TEXAS Game AND Fish

SEPTEMBER 1944

TEN CENTS

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"The Voice of Texas Sportsmen"

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Shark Fishing IS LUCRATIVE

Texas Gulf Coast commercial fishermen are neglecting a valuable side line—shark fishing.

The market is wide open for shark livers—the most valuable source of Vitamin A—stocks of which are now very low. Incidentally, Vitamin A cannot be produced artificially.

The shark is a voracious devourer of food fish in the water, but on land he becomes a source of life and strength for infants, invalids and others needing vitamin aid.

The average shark liver runs from 12 to 30 pounds. Livers weighing 100 pounds are common and livers weighing 200 pounds are not uncommon. The average price paid for shark livers at the fishing station, with a bonus—sometimes as high as $50 a liver—paid for especially good livers.

The Gulf of Mexico teems with sharks. At times they have become a nuisance to commercial fishermen. They get tangled in the nets and they break up schools of fish.

Very little of the shark is waste. Parts of the shark go into the manufacture of poultry feed, dog food, and similar items, and, believe it or not, shark meat has been found suitable for human consumption. In fact, J. B. Arnold, director of the coastal division of the Game, Fish and Oyster Commission, has created a lively interest in shark meat by serving it—unnamed at the time—to gatherings all up and down the Texas coast. The general opinion was that when properly prepared and cooked it is as tasty a bit of seafood as mackerel or trout or flounder.

Bait for shark fishing is plentiful. Over in Florida, shark fishermen are using quick frozen red snapper heads. The heads are quick frozen because the shark, contrary to general belief, is very discriminating in his food habits, and will not touch bait that is not strictly fresh.

With the demand for shark livers and by-products growing every day it appears that during the off-seasons, Texas fishermen could further aid the war effort by catching sharks.

And to the gourmet who wants to try shark meat, a letter to J. B. Arnold, director of the coastal division, Game, Fish and Oyster Commission, Nixon building, Corpus Christi, Texas, will bring recipes that will stimulate the saliva glands of any seafood addict.

TEXAS Game AND Fish ★ ★

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Contents

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DR. BEAVER, *Specialist*

By Daniel W. Lay

Good beaver site on the Llano watershed. Small streams with water plants and a border of willows and other trees are preferred.

BEAVER, the fur animal responsible for much of the earliest exploration and colonization of North America, and known for its unique habit of building dams, may once again become common throughout Texas. Although it is practically impossible to go out and see a beaver in Texas, because of its nocturnal habits beaver dams and freshly cut trees along streams can be found in an increasing number of places.

The beaver is the largest native rodent in the United States. Its average weight of about 35 pounds is propelled through its preferred aquatic habitat by fully-webbed hind feet and a broad, flattened tail. The fur, one of the most durable and valuable, is a rich chestnut with a downy grayish underfur so dense it turns water like the proverbial duck's back. Its close relation to muskrats, squirrels, and other rodents is suggested by the four chisel-like front teeth, capable of cutting oaks or other trees more than a foot in size.

Its famous habit of building dams is one of the reasons beaver are being encouraged. Dams are built for the purpose of keeping a constant water level in the lodge and to impound enough water to float the food and dam construction material which the beavers often move considerable distances. The resultant ponds improve fishing, attract waterfowl stabilize local water levels (often making dry streams flow steadily all year), reduce floods, and accumulate silt eventually forming fertile meadows. In addition the pelts are worth $25 to $50 apiece to the fur buyers who recognize some of the Texas pelts as being comparable to those they buy in the northwestern States.

Beavers require the bark of trees and shrubs and aquatic vegetation for food, being almost completely vegetarians. They do not eat fish. Many people confuse them with otters in this regard. Their preferred food seems to be willow. And since willow is an excellent stream-border tree, persons wishing to improve their streams for beaver would do well to set out willow cuttings along the water line. Beaver also eat green corn stalks, pecan trees, and other nursery stock. So they must be kept away from these.

The young are born in the spring, four to a litter usually, in a lodge of sticks and mud in the pond or burrow in a bank. Both types of lodge have underwater entrances.

The last legislature enacted a beaver and otter law which closed the trapping season on both species until 1948, except in Kimble, Val Verde, and the Trans-Pecos counties. In these counties, and in the whole State after 1948, the annual season is January 1 to 15, the season limit is 3 pelts per trapper, and a special license of $50 is required of out-of-county trappers.

This new law followed heavy beaver trapping on the Llano watershed prior to 1943, which almost exterminated the beaver in a short time. Several hundred and perhaps more than a thousand were trapped in two winters, completely cleaning out many long-established colonies.

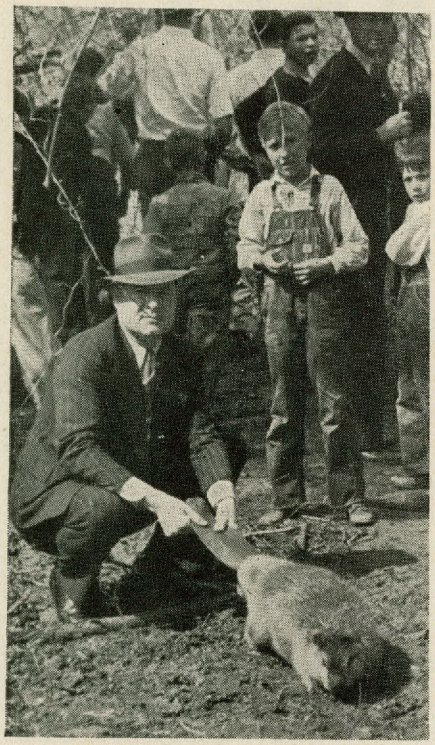
Beaver are easily trapped and regulation is necessary to prevent their extermination. The eleven western States

ADULT BEAVER

(not including Texas) have an estimated population of more than 300,000 beaver, which under limited, state-controlled trapping is yielding pelts in excess of one million dollars value each year. When the carrying capacity of these 11 states for beaver is reached they will have an estimated population of 564,000 beaver which will yield a quarter of a million pelts annually. Already beaver restoration in those states has passed from a restoration problem to one of management and control.

Unfortunately Texas is just beginning on the restoration phase. When we reach the management phase, as other states have already done, it will be necessary to regulate the harvest to prevent overtrapping and it will also be necessary to regulate the population of beaver to prevent property damage in places where beaver are a nuisance or liability. But this will be well worth while, because the sale of pelts will yield trappers much revenue, perhaps as much as a quarter of million dollars annually and because beaver have various other values also.

A few beaver remain on the Llano, South Llano, Johnson Fork, Perdanales, Colorado, and San Saba rivers in the Hill Country. Scattered colonies occur along most of the length of the Rio Grande and the lower Pecos rivers, particularly in irrigation systems where they are not wanted. The northeastern section of the Texas Panhandle contains several streams with some beaver. In addition to these native stocks, 149 beaver were released in 27 counties throughout the State for restocking purposes between 1939 and 1942. Many of these have established new colonies although no trace has been found of several of the plants.



A beaver being released in Anderson County. The school at Montalba adjourned to the creek-bank for the occasion and supported the project with an abundance of community good will.

A beaver dam on Sweetwater Creek, Wheeler County. (Photo by Dr. F. S. Henika)

Very few of the released beaver stayed where they were placed. Most of them traveled several miles, some traveled 150 miles or more. Beaver had been exterminated in eastern Texas for many years when the first restocking was done in 1939, yet that winter a trapper near Henderson caught one of the beaver released in Newton County and sign of beaver on the Neches River in Tyler County could only be traced to a plant made in Hardin County.

This restlessness of beaver in new country makes it necessary that beaver be restocked only in counties or sections of the State where suitable food and water and full protection are available.

After the war, it is hoped that the Game, Fish and Oyster Commission will be able to secure more beaver for restocking and that all of the hundreds of suitable streams in the State can be stocked.

But persons requesting beaver for their ranches or farms should be prepared to contribute a few rows of corn if they cultivate a creek-bottom patch near the stream. And if they have willows on their camp lawn or valuable pecan trees near the water, they should tack up hardware cloth to protect the trees. Otherwise beaver would likely cut them.

One hunting club in Northeast Texas found a beaver lodge constructed on the foundations of one of its best duck blinds. And beaver are notorious for building a dam at a highway bridge, using the bridge foundations to brace the dam and sometimes causing water to flow over the road instead of under the bridge.

Such nuisance values of beaver can be annulled by live-trapping and moving the beaver. Breaking the dam usually results in its being rebuilt the next night.

The beaver is the recipient of too much fame for its industry and its engineering ability. "Busy as a beaver" is a timeworn phrase; yet the beaver isn't any busier than many other wild animals. Like many nocturnal rodents, the beaver spends much of the time getting food and maintaining the lodge (which includes maintaining the dam). To nourish his 35 pounds, a daily consumption of several pounds of bark is necessary. One might call this industry but it more probably is elemental hunger, the same motive that keeps most rodents on the move.

As for its engineering ability, the beaver can and does build dams that impound considerable water and last for many years. But it also starts many dams that don't succeed. Some say that beaver always pick the most strategic place for a dam and always curve it upstream for greater strength. This isn't true, although many dams are found in sites that appear to be better than any others available. These are the ones that were successful. The countless others started on poor sites are not present for comparison. Curved dams are found but not often enough to prove the reputed skill. One group of restocked beaver in Jasper County tried to dam the broad Angelina River near its mouth at Bevilport. They worked on the dam several weeks before finally abandoning it.

However, it isn't necessary to glorify the beaver's engineering in order to recognize its peculiar and useful habit of building dams. To me, the beaver is nonetheless interesting, whether it possesses human-like (or human-desired) qualities of skill and industry or not. The muskrat digs tunnels and builds lodges. The cliff swallow fashions a

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By HAROLD L. BLAKEY

MENACED BY OVER-GRAZING BLITZ

WILD TURKEY vs. Range Management

FIELD investigations in cooperation with the Texas Cooperative Wildlife Research Unit and the Division of Wildlife Research, Texas Agricultural Experiment Station, initiated in Kerr and neighboring counties in Texas early in April, 1943, and continued at intervals to February, 1944, have disclosed some seemingly significant trends and have led to a number of tentative conclusions and recommendations.

The Edwards Plateau is one of the few places in the United States where the wild turkey contributes an economic profit of worthwhile proportions on lands utilized for ranching and extensive agriculture. It is equally important to the landowner and the sportsman that the wild turkey, and the plants upon which it and other game species depend, be maintained at a proper level, inasmuch as this same vegetation makes excellent pasturage for livestock that produces the principal income on their lands.

