in this little town or I wouldn't be here." Now the population is more than 40,000 with many boosters who believe that Laredo "is no mean city."

Interesting though it may be that Laredo has important industries, oil fields, and vast farming interests, the real purpose of this story is related to the dry facts of the semi-arid country lying round about. Ranchmen and farmers, whose prosperity depends much on temperature and rainfall, to say nothing of adverse markets, are frequently in need of a friend in court. To illustrate the point the remark of a young ranchman is cited. It had not rained enough for two years to make stock water. Then came a rain storm that swept away many fences, blew out dams at watering places, and otherwise devastated the pastureland. When asked if a good rain had fallen he said: "I wouldn't say that, but it is my considered opinion that, after looking over the entire situation, the rain did more good than harm." Another ranchman said "I sometimes think these rains are a blessing in disguise."

Well, what has been done to conserve and protect the natural resources of the land owner? It is here that the government takes sides in a most practical way. The Agricultural Adjustment Agency, jointly with the land owners of Webb County, has spent around \$100,000 the past three or four years in building stock water tanks, designed to stay put. The program includes terracing when needed which, with the impounding of flood waters, reduces erosion to a great extent. Multiple tanks not only supply stock water but cut down the distance an animal must walk to reach it. It prevents

concentration of too many animals, game as well as domestic, at a few water holes where forage would be consumed or beaten down for miles around. These ponds in Webb and other counties have been stocked with fishes by the State fish hatcheries. Not only so, this activity has been going on all over the State, but mostly in the western half. Statistics of



AND HERE is what Mrs. Robinson found on her hook—as fine a six-pounder as ever struck a lure anywhere.

the, Triple A show that from 1937 to 1944 inclusive the number of tanks built was 127,368.

The government will furnish the money for the various land practices up to a certain amount but beyond that the land owner must do the financing. For example, if a man owns a thousand acres of pasture land and one hundred acres of crop land, the government will put up \$675.00 for all the improvements made, whether terracing, ditching or tank building. Beyond this the land owner can enlarge his program as far as his finances

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TEXAS SKUNKS

by William B. Davis

MOST people are acquainted one way or another with skunks, but most of us lack the temerity to examine them at close range. Consequently, considerable misinformation is handed down by word of mouth concerning these valuable wild creatures. Their chief value is not in their pelts, which are of considerable value on the fur market, however, but rather in their beneficial food habits. I hasten to acknowledge that they do some damage to poultry and perhaps other commodities of value to man, but because the good they do in killing and eating insects, rats, mice, etc., far outweighs these damages, it behooves us to become better acquainted with them and their habits.

Six species of skunks occur in Texas: (1) common striped skunk (*Mephitis mephitis*); (2) hooded skunk (*Mephitis macroura*); (3) eastern spotted skunk (*Spilogale putorius*), also known as civet cat, civet, hydrophobia cat, etc.; (4) western spotted skunk (*Spilogale gracilis*); (5) inland hog-nosed skunk (*Conepatus mesoleucus*), also known as rooter skunk, and rooter; (6) Gulf Coast hog-nosed skunk (*Conepatus leuconotus*). Each of these is discussed below.

STRIPED SKUNK (*Mephitis mephitis*)

This is a medium-sized, stout-bodied skunk, with two white stripes on each side of the back that join each other in the neck region and extend forward onto the head; they continue backward as separate stripes onto each side of the tail; tip of tail black; two large scent glands on each side of anus produce the characteristic skunk musk; ears short, rounded; eyes small; five toes on each foot, front ones armed with long claws; tail long and bushy; fur long, coarse, and oily. Both sexes are colored alike; males

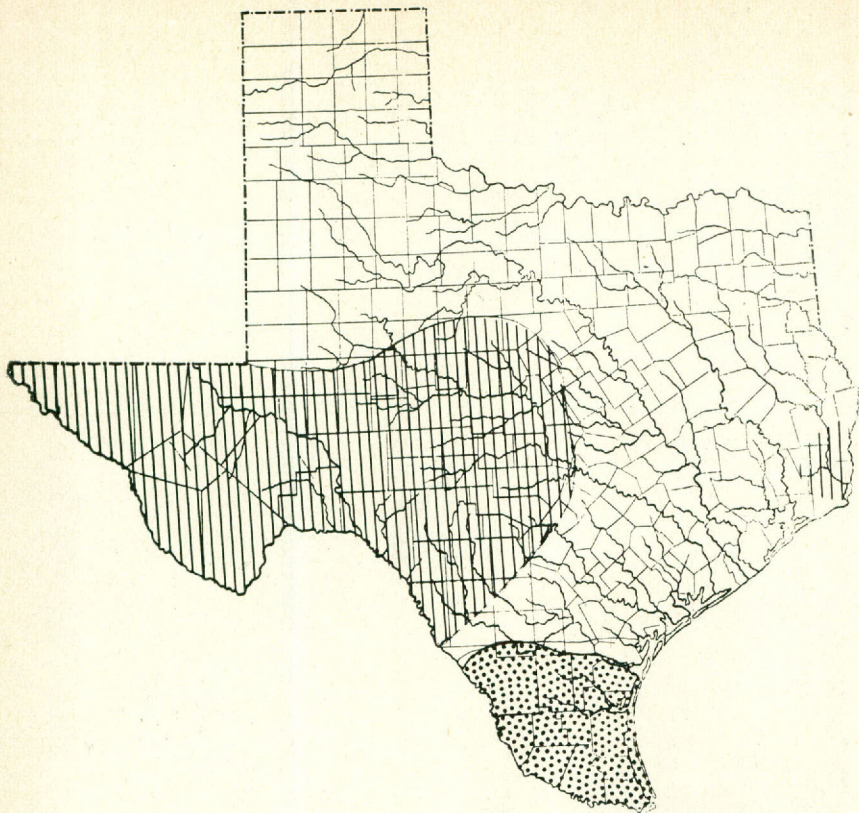
READY FOR COMBAT. The skunk at the right is all set to go into action if the occasion warrants. Note the distinctive and progressive markings of the five young skunks in the lower photo.



are usually larger than females. Weight 3 to 14.5 pounds, depending on age and amount of fat. This skunk is widespread and is our most common skunk in Texas. The so-called narrow stripe, short stripe, broad stripe, and black skunks are color phases of this species.

Habits.—Striped skunks live in wooded or brushy areas and their associated farmlands. Rocky defiles and outcrops are favored refuge sites, but when these are absent, they seek out the burrows of armadillos, badgers, foxes, and other animals. In Central Texas, favored refuge sites are under large boulders.

They are largely nocturnal in habit, seldom venturing forth until late in the day and retiring to their hideout early in the morning. I have seen striped skunks abroad in mid-day only twice and in each instance a female was trailing her family of third-grown youngsters in single file across a meadow to a patch in woodland beyond.



KNOWN DISTRIBUTION of the hog-nosed skunks in Texas. Dotted area—Gulf Coast Hog-nosed Skunk; lined area—Inland Hog-nosed Skunk. Note the small area in eastern Texas thought to be occupied by the inland species. This small population is now thought to be extinct.

In late fall they become exceedingly fat in preparation for winter, at which time they become relatively inactive in the northern part of their range. Skunks never exhibit the characteristics of true hibernation, but they do hole up and sleep during prolonged periods of adverse weather. Females are reported to hole up for longer periods than males. In Iowa they are largely inactive from early January to about mid-March. In Texas, however, they are active throughout the year and seemingly are more active in winter than in the heat of summer. They are social creatures, often several individuals occupying a well-situated winter den. J. D. Bankston of Mason, Texas, informs me that he has removed as many as 7 striped skunks from one winter den and that one of his neighbors found 10 in one den in December, 1943. These may have constituted family groups.

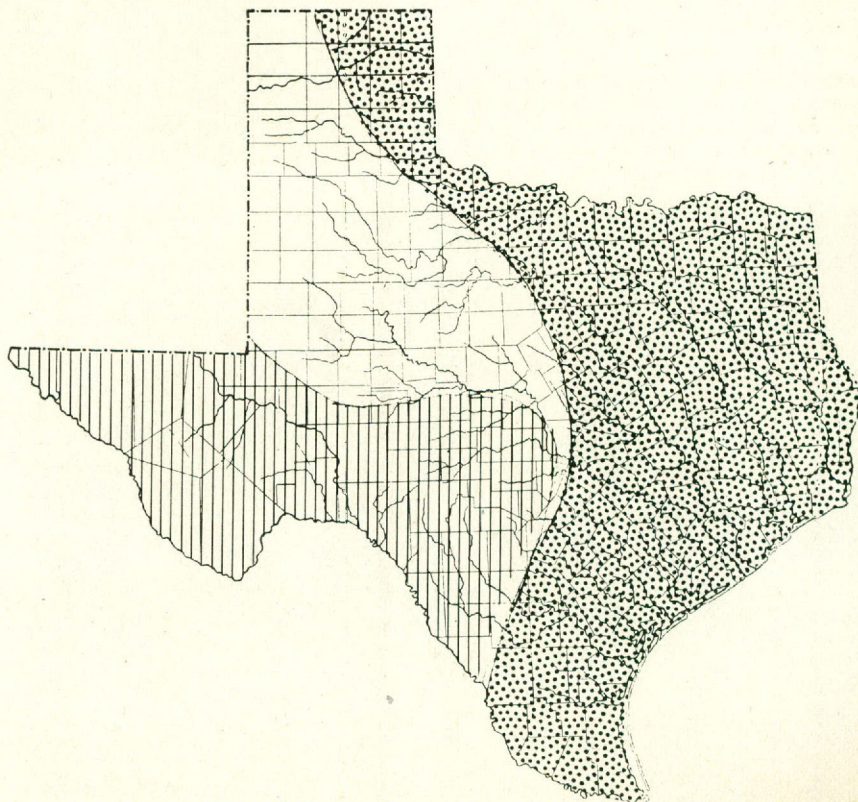
These skunks are not choosy in their food habits. In a study of the fall foods of Iowa skunks, it was found that insects constituted 64 percent of their diet, grasshoppers accounting for one-third of this amount and for more than one-fifth of the total food consumed. Small mammals (meadow mice, cottontails, muskrats, shrews, mice, and ground squirrels) ranked second in importance (7.4%); birds (mostly non-game), were third (6.4%). Vegetable matter (ground cherries, grasses, redhaw, etc.) comprised slightly more than 4% of the total diet; inert matter and unidentifiable material

made up the balance. In Texas, their seasonal food is about as follows: **Fall.**—Insects, 76%; arachnids (spiders, etc.), 24%. **Winter.**—Insects, 52.3%; arachnids, 5.3%; reptiles, 1.6%; small mammals, 18.3%; vegetation, 22%; birds and millipedes, making up the balance. **Spring.**—Insects, 96%; reptiles, 1.6%; small mammals, 2%; vegetation and small birds making up the balance. **Summer.**—In-

sects, 88%; arachnids, 4%; reptiles, 1.5%; small birds, 3.5%; centipedes, small mammals, and vegetations making up the balance.

Breeding begins in February or March. After a gestation period of about 63 days, the 3 to 7 young are born. In Texas, most of the young appear in the first half of May. There is some evidence that two litters may be born to certain females, but one litter seems to be the general rule. The nursery is a cavity under a rock, a burrow, or a thicket of cactus or other protective vegetation. Usually a nest of dried grasses and weed stems is provided for the reception of the blind, helpless young. The young ones remain in the nest until their eyes are open and they are strong enough to follow their mother on her excursions.

I have found these skunks to be interesting pets (after having their scent glands removed), but mine never became really tame. They never failed to reprimand me for approaching them hurriedly, by slapping first one fore foot and then the other on the floor or ground and assuming a defensive stance with tail up-raised and their ineffective twin guns trained on me. Others have reported considerably more success in taming them. Their fur is the most valuable of all the skunks. They are easily reared on fur farms, but the relative low



KNOWN DISTRIBUTION of the spotted skunks in Texas. Dotted area—Eastern Spotted Skunk; lined area—Western Spotted Skunk.

value of their furs does not make such a practice economically worthwhile.