The original range of the wild turkey on the Edwards Plateau was highly favorable. Introduction of livestock, with attendant overstocking, brought about a reduction in some portions of the range of the plants valuable for turkey. Cattle in large numbers and, later, sheep and goats were stocked throughout the region, resulting in a reduction in available food supply for both livestock and the indigenous wildlife, together with curtailment of some of the natural water resources.

Attempts by the ranchmen to find the proper rate of stocking resulted in various degrees of overstocking.

Smith (Bull. 16, Div. Agrost., U.S. D.A., 1899, p. 9), referring to conditions in general prevailing on southwestern ranges in 1833, mentions sections on which 128 to 320 cattle could be supported, where in 1899, 4 to 12 square miles would be required. He found the average grazing capacity of the State about 64 head to the square mile.

V. L. Cory, Range Botanist (Substation 14, Texas Agricultural Experiment Station) at Sonora, has pointed out that in that region, under conditions of continuous, sometimes excessive, grazing, no fewer than 36 palatable plants have disappeared in the last 20 years. The estimated proper carrying capacity of the grazing lands in the vicinity of the Sonora Station, and average lands in the general vicinity, is shown in Station reports as about 50 animal units per section. On many ranches the actual stocking is twice that number.

Some elements of farming practice on small tracts about the ranch headquarters, such as cereal crop production and supplemental feeding of livestock, have afforded some benefits to turkeys. Nevertheless, persistent overstocking will ultimately remove the wildlife resources of the Edwards Plateau, as well as much of the profitableness of grazing. This is unfortunate, for sound land management of the area, with a view to sustained production of livestock, is highly compatible with a successful turkey population.

Lack of suitable protective cover has forced turkeys to nest in highly vulnerable sites, such as limited roadsides, rocky slopes, and residual stands of coarse bunch grass. In like manner, young broods are exposed to the ravages of all of their enemies. As a result of such poor habitat, predation (by fur animals, snakes, and birds) is the most serious immediate factor limiting the wild turkey population of the region at this time. Control of predatory animals may be helpful but is not an effective substitute for restoration of natural vegetation which governs the carrying capacity of the range for both livestock and game animals.

Nesting losses and juvenile and adult mortality were so great this season (1943) as to suggest that on many portions of the range the wild turkey should not have been hunted at all. The penalty for hunting a depleted population is further capital losses.

Wild turkeys normally maintain the same general summer and winter range, except for such irregular movements as are the result of supplemental feeding of livestock and direct baiting of the turkeys themselves. A study of wild turkey movements, based on observation of marked birds, shows that a given flock of turkeys may range over as much as 20,000 acres.

Food is the major factor determining the daily movements of wild turkeys over any given range. At least 479 species and 46 varieties of plants, native to the Edwards Plateau, afford potential food resources for wild turkeys, but grazing pressure from livestock has been such over the years that many of them are not available. As many as 50 separate items may appear in the diet of a wild turkey in a single season in one locality, of which as many as 20 items may figure largely in the total food consumed. The 33 most important foods available to turkeys under present conditions may be classified as seed and green leaves of grasses and sedges (16), fruit of trees and woody species (7),

weeds (7), domestic crops (2), and insects. Grasses provide the most important year-around food, trees and woody plants the principal source of food from November to February.

The food requirements of turkeys are relatively small in volume as compared with range animals dependent upon plants, and their versatile food habits and great mobility enable them to adjust themselves to moderate competition by livestock. But as grazing increases the turkeys will range widely for native food and depend even upon agricultural crops.

Baiting for shooting purposes tends to concentrate turkeys on seasonal ranges that do not afford them their natural requirements and may encourage a shooting take in excess of the available surplus produced on the baited range. It does not appear that the practice of supplemental feeding will make up for losses in natural food supply. Provision of domestic crops (fall oats, spring sorghums, corn, millet) is much more economical and effective than any artificial feeding or baiting practices, but the natural complement of native foods (if allowed to grow) is adequate for the wild turkey's needs and is a good deal more satisfactory.

Management of the ranges on the Edwards Plateau is directed toward utilization for domestic livestock of all available plant cover (browse for goats, grasses and weeds for sheep, grasses and sedges for cattle), often without taking into account the added food consumption by large numbers of deer that occur in many cases. In too many instances the result is a lowered carrying capacity detrimental to game and livestock alike.

A RESULT OF OVER-GRAZING. This patch of land once was carpeted with luxuriant grass but over-grazing has ruined it not only for livestock but for deer and turkey.

With cattle, sheep, and goats in the same pasture, the mast, particularly acorns that turkeys like so well, is used up in the short period of two to three months while it is falling. If not used by animals so rapidly, the mast may remain available for five or more months during which it affords a nutritious food supply.

A critical aspect of full-capacity grazing is the progressive elimination of food-producing woody plants. These include among others, the evergreen, ill-scented and narrow-leafed sumacs; poison ivy, elbow bush, Mexican persimmon, wild plum, honey suckle, smilax, grape, catclaws and mimosas, Mexican buckeye, prickly and wafer ash, dogwood, and hog plum. On many Hill Country pastures there is no brush understory at all and one can see for an almost indefinite distance across country under the clumps of like oaks. There is often practically no available browse food for turkeys or livestock up to a height of 50 or 60 inches and the grass and any resulting mast and shade must

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ONE OF NATURE'S MOST BEAUTIFUL SIGHTS is a flock of turkeys on breeding ground. The Toms present a never-to-be-forgotten picture as they strut with their tail feathers spread — monarchs of the wild. But turkey breeding grounds are becoming rarer and rarer as a result of over-grazing. A sound program of land-use is the only solution to a problem that is becoming more serious every year.

So! You Believe It, Eh?

By PHIL GOODRUM

"YE SHALL know the truth and the truth shall set you free," (or words to this effect) is an oft used phrase and it applies, to a degree, to this column. If I should continue these monthly articles for a hundred years I could not debunk all the erroneous tales about wild things that are now fixed in the minds of the people. In the first place I don't know about them all. In the second place I could not debunk them all if I knew of them. Our knowledge of wildlife is not sufficiently developed to permit correct answers to all. In the third place more tales are being born every day. Every now and then a letter comes to me giving me information on some untruth about wildlife. Such a letter is quoted herewith. It seems this reader was trying to debunk the debunker for not writing about his pet wildlife misconception.

"Editor of Texas Game and Fish: It seems to me that the author of your column 'So You Believe It, Eh?' has failed so far in his job of debunking a most interesting theory. But perhaps he had not heard of the madstone that cured rabies.

"This madstone was said to be taken from the neck of a spotted deer, according to a story that went the rounds back in 1884. That was the year when Pasteur discovered the cure for rabies. It was in about that year that a rancher down on the Nueces or maybe it was the Hondo River, was sleeping out at night when a skunk, doubtless the species improperly called 'civet cat,' bit him on the lip. These animals are known as the hydrophobia cat, although it is said that few of them are hydrophobic. According to the report this man hurried to a place where the madstone was available; the stone was placed on the wounded lip where it stuck tight until it drew out the poison and then dropped off. This story must have traveled far and wide and may be believed by some people yet. Now if your debunking machine is in working order see what you can do about that and possibly other such stories. Have you or any of your readers heard similar stories?"

I have few stories of this nature. If you have any why don't you send them in?

In another letter a reader writes: "During the past three years, I have heard many ranchers and cowboys from West Texas and southern New Mexico state that coyotes do not suckle their young, but merely bring them food to the den. When brought into conversation, this subject creates quite an argument unless an old-time state or government trapper is at hand to refute it with authority. Doubtless you too have heard this wild tale and perhaps you will care to debunk it in your column."

In refutation to this interesting "bunk" I can say, and with plenty of authority, that coyotes do suckle their young just as your domestic dog. Mamma coyote starts her little ones out on Nature's bottle and later on, when the pups are old enough to eat solid stuff, brings in food for them in the form of rabbits, rats, and other food. If you have an explanation as to how this tale came into being, please write me.

Here are some more tales that I have collected. I shall not attempt to discuss them but just simply state what I have heard. Some of these may be grounded on facts. If you can add anything to any of them please write.

Have you ever seen a gray fox climb a straight tree?

Have you ever seen a mole root with its snout?

Have you ever seen a swan carry its young on the back while crossing a running stream?

Have you ever seen an owl twist its head off by turning it around?

Have you ever seen a porcupine throw its quills?

Did you ever see a horse hair in water turn to a water worm?

Did you ever see a person with warts caused by a toad?

Will rattlesnake rattles keep a fiddle dry when placed inside?

Will red bugs bother a person who has been bitten by a rattlesnake?

Does the gila monster have poison fangs like the rattlesnake?

Did you ever see a "hell diver" or grebe dodge a bullet?

Did you ever see fish rain down?

Have you ever seen a hoop snake "sting a tree to death"?

Have you ever seen a doe deer with antlers?

Does the night hawk build a nest of twigs or leaves?

DUCKS DON'T LIKE THIS LIGHT!

WANNA scare a duck? Well, there are various ways of scaring the wits out of a duck. That is, if you want to scare one. Here's the latest and most scientific method, straight from the Fish and Wildlife Service.

It's a revolving electrical beacon which flashes on and off seventy times a minute. The beacon turns off completely eight minutes out of each quarter hour. Then it snaps on suddenly and frightens the duck out of his wits just as he's getting ready to start feeding in your grain field.

Ducks have always been a sore problem for the corn and grain sorghum growers of the Platte River Valley in Colorado and Nebraska. They've also been troublesome to the wheat and barley producers of the Dakotas, and to the rice farmers along the Texas Gulf coast. And the duck population has quadrupled in the past eight years.

Up to now, some of the approved methods of scaring ducks from their feeding grounds included the beating of dishpans, the waving of red flares and the shooting off of Roman candles and firecrackers. The shortage of labor and firecrackers resulted in the invention of the revolving beacon. The machine already has been given successful tryout in various states.

And fish, too, are getting a bit bothersome in Lake Isabel, Colorado. The lake has too many fish, too little fish food, and too few fishermen. The Colorado State Game and Fish Department says gasoline and tire rationing have helped the fish to over-populate. So the Department, trying to attract anglers, has raised the legal limit to twenty fish a day. But still the fishermen must have a way to get to the lake. Meanwhile, the happy fish are going right along multiplying.

And talking about fish, everything

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Ever Eat a SMOKED Carp?

IF YOU have ever walked along the banks of the Chicago River you probably have succumbed to the temptation of sinking your teeth into the firm flesh of a whitefish that has been smoked to a golden brown.

Whitefish are caught in Lake Michigan and rare indeed is the hut along the river or lake that doesn't have several tempting strings of the delicious smoked whitefish hanging from wooden pins. In Chicago's ghetto, smoked whitefish are considered a rare delicacy, to be placed upon the table only at wedding feasts, celebrations, and wakes.