HOODED SKUNK (*Mephitis macroura*)

This skunk is superficially like the common striped skunk, but differs in having longer, softer fur and a distinct ruff of longer hair on the upper part of the neck. There are two distinct color patterns: (1) upperparts chiefly white, frequently with two narrow short white stripes on the side behind the shoulder and the under parts black or mottled with white; (2) upperparts black, except for the two short narrow white stripes low on the sides, and the under side of tail frequently white. Occasionally the tail is wholly black, but the bases of the hairs are always white. In the white-backed phase, a broad white band begins between the eyes and covers most of the back and upper surface of the tail; the white stripe is never bifurcated as it is in the common striped skunk. A narrow white stripe may be present on the snout, but it is often absent. It differs from the hog-nosed skunk in having much finer and longer fur, a smaller snout, smaller general size, and a much longer tail. Adults weigh from 2 to 4 pounds. This species occurs only in the Trans-Pecos section of Texas and at present is known only from Brewster and Jeff Davis counties.

Its habits are little known, but they are thought to be similar to those of the common striped skunk.

EASTERN SPOTTED SKUNK (*Spilogale putorius*)

This is our smallest skunk. It is relatively slender, and has a small white spot, seldom as big as a dime, in the forehead and another in front of each ear, the latter often joined with the middle white stripe of the back; six distinct white stripes are on the anterior part of the body, the lower pair beginning on the back of the fore leg; the middle pair at the back of the ears, the narrow uppermost pair on the back of the head; the posterior part of the body has two interrupted or broken white bands; one white spot on each side of rump and two more at base of tail; tip of tail with a small tuft of white hairs; rest of body black; ears short and low on side of head; five toes on each foot, the front claws more than twice as long as hind claws, sharp, and recurved. Males weigh about 1½ pounds (heaviest recorded, 2 lb. 12 oz.); females, about one pound (heaviest recorded, 1 lb. 6 oz.). This skunk occurs in eastern Texas, east of the "Hill Country," and in the upper part of the Panhandle.

Habits (eastern and western species combined).—These small slender, spotted skunks are much more active and alert than any of the other skunks. They occur largely in wooded areas and tall-grass prairies, preferring rocky canyons and outcrops when such sites are available. They are rare in the short-grass plains and in the low-lying deserts.

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Game in the Big Bend

By GRADY HILL
San Angelo Standard-Times

NOW barred to hunters, the Big Bend National Park eventually probably will be opened to the Nimrods when a surplus of deer and other game develops.



Dr. Ross G. Maxwell, superintendent of the park which is now under National Park Service jurisdiction, believes that the 707,895-acre preserve can play a big part in preserving for future generations of sportsmen several species of game which wildlife biologists feared had been on the road to extinction for several years.

Today the last of the domestic livestock are leaving the park range, and the deer, including both blacktail or mule deer and the Big Bend flagtail deer are staging a comeback along with the vegetation on which they browse.

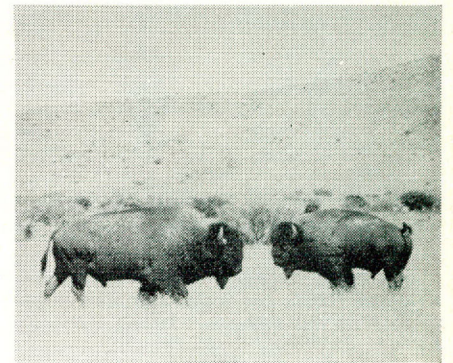
Likewise with the javelina or collared peccary, the hog which prefers the arid Tortillo Flats.

"But you can have a surplus of deer on a given range, just as you can overstock with sheep or other livestock," Dr. Maxwell said. "When we find the deer have increased to where a certain percentage can be harvested, it's likely that regulated hunting will be arranged to restore the proper balance."

Cheering words these were to the thousands of sportsmen who, since the land was taken from the Indians, had considered the blacktail deer—some weighing up to 300 pounds—the prize kill of all Texas game animals.

High up in the Chisos Mountains, the flagtail deer, also known as the Carmen Mountains whitetail, already is a common sight again, especially at night and in the early morning.

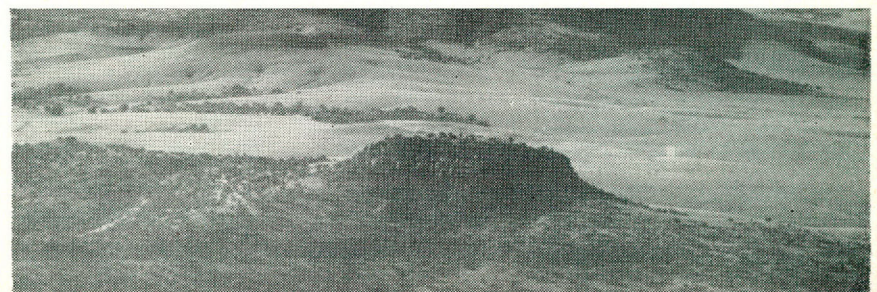
The blacktail, which ranges down in the lowlands and foothills, had been fac-



ing greater difficulties, caught between the frying pan of high-powered rifles and the fire of domestic sheep and goat inroads on its forage. The comeback of the big mule deer will be slower.

When the grass, weeds and forage are

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A Buck THAT LIVED

By JOE T. FABIAN

IT WAS nearly 3:30 that typical Texas, mid-December, spring-like day when I drove up to the camp for a two-day "vacation" and deer hunt. Most of the gang had been able to leave the previous day and had the camp site set up, so all I had to do was walk in and make myself at home.

Thinking that everyone would be out after a "buck," I didn't expect to find anyone around the camp, but as I made the turn in the bend of the trail, I saw Charlie, Jock, and Albert sitting around the rough outdoor table having a friendly game of penny-ante.

After an exchange of "greetings," a few random words tossed back and forth, and the three pounds of beefsteak, which would be a welcome change from sow belly, molasses and eggs, was de-



DEER KILLED the day after the season opened by August Sklar and Chas. Cervenka. Seated from left to right, Rud Migl, Jaro Matejek, Jock Dusek, Charlie Melnar, Joe T. Fabian. Standing, Ducky Matejek, "Papa" Joe Dusek, Chas. Sklar, August Sklar, Chas. Cervenka and George Cervenka.

posited in the ice box, I eagerly joined the game at their invitation. I never saw so many deuces, treys and fours in a deck of cards as appeared in my hand for the few minutes the game continued.

Since Charlie and I had killed a buck the opening day of the season, it was agreed that we two would hunt only a few hundred yards from camp and be back at 5:30 to prepare supper so the others could hunt until dark and come in to a prepared meal. I silently wondered if they would be able to stomach our cooking.

Charlie and I left camp together, walking along what at one time had been an

old crooked road, over which no doubt, many a pioneer's rugged creaking ox wagon had rolled along, but had long since been shut off from public use by barbed wire fence and was now part of the pasture. We parted where the old road angled off to the right, Charlie following within several yards of the fence line that runs parallel with the railroad track and present public road, to a place frequently used as a crossing by deer. I continued along the old road to a place some 250 to 300 yards directly across a long, low hill from Charlie's position.

After finding a fairly suitable place between two large oaks and a small cedar bush to conceal my somewhat bulgin' frame, I sat down on the good earth and made myself as comfortable as possible for the motionless wait of a legal buck that might be foolish enough to come by, for a good clean shot.

During the next half hour or so, my thoughts drifted back and forth, of hunts of past seasons and of George, one of our Club members who at present is a Marine somewhere in the Pacific hunting a certain species of monkey, commonly known as Jap.

Suddenly, my wandering thoughts were blasted to attention by the crackling and shuffling of dry leaves, not so far behind me.

My heart must have skipped a beat or two and then made up for it by racing along like a heavily loaded locomotive whose driving wheels suddenly start slipping on a smooth track. My trigger finger became nervous as did the rest of me, but all for naught for as I slowly turned my head towards the sound, what would come into view but August, who had gone out shortly after the noon meal and was now on his way back to camp. From him I learned that "Papa" Joe, the senior member of our club, and Adolph were hunting in the far end of the pasture. I told August of Charlie's and my plan of going back to



"THE DOMINO GAME." This picture was taken the night before the season opened, November 15, 1942, and playing dominos, from left to right are: Adolph B. Dusek, Charles Sklar, Jaro Matejek, Rud Migl, and standing and holding, believe it or not, jugs filled with drinking water, are Ira Sklar, with the USAAF, Ducky Matejek, with the US Army in Germany; Charlie Melnar, George Cervenka, with the Marines in the Pacific, and Chas. Cervenka.

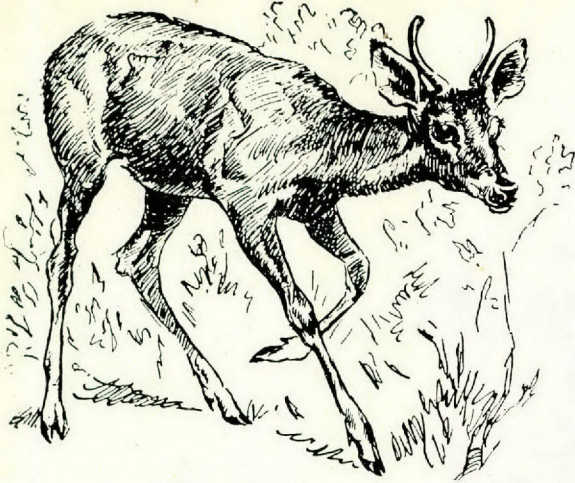
camp at 5:30 to cook supper so he decided to go to the pipe line clearing, about 200 yards to my left and go into camp when we did.

It was 5:15 and I was returning the watch to its pocket when the crackling of dry leaves suddenly alerted me. This time there was no mistaking the chup, chup, chup chup sound of dainty deer hoofs, slowly trotting along the carpet of dry brown leaves lying on the floor of the forest. The sound came from an angle to the right and back of me. Suddenly, a half grown doe deer came into view out of the brush, to pass and stop a few feet in front of me. She turned her head to look back in the direction she came from and as she did she saw me. She watched me for fully a minute, holding a graceful pose, with one front foot lifted off the ground, the leg bent at the knee and the hoof pointing back and down, craning her sleek neck at full length, holding her head high and then down near the ground as if to smell me out. I heard again the sound of approaching hoof beats and turned to see a spike buck, of about the same size of the doe, stop at my right, and turn his head to look over a small cedar bush, to the crest of the hill. I followed his alert like gaze and saw Charlie coming over the hill towards us. The two deer seemed to be more curious than afraid of the strange human creatures that had invaded their sanctum of peaceful contentment that spring-like winter day. Because of their size, they may have been twin deer and the setting sun shining on their slick, glossy coats was a thing of beauty that can be compared with nothing outside of Mother Nature's handiwork. This sight I shall long remember, there in nature's surroundings of sleeping grey-bodied oaks, small cedars, winter grass, and a blanket of many colored leaves over Mother Earth, seemingly taking a winter nap. I remained very still, afraid almost to breathe for fear of losing too soon, something never to be

★ Continued on page 22

TEXAS GAME AND FISH

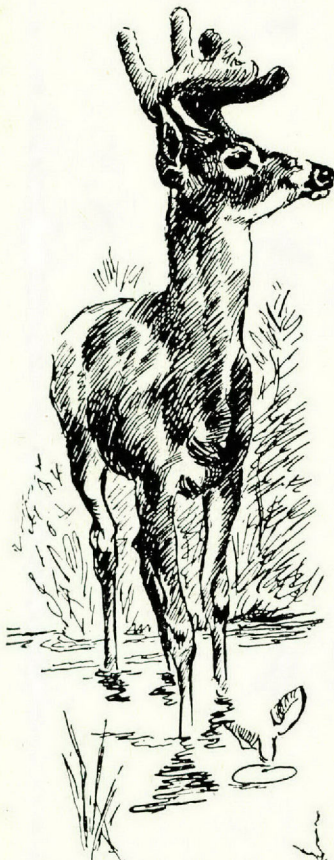
FACTS ABOUT DEER



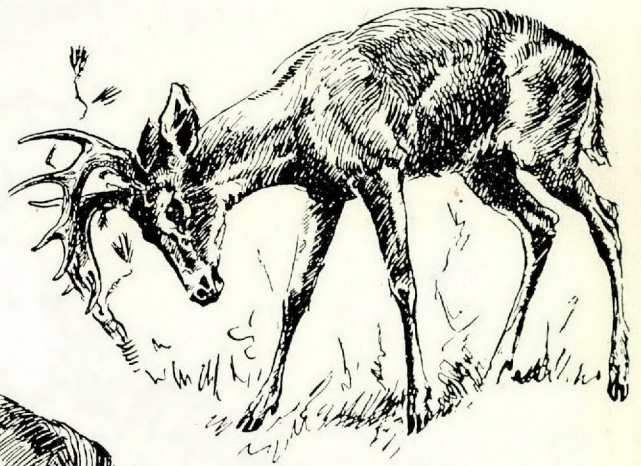
In the second year a young buck has unbranched prongs and is commonly called a "spike" or "spike-buck."



Early in the spring the male deer loses his antlers, but a new growth starts almost immediately



From May to September the antlers are covered with a fuzzy skin known as "Velvet". The growth is rapid, attaining full size by Autumn.



In September usually the buck begins to rub off the velvet like skin covering his antlers, which by this time are fully developed

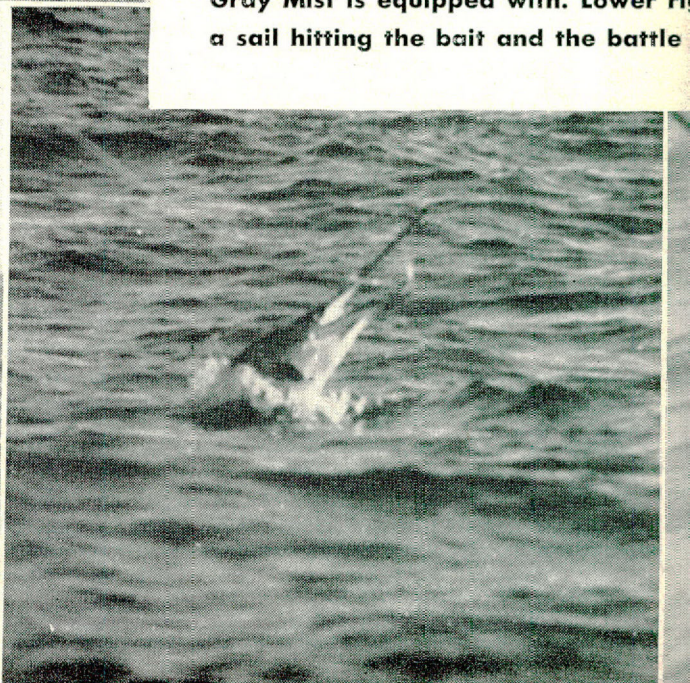
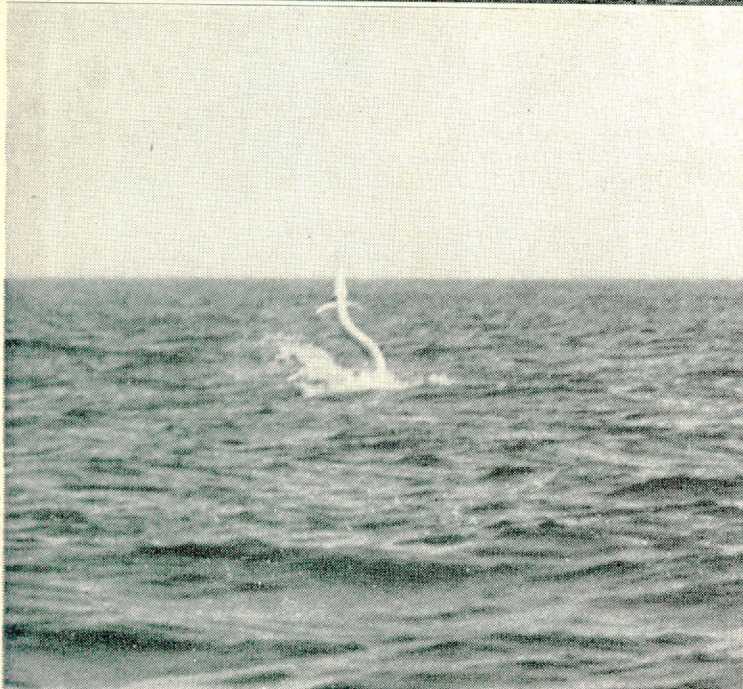


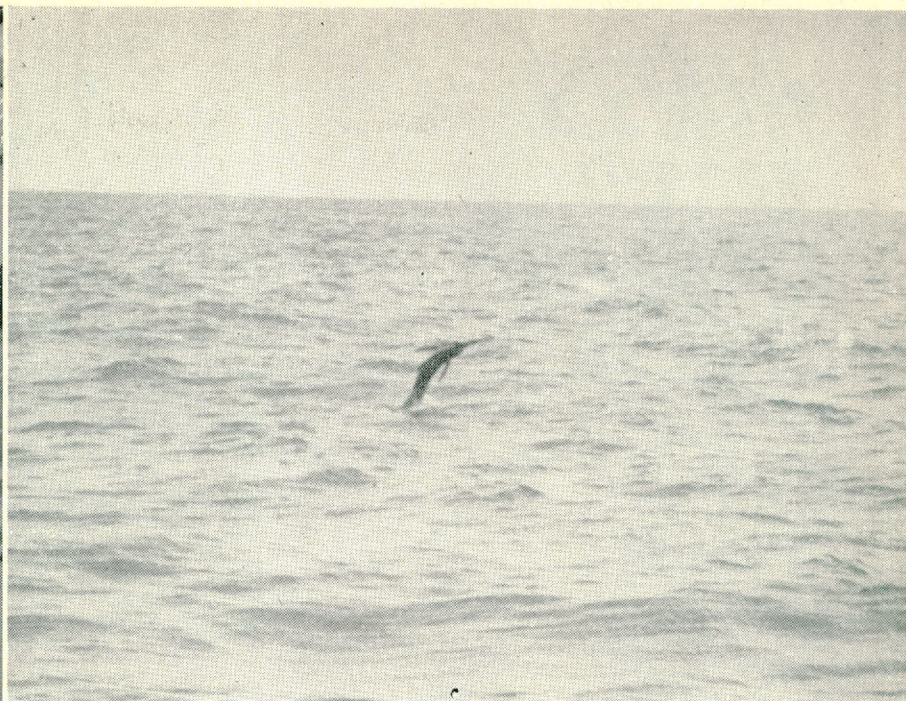
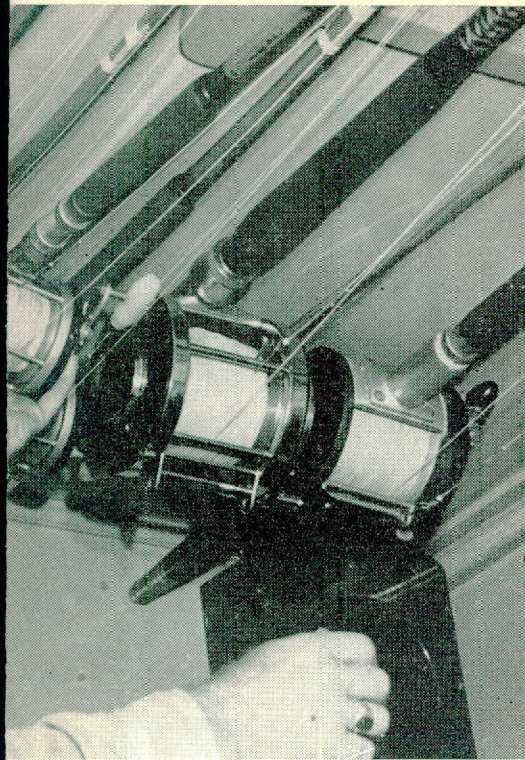
During the breeding season (from October to December) the deer is at his best with sleek coat and glistening antlers truly the finest of American big game animals

(Courtesy, South Dakota Conservation Digest)



THANKS TO THE PIONEERING SPIRIT sailfishing now is an established sport. **left, Mr. Ferris' 46-foot "Gray Mist,"** riggers. The outriggers are the large Fishing lines are run through snaps sail takes the bait the line drops f rod and reel is on. Outriggers keep make it act more like live mullet. **T Gray Mist is equipped with. Lower rig a sail hitting the bait and the battle**

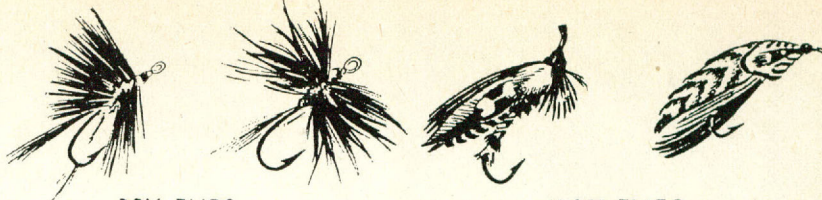




oyal Ferris, Jr., Dallas businessman,
the waters off the Texas coast. Upper
boat is equipped with 21-foot out-
attached to the side of the boat.
the end of the outriggers and when a
the outrigger and the battle with
ait on the surface of the water and
nter, some of the heavy tackle the
day's catch. The other photos show
put up.

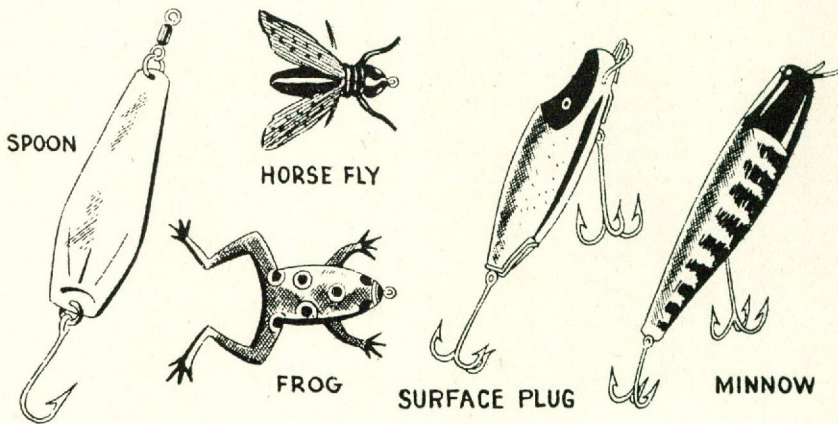


HINTS FOR THE ANGLER



DRY FLIES

WET FLIES



SPOON

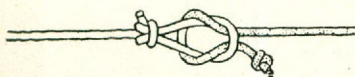
HORSE FLY

FROG

SURFACE PLUG

MINNOW

TACKLE KNOTS YOU SHOULD KNOW . . .



Jam. A simple, secure knot for tying snelled hook to line.

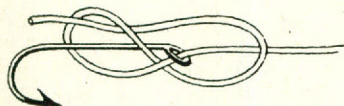
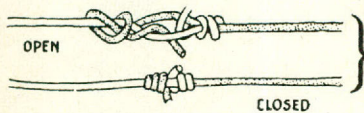
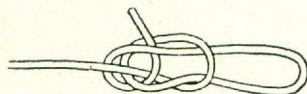


Figure 8. To attach eyed hooks to leader. It's tight and safe.



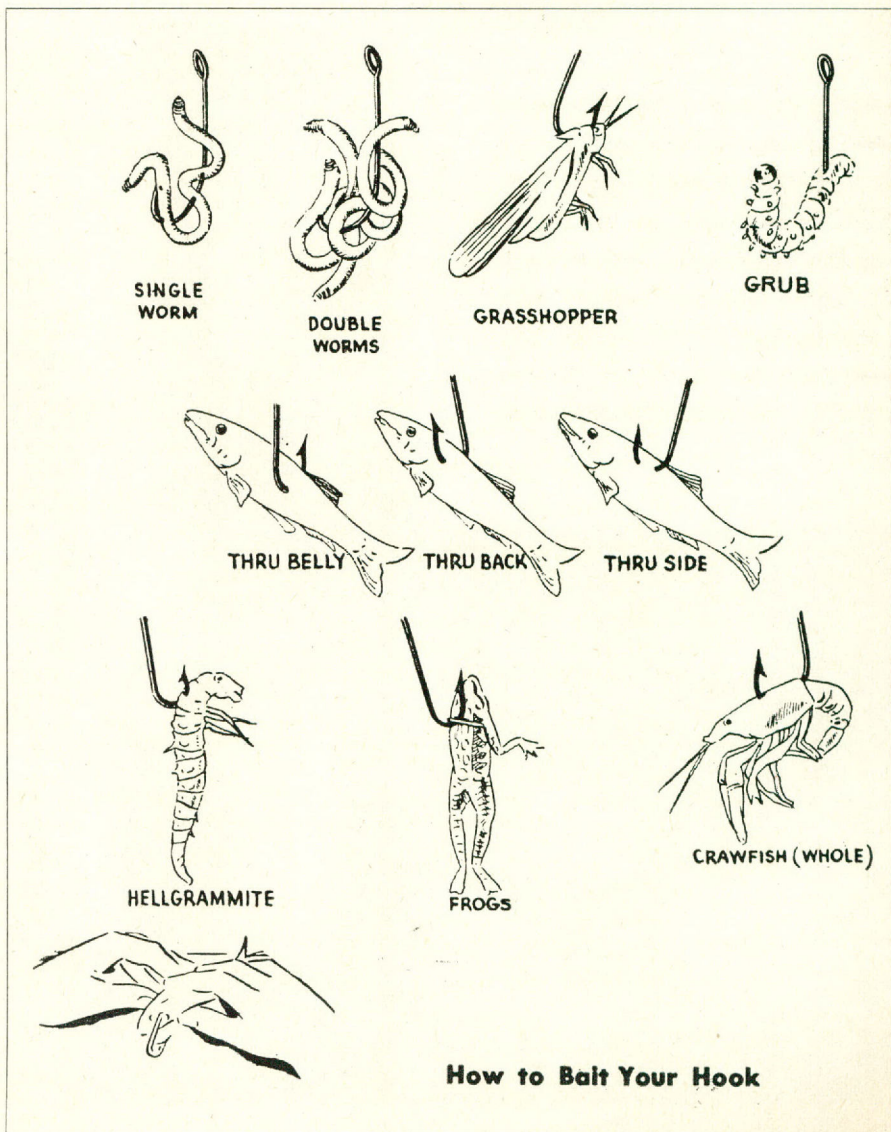
Barrel. A smooth knot to tie two lengths of leaders together.