Or if you have strolled through the sand dunes of Cape Cod you probably have caught a whiff of the pungent but appetizing aroma of herring being smoked to a deep brown in small homemade smoke houses. In fact—there are only a few places in the United States where you can't find locally smoked fish. And Texas, believe it or not, is one of those places.

Smoked fish is a delicacy. Make no mistake about that. If you have ever buried your teeth into a properly smoked fish you will know what I mean. Smoking fish is very inexpensive and can be done by anyone. And if you do not have a small smoke house in your back yard or at your fishing camp, you are missing a great deal of fun.

For instance, the carp which abounds in the streams of Texas is an excellent fish to smoke. All you need to prepare a carp for smoking is a sharp knife with a stiff, narrow blade about six inches long for scaling or "fleecing" the fish.

Then hold the fish by the tail and slice off the scale by moving the knife in a sawing motion toward the head. There will be about three strips of scales on each side. This removes the scales and dark skin and leaves a clean white skin.

Cut the flesh to the bone around the head and twist the head off. Cut off the tail.

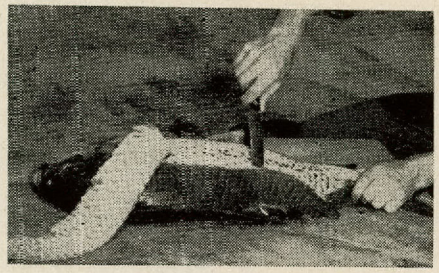
Split the fish down the back the full length on one side of the dorsal fin through the rib bones leaving the fish in one piece. Then clean and wash out all ciscera and blood. If the fish is big the back bone can be cut out completely by cutting along both sides of the dorsal fin.

After washing thoroughly place the fish in salt brine made in the proportions of one cup of salt to a gallon of water and leave for 30 minutes. Then wash in fresh water and drain for a few minutes.

Each piece of fish is then dropped into a pan or box of fine salt and covered thoroughly. The fish are removed with as much salt left on as will cling to them and packed in layers in a box or pan. They are left packed overnight or about 10 hours, if very large fish. If small fish, 4 or 5 hours will do.

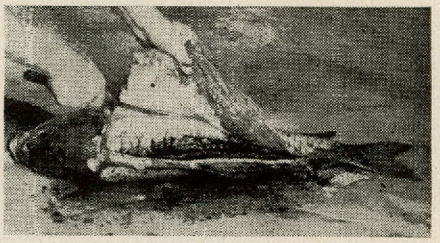
Rinse the fish thoroughly in fresh water three or four times to remove all salt and then hang up to dry in a shady place where the air can reach them. Leave them for an hour or two until a thin skin is formed on the surface and they are then ready to be smoked.

HOW TO FILLET A CARP

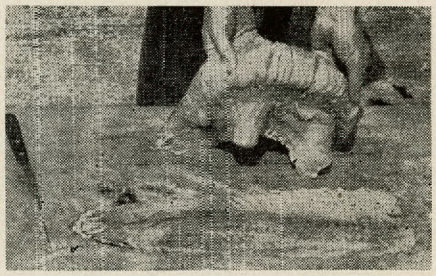


Slip a sharp knife under the scales along the tail and cut toward the head, removing the scales in strips.

Cut down the back from head to tail until the knife hits the bony ribs.



Cut away the side steak from the ribs, leaving the ribs and skeleton and internal organs with the body of the fish.



After completely removing the side steak, place skin side on table and make cuts on meat side one-quarter inch apart, thus scoring entire fillet.

—From *Outdoor Nebraska*

A smoke house is easily made for small lots of fish from a large barrel by knocking out both ends or by building a rough box 4 feet long by 2 feet wide by 4 feet high. The bottom should be open and it should have a loose lid on top. Wooden strips are nailed on the inside to hold wire or wood racks on which the fish are laid. One inch chicken wire is fine for a rack. Two racks can be placed in the house about 8 to 10 inches apart and about 2 or 3 feet above the bottom.

The smoke house is placed over a pit dug in the ground about 2 feet deep and a little narrower than the barrel or box. A hole is dug from the pit to the outside of the box so the fire can be fed without moving the box. A steel plate or tin can be placed over the pit to keep any flame from hitting the fish.

Any non-resinous wood can be used for fuel that will make a good smudge. Don't use any pine woods as it will flavor the meat. Oak, hickory, willow, corn cobs, hardwood sawdust or bark, etc., are all good fuel. Dead fruit tree limbs are especially good, sometimes giving a fine flavor to the fish.

The fire should not be allowed to burn but only smoke and smoulder. After the fire has been well started the fish are laid skin side down on the racks and the lid placed on the smoke house. The fire is kept going steadily for about 8 hours for smaller fish or longer for large ones.

The fish can be tested and sampled at intervals to see how near they are done. After you do the job once you will know just what to do and how long to smoke the different size fish. You will improve each time.

When the fish are properly smoked—you are ready to sit down to a feast fit for a king. As appetizers they can't be excelled. As the main dish, they are just what the doctor ordered.

Incidentally, large carp can be prepared for frying so that no bones will be found when ready to eat. Here's how you do it.

The fish is first scaled, then with a sharp knife cut down through the flesh just behind the head, then cut along the full length of the back on one side of the dorsal fin to the bone. The knife should then be turned flat and the flesh cut from the rib bones. The entire side is lifted off the fish. Turn the fish over and loosen the flesh from the other side in the same manner. This removes all the good flesh from the fish and the rest can be thrown away. The two fillets are then laid with the skin side down and scored along the upper half or thick half of the fillet. Make the cuts from one-eighth to one-quarter inch apart and two-thirds through the fillet. The cuts are made only down about half of

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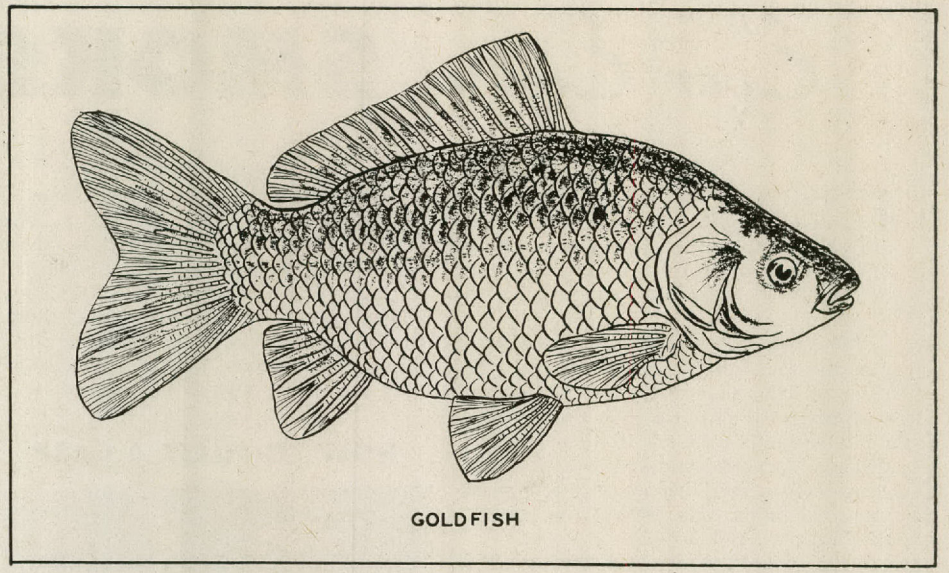
THE *Goldfish*

By MARION TOOLE
Chief Aquatic Biologist



GOLDFISH

MOST of the readers will be surprised to see the goldfish listed as one of the fishes of Texas since the goldfish is considered purely an ornamental fish by most people. Yet all goldfish in Texas are not confined to little glass bowls, aquaria, and lily pools, but are also found in lakes and ponds vying with the other wild fishes for their livelihood. Of course, all those found in a wild state are either fish or offsprings of fish that have been released by humans, since goldfish are all descendants of immigrants to the United States and did not occur naturally in our country.

The history of goldfish is an interesting one. They were probably the first species of fish that was artificially propagated by man. The Japanese knew of ornamental goldfish in 1500 A. D., and countless years, prior to that date, had been spent by the Chinese breeding the drab common goldfish into the creators of beauty that the Japanese first saw.

One of the first records of their introduction into Europe states that about the middle of the eighteenth century some goldfish were brought into France from China and given to the famed courtesan, Madam Pompadour.

FISHES OF TEXAS

It was as recent as 1878 that Rear Admiral Daniel Ammen, U.S.N., brought the first ornamental goldfish from the Orient to the United States.

Since then so many goldfish have been introduced from both the Orient and Europe and so many millions produced in the United States that now they are very common.

Many people think that goldfish are just the European carp, also imported from Asia, that have been developed by breeding, into the many varieties of goldfish that are known today, but this is not so. The goldfish is a distinct genera, even though the early ancestors of those beautiful fishes we think of today as goldfish were not always colored. The original root-stock is a drab fish colored from silver-gray to olive green. Its general appearance is like just any common fish. It can easily be distinguished from the carp because the goldfish doesn't have the fleshy barbels at the corner of the mouth, which the carp has. It is covered with large coarse scales and has small fins. The original fish still abounds in China and occurs wherever goldfish have been introduced. The offsprings of domesticated varieties that have been released from captivity show a tendency to revert to the appearance of their wild ancestors.

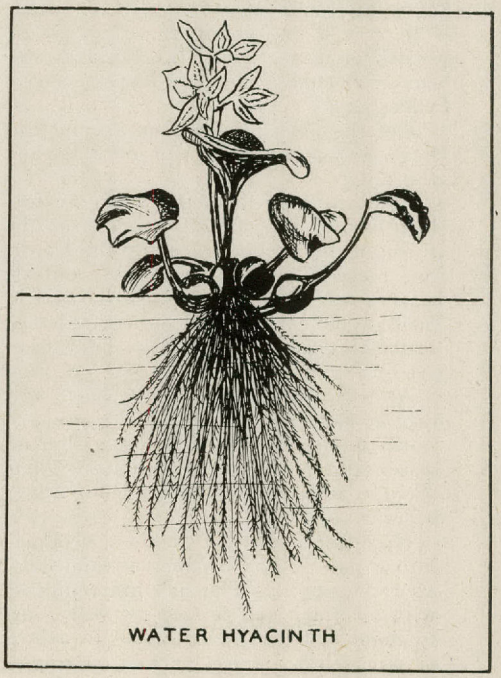
The original wild goldfish display a definite trend toward albinism which causes some of its members to lose their olivaceous coloration and to present different color aspects, such as white, gold, red, or mixed colors. By carefully selecting these sports or mutants and breeding them over a period of many years the beautiful colors were fairly well fixed.