Central Draft. This makes a tight, non-slipping loop in leaders.



Reef Knot. Use this to tie your leader to any hook or swivel you may use.



SINGLE WORM

DOUBLE WORMS

GRASSHOPPER

GRUB

THRU BELLY

THRU BACK

THRU SIDE

HELLGRAMMITE

FROGS

CRAWFISH (WHOLE)

How to Bait Your Hook

Mobility of Hill Country Deer

By HENRY C. HAHN, JR.

Wildlife Biologist

MANY ranchmen and sportsmen in Texas believe that deer migrate from areas of critical food shortage to areas that afford better feeding conditions. Some sportsmen debate that deer in the Hill Country move great distances in search of choice food as they do in some of the northern and western states where there is a distinct difference in their summer and winter range. Quite frequently rumors get around that the deer in one county have moved to the next or that the deer in one section have moved to an entirely different range where food conditions are better due to more rainfall or lighter stocking of domestic livestock.

In an endeavor to determine, as accurately as possible, the movements of deer during a period of critical food shortage, a deer trapping and marking project was conducted by the writer in 1942 in a 700-acre pasture where grazing practices were typical of the Edwards Plateau range.

Six deer traps were set up in the pasture with the purpose of capturing as many deer as possible on a limited area. The traps used were an improved type of the Pisgah deer trap. They were distributed over a radius of approximately one-half mile and erected about 125 yards apart in a semicircular arrangement. Trapping operations were begun in September, 1942, and continued at intervals of one to four days throughout the fall and winter.

Mistletoe and cottonseed cake were used as bait to attract the deer into the traps. Deer ate the mistletoe the first night it was placed near the traps, but it was several days before they began eating the cottonseed cake. To get the deer started on cake, a double handful of cake was scattered over a small amount of mistletoe. In this way, the deer were forced to eat some cake along with the mistletoe. After a while, the deer showed preference for the cottonseed cake.

Thirty-one deer were trapped in the

six traps on eleven trap nights. The deer were ear tagged and their tails and rumps were marked with red enamel so they could easily be recognized at a distance. They were released immediately after the marking operation. Small bells were strapped about the neck of several deer. The writer received the cooperation of range riders and local sportsmen who reported their observations of these deer. Sight records were recorded and plotted on a map of the surrounding area.

Nine deer were retrapped from one to four times or a total of fourteen times. Three deer were retrapped in February, 1943, in the same traps in which they had been ear tagged and marked in September, 1942. A fawn was observed many times grazing in a trap enclosure when the trap was not in operation and was captured four times in the same trap. A spike buck which was trapped on October 12 was found dead December 12 about 100 yards from the trap in which it was marked. This deer had died of malnutrition. A local ranchman killed a tagged buck in December, 1943, about one-half mile from the area in which it was marked in October, 1942. Numerous sight records were recorded of the marked deer which were usually seen within 50 to 1,000 yards of the trapping area. A distance of approximately one and one-half mile was the greatest distance that a marked deer was observed from the trap area.

On a ranch in Blanco County, fifty-one male deer were recaptured 102 times by trapping personnel of the Texas Game, Fish and Oyster Commission in 1941. Retrap records of twenty-five bucks indicate that very little movement took place. One buck traveled as much as one mile between traps. Of the two bucks that were taken five and six times respectively, the greatest distance the first traveled was .3 mile, the other .7 mile. Other retraps of these animals were made within one-fourth mile of the original point of capture.

Records of South Texas deer released in the Hill Country reveal that several of the deer have traveled as much as twenty miles from the point of release. Guy Colbath, deer trapper for the Game, Fish and Oyster Commission reports that a male deer released near Sheffield in Pecos County in January, 1942, made its way back to the Aransas Wildlife Refuge in Aransas County where it was trapped again in December, 1943. It is a distance of approximately 350 air line miles from Sheffield to the Aransas Refuge. Obviously these records are not indicative of home range since the deer were in an entirely new habitat and probably restless in their search for familiar territory. However, most of the introduced deer immediately adapted themselves to the new environment and remained on the area.

In March, 1940, a yearling doe was captured in a 400-acre pasture in Mason County, and before being released, a small bell was strapped about her neck. This doe was observed many times in the same pasture. On April 6, 1943, she was found dead within 200 yards of the site on which she was captured and belled.

Particular attention was paid to four legal bucks, which inhabited a small pasture, in order to determine their fate during the hunting season. All of the bucks were killed by hunters in the pasture in which they had been observed on numerous occasions.

The data derived from this study, which was conducted in an area of normal habitat, indicates that deer native to the Edwards Plateau region do not move great distances in search of food even during seasons of critical food shortage. Therefore, landowners should consider the game population when stocking their ranges in order to prevent over-stocking and detriment to the range. It is well to remember that one adult deer requires more range forage than one goat.

The beaver is the largest member of the rodent family.



The Kerr County Wildlife Association received \$163.75 for deer hides donated by sportsmen during the 1944 deer season. The hides will be made into jackets, gloves and other garments for

men in the armed forces serving at northern posts. The Association turned the money over to the Kerrville Red Cross chapter.

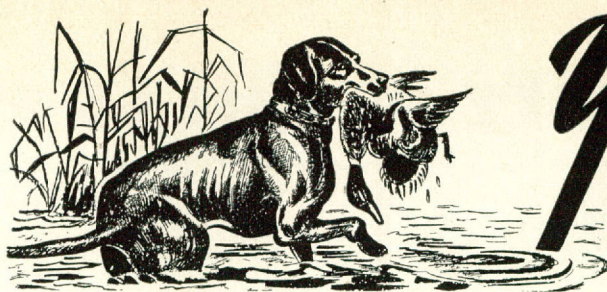


The calf of the blue whale measures up to twenty-five feet in length and weighs about two tons at birth.

A muskrat (musquash) can travel as far as 50 yards under the water without coming up for air. His fur is nearly as fine and dense as that of a beaver. When treated and dyed it may be known as Hudson Seal, Wallaby, Velvet Coney, River Mink, Sealskin and a number of other trade names.

IN THIS modern age it would be difficult to find anyone who is not vitamin conscious. Every drugstore has many types of products displayed. Many newspapers carry full page ads attesting to the superiority of certain products. One has only to turn on the radio to hear pleasant-voiced gentlemen assuring one that if a certain product is purchased and taken according to directions one will be healthy, handsome, virile, and in addition practically tireless and indestructible. Not only will one's chances of success in the business world be enhanced but one will be irresistible in more romantic moments. However, most dietitians agree that the most economical and satisfactory way to furnish adequate amounts of vitamins is properly prepared and balanced meals. Yet, in spite of the availability of vitamin preparations, and the fact that the majority of vitamins are present in a properly balanced diet many conditions due to vitamin deficiencies are seen among human beings.

In the dog, which is wholly dependent upon the care and wisdom of his master for an adequate diet, conditions due to vitamin deficiencies also occur. Many times the condition is not recognized as such unless professional advice is obtainable. As in humans, the most logical and economical method of supplying the essential vitamins is by furnishing an adequate and properly balanced diet. Supplying vitamins in the diet is especially valuable because animals that are showing symptoms of vitamin deficiencies also are probably low on minerals and proteins. The ancestors of the domestic dog lived much as the coyotes and wolves do today. He lived in the open, and hunted his food. When he killed an animal, not only was the musculature eaten but also the internal organs and a portion of the bony framework. Since the internal glandular organs are especially rich in vitamins and the bones supply minerals in the correct proportions, the diet was always balanced



Your DOG

Nutritional Deficiencies

By R. D. TURK, D.V.M.

although it might be lacking in quantity occasionally.

In contrast, many of the present day dogs receive little or no exercise. They may receive little meat, and what little they receive may be scraps of muscle that are comparatively low in essential vitamins. Many receive table scraps that are predominant with starchy foods and develop more fat than muscle. However, most of the house dogs or family dogs fare better than many of the larger type dogs, particularly the hounds and bird-dogs between hunting seasons. Many of these type dogs are fed corn-meal mush or similar preparations that contain very little animal protein. Consequently black-tongue often develops. Black-tongue is probably one of the most important and spectacular of the diseases caused by a vitamin deficiency occurring in the south. It has been shown that niacin, one of the vitamin B complex, will prevent and cure this condition in dogs. Usually, under field conditions it is probably a result of multiple vitamin deficiency since rations deficient in niacin are probably also lacking in other vitamins of the B complex.

A dog developing black-tongue usually tires easily, loses its appetite and sometimes vomits. The mouth develops a foul odor. The inner surfaces of the cheeks and the gums and tongue become reddened and inflamed. The tip of the tongue may be so congested as to appear purplish-red. The dog may be constipated at first, later is usually shows a diarrhea. If the essential vitamins are not supplied the dog will die regardless of other treatment. If the disease has not progressed too far recovery will result from administration of food high in the vitamin B complex. Niacin or liver extracts may be given as emergency measures. The dog should be given fresh liver, dried yeast, beef muscle, wheat germ, eggs or milk, all of which contain appreciable quantities of the vitamin B complex. In addition the mouth should be cleansed daily with some mild antiseptic, non-irritating solution.

Black-tongue may easily be prevented by assuring the dog an adequate intake of foods such as liver, milk or eggs. If available, dried brewers yeast may be added to the ration.

FISHING IN STATE PARKS

By FRANK D. QUINN

WITH peace in Europe and the war in the Pacific increasing in battle tempo, Texans this summer will survey vacation facilities with a two-fold purpose in mind.

The need for repairing worn war nerves and building new energy for the task still ahead—final victory in combat and eventual peacetime readjustment—is bringing an ever-increasing stream of visitors to Texas' 38 state parks. Because of their ready accessibility, they offer a haven for the state's millions of home front workers and its thousands of soldier visitors destined for the fighting fronts.

The usual May 1 official opening

date for the parks this year saw the parks already filled with relaxation-seeking visitors. Due to the designation of a year-round fishing season, an early opening of the parks was necessary to accommodate the thousands of soldiers, defense workers and civilians seeking a few hours of escape in a back-to-nature pursuit of peace and quiet. In spite of wartime restrictions, a shortage of labor and reduced supplies, all the parks are ready for the public; some have received improvements and will offer new accommodations this year.

Additional fishing boats have been distributed to many of the park lakes this season. Sixteen of the 38 parks

are excellent sanctuaries for fishermen.

According to some of the returned overseas correspondents the boys over there first want to see their folks, then go fishing or hunting when they come back. While our first obligation at present is to keep up the home front morale, we've got to keep in mind what those returned veterans will want and need most—parks where they can fish, roam, swim, ride, or, if they wish, just sit and enjoy native shrubs and trees, untouched by bomb or artillery shell. The state's investment in its parks will show ample return if they contribute even in small measure to the rehabilitation of these boys fighting our battles abroad.

Parks of the state are largely self-supporting, the legislative appropriation being only a little over one cent per capita for Texas' six and a half million people.