Other mutations occurred through the years and the breeders were careful to take advantage of these modifications also. These mutations were split tails, lack of dorsal fin, transparent scales, long flowing fins, pop eyes, and raspberry-like growths on the fish's heads. These mutations, like the coloration, have been fixed so that definite varieties of goldfish have been developed.

When the fish has a long body and fins, especially a long flowing tail or caudal fin, then the variety is a comet.

Should the fish appear scaleless,

DUCK POTATO, Arrowhead, Sagittaria showing different types of leaves; A, arrow shaped, Sagittaria latifolia; B, tongue-like; C, elliptical shaped, Sagittaria platyphylla.



WATER HYACINTH

caused by possessing transparent scales, and be colored blue, which in turn is mottled with red, yellow, brown, or black colors, then the fish is a Shubunkin.

Some goldfish are similar to the comet inasmuch as they have long bodies, but the tail or caudal fin is split into two separate tails and the anal fin is double. These are called fantail goldfish.

Another variety of goldfish has a short, rounded chunky body. The caudal and anal fins are double like those found on the fantail, but all fins are extremely long. The dorsal fin, or fin on the back, is high. These goldfish are fringetails. Some fringetails are scaled and others have transparent scales and are called scaleless fringetails.

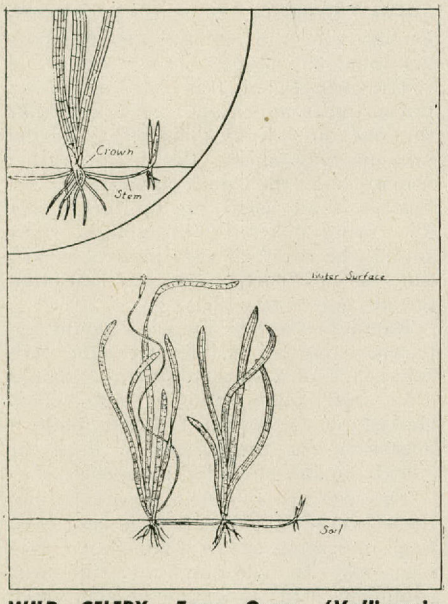
Should a fringetail fail to have the double tail and anal fin, then it is called a nymph.

When the eyes protrude the goldfish in question is considered a telescope goldfish. One variety of telescope goldfish, the celestial telescope goldfish, not only have protruding eyes, but they also have pupils on the tops of the eyeball, thus causing them to constantly look skyward. These latter fish are also without a dorsal fin.

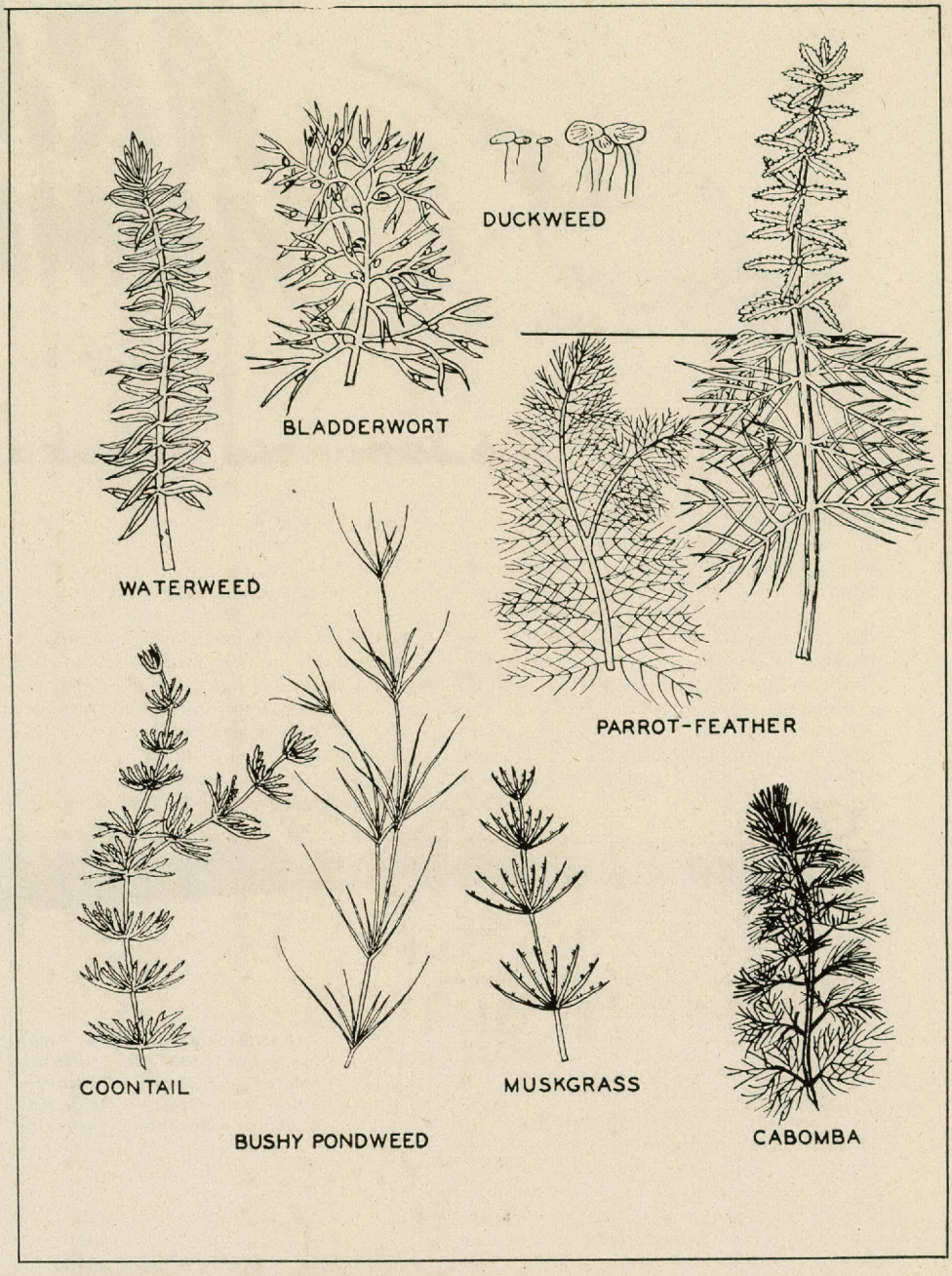
Another variety of goldfish is black with the exception of the underside of their belly. These are the Moor telescope goldfish. Occasionally one of these black Moors will turn gold.

Two varieties of goldfish have the thick raspberry-like growth covering their head and gill covers. These are the lionhead goldfish that are without a dorsal fin and the oranda that has a dorsal fin.

IN PONDS goldfish present very little trouble to the owner mainly because of the bountiful supply of their natural food, algae, aquatic insects, etc., which is produced and because oxygen is present in sufficient quantities. It is necessary to have a few types of plants growing other than liles. A small portion of sagittaria or Vallisneria should be planted to serve as oxygenators and cover for the young fish and if breeding is desired, water hyacinths and myriophyllum should be present. All of these plants are available from aquarium supply houses. Sagittaria or vallisneria should be planted in sand or grit, care being used to see that the crown of the plant (the crown is the portion of the plant where leaves are attached to roots) is just showing from the surface of the sand. These plants spread rapidly from runners and in a very short time form a bed of plants. The myriophyllum can be planted or left to float and the water hyacinth is a floating plant.



WILD CELERY, Tape Grass (Vallisneria spiralis). Always set out rooted plant so that the crown is not buried under the soil.



VARIOUS AQUATIC PLANTS found in Texas. Waterweed, Anacharis canadensis (Elodea); Bladderwort, Utricularia; Duckweed, Lemna; Parrot-feather, Myriophyllum, showing different leaf formations; Coontail, Ceratophyllum; Bushy Pondweed, Najas; Muskgrass, Chara; Cabomba, Fanwort, Cabomba caroliniana.

Artificial foods that may be used include ground-up dog biscuit, either uncooked or cooked oat flakes, dried bread, powdered shrimp, boiled spinach and fish foods prepared by fish food manufacturers. Live food that is desirable include daphnia or water fleas (hard to collect in Texas), and chopped-up earthworms. A daily feeding of artificial food will suffice. An occasional meal of the chopped-up earthworms is beneficial.

In order to keep goldfish in bowls or aquariums, however, much effort is required. The main reason why trouble is usually encountered is because most people try to use containers that are too small. This results in overcrowd-

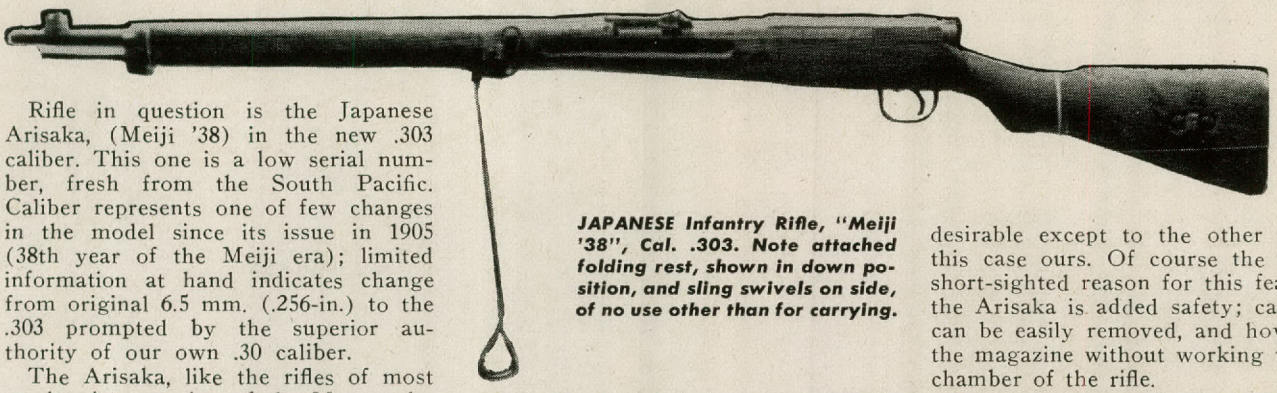
■ *Continued on page 17*

ARMS AND AMMUNITION

Edited by A. S. JACKSON

The Japanese Arisaka Rifle

IRRESPECTIVE of the merits and demerits of semi-automatic military rifles, our M1, popularly called the Garand, may safely be said to represent in mechanical development about the last word for military rifles in use in this war. The writer has recently examined a rifle which in his opinion represents the opposite end of the scale, at least in construction and design. Unfortunately, the real test of a rifle, how it shoots, could not be determined.



JAPANESE Infantry Rifle, "Meiji '38", Cal. .303. Note attached folding rest, shown in down position, and sling swivels on side, of no use other than for carrying.

Rifle in question is the Japanese Arisaka, (Meiji '38) in the new .303 caliber. This one is a low serial number, fresh from the South Pacific. Caliber represents one of few changes in the model since its issue in 1905 (38th year of the Meiji era); limited information at hand indicates change from original 6.5 mm. (.256-in.) to the .303 prompted by the superior authority of our own .30 caliber.

The Arisaka, like the rifles of most armies, is a version of the Mauser design. The one examined weighed 8 pounds without bayonet or sling. The overall length was 44 inches. Length of barrel was 64 cm. (approximately 25 inches). Trigger to center of butt plate, 12½ inches; drop at comb, 2 inches, at heel, 2½ inches.

Finish of metal parts a dull grey, like burned cast iron. An evident chemical process akin to our Parkerized finish, since close examination under magnification revealed it as an etched surface covered with tiny pits. Wood, some kind of soft stuff finished in oil or wax. The stock of the Arisaka is in two pieces for economy, said economy consisting of splicing on a separate piece for the lower half of the butt-stock, thus enabling stocks to be made from slabs otherwise too narrow. Machined work confined to barrel, receiver and bolt. All other parts stampings.

Action, as has been said, a copy of the Mauser. Bolt handle extends straight out at left side; bolt has two locking lugs at front, the left one slotted for ejector, as in the Springfield and M17. Extractor and collar typical Mauser, bolt stop and ejector likewise. Receiver hood has ⅛ inch hole in top for gas escape. Receiver hood also adorned with symbol which might be called a rising sun, or even a daisy. The last my own interpretation, for this rifle is a daisy in some respects.

The unique feature most conspicuous is a sliding cover for the receiver opening which rides with the bolt backward and forward as bolt is operated. This "improvement" is a half cylinder of sheet metal, the edges bent under to engage in shallow grooves on both sides of the receiver. The bolt handle protrudes through an elliptical slot in the rear end, said slot permitting the bolt to be turned and retracted to the rear without turning the cover. The Model '73 Winchester had a slide covering receiver opening, but this one stayed back after the first retraction of the bolt, and was pushed forward by hand when it was desired to close receiver. On the Japenese rifle, the cover takes a ride every time the bolt is opened and closed.

Either we were 70 years ahead of the times when we tried such a gadget on our Winchester '73 or the Japanese are 70 years behind the times on the same count; take your choice.

Another peculiarity is the trick release magazine floor plate. Hinged at the front, the rear catch is a short L-shaped hook ahead of the trigger and inside the guard; Pulling this hook shells out the floor plate, magazine spring, and follower (also cartridges, if any) with all the explosive suddenness of a rat trap. It is interesting to note in passing that such releases for floor plates on bolt action sporting rifles have been discarded in modern designs, because they had a gleeful way of sowing cartridges all over the landscape at times most embarrassing to the hunter. What happens when an excited soldier in heat of battle pulls the wrong trigger couldn't be called desirable except to the other side, in this case ours. Of course the obvious short-sighted reason for this feature of the Arisaka is added safety; cartridges can be easily removed, and how, from the magazine without working through chamber of the rifle.

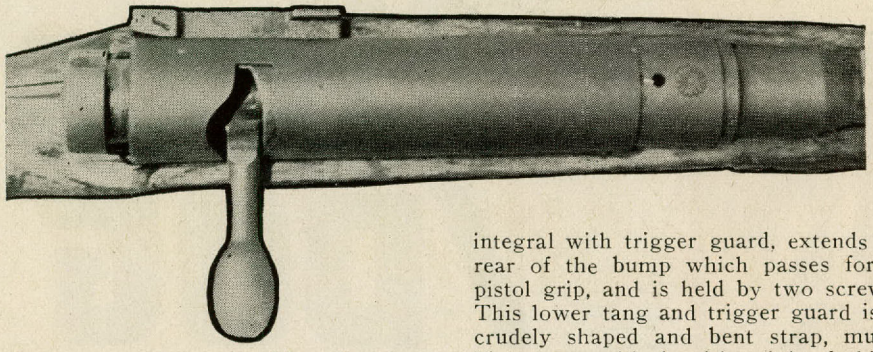
The magazine of the Arisaka is loaded from clips of five, and has conventional clip slots.

The trigger of this one was long, thick, and in appearance very much like the one on Johnny's air rifle. Trigger take-up was short, the break rather sharp, and the pull apparently not heavier than usual on military rifles. The firing pin fell with a light tinny sound, the result of very light construction of this part, somewhat like that on our bolt action .22's.

Rapid fire as we know it would apparently be impossible with the Arisaka; lack of a sling, a smooth straight 4½" butt plate, and a bolt which cocked on the forward thrust made it necessary for the writer to take the rifle from his shoulder to operate it.

The rifle carried sling swivels, but these were on the left side and vertical, indicating use of a sling for carrying only. In addition, the rifle was equipped with a folding muzzle rest, locked in down position by spring clips.

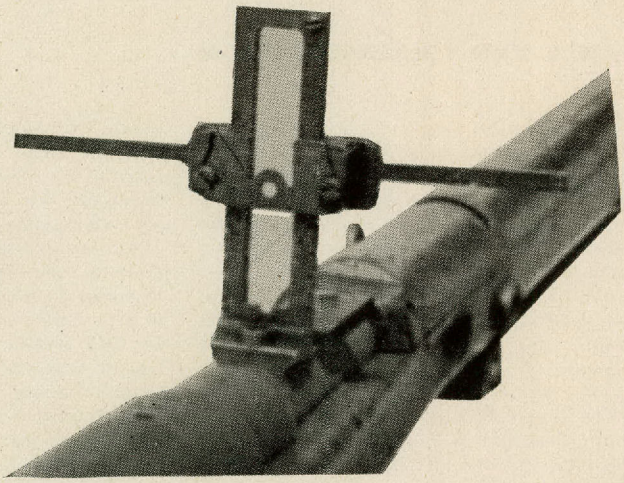
The butt-plate of the Arisaka evi-



Top—View of receiver of Japanese rifle. Bolt handle is straight out, shown here in closed position. Receiver is covered by sliding plate which does not rotate as bolt is turned.

dently was designed with other functions in mind than aid to steady holding. Its face is a plane surface, 1½ x 4½ inches. The edges are cupped for a depth of approximately ½ inch. This lip serves to hold the two halves of the butt stock together at the rear. At the grip the two pieces which make up the stock are held together by upper and lower tangs longer than commonly found on military rifles. The upper tang extends forward to the beginning of the shallow comb; the lower tang, integral with trigger guard, extends to rear of the bump which passes for a pistol grip, and is held by two screws. This lower tang and trigger guard is a crudely shaped and bent strap, much like a poor blacksmith might fashion from an old American buggy tire. (Perhaps one did and it is). One suspects this heavy reinforcing of the grip with iron is indicative of the Japanese trust in the bayonet.

Rear sight of the Arisaka is a folding leaf on barrel. No provision for windage is made. Battle and slide are both apertures at distances from the eye so great as to nullify advantages of this type sight. When slide is raised a half-round notch is revealed in base of stem. Rear sight is graduated in figures 3 to 15, probably hundreds of meters. Oddity on this sight is the presence of the lateral bars shown in the photograph. About 2½ inches long, these are folded along the leaf, or extended at right angles to it. Since the figures on these bars are erect when the bars are extended, it is assumed that bars are functional when so extended.



REAR SIGHT. Lateral bars are measuring "sticks" used by officer to direct concentrated fire at point so many units lateral distance from an easily seen object.

A figure 2 occurs at center of each of these lateral bars, and a 3 at the end. It seems logical that these are used in locating or directing fire against unseen targets, the unit leader calling off so many lengths lateral distance from a visable reference point.

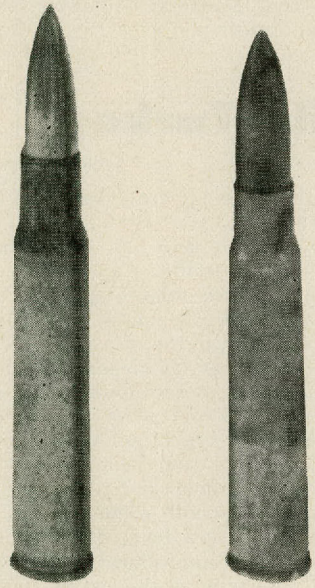
Front sight is a simple pyramid between vertical ears.

Barrel had 4 narrow lands and wide grooves. Tool marks were conspicuous to the muzzle, indicating little effort at finishing. Hard to estimate what accuracy could be expected from this rifle. Less hard to estimate what accuracy can be expected from its users, for the emphasis placed on markmanship by leaders of any army is always revealed in the construction and finish of that army's rifles.

In cheapness of design and inferiority of workmanship we have had no rifle comparable to the Arisaka made in America, unless it was a certain .22 awarded as premium to the boys of about 3 decades past for selling two or three dollars worth of salve, picture post cards, or the like to long suffering neighbors. Yes, it has a brass lined barrel and sold for $1.75.

It is good for a rifle crank to examine a Japanese infantry rifle. He will then wash his hands throughly, and find new beauty of workmanship and design in the watch-like precision of our rifles new or old. That goes for the Springfield, the Krag, and all the old timers.

U. S. .30-'06 M2 cartridge at left. Japanese .303 cartridge at right. Japanese cartridge has shorter case body, less powder capacity, semi-Spitzer, fat pointed bullet.



Dr. Beaver

■ *Continued from page 5*

mud nest against an overhanging rock wall. The pack-rat accumulates a hoard of odd litter. The beaver builds lodges in a pond of its own construction, as a part of its way of life, a feature that has struck man's fancy.