ARMS AND AMMUNITION

Edited by ADAM WILSON

VARIANCES OF SHOTGUNS

AMONG sportsmen there is the age-old argument, friendly but sometimes heated, over the shooting qualities of various shotguns. The claim that "My gun shoots harder and farther than any gun in town" is always good for a hot contradiction in any place where hunters congregate.

The size of the shot used has much to do with the range of the load. Another important factor is the angle of elevation when firing. For instance, when No. 6 shot is fired from a gun held slightly above the horizontal, the pellets cover an area of approximately 400 feet in depth on striking the ground. The nearest shot will fall at a distance of approximately 300 feet from the gun's muzzle, while the farthest will land some 700 or more feet away. When the gun is elevated at an angle of approximately 40 degrees, the area covered is greater, running from 400 to 900 feet.

A load of No. 4 shot will carry somewhat farther, with the nearest pellets striking the ground some 600 feet away. These distances are liable to vary from shot to shot as weather conditions, particularly the wind, have some effect on a shotgun's range.

It is the general opinion that No. 7½ shot fired in trap loads have an extreme range of 300 yards, but, in the interest of safety, trapshooting layouts provide greater distances for their danger zones.

General Journee, the French expert, worked out a formula to the effect that the maximum range in yards equals 2200 times the shot diameter in inches. When the gun is held at a horizontal position or only very slightly elevated, this formula gives the maximum range of popular shot sizes as follows:

No. 2—330 yards; No. 4—286 yards; No. 6—242 yards; No. 7½—209 yards; No. 8—198 yards; No. 10—154 yards.

With 8,000,000 GI Joes bringing home souvenirs from all parts of the world, it is only natural that the United States will be flooded with foreign-made pistols. This was the case after World War I, and experts foresee the same thing on an increased scale following World War II.

Although there will be many foreign pistols, it is quite doubtful that there will be much by way of foreign-made ammunition to fit the handguns.

According to Remington Arms Company officials, however, many U. S.-made cartridges will fit these foreign weapons. Although the European system of designing calibers differs somewhat from that used by American manufacturers, there are still a number of cartridges which are interchangeable. The American-made cartridge designated as the .25 automatic pistol cartridge will fit in the European pistols designated as 6.35 mm caliber.

Remington Arms officials suggest that the following tabulation be kept handy so that accidents attributable to misfit cartridges will be kept at a minimum:

European Caliber	American Cartridge
7.65mm Browning	.32 Automatic Pistol
9mm Browning	.38 Colt Auto Pistol
9mm (short)	.380 Colt Auto Pistol
Browning 9mm Luger	9mm Luger Automatic Pistol
7.65 Parabellum	.30 Luger Automatic Pistol
7.63 Mauser	.30 Mauser Automatic Pistol

Shooting Positions Many and Varied

At any trap or skeet shooting event almost any sort of shooting position can be seen, according to a Remington Arms Company authority.

"There are 'squatters,' 'gun-canters,' 'gun-wigglers,' and 'shoulder-snugglers,'" he said. "There are shooters who seem to court discomfort by trying to make THEMSELVES a part of the gun. There are others who make themselves comfortable by handling the gun in such a way the IT almost becomes a part of THEM. THEY usually walk away with the trophies.

"Strange shooting positions are not confined to scatter gun fans. Competitive rifle shooters are almost as bad. There are four standard shooting positions in rifle competition in this country—standing, kneeling, sitting and prone. Many manuals designed to improve the rifle shooter's ability have been written and impressively illustrated. If, however, a shooting instructor were allowed only

TWO words in which to describe correct shooting posture he would very probably say 'BE COMFORTABLE.'

"Remington Arms Company has recently reproduced four Currier and Ives prints which are amusing caricatures of shooting positions," he continued. "The inspiration for them came from some of the positions assumed by the contestants in the second Great International Rifle Match, held at Dollymount, Ireland, in 1875.

"The first Great International Rifle Match was held in 1874, when the Amateur Rifle Club of New York accepted the challenge of the Irish Eight, winners of the Elcho Shield, which is emblematic of the long-distance shooting championship of the British Isles. The match was held at Creedmoor, Long Island, which was the range of the newly formed National Rifle Association. The Americans won 934 to 931. The next year they went to Dollymount . . . and again won . . . 968 to 929 . . . regardless of the seemingly impossible shooting positions used.

"These prints, which caricature some of the positions, are titled THE QUEEN'S OWN!, E PLURIBUS UNUM!, ERIN GO BRAGH!, THE HIGHLAND FLING! They are available to any shooter who wants them for his club or den wall. Just request them from Rifle Promotion Section, Remington Arms Company, Inc., Bridgeport 2, Connecticut."

The National Rifle Association's Pre-Induction Training Program has been responsible for the basic training of more than 68,000 qualified small arms marksmen in our armed forces.

This training was accomplished be-

GUNSMITH

Stocks Made to Order. Springfield, Mausers and Krags remodelled and re-barreled to any caliber.

ALICE GUN SHOP

Box 141 Route 1
ALICE, TEXAS

tween June, 1942 and December, 1944. From this group of youngsters a corps of experienced group instructors was developed, and they are making history today.

Out of this group came 647 rifle instructors, 131 instructors in pistol shooting, 395 assistant rifle instructors and 39 assistant pistol instructors. "Proper instruction in shooting," said a Remington spokesman, "is responsible for the fact that our soldiers are known throughout the world as the best marksmen on earth. The National Rifle Association has done, and is doing, a grand job of developing marksmanship. An instructor must have more than the ability to shoot. He must be able to transmit his knowledge with patience, tolerance and understanding. This is not so easy to do, and that is the reason that competent instructors are so valuable and, in these wartime conditions, so necessary."

In commenting upon the success of the program, C. B. Lister, secretary-treasurer of the National Rifle Association, stated that the work done at the 1,244 certified N. R. A. pre-induction training schools had proved of inestimable value in aiding youngsters to become efficient shooters before they entered the armed forces. He also said that better shooting instruction will mean stronger and more permanent rifle clubs after the war is over.

Dry Lands

★ Continued from page 7

will warrant. Not to be misunderstood, it should be stated that the money appropriated to any given purpose is based on six cents an acre for pasture land and seventy-five cents an acre for crop land and the total is multiplied by five which, in the above example, gives \$675.00.

This tank building for the entire State in 1944 increased nearly three times over that of 1943, the increase being 42,000 tanks. In that year the government spent \$31,800,000 in Texas for all land practices. This work of the Triple A is carried on by community and county committees chosen by the land owners.

Besides this we have the U. S. Soil Conservation Service which was inaugurated in 1940. This organization ties in effectively with the Triple A, acting only in an advisory capacity. They will send a man out to study your problems. He and the land owner will walk over the farm or pasture and together they will decide what is most needed to improve the land. This expert planning is highly essential if substantial results are to be expected.

A few years ago I was asked to visit a stock pond near Cameron to learn what was the matter with it. The pond was a small one, covered almost completely with scum. It was located near a horse lot which drained into the pond; the water supply for horses and milk cows. The animals waded promiscuously over the pond trying to find a cleaner

place to drink with the result that the water was badly roiled. The water was unfit for man or beast and with the constant decomposition of organic matter no fish life was possible.

My advice was to divert the drainage from the horse lot, fence the pond, put in a pipe at the base of the dam and a trough with which to water the stock. All of this is recommended by the Game, Fish and Oyster Commission. Also, a fine precaution in lake building is to plant small vegetation above the pond to catch as much silt as possible and thus prolong the life of the pond and its clarity. Also plant life in the pond is beneficial.

No pond is apt to be perfectly clear unless an abundant vegetation has taken up the soil that is held in suspension. When this happens there may result the pellucid water that Narcissus came upon after a prolonged chase. What he was chasing we are not told. Narcissus, as the story goes, stooped to slake his thirst. As he bent over the mirror-like water he beheld his own beautiful reflection and fell in love with it.

The poet Keats appears to have understood the constituency of a perfectly clear pool, such as Narcissus found, when he wrote these lines:

**"In some delicious ramble, he had found
A little space, with boughs all woven round;
And in the midst of all, a clearer pool
Than e'er reflected in its pleasant cool
The blue sky here, and there, serenely peeping
Through tendril wreaths fantastically creeping."**

The color and flavor of a fish is affected by the kind of water it swims in. If the pond water is low the fish are apt to have a slightly muddy taste, or if there is too much algae the fish will taste of that just as cities are plagued with an algal taste in water at certain times of the year. In flowing streams there is comparatively little algae, and when the river water is clear, the flavor of the fish is notably superior to pond fish. This was observed by the Robinsons, members of the O'Keefe Club Lake below Laredo. This lake is remarkably clear and the fish are acceptable in every way, but it was noted that, during their annual vacations on the Nueces River, the river fish were more delicious than any pond fish could be.

O'Keefe Lake is easily the best fishing place in the county. When full, it contains about 800 acres of water. It was built in 1929 by the O'Keefes to provide water for irrigation of onions and other crops. It has furnished water for some 700 acres annually without getting too low, and besides, fishing for 40 club members and their families and guests. Club members paid in \$1500 to Mr. O'Keefe last year.

The club prescribes 14 inches for bass and 9 inches for crappie and has tried to enforce the two months closed season

which was repealed by the recent legislature. The lake is supplied by storm water and has neither acidity nor alkalinity and contains a minimum of chlorides and other salts.

Notwithstanding the vast improvements wrought by the artifice of man he has done little to change the virgin aspect of the brush scenery, and much of the criticism stems from a feeling that the Creator filled in that area merely to hold the rest of the world together. Such critics are hereby referred to Mr. Frank Dobie, apostle of that hinterland who has manfully defended the area as a legitimate part of creative wisdom. But the country is quite able to defend itself, of which you will be convinced if you ride through the valleys and over the chaparral hills where the mesquite thorns, cacti and catclaws stand ready to scratch, pierce and mutilate the passerby. The trees and shrubs are there as ordained by a tough environment, and resistance to adversity is the chief virtue. Natives who live under such condition partake of the hardihood of their own hills and habitats, and sometimes the ferocity of the wilderness. As the Rio Grande winds through these hills few scenes are more solitary and lonesome-like. The question:— why should a river be running through such a country? As one looks across into Mexico there is a feeling of futility; it is the end of the world!

The Mexicans from their side have looked across the river and called it "El Rio Bravo del Norte" the brave river of the north. And so it is. It has been a brave, struggling river for countless ages, boring its way through the solid rock of the Santa Helena Canyon and on down through the parched lands below.

With such evolutionary thoughts, in my youth, I wrote down some lines descriptive of the brush country. I have waited many years for an opportunity to work them off on the public. Maybe I have not waited long enough. But here goes, with apologies to the beasts that feed on the forbidding, thorn-protected diet.

**In desert lands where little food will grow,
And crops consist of stunted, scrubby trees,
Plucked is the verdure and the flowers that blow;
Until the shrub whose gentle soul at first
Sent forth a timid hope to be a tree,
(Through cruel ages bitten and consumed)
At last in anger and, in self-defense,
Sends forth a pricking thorn, makes beast beware!
So, all its life, the struggling plant hath spent
To find equation with environment,
Pointing to us the wisdom of the ages
As clearly writ upon the plant-life pages;
That man must also patiently await,
If he would win, the rich rewards of Fate.**



BAKED FISH: This is most popular for fish from 4 or 5 pounds up, one reason being that there's enough for the whole family and maybe a guest or two. One thing you must remember and that is the difference between lean and fat fish. The latter are easier to handle and the thin ones should have their skins slit before reaching the oven. Sauces advised are just what you like—take your choice.

The really important thing is the stuffing. You may have your own ideas and there may be a "family recipe" to reckon with. However, we shall suggest a stuffing that has been received with high acclaim. Gather the "makings" by collecting one quart of bread cubes, 3 tablespoons of fine chopped onion, 2 teaspoons of fine crushed sage leaves, $\frac{3}{4}$ teaspoon of salt, $\frac{3}{8}$ teaspoon of black pepper, $\frac{3}{4}$ cup of fine chopped celery, 4 tablespoons of hot celery liquid and 6 tablespoons of hot melted butter. Mix the salt and pepper into the liquids and stir in the celery. Pour this mixture over the bread with which the sage and onion has already been mixed. Stir while doing this to mix thoroughly. Let stand covered for a few minutes.

Now dip the fish into a solution of two tablespoons of salt and one cup of water. Let stand for 5 minutes. Drain fish, if lean slit skin in several places, brush skin with cooking oil. Stuff the fish and tie with string to hold in stuffing. Lay fish on bacon strips in pan. Place 2 strips of bacon on top of fish. Place in center of oven and bake for 10 minutes at 500 degrees. Cut heat down to 400 degrees. Baste three times. Allow 10 to 12 minutes per pound of fish and it should be cooked and ready to serve after 50 to 60 minutes.