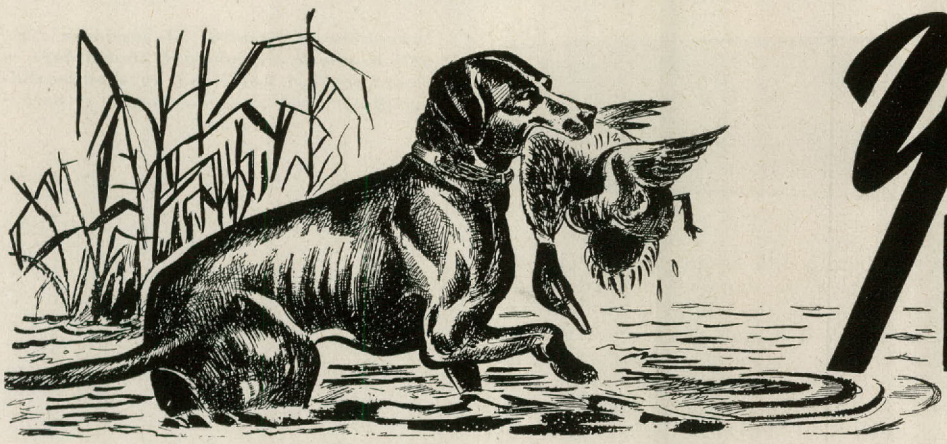
The dams the beaver build are constructed of logs, twigs, stones, and mud arranged in such manner that, in spite of numerous trickles, water levels are raised. They require frequent repair, and the beaver are quick to tow up more litter as soon as a break appears. Dams may be over a thousand feet long and strong enough to support a man.

If someone ever learns to induce beaver to build dams at specific points, wildlife management will be out of its infancy and some trouble will be avoided. For the present we must put them in streams of permanent water with plenty of aquatic and semi-aquatic plants and trees like willow and cottonwood along the shores, and hope they stay where they are welcome. If they fell the shade trees on the lawn or fill the minnow pond with tree tops or flood a road, they'll just have to be moved, and perhaps their next location will be more acceptable.

Beaver Regulations

Trapping prohibited in Texas until 1948 except in Kimble, Val Verde, and Trans-Pecos counties. In these counties the season is January 1 to 15, season bag limit is three pelts, and a $50 special license is required of out-of-county trappers.

The well-informed sportsman says: "A bevy of quail; flight of doves; brood of grouse; covey of partridges; flock of geese; plump of ducks; stand of plover and wisp of snipe."



Your DOG

RABIES

By H. L. VAN VOLKENBERG, D.V.M.

RABIES is a disease of which the dog owner and the public should become more cognizant. It is said that the frequency of the disease in a community is in direct proportion to the efficiency of the sanitary regulations. The disease is almost world wide in distribution. It is one of the oldest known diseases of animals.

The disease is caused by an ultramicroscopic virus which attacks nerve tissue. All mammals are highly susceptible to the disease. However, 80 per cent to 90 per cent of all cases are in the dog, and the virus is usually transmitted by the bite of the dog. The virus is present in the saliva from one to two days before symptoms appear until death. The virus injected with the saliva of a rabid animal travels along the nerve fibers from the site of the wound caused by the bite and reaches the central nervous system. From here it escapes along the nerves, and some of it reaches the salivary gland where it enters the saliva. Meanwhile, there is an increase in the quantity of the virus and the development of the Negri bodies in parts of the brain. The finding of Negri bodies is accepted as a positive diagnosis of the disease.

The period from the time the dog is bitten until symptoms appear is 14 to 60 days. Two types of symptoms are recognized, furious rabies and dumb or paralytic rabies. Furious rabies is responsible for the spread of most cases. First the animal shows a change in disposition, and after a day or two, has an irresistible tendency to roam. Many miles may be covered and meanwhile several or many animals may be bitten. However, the rabid dog rarely goes out of his way to attack man or animals. The foaming of the mouth, a characteristic symptom at this time, is caused by the champing of the jaws, difficult swallowing and an accumulation of saliva. However, this symptom is not constant, and often the rabid dog is unrecognized and may not attract attention. After roaming, the dog usually returns home, seeks a secluded spot, develops paralysis and soon dies. Dogs with dumb rabies develop paralysis of the lower jaw followed rapidly by paralysis of the entire body, and death within 1 to 3 days. There are authentic records of recoveries in the dog, but such cases are extremely rare. However, only 20 to 30 per cent of dogs bitten by rabid dogs become affected by the disease.

The name Hydrophobia, meaning fear of water, is descriptive of the disease in man, but not in animals. The disease is fatal in man after development of symptoms. Bites on the exposed surfaces of the face and hands, where the tissue is rich in nerves, are more dangerous. However, the vaccination originated by Pasteur in 1885 is highly effective in preventing the disease if the treatment is started promptly. At present, the prophylaxis consists of at least 14 daily injections of a non-virulent virus.

The disease can be eradicated in this country as has been demonstrated in Great Britain and other places. This requires the destruction of all stray and ownerless dogs and the restraint or muzzling of all other dogs until rabies has disappeared from the community.

Vaccination of all dogs is another control measure. A single injection of a fixed rabies virus attenuated either with phenol or chloroform is given. However, a number of cases of failures of this single-injection-antirabic-vaccine are reported. Some veterinarians recommend that 3 doses of the vaccine be given at 3 to 5 day intervals. Some communities require revaccination every 6 months. Dogs inducted into the K-9 Corps are given 3 injections at weekly intervals. For the present, vaccination should supplement, but not replace, other control measures.

If a dog is suspected of having rabies, he should be confined for a period of 2 weeks and kept under the observation of a veterinarian. If characteristic symptoms are shown or developed, the animal should be destroyed and the head sent to a public health laboratory. Here the brain tissue is examined for Negri bodies and tested for rabies virus.

Rabies sometimes spreads to wild animals, usually skunks and carnivores. Positive cases have been reported in wolves and coyotes from several states. In 1941 a rabies epizootic was reported among foxes in Georgia. It was reported that Arkansas has had an outbreak in 1944 among livestock in Clark County which was started by rabid foxes.

From available reports, rabies is more prevalent during 1944 than for several years past. Outbreaks are reported from at least 8 states. It is possible that there are more stray dogs, which were rendered homeless by the breaking up of homes, brought about by war conditions. Fort Worth has had a seige of rabies. Between January 1 and April 27, 1944, veterinarians reported the finding of 67 positive cases in Fort Worth and vicinity. Statistics collected over a period of years indicated that Texas has a high percentage of rabies in animals and in man.

Wild Turkey

■ Continued from page 7

constitute the grazing value of such pastures.

The current plan of retirement of grazing by livestock (under the AAA plan) for five months, beginning May 1 and ending October 1, is a progressive move to reduce the drastic effects of heavy stocking. Extension of this period by two or more months, so it would begin March 1 instead of May 1, would permit spring vegetation to mature and afford livestock and wild turkeys alike a more diversified and abundant food supply at a period when food is at a comparatively low level. If extension of the period is impractical, shifting the period to begin at the earlier opening

date should be considered. However, no short term period of retirement of this sort is likely to be effective until the rate of stocking with cattle, sheep, goats and deer is reduced to a number the ranges can support without continuing deterioration. Each ranchman, with the help of the qualified technical agencies, should work out this problem for himself.

As a method of stabilizing turkey populations, it is recommended that enclosures of not less than 100 acres in size nor more than 500 acres, and including a ground level water supply, be established in each 3,000 to 5,000 acres of land within a management area, on which grazing should be excluded for not less than 24 months. A normal ground cover of shelter and feed for wild turkeys will thereby be encouraged.

When grazing is initiated on the original unit, alternate units of similar size should be established within the same areas-of-influence, so that they come into use with an improved vegetative cover. In this way, turkeys would find more of their natural requirements and livestock would reap the full benefit of the range improvement.

Further studies are needed to determine the correct handling of the range to best promote livestock and wildlife production and to halt further deterioration of the basic resources of the land, in which grazing and wildlife aspects are inseparable.

Essential to the proper adjustment of the annual hunting take to the available surplus of turkeys is a continuing inventory sufficiently comprehensive to afford trustworthy information on seasonal conditions over large project areas.

With proper management the wild turkey population throughout the Hill Country might easily be doubled.

Bird Eats Bird

Here is a SIGHT RECORD OF WILDLIFE as revealed in the field notes of T. T. Waddell, state game warden, stationed at Eagle Lake.

Black Crown Night Heron. One and three quarters miles South of Eagle Lake, Texas, on Lower Lake, Colorado County. May 25, 1944. Female took a little blue heron about ten days old and swallowed it head first. The following day, May 26, at 4 p.m., this same female took another little blue heron about the size of a large man's fist; flew to a low branch of a willow tree and held it under water until it was drowned, then swallowed it head first.

I was showing a Lieutenant Bashour, a photographer, the birds and he has a moving picture of both the above mentioned acts. The mother blue heron fought the Black Crown but was too light to bother the intruder.

I have noticed that the Black Crown always nest off to themselves, that is about 50 to 100 yards from the other egrets and herons. It might be that the others try to keep away from the Black Crown.

ALLIGATORS and Water Hyacinth

By J. G. BURR

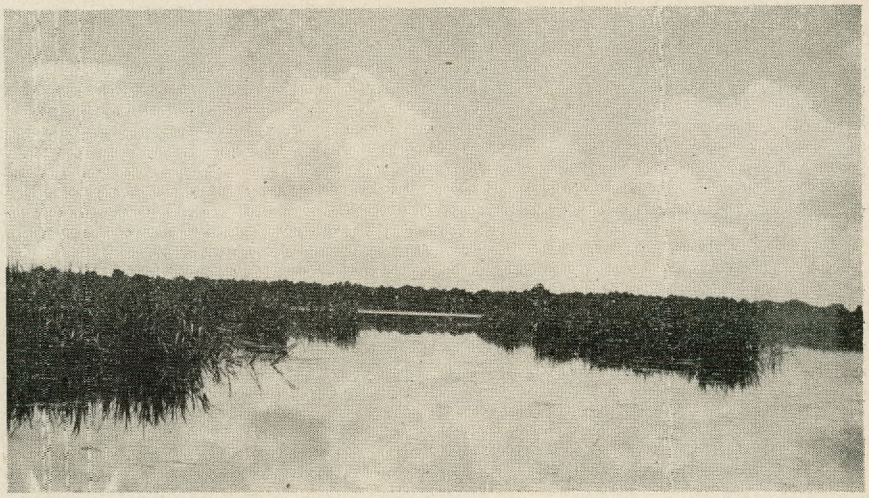
I SAW not less than two dozen alligators today, said Mr. Yeaman, club member of Manor and Eagle Nest Lakes late in June. He said shooting them was not permitted by the club regulations because of their alleged usefulness in destroying gars and turtles. They are said to root out the turtle eggs as food.

Both lakes are well infested with water hyacinth. In Manor, four acres of the hyacinth were fenced off for a hog run. They cleared out the hyacinth and plowed up the soil. To improve a lake it is sometimes recommended to drain it and plow the bottom. In a shallow lake the hogs can handle the job.

In an investigation to see if the hyacinth could be used in the manufacture of paper it was found that the plant contains 98 per cent water and is worthless as a source of fiber.

Caddo Lake has a few alligators, now protected by law, and enough hyacinth to cause speculation as to whether it will eventually take the lake. It grows densely in a few protected corners obstructing navigation. Its rootlets draw nutrients from the water, and in the shallows along the shore the plant sends down roots as far as two feet for a feeble grasp at the soil. The recent great rise of the lake lifted the hyacinth several feet and where there was current, or enough wind to drive the plant into a moving body of water, much of the hyacinth floated away in the flood. Thus wind and flood are the big controls.

Also wind and rain have wrecked fishing on the lake since the first of the year, says Warden Ellis. Before the rains set in there was too much wind for the boatman, and the high cost of guides, $4.00 per day, has also discouraged fishing, and yet, says Ellis, I sell enough fishing licenses to pay my salary.



Your WILDLIFE *Primer*

Bats are creatures of mystery. No one likes them, and yet all of the bats in the United States live entirely on insects, including mosquitoes. Many bats go into the deep sleep of hibernation during the winter. Others, it is believed, migrate, but nobody knows for sure. There are 46 kinds of bats in the United States, the largest being the mastiff bat of California, which is six and one half inches long. If you are past 40 and your ears are good enough to hear a bat squeak, you have exceptional hearing. Just how a flying bat avoids obstacles in the dark is a puzzle to science.

»

Contrary to general belief, rabbits can and will swim. True enough most of them don't like to—and with the exception of a swamp rabbit, they swim as little as possible. When they have to go into the water to elude pursuit, they usually give a tremendous leap to carry them as far out as possible, so they don't have to swim any more than is necessary.

»

Sharks are worth money. Shark livers are rich in Vitamin A, much in demand by poultrymen.

»

There is only one animal in North America that is ever to be feared in the wild and that is the grizzly bear or his close cousin, the giant brown bear of Alaska. Tame black bears in national parks are sometimes a pest and may be dangerous when they come begging for handouts. The cougar, Puma, or catamount is the villian of many a backwoods horror tale, yet reports of cougar attacks on human beings are very, very rare.

»

Persons bothered with bats inhabiting attics, barns or sheds can get rid of them by lighting the places these eerie little animals inhabit.

When an electric eel gets "really mad" and lets loose, he can discharge a shock of about 450 volts—plenty to kill a man.

»

European butterfish lay their eggs in empty oyster shells.

»

Hummingbirds can fly backwards as well as forward. The backward flight is commonly used as the bird darts to and from flowers and bushes on which it feeds.

»

The number of points on the antlers of a deer is not a reliable indication of the animal's age.

HERE ARE TWO convalescing servicemen getting instructions from Andy Anderson, sports editor of the Houston Press, in bait casting. Left to right. S/Sgt. Earl Lewis, San Francisco, P-38 crew chief who served in Africa; Pvt. Tom Woods, Longview, mechanic; and Andy.

Angling FOR THE WOUNDED

ANDY ANDERSON, sports editor of the Houston Press and one of the best anglers in the Southwest, is taking the art of bait casting, fly casting and salt water casting right into the wards of the army hospitals in Texas.

Andy has worked up quite a demonstration for the convalescing wounded and from all accounts the servicemen are going for it hook, line and sinker.

A recent letter from Andy gives more details about his demonstration. Here are a few excerpts from the letter:

"My act consists of a lecture in bait casting, fly casting and salt water casting. Then a few trick shots. Then the movies and they go for the one showing McFish Sparks in action. I also make a personal tour of the wards and have a stubby rod to carry along with a rubber casting plug. The boys in beds get a chance to try it if they wish. I also work with them on tying flies and making baits, leather cases for reels, duck straps, knife holsters, etc.

"I'll tell you these boys are game as hell. No griping, bellyaching or complaining at all. They all seem to like to fish. I've worked out casts for men with one arm. The trick is in retrieving the bait. I teach them to wind with the reel and rod and hold the handle stationary. I also stress the ease of casting from wheel chairs, prone position, with either hand, etc. The fly work is similar.

"Few tricks consist of casting two rods at one time, kicking cast, shooting as with bow and arrow, underhanded, backhanded, a reverse cast, facing away from target, etc.

"When I went to McCloskey, I gave the boys five sets of rods, reels, lines and casting plugs and a set of bait casting targets which they really went for big."

Besides appearing at McCloskey general hospital at Temple, Andy is booked for demonstrations at Fort Sam Houston, Ellington Field, Waco, Longview and Amarillo.

Incidentally, the USO has seen Andy in action and they were so impressed with his skill that they are now working out arrangements to send Andy out on tour of army camps over the nation and perhaps to areas behind the battle lines.

More Brain Than Man

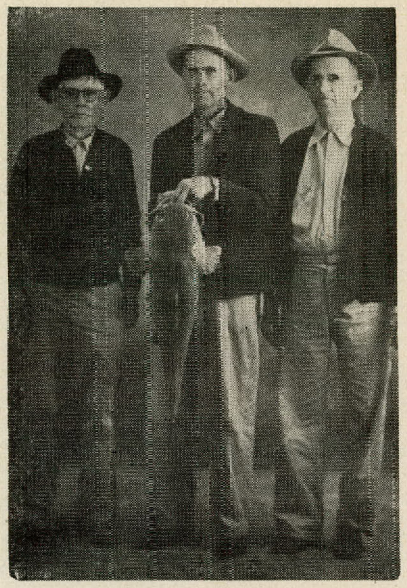
In comparison with the weight of the body, a number of the smaller animals and birds have a larger and heavier brain than man. The human brain averages 1.9% of the weight of the body; the brain of the rat constitutes 3.6%; and the brain of the tiny humming bird shows that brain versus brawn pays. His brain is 8.3% of his weight. And he can fly backwards.

Fishes of Texas

■ Continued from page 11

ing and overfeeding which causes subsequent pollution of the water. Both factors result in a depleted oxygen supply with suffocation of the fish the final achievement. If you have a desire to keep goldfish in the house, try to procure as large a square or rectangular aquarium as possible. These should have washed and rewashed building sand placed in them one or two inches deep and placed so the slope from all directions is to the center front. Hard rocks, insoluble in water, can be used for ornamental purposes. Then plant with vallisneria and sagittaria, as previously directed, around the sides and back. Next, fill with water, first laying a newspaper over the sand in the bottom and slowly running the water into a saucer or the palm of your hand. When full of water remove the paper and you usually have a crystal clear tank. Because of chlorine present in most municipal drinking waters, it is best to wait a day before introducing the fish in order that the chlorine gas might dissipate. You are now ready to put in your fish and it is here that troubles usually start because the tendency is to install too many tenants. It must be remembered for safe results you should have one gallon of water for each inch of goldfish. It must be remembered that this rule applies to a square or rectangular aquaria and one not too deep. The depth should be only one-half the length of a long aquaria or three-fourths of the length of a medium size one. With the above setup it should not be necessary to change the water over twice a year at the most. As dirt works to the front, siphon it off and add fresh water to keep your tanks full. Razor blades can be used to clean the algae or green scum off the glass sides. As to feeding in an aquaria, feed sparingly. Be sure your fish eat what you feed and siphon any food remaining after an hour or so off the bottom.

SOME fish show what are known as secondary sexual characteristics. Fortunately, this is true with goldfish. Before and during spawning season from January through August the male possess small spawning tubercles on their gill covers or plates. These are like small pistules that can be readily detected by those familiar with goldfish. The females can be detected by their rotund shape, getting larger as spawning season approaches. It is just prior to spawning season that the fish should be fed a diet of finely chopped earthworms to condition them for spawning. The ideal spawning method is to place one female and two males in a separate tank or pool with a number of water hyacinths or a thick mass of floating myriophyllum. The eggs are deposited on the roots of the hyacinths or the fine moss of leaves on the myriophyllum and appear as small amber



The picture shows a catfish taken from the San Saba River. To the reader's right stands Andrew Petty, rancher of San Saba who, twenty years ago, was a game warden and Director of Law Enforcement stationed at Austin. In his youth he taught school, and while Director of Law Enforcement he became proficient in sifting technicalities. What is a technicality? "It's a pint of law that's agin you" said a man from the forks of the creek who got caught.

balls. Unfertilized eggs soon turn white and have a coat of fungus develop. Since an average output of eggs is around 700, a goodly number of fry will be obtained even though some of the eggs are not fertile and some will be eaten. The parents should be removed and the eggs left to themselves, otherwise the parents will eat them. Snails will also eat eggs so they should not be present. The length of time for hatching depends on the temperature and requires from four to ten days. In several days the yolk sacs are absorbed and then the fry must be fed on microscopic food. This food must be prepared when the eggs first hatch.

One method is to pour scalding water over some dry hay and then place in a large jar filled with water. If a little pond water is added it will cause quicker production of the protozoans (microscopic animals). A little of this water should then be poured in the nursery tank each day. The writer has had exceptional luck by boiling an egg for about eight minutes, taking out the yolk, mashing it, placing it in a clean vinegar bottle filled with water and shaking it until the yolk particles are evenly dispersed through the water. The proportion should be one egg yolk to a pint of water. This yolk water can then be poured into the tank of fry when they reach their free swimming stage. Too much at a time should not be used, so pour in a very small glass full twice daily. After the young fish get larger, start feeding on cooked oatflakes, strained through a sieve and again be careful not to overfeed.

In a large pond where other fish are present, your hyacinth roots or myriophyllum should be examined twice daily during spawning season, and if eggs are detected place the plants in another container for hatching and rearing. Containers that can be used for hatching are old wash tubs, both galvanized and wooden, and other concrete pools. A warning should be given, never to use any new wood tub or trough until it has been treated with lime for about a week, a new galvanized tub until all newness has disappeared, and any new concrete structure until it has first been treated with glacial acetic acid for a week or so, using about two gallons of acid to one hundred gallons of water. Furthermore, be sure all traces of the treatments are disposed of by thorough scrubbing and washing. If this warning is not heeded, death to both fish and plants will be the results.

FISH are subject to many diseases, some of which may be cured. Following are listed a few of the most important regarding goldfish with the treatment for each. Remember when a sick fish is observed to remove him at once because most diseases are contagious. The best type of vessel to treat fish in are white enamel baby baths or large dishpans.

Fungus, usually a secondary disease, i.e., follows some other injury or disease, is easily detected. *Symptom.* A white cotton-like scum starts on the fins and spreads over the body destroying the fins and eventually killing the fish. *Treatment.* Place two heaping teaspoonfuls of crushed rock crystal salt (ice cream salt) to each gallon of water. Fill baby bath or dishpan about half full of this solution and place fish in it. This solution should be changed daily. The fish will live in this strength solution all right. If in several days no improvement is noticed increase the amount of salt to three heaping teaspoons of salt to the gallon of water.

Constipation. This ailment can usually be controlled by dropping in a pinch or so of Epsom salts crystals every week. The fish will eat the crystals as they fall through the water.