BROILED FISH: "Quick and easy" is the formula for broiled fish and you certainly get a toothsome mouthful for your trouble. First, remember to be careful and not scorch or burn your fish. You begin by cleaning and splitting and washing the fish. Wipe dry and season with salt and pepper—if you like pepper. Place fish in hot broiler, skin side down with flame about 4 inches away. Cook under medium heat until well browned. Small fish take about 10 minutes, the larger ones in proportion. Serve piping hot.

BOILED FISH: Here's where it's the bigger the better. Large fish from 3 or 4 pounds upward make this picture. First, remove head and tail; clean, wash and cut into individual servings. Place fish on plate that fits into pot. Wrap cheesecloth around plate and fish and immerse in boiling water. Season with salt and $\frac{1}{2}$ tablespoon of vinegar. Boil slowly allowing 8 minutes for each pound of fish. Use this time to make the sauce. Melt 2 tablespoons of butter, add two sliced onions and brown. Add 2 tablespoons of flour, $1\frac{1}{2}$ cups of tomatoes or tomato soup, $\frac{1}{2}$ tablespoon of Worcestershire Sauce and salt to taste. Boil for 3 or 4 minutes. When the fish is cooked, drain off water and serve smothered in sauce.

FRIED FISH: Smaller fresh or salt-water fish are most easily prepared this way. First, clean and wash. Roll in flour, breadcrumbs or cornmeal. Melt plenty of fat—butter, if you can make it—in fry pan. Lay fish in pan before it gets so hot it curls the fish. Brown well on both sides. Careful in turning—better use a flapper. Cook evenly but thoroughly from 10 to 15 minutes according to thickness. Season to taste—yours, of course. Serve with melted butter and lemon. If you don't like the skin on just souse the fish in boiling water, bring to boil for 30 seconds, lay fish on plate and skin may be peeled off easily.

BARBECUED FISH: Here's where you need a big one—little fish are ruled out. You've got to bone your fish and it takes about 2 pounds to serve 4 or 5 people. Start by greasing the baking pan and laying the fillets of fish in it. While baking busy yourself by preparing the sauce. In the sauce pan simmer the following:— $\frac{1}{3}$ cup of tomato catsup, 3 fine chopped onions, 1 tablespoon of Worcestershire Sauce, butter or fat, brown sugar and salt to taste. After simmering pour sauce over fish, which has been baked not less than 25 minutes in oven at 400 degrees. Serve really hot.

FISH HASH: Leftover or fresh fish takes top billing here. To serve 4 people, take one cup of diced cooked potatoes, $\frac{1}{2}$ cup of any other chopped, cooked vegetable, $\frac{1}{2}$ chopped onion, 1 teaspoon of Worcestershire Sauce, salt and pepper to taste. Finally add $\frac{1}{4}$ cup of milk. Melt $1\frac{1}{2}$ tablespoons of butter in pan. Cook slowly until well browned and you'll have something!

FISH CHOWDER: Practically any fish is a candidate for this. About $1\frac{1}{2}$ pounds of boned fish will serve 4 fish eaters. In your frying pan place $\frac{1}{4}$ cup of diced pork with 2 sliced onions and brown for 5 minutes. Put this in soup kettle, add 1 cup of diced, uncooked potatoes, 2 cups of boiling water, $\frac{1}{2}$ tablespoon each of salt, 1 cup of milk and $1\frac{1}{2}$ pounds of fish. Simmer slowly until the potatoes are done. Then ring the dinner bell!

FISH CAKES: Fresh or leftover fish stars here. To serve 4 persons take the following:— $1\frac{1}{2}$ cups of mashed potatoes, 1 cup of cooked boned fish, 1 beaten egg, 1 tablespoon of butter, seasoning to taste. Mix thoroughly and pat into cakes. Fry until browned. Serve with tomato sauce or "as is."

FISH FLAKE "QUICK DINNER": You get speed and plenty of choice here. Any fat fish, such as salmon, mackerel or

bluefish will do. Take 2 pounds of fish—you're serving 3 or 4 people—and begin by heating 2 cups of milk in which you've placed $\frac{1}{2}$ teaspoon of pepper and 2 tablespoons of butter. When all is liquid stir in 2 cups of coarsely crushed crackers. Now add the fish flakes and simmer until cooked.

FISH SOUFFLE: Here's something that's a little extra, yeah, plenty extra! And when you've collected all the "makings" you've got to mix patience with prayer if you're going to make the grade. Here's what it takes: 2 cups of cooked fish cakes, 2 tablespoons of grated carrots, 2 tablespoons of grated onions, 4 eggs, $\frac{1}{2}$ teaspoon of pepper, $\frac{1}{2}$ teaspoon of salt and finally, 2 cups of well-seasoned mashed potatoes about as thick as heavy white sauce. Now you've got this, let's go! Mix well with the fish flakes the salt, pepper, carrots and onions. Separate the egg yolks and whites. Beat whites until stiff and set aside. Beat yolks until light yellow and combine with fish flakes, then the potatoes, and finally fold in the egg whites. Place in greased baking dish. Set dish in pan of water and place in center rack of oven. Oven should be at 360 degrees. Bake slowly for 30 minutes and serve—you're lucky if there's enough to go round!

FISH PIE: Don't overlook this one—it's a hit with the family! Start out by blending 2 tablespoons of fat and 2 tablespoons of flour in the frying pan. Then add $\frac{1}{2}$ teaspoon of salt and 1 cup of milk and stir until creamy. Now take a thorough mixture of 2 cups of large fish flakes, $\frac{1}{4}$ teaspoon of salt, $\frac{3}{4}$ cup of peas, 1 tablespoon of grated onion and 1 tablespoon of minced green pepper, and mix this thoroughly with the sauce. Heat well and place in greased baking pan. Cover mixture with 1 cup of mashed potatoes. Bake in hot oven at 400 degrees for 12 minutes.

STEAMED FISH: Here's really quick action! Take 2 pounds of steaks or fillets or 3 pounds of whole fish. Cut into serving portions. Cover with solution of 2 tablespoons of salt to 1 cup of water. Let stand from 2 to 8 minutes according to thickness of fish. Place fish one layer deep in well-oiled steamer and cook for from 5 to 12 minutes or until tender. Serve with butter dressing or cream sauce.

FISH FLAKE SALADS: You might like a fish salad one of these days. Here it is: Take two cups of cold boiled fish flakes and combine with 3 tablespoons of spiced vinegar from sweet pickles. Clean lettuce, prepare 1 cup of diced cucumber, mince 1 cup of celery, slice thin 3 peeled radishes. Keep everything cold. Combine well the fish flakes, cucumber, radishes, celery, seasonings and mix with mayonnaise. Fill nests of lettuce leaves with mixture and sprinkle with paprika. You'll like this and it takes care of leftover fish, too!

What Is POLLUTION?

IN THE past there has been widespread belief that pollution of a waterway is not objectionable because of the ability of the receiving stream to somehow purify itself as it flows along its course. Unfortunately, however, such is not the case. It is doubtful that a present-day stream can ever purify itself regardless of its length of travel.

There are a number of factors which tend to a certain extent to influence self-purification of a stream: sunlight, the amount of water available in the stream for dilution of the wastes, the dissolved oxygen content, rate of flow, temperature and many other like factors.

The most important element contributing towards the self-purification of a stream is the dissolved oxygen content, consequently its presence or its lack becomes a yardstick by which the extent of the pollution of a stream may be measured.

Organic pollution of a stream is caused by the biological decomposition of the polluting compounds resulting from the action of certain objectionable bacteria and other organisms. This decomposition is brought about as the result of the process resulting from the action of aerobic, anaerobic and facultative types of organisms, which are present in all sewage and which live on dead organic matter. In addition to these organisms there may be organisms which are pathogenic or disease producing. Aerobic decomposition takes place in the presence of oxygen, while anaerobic decomposition is believed to take place in its absence. Facultative organisms can cause decomposition to take place either with or without the presence of oxygen.

Since, however, the organisms which cause anaerobic decomposition themselves require oxygen in order to sustain them, this oxygen is taken directly from the compounds which are under the state of decomposition. As the oxygen is removed from these compounds, elements having little or no oxygen are left which in turn combine to form new compounds, such as hydrogen sulphide, methane, ammonia, etc. These compounds are largely malodorous and set up conditions which are said to be septic or are, generally speaking, toxic to the natural life of the stream.

Aerobic decomposition takes place in the presence of oxygen and because of the oxygen, the process results in the formation of compounds which are stable, such as carbon dioxide, water, sulphates, nitrates, etc., which do not have odors or cause septic conditions. Generally, when there is oxygen available all processes take place at the same time with the resulting products of the anaerobic decomposition oxidized immediately as they are formed with no nuisance resulting. *The amount of dissolved*

Haul of the Wild

In a recent issue of *Nation's Business*, Arthur Hawthorne Carhart, eminent writer and outdoorsman, has a piece called "Haul of the Wild." This is a factual article in which it is revealed that America's hunters and fishermen spent two billion dollars a year in peacetime.

"Take a small fishhook and a .22 caliber cartridge. You have about two and one half cents' worth of merchandise. In these two symbols of fishing and hunting there's little hint of any great field of business. Yet in peacetime these simple articles represent a business of nearly \$2,000,000,000 a year. Postwar, it may be up to \$3,000,000,000."

Carhart explains his figures and says that license sales jumped 30 percent after the 1918 Armistice.

"The boys who had been introduced to outdoor life in the armed forces turned to hunting and fishing in civilian life as a natural field of recreation."

This time the estimate runs higher. Not only will more hunters and fishermen mean more license sales, more game killed and more equipment bought. But it will mean more equipment manufactured. And this will provide employment to thousands of returning service men.

No matter how you look at it, hunting and fishing are big business from which many businesses get their share.

oxygen necessary to prevent nuisance in a stream is between one and two parts per million. The amount necessary to support fish life is from four to ten parts per million; the lower amount being sufficient to support the lower forms and scavenger type of fish life, the upper amount being sufficient to support the game fish found in cold water streams.

A Buck

★ Continued from page 12

had again in a lifetime, just as it was there at the moment.

As Charlie came nearer the doe made the first move. Taking a step at a time, pausing between each step, as if to feel out the next one, gracefully, with head high, like a manikin displaying a beautiful gown in some smart dress shop, then bounding off in a slow trot to disappear into the thick brush and woods. The spike tarried longer, until Charlie was very near and then quickly whirled around and darted into the thicker woods, too.

Charlie's approaching footsteps brought me back to reality. Supper, which was prepared in silence on my part, went off very well, everyone enjoyed the steak and french fried potatoes without any revolting stomachs and after a few games of dominoes, my last thought before drifting off to sleep was the never-to-be-forgotten scene I had the pleasure of seeing that evening.

☆

Six hundred million pounds of seafood are caught by New England fishermen in a normal year . . . 85% of this consisting of only ten species.

☆

Once in the air, the clumsy pelican "whose bill holds more than his belly can," is able to fly to a height beyond eye-sight's reach.

Big Bend

★ Continued from page 11

brought back to something like a normal, healthful stand, Dr. Maxwell hopes the NPS and cooperating agencies can bring antelope and the bighorn mountain sheep back into the Big Bend.

Dr. Walter P. Taylor, head of the Texas Co-operative Wildlife Research Unit at College Station, who is to make another survey of the Big Bend wildlife, points out that establishment of an international park will be a still greater boon.

The area across the river would include a large portion of the Sierra del Carmen Mountains, including the forested high country of the Fronteriza range, offering a habitat superior to that of the park area on this side. The mountain sheep, for example, would find an ideal home in the del Carmens, from which most of the Texas bighorns probably came decades ago.

Before he came back to serve as superintendent, Dr. Maxwell saw black bear in the Big Bend. Since taking over his office, he hasn't seen one.

But, like Dr. Taylor, he is convinced that the bear will come back when the range builds up, and certainly when a park on the other side is established. He reminds that the Rio Grande is no barrier to wildlife.

Hard-pressed in the Davis Mountains, the black bear as well as the cougar or mountain lion has been almost extinct in Texas, with the Big Bend its last hope.

Still threatened with extinction is the Means or crazy quail, one of the rarest and most attractive birds in the state.

Dr. Taylor says that the domestic goat beat out the Means quail. He isn't sure that it can be saved even now.