Fish Lice (*Argulus*). A small flat scale-like animal slightly tan in color can be seen crawling over the fish. They are found from the size of a pin head to about one-fourth inch in diameter. *Treatment.* If many are not present, picking them off with tweezers is effective. Chemical treatment which is dangerous to use, consists of using one-eighth grain of potassium permanganate to the gallon of water in a clean container. If used in a pool with plants and detritus present, one-half grain to a gallon of water can be used. The treatment will have to be repeated for several weeks, a week apart.

Ancor Worms. These are small white stalks, the size of thread which can be seen protruding from the scales. *Treatment.* They can be picked off with tweezers and the spots painted with two percent mercurochrome. Chemical treatment, try potassium permanganate

as directed under fish lice. Another treatment recommended is put four drops of two percent mercurochrome to the gallon of water.

Ichthyophthirius is cause by a small protozoan. These small animals encist under the protective fish slims and form white spots about pin point in size. They spread rapidly all over the body. *Treatment.* Raise the temperature of the water to at least 80° F., and treat with treatment of potassium permanganate as before directed. Another recommended treatment is the mercurochrome treatment of four drops of 2% solution to the gallon of water. It has been cured with the salt treatment using three heaping teaspoonful to the gallon of water.

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Smoked Carp

■ *Continued from page 9*

two-thirds of the length of the fillet starting at the head as that is the only area that contains fine bones. The fillets are then fried in fairly deep fat and the hot fat will crystallize the small bones so they cannot be noticed when eating them.

Ducks Don't Like This Light

■ *Continued from page 8*

backfired for this angler at Elgin, Illinois. When Charles Baukin was vacationing in Wisconsin, he kept writing his co-workers in a war plant back in Elgin about his big hauls of fish. His tall tales came in so thick and fast they decided to do something about it. When Baukin came back home he was kept busy answering his telephone and doorbell. All the callers asked for free fish. Baukin found out the reason. His friends had put an ad in the paper announcing "free fish — pike, bass and sturgeon" could be had at Baukin's home.

Meanwhile, Kansas is having bounty trouble again. Coyote catchers are supposed to get one dollar a head. But there are already more than 25-thousand claims on file and only $12,000 in bounty booty—with twenty counties still to be heard from. The same thing happened last year. The fund was $11,000 short then, and finally paid out at 56 cents a head.

And in Kansas City, Park Director William Cully reports that American elk are such excitable creatures that the usual way to move them is to build a crate and tote them one at a time. That looked like the method he'd have to use to move the elk herd to new quarters only 135 feet away. He figured it would take three weeks. But then he had an idea. He built two fences, 18 feet apart, making a corridor between the old and the new pens. Then he put a bale of hay in the elk's new home. The elk fell for the bait, and moved themselves. Rather simple, wasn't it?

Pity the Trenton, New Jersey, district OPA headquarters. It has an unrationed pigeon which it is offering to anyone who will keep it locked up so it won't come back to their office. Several days ago the pigeon made its home in the OPA offices. There it shared the lunches of staff workers who worried lest it be an army pigeon that was AWOL. Military police trapped the pigeon and took it to Fort Dix, where it was released in orthodox fashion. But the pigeon turned out to be a mere civilian. Now the pigeon is back again at the Trenton OPA offices.

Have you ever been caught out camping without cooking utensils? Supreme Court Justice William O. Douglas and three companions were caught that way in the Wallowa mountains in Oregon. But the resourceful supreme court justice did a quick job of improvising. He scoured a prospector's old shovel with sand and used it for a griddle, and did the rest of the cooking in a tomato can.

FISHERMAN'S LUCK

Along life's road
By the old mill-stream
Is the place to fish
When the waters teem
With catfish, suckers,
Perch and trout,
If you know just how
To pull 'em out;
But first there must be
Suitable bait
And the willingness
To sit and wait—
Wait for a nibble
And then a bite,
Until the cork
Goes out of sight.
Then a steady pull—
But a dirty deal
When you fish for a trout
And catch an eel;
But eel-skin garters
Are the best there is
For a-curin' inflammatory
Rheumatiz.

Fishin' and life
Are much the same
To a man who knows
How to play the game;
And some find comfort
At the close of day,
Telling of the "biguns"
That got away.

—Wightman F. Melton.

The nurse shark, a harmless shark of the warm seas which attains a length of 10 feet, is one of the species whose skin supplies the "shagreen" (fishskin leather) of commerce.

Poison Ivy Prevention

Medical science has yet to supply a product that will confer certain immunity against ivy and sumac poisoning, the Michigan Conservation Department points out, although some progress is being made in this direction by pharmaceutical houses. Extracts of poison leaves, supplied for administration by mouth or intravenously under supervision of physicians, help alleviate symptoms or to establish some degree of immunity.

A method which has been found effective in preventing development of poisoning is to rub the skin with alcohol as soon as possible after exposure. Vigorous scrubbing with soap and water preferably common laundry soap containing naphtha—is also helpful, but less effective. After eruption appears, bathing the skin with lead acetate or baking soda in water will ease discomfort, combat spread of the trouble and help to dry it up.

CHANGE OF ADDRESS

Texas Game and Fish,
Walton Bldg., Austin, Texas.

Please change my TEXAS GAME and FISH mailing address:

PLEASE PRINT PLAINLY

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SEPTEMBER, 1944

MOURNING DOVE and WHITE-WINGED DOVE OPEN SEASONS for 1944

MOURNING DOVES

OPEN SEASON -- NORTH ZONE: Sept. 1 to Oct. 25, both days inclusive. Shooting hours, one-half hour before sunrise to sunset.

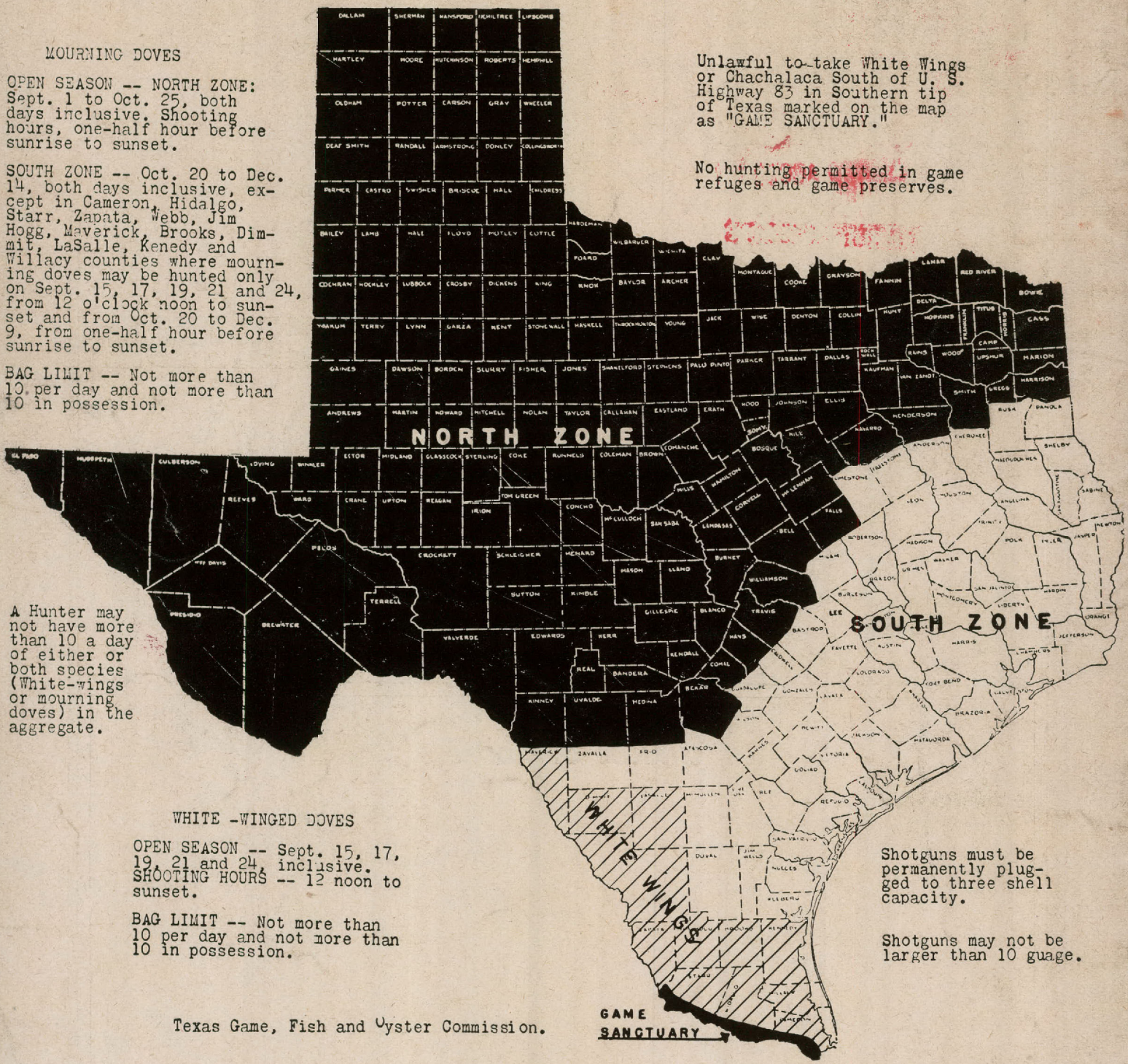
SOUTH ZONE -- Oct. 20 to Dec. 14, both days inclusive, except in Cameron, Hidalgo, Starr, Zapata, Webb, Jim Hogg, Maverick, Brooks, Dimmit, LaSalle, Kenedy and Willacy counties where mourning doves may be hunted only on Sept. 15, 17, 19, 21 and 24, from 12 o'clock noon to sunset and from Oct. 20 to Dec. 9, from one-half hour before sunrise to sunset.

BAG LIMIT -- Not more than 10 per day and not more than 10 in possession.

A Hunter may not have more than 10 a day of either or both species (White-wings or mourning doves) in the aggregate.

Unlawful to take White Wings or Chachalaca South of U. S. Highway 83 in Southern tip of Texas marked on the map as "GAME SANCTUARY."

No hunting permitted in game refuges and game preserves.



WHITE-WINGED DOVES

OPEN SEASON -- Sept. 15, 17, 19, 21 and 24, inclusive.
SHOOTING HOURS -- 12 noon to sunset.

BAG LIMIT -- Not more than 10 per day and not more than 10 in possession.

Shotguns must be permanently plugged to three shell capacity.

Shotguns may not be larger than 10 guage.

Texas Game, Fish and Oyster Commission.