Other birds of the Big Bend include the ducks along the river, mourning doves, the white-winged dove, the band-tailed pigeon up in the highest mountains, and the Arizona scaled or blue quail. The area also has its eagles, and scores of smaller birds.

BIG PLANS for the BIG HORN

By DANIEL W. LAY

Director, Division Wildlife Restoration

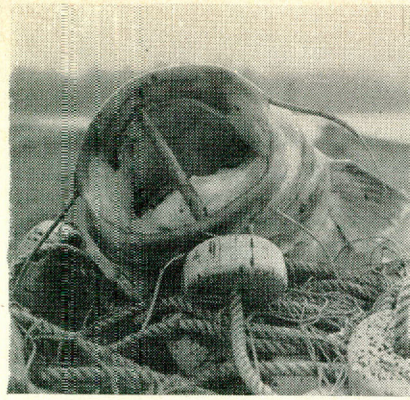
Thanks to a bill passed by the legislature and signed by the governor in May, the Game, Fish and Oyster Commission is finally authorized to purchase the necessary lands for a big horn mountain sheep sanctuary in the mountains north of Van Horn in Hudspeth and Culberson counties. This is the region in which the species is making its last stand in Texas. A mere remnant, less than a hundred, of the sheep remain in this one range of mountains, the Sierra Diablos.

This will be the first purchase of lands in Texas by the State for game purposes. The exact location of the acreage to be acquired will be determined on the basis of a thorough survey which will begin July 1. It will likely consist of 17 or more sections. The country in which the sheep now range is largely inaccessible and useless to domestic livestock, although some of it is being encroached upon by domestic sheep and their parasites. Five sections are still public school lands because no bids were received when they were offered for sale, which means they are ideal for mountain sheep.

Although mountain sheep have been protected by law since 1903, they have declined in numbers due to illegal hunting, competition with domestic sheep, fencing, and probably other factors. None remain in the Davis, Chisos, Delaware, Guadalupe, and other mountain ranges which they previously occupied. Three years ago, after careful survey, Burch Carson reported 110 animals in the Diablos. Since then, during his leave of absence in the Service, no field work has been done. However, it is known some sheep remain.

The Texas bighorn is one of the noblest specimens of Texas wildlife and every effort must be made to prevent its following the passenger pigeon, greater prairie chicken, and other species into extinction. For the sportsmen who wonder if this investment will ever pay dividends in terms of better hunting, the answer is in the affirmative. It is entirely possible that in the future big horn sheep hunts might be conducted on this refuge, on a controlled hunt similar to the antelope hunt. Even if only 10 rams a year were taken, many hunters could be given a chance at matching their mountain-climbing with that of the sheep, and they won't have to go to Alaska for a trophy. Also, it is possible that sheep for restocking other ranges might be available.

Mule deer are also present on the



WHAT A MOUTH of a 60-pound catfish looks like when it is propped open. This catfish was taken out of the Brazos river.

range and regulations of their numbers to prevent competition with the mountain sheep will likely require an annual mule deer hunt. Would-be participants in these hunts needn't send in their applications just yet; but they can look forward with anticipation.

Mr. Burch Carson, native of Van Horn, who made the pre-war mountain sheep survey for this division has returned from the services and is now getting together pack horses and equipment in preparation for the establishment of this project. First the sheep must be re-located. Plans for land purchase will follow. Then actual development will include fencing, construction of concrete tanks to hold water through the droughts that not infrequently last two years, and reduction of mountain lions.

☆

A fisherman at Port Isabel found a dead gull on the shore. He took a numbered band from the bird's leg and later learned it had been placed there on the northern shore of Lake Ontario nine months previously.

Oysters Planted

The second phase of the Game, Fish and Oyster Commission's program to rehabilitate the Texas oyster industry got started in May when Joel W. Hedgpeth, marine biologist, and Wallace Lassiter, oyster planting crew foreman, transplanted 26,315 barrels of oysters on 60.9 acres of reefs in Upper Aransas Bay. The oysters came from seed reefs in Copano Bay.

The names of reefs in Aransas Bay where plantings of oysters were made, area of each, number of barrels strewn on each, follow in order from north to south: Tin Can Reef, 15.5 acres, 10,824 barrels; Dagger, 11.6 acres, 3,425 barrels; Deep, 13.8 acres, 6,580 barrels; Thompson's, 7.9 acres, 1,819 barrels; Broomstick, 5.5 acres, 1,280 barrels; and Peanut, 6.5 acres, 2,387 barrels.

☆

Texas duck hunters purchased 70,441 federal duck stamps during the 1944 waterfowl season. Only three other states reported larger sales of duck stamps, California, 92,056; Michigan, 83,554; and Minnesota, 95,446.

☆

Alabama and Georgia have joined the steadily growing list of states which have restored all-year bass fishing. Texas joined the list early in the year.

☆

Two Menard men got two catfish off the same fish-hook. The first one caught, a two and a half pound channel cat, had been swallowed by a 33-pound yellow cat.

ATTACK AT DUSK

By A. S. JACKSON

The sun was visible through the tops of the trees but light was growing dim in the deeply wooded slough at the river side. Two turkey hens with young about the size of scaled quail took them to roosts in tall trees. Only the heads and necks of the poults protruded from the body and wings. A broodless hen roosted nearby.

A horned owl with a burst of speed dove straight toward the roosting turkeys. The three hens did not wait for the attack. They left their perches, spilling the young. They met the owl about 40 yards from the roost site.

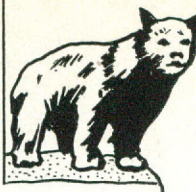
Turning in mid-air with the agility of crows, they pursued the owl beneath their erstwhile roost from which young turkeys still were flying. Loud flapping and crashing of limbs in the woods indicated that the pursuit lasted several hundred yards and that the turkeys forced the owl to take cover.

A clear view of the owl's behaviour was obscured by the flying turkeys, but the owl was seen to change course slightly and strike at one of the young turkeys as it flew down and away from the roosting place.

Since subsequent count showed the loss of one, it is presumed that the owl's sudden burst of speed and dive though the flying young turkeys was a familiar pattern of action, and that this time, at least, it was successful. The action lasted only a few seconds.



BOOKS



Texas Turkey Crop IS DECLINING

By DANIEL W. LAY

Director, Division of Wildlife Restoration

SHOTGUNNING IN THE LOWLANDS—by Ray P. Holland. 213 & viii pages, 8 full page reproductions in color of paintings and numerous black and white sketches by Lynn Bogue Hunt. Foreword by John Taintor Foote. Published by A. S. Barnes & Company, 67 West 44th Street, New York 18, N. Y. Price \$7.50.

This volume is a fitting companion to "Shotgunning in the Uplands," Holland's earlier contribution for the scatter-gunner's enjoyment. Like the previous work, it is full of heartwarming reminiscences, from which the reader can garner many useful bits of knowledge about the ways and the quarry of hunters, both past and present.

From the opening chapter, where the author takes us into a duck blind to enjoy with him the company of an old-time market hunter, the book is full of the atmosphere of bay and marsh. It conveys to the reader the charm of duck, goose and shorebird shooting, and transports him far from the harsh and grim realities of a war-torn world.

Lynn Bogue Hunt's usual fine job of illustration, plus excellent typography and binding, also do their part to make the book at credit to any sportsman's library.

POT LUCK—by Roland Clark. 101 pp., 6 full page illustrations in color and numerous small black and white sketches by the author. A Countryman Press Book. Published by A. S. Barnes and Company, 67 West 44th Street, New York 18, N. Y. Price \$3.50.

In Pot Luck, Roland Clark proves that the heart and ways of the gunner are as familiar to him as are the many feathered species which he has immortalized on canvas and on copperplate. This collection of nostalgic tales marks him as a true member of the clan, brimming with the sentiment that binds every true sportsman to his hobby, but which can be translated into words only by the gifted few.

Clark writes as he paints, delightfully and with the accuracy born of full knowledge of his subject. Pot Luck is a fitting companion to the favored pipe and fire-side chair, to be relished in moments of complete relaxation between active seasons, when the gunner relives the hunts of yesteryear and idly plans the future.

ESQUIRE'S FIRST SPORTS READER—Edited by Herb Graffis; 292 + ix pages. Foreword by Herb Graffis, editor of Esquire Magazine. Published by A. S. Barnes & Company, 67 W. 44th St., New York 18, N. Y. Price, \$2.75.

This anthology of stories and articles, which have appeared from time to time in Esquire Magazine, covers a wide range of sports. Considering the variety of subjects dealt with—from football to the art of relaxation, from skiing to cock fighting and from wrestling to sizing up a trout stream—hunting and fishing come in for more adequate representation than is usual in such collections.

Ernest Hemingway scores with two articles. One, "On the Blue Water," is a siren song of big game fishing in the Gulf Stream; the other, "Remembering Shooting-Flying," is a brief article packed full of the lure of bird shooting . . . John Alden Knight's "Go When the Going Is Good," advances the author's theories on phases of the moon, atmospheric pressure, etc., as factors governing "fishermen's luck" . . . Monroe H. Goode's "Modern Sporting Rifles," which the author says might well be called "advice to frustrated sportsmen" was conceived for the "gun-nut" . . . Paul Zimmerman's "How to Case a Trout Stream," deals with on-the-spot research activities employed by one successful angler in achieving his results.

This book is not directed specifically to nimrods and anglers, but to all-around sportsmen (in which group hunters and fishermen are well represented). It is one that will give the rod-and-gunner a taste of his favorite pastimes while sampling some excellent literature on other sports.



*"When the wind is in the east
Then the fishes bite the least;
When the wind is in the west
Then the fishes bite the best.
When the wind is in the north
Then the fishes do come forth;
When the wind is in the south
It blows the bait in the fish's mouth."*



An Ohio hunter, who violated the migratory bird regulations by killing 28 ducks in one morning, recently paid a fine which amounted to \$17.80 per duck. Ducks fly high . . . but sometimes they are "high" in price.

ALTHOUGH estimates of the 1944 turkey kill in the Hill Country showed a bag of approximately 3,000 birds, and Texas still apparently leads the nation in wild turkey production, the turkey situation in the state is serious. Estimates by State game wardens of the 1929 kill was 15,000 birds, and the decline has been accompanied by excessive grazing by sheep and goats in the Hill Country, which has permanently impaired the range carrying capacity. Perhaps without artificial feeding there would be few turkeys remaining in parts of this region.

A post-war expansion of the present series of major wildlife development areas on blocks of leased acreage is considered the chief opportunity for stabilizing and perhaps increasing the turkey population. The use of the U. S. Forest Service lands in eastern Texas is an important phase of the restocking program which must wait for enabling legislation by the Texas Legislature.

But first, during the last two weeks of October an inventory should be made of the State population of turkeys. The inventory also would provide information on the success of previously stocked areas; and on unoccupied range that should be stocked.

Reducing the bag limit to one gobbler may be desirable. There is some argument in favor of reducing the bag limit to one turkey irrespective of sex. The principal objection probably would be the public's extreme reaction against killing hens. Restriction as to baiting and shooting from blinds would take incentive away from the present beneficial feeding operations in the Hill Country, as would also a closed season in the Hill Country.

Heavy and repeated stocking of the best unoccupied ranges is highly desirable and these areas are largely in east Texas and in northwest Texas. From five hundred or one thousand turkeys annually for the next five years could be used for restocking. Twenty-five or more should be planted each time and plants should be repeated two and three succeeding years. Early fall trapping and restocking has some advantage to recommend it.

Predator control, although not the answer to the over-all turkey problem in the State, will certainly be included in any intensive operation in a limited area such as owned or leased management areas. Due to low fur prices and other obstacles to sufficient fur trapping, poisoning seems to be the only answer in some cases. The objective of predator control should be the keeping of all

species in line, where other types of management are also being practiced.

There is little to recommend artificial feeding, as far as the over-all turkey management program is concerned. However, it must be admitted the present population in the Hill Country can be credited in part to artificial feeding by the ranchers. From a regional standpoint, it is often or always a matter of decoying birds from adjoining ranches, which of course would not increase the total number of birds. In new areas being intensively developed artificial feeding doubtless must be considered.

In the Hill Country, if means can be found to encourage landowners to defer 50 or more acres—preferably 500 or more—for two-year periods, it is believed that an opening wedge would be made into the over-grazing problem. Although no cureall, it would doubtless help.

Skunks

★ Continued from page 11

Altitudinally they occur commonly from sea level to about 6,000 feet, rarely up to 8,000 feet. In areas where common, they have a tendency to live about farm yards, often denning under or in buildings.

In southern Texas they are known as "hydrophobia cats" and feared as carriers of rabies. This fear is largely unfounded, although during the mating season the males appear to be rabid, run amuck, and attack humans sleeping on the ground. Four unprovoked attacks on humans in Texas and one on a family of wild wolf pups in an underground den are on record. None of these four persons suffered any serious effects. A few authentic instances of death from hydrophobia following the bite of these little skunks are on record, however. Nevertheless, they should be no more feared on this account than any of the carnivores, and certainly less so than the domestic dog.

Their den sites are varied. In rocky areas they prefer cracks and crevices in the rocks or a burrow under a large rock. Rock fences appear to offer ideal denning sites. Since they are expert climbers, they occasionally den in hollow trees or in the attics of buildings. In settled communities they frequently live under buildings, in underground tile drains, and in underground burrows. I once saw the decayed bodies of two animals in southern Idaho that had been caught in traps set for muskrats in about three inches of water at the mouth of a burrow that opened under water. This proves that they enter water and suggests an unusual den site. They are almost entirely nocturnal, seldom being seen in the daytime.

Their food habits are largely beneficial to the agriculturist, although they can do considerable damage to poultry once they develop a taste for such food. Their seasonal natural foods in Iowa consist of: **winter:** cottontails and corn; **spring:** native field mice and insects; **summer:** predominately insects, with smaller

amounts of small mammals, fruits, birds, and birds' eggs; **fall:** predominately insects, with small amounts of mice, fruits, and birds. We do not know what they eat in Texas, but their food is probably similar to that reported in Iowa. They are excellent rat catchers and can soon rid a barn or house of these pests.

Mating occurs in late winter and the 3 to 6 young, usually 4, are born in May or June. The exact gestation period is not known, nor are their marriage relations. At birth the young are blind and helpless, weigh about 9 grams each, and the body is covered with fine hair. The black and white markings are distinct. Their eyes open at the age of 30-32 days; they can walk and play when 36 days old; emit musk when 46 days old; and are weaned when about 54 days old. When three months old they are almost as large as adults.

Although their fur is in wide demand, the price paid is usually so low that few trappers take the trouble to save the pelts of those that accidentally enter their traps. Like other skunks, rearing them on fur farms is not economically feasible. They make interesting pets when captured at an early age and "de-skunked," a feat that can be accomplished easily by snipping off with a pair of sharp scissors the ends of the two musk ducts, which open just inside the vent on each side. This will cause the ends of the ducts to seal over and prevent the emission of musk.

WESTERN SPOTTED SKUNK (*Spilogale gracilis*)

This skunk is much like the eastern species, but is readily recognized as different. The color pattern resembles that of the eastern skunk, but the white markings are more extensive, the black and white stripes on upper back are nearly equal in width (in the eastern species the black areas are much more extensive than the white); dorsal pair of white stripes begin between the ears or just posterior to them; white area on face large, extending nearly from nose pad to a line back of eyes and covering more than half of area between eyes; underside of tail white for nearly half its length, tip extensively white. Weight: males about 1½ pounds; females, 1 pound. This is the spotted skunk of the Hill Country, western Texas, and much of South Texas. Its habits are similar to those described for the Eastern Spotted Skunk.

INLAND HOG-NOSED SKUNK (*Conepatus mesoleucus*)

This large skunk, commonly known as "rooter skunk" or "rooter," has one broad wide stripe from the top of the head to the base of the tail and because of this is also called the "white-backed skunk." The tail is long, bushy, and is white all over except for a few scattered black hair underneath. The rest of the body is blackish brown or black; the nose pad is relatively long and about three times as large as that of the common striped skunk; the nostrils are ven-

tral in position and open downward. The pelage is relatively long and coarse, in this respect differing from most of the other Texas skunks. Adults weigh from 2½ to 6 pounds and sometimes as much as 10 pounds, depending upon age and the amount of fat stored in the body. This skunk occurs in central, southern, and extreme western Texas. Formerly a small population occurred in and about the Big Thicket in eastern Texas, but it is probably completely killed out now.

Habits.—These white-backed skunks inhabit largely the foothills and partly timbered or brushy sections of their general range, usually avoiding the hot desert areas and heavy stands of timber. The largest populations occur in rocky, sparsely-timbered areas, such as the Edwards Plateau section of central Texas, the Chisos, Davis, and Guadalupe mountains of Trans-Pecos Texas, and the isolated mountain ranges in eastern Arizona and New Mexico. Their presence in an area usually can be detected by the characteristically "ploughed" patches of ground where the skunks have rooted, overturning rocks and bits of debris, in their search for food. This hog-like habit of rooting has led to the adoption of the common name rooter skunk, by which it is known to most people in Texas.

Although largely nocturnal, they are not strictly so. In mid-winter in central Texas, many of them prefer to feed during the heat of the day, in this respect reminding one of the habits of the armadillo at that season. A half-grown male was observed on January 9 in central Texas, feeding in the warm sunshine at 2:00 p.m. They are seldom as abundant as common striped skunks in any part of their range. Like other skunks, they are relatively unafraid of man or beast, nor do they hesitate to defend themselves with their powerful musk if unduly molested. In the Guadalupe Mountains of western Texas I watched one at close range at night with the aid of a flashlight for nearly 30 minutes as it rooted about in search of food. Whenever I approached too close, I was given fair warning as the skunk elevated its tail and maneuvered to place me in the line of fire. By heeding the warning and backing off a few steps I was able to forestall the otherwise inevitable barrage.

As mentioned previously, these skunks prefer rocky situations when available because of the numerous cracks and hollows that can serve as den sites. Not only do the skunks winter in such dens, but they also use them as nurseries for the young. Unlike the striped skunk, this species is more or less unsocial, usually only one individual lives in a den. A trapper in central Texas reported to me that he has found only one winter den occupied by two rooters.

Their food habits make them valuable assets in most areas. Based on analyses of stomachs and other viscera of animals from central Texas, their seasonal foods consist of: **Fall:** Insects, 52%; arachnids, 4%; vegetation, 38%; reptiles, 6%. **Winter:** Insects, 75% arachnids, 12%; small mammals, 9%; vegetation, 3%; with rep-

tiles and mollusks making up the balance. **Spring:** Insects, 82% arachnids, 12%; reptiles, 6%. **Summer:** Insects, 50%; arachnids, 9%; small mammals, 3%; vegetation, 31%; snails, 5%; reptiles, 2%.

The breeding season in the United States begins in February and most females of breeding age are with young in March. The fact that the female has only six teats, as compared with twelve to fourteen in the striped skunk, suggests small litters of young. Of six records I have available, three females contained three embryos each; the others, two each. J. D. Bankston, a reputable trapper at Mason, Texas, reports that he had never seen more than four young with a female. The young are born in late April or early May, indicating a gestation period of approximately two months. Jennison records it as 42 days, but the fact that he gives the number of young as 6-10 indicates that his data apply to some other skunk. Nothing has been recorded on the growth and development of the young, but we do know that they can crawl about in the nest before their eyes are open and that at that tender age they can emit a drop or two of musk. By the middle of June they are about the size of kittens and weigh about one pound. By August most of them are weaned and are rooting for their living.

The pelt of this skunk is inferior in quality and never commands as high a price as that of the striped skunk. Even so, large numbers are marketed each year from Texas. Detailed life-history investigations of this species and its cousin in the Lower Rio Grande Valley would make an interesting and worthwhile study.

GULF COAST HOG-NOSED SKUNK (*Conepatus leuconotus*)

This is the largest of North American skunks and superficially it resembles the inland hog-nosed skunk, but it is larger and the white stripe on the back is much narrower, wedge-shaped rather than truncate on the head, and reduced in width or entirely absent on the rump. The upper side of the tail is white, but the under side is black toward the basal half and white toward the tip. This skunk occurs along the Gulf Coast of Texas from Aransas County south to Cameron and Webb counties. Practically nothing is known about its habits.

The exact distribution of spotted skunks and hog-nosed skunks in Texas is not well known. Readers of this article who would like to perform a valuable service to science and to contribute materially to the knowledge of Texas mammals are requested to contact Dr. W. B. Davis, Department of Fish and Game, College Station, Texas, for suggestions as to how they might help in collecting information on these little known fur-bearing mammals.

☆

Bats have the finest of all fur and the greatest number of hairs per square inch of all animals.

10 Casts

★ Continued from page 6

conditions as they develop and it is difficult to predict at this time just when the requirements will be."

Another interesting development in the lake area is the attitude of many land owners abutting the lake. At first they definitely were opposed to the lake, because considerable land around them had to be condemned and bought by the government.

Many of them were quite open in their denunciation of the government because it was building the dam and covering up what they called good farm land, although much of it was badly eroded land without value.

Those with abutting land remaining now, however, find it much more valuable, especially if he thinks the sportsman wants to buy it for a cabin site or recreational area.

Although representatives of the National Park service have prepared many fine recreational plans for areas surrounding the lake, the various government departments failed to properly coordinate, and now the proper department for recreational development finds it has no land available for carrying out its program after the war. A new bill has been introduced in Congress, however, which is expected to settle this matter, and fine controlled areas will be made.

At the present time there are very few privately owned boats and no commercial boats on this huge lake. Fishing is done either from the bank or by wading into the water.

It might also be said that plug fishing is very costly because of the tremendous amount of underbrush remaining in the lake. It takes a fairly deep running plug to catch the bass and many fishermen lose as many as a half-dozen plugs in one afternoon.

Most of the natives around the lake use cut bait, with long cane poles. They catch a carp, shad or bream with a worm or grasshopper, then cut the smaller fish into strips to catch the bass.

The small boys all still like to catch perch, however, and many of them have come away from the lake with long strings of the bream.

The entire lake also was thrown open to duck hunters last season, although the Wild Life Service does plan two or more refuges on the lake. Many fields were inundated by the rising water this year, and these fields have made splendid feeding grounds for ducks and geese. Only a shortage of gasoline and ammunition has prevented a veritable slaughter of ducks throughout the whole season.

The shores of the lake also are lined with native pecan trees, which mean thousands of squirrels. In season it will not be uncommon for a versatile man to get his limit of fish, ducks and squirrels in one day on this new lake.

A Fisherman's Catch

A fisherman went fishing
With his hook, and line and pole,
He started out at misty dawn
With music in his soul.

When he returned at twilight peace,
His net was empty-handed,
A little boy, inquiries made:
"Please, Sir, what have you landed?"

"What have I landed? Nothing, Son,
But I have caught a lot."
"I'm sorry, Sir, I see your net,
No fishes have you got."

"I caught the early sun, my boy,
As it was waking up,
I saw it stir the woodland folks,
And dry the butter-cup.

I caught a glimpse of the sun beams
Dressed in a yellow frock;
I caught the rhythm of a brook
As it beat against the rock.

I have a little knowledge, too,
That nature love has taught;
It isn't what your hands can hold—
It's what your mind has caught.

—Lola Alena Rauch

Big Bucks of 1944

Jimmy Robinson, Outdoor Editor of the Minneapolis Star-Journal, disputes the claim for the white-tailed deer championship of 1944, made by Earle Doucette of the Main Development Commission in behalf of Lester Averill of Dixfield in the Pine Tree State, who shot a buck weighing 316 pounds live weight. Says Jimmy:

"I see where Maine has put in a claim for the biggest buck shot in 1944. I know of three larger bucks shot in Minnesota last fall. The largest weighed 365 pounds dressed! Multiply this by 1.27 and you'll get 464 pounds live weight. Irv Wells of Perham shot this big buck. Second largest reported to me last year weighed 355 pounds dressed and was shot by D. E. Woese of Redwood Falls. Third place went to J. P. O'Rear, Bemidji, who shot a 361 pounder."

As the accepted world's record white-tailed deer, shot by Henry Ordway at Mud Lake, New York, in 1890, weighed only 388 pounds live weight, comments the Sportsmen's Service Bureau, it would appear that the animals Jimmy reports must be descendants of a herd belonging to Paul Bunyan, Minnesota's legendary owner of Babe, the Great Blue Ox!

New York State also came through with a big buck last fall which seems to have an edge on the Main entry. According to Clayt Seagears, Superintendent of Conservation Education, this animal, shot by J. S. Smith, Jr., of Bergen, Genesee County, weighed just over 310 pounds dressed. This, Clayt states, is the biggest New York buck taken in recent years of which the Conservation Department has authentic record.

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