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magazine**

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of Texas fish, game, parks, waters and all
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of Texas. Photo by Leroy Williamson.

Inside front: The aoudad or Barbary sheep, an introduced species in Texas,
is a much admired trophy. Photo by Martin T. Fulfer.



Enjoy the Rabbit Habit

by Neal Cook



Martin T. Fulfer

Beagles bayed in the brush as we waited in the center of an opening in the dense river-bottom thicket.

Suddenly a big rabbit appeared at the edge of the brush, looked around at us and, before a shot could be fired, dived back into the brush. And the race began again.

The next time the tricky bunny circled around and headed out into our clearing we didn't hesitate to shoot and my 16 gauge with No. 6's added another swamp rabbit to our bag.

Following a pack of beagles as they criss-cross through East Texas river bottoms on the trail of a swamp rabbit is an invigorating sport for several reasons: the exertion of trailing the dogs, the chance to get out into the crisp clean winter air and the chance to visit with friends. Hunt, take a break and talk as you clean your rabbits and then hunt again.

Swamp rabbits are found in river bottoms and swamps in the eastern half of the state and marshes along the Gulf Coast. They look a lot like the familiar cottontail but have a brownish-black body coloration and don't have the distinctive white "cottontail" of their cousin. Size is another way to tell the

difference between them. While swamp rabbits reach six pounds and are seldom bagged under three pounds, the cottontail rarely weighs three pounds.

When hunting in the swamps and bottomlands of East Texas look for dense briar and brush areas with open areas nearby. Areas where logging or ranching operations have cleared paths and allowed secondary growth are also good hunting spots. Along the coast, the rabbits can often be found where woods join with the marsh or along the tops of levees. Islands are great places to hunt after heavy rains when water levels are high in the marsh or along the river, because rabbits congregate on these dry spots.

Many people don't like to hunt or eat rabbits because they are afraid of tularemia or "rabbit fever." While this disease can be dangerous and uncomfortable, incidents of the disease are really pretty unusual in humans. An understanding of this disease should dispel most of your fears.

When rabbit populations reach their periodic peaks, this disease is one of the most important population controls. It is found in many species of wild birds and mammals but rabbits are very sus-

ceptible and it is most often associated with them.

Tularemia is transmitted to rabbits by ticks, fleas and other biting insects, and to humans who smear the blood of the infected animals onto their hands, get it into open wounds or rub their eyes with their hands after cleaning the rabbits.

Most of the animals infected by the disease are weakened and die during the harshness of the winter's first few freezes. By the middle of the winter most of them are dead. Some hints on avoiding this disease are easy to follow. If you are hunting and see a rabbit that shows no natural alertness and no inclination to run, don't bother to shoot him. Always wear gloves when cleaning rabbits (preferably rubber-coated to keep the blood off your hands), and wash your hands as soon as possible. Put a drop of iodine on any cuts and scratches on your hands after you have been handling the dead animals. Cook all rabbits thoroughly.

Two parasites of rabbits which we should mention are tapeworms and "bots." Tapeworm larvae form cysts that are sometimes found in the rabbit's body cavity. These are harmless to humans and will be destroyed when the animal is cooked, but your dog could get tapeworms if it eats the innards.

"Bots" or "warbles" are two names for the large grubs that are found beneath the skin of some rabbits. These are in the larvae of the ox-warble, or heel, fly and normally they will have fallen off the animal at the first of the winter. Infected animals are often weak and skinny and should be discarded although the bots won't harm humans.

Getting permission to hunt swamp rabbits is usually easy unless the landowner is an avid rabbit hunter or other hunters have spoiled your chances by their inconsiderate actions and lack of respect for the property on which they hunted. Talk to the landowner, tell him what you want to do, give him your name and address and agree to any stipulations he might make on where and how you can hunt on his property. If he says that he prefers you hunt only with shotguns, hunt with shotguns and leave your rifles at home. Finding a hunting place should not be too hard, but don't become discouraged if you have to ask several landowners before receiving permission.

The firearm to use when hunting these animals varies with the conditions of the hunting area and the method of hunting being used. For most hunting a shotgun is the safest, most practical firearm. As to what gauge



Martin T. Fulfer

shotgun to use—pick out your favorite and that is the one, from a 12 gauge magnum down to a .410. Of course if you know that you will be having to take long shots, don't use a .410, but in most situations a good hunter can effectively take swamp rabbits with a .410 or 20 gauge. A modified or improved cylinder is the best since the tight pattern of a full-choke may put too many pellets in the animal and ruin too much meat. When shotgunning try to wait until the animal is 20 to 30 yards away or aim slightly in front so only the edge of the pattern will strike the rabbit.

A single-shot gun will be plenty for some hunters while others of us may need a second or even third shot before we finally "find our range."

A .22 rifle is popular with many hunters, but remember that it takes a very good marksman to hit one of the rabbits as it runs through the brush. If you choose to hunt using a method in which the rabbits very seldom give you a running target and under range conditions which give you a safe background to shoot into, a .22 will be an effective firearm.

Landowner agreement for the use of

.22 rifles is necessary for the true "meathunter" who prides himself on being able to shoot the rabbit in the head, and not spoil any of the meat. But if you can't get agreement for the use of a .22, by all means use a shotgun. If there is a housing development or industry nearby, the shotgun will enable you to hunt where a .22 rifle would be impractical.

Methods for hunting swamp rabbits vary and probably the most glamorous way is to get together with several friends with good rabbit dogs and work together. Swamp rabbits generally show the same tendency for running in circles that typifies cottontail hunting, so when the dogs jump a rabbit, wait near the spot where the race began. Most of the time the rabbit will circle around to head back to his favorite resting spot. Hunting these running targets normally requires the use of a shotgun both for safety's sake and to increase the chances to get more meat for the table.

While waiting for the dogs to run the rabbit around to you, watch the nearby brush to make sure other rabbits disturbed by the chase don't sneak by. Standing on a stump or other elevation

will enable you to watch the progress of the chase and give you a better view of the brushy surroundings.

Without dogs to work the rabbits, hunt likely-looking rabbit habitat slowly and carefully. Several hunters walking abreast will jump more rabbits, but you must be careful. Pass up any shots at rabbits running back toward your hunting companions and keep your companions in sight to know where everyone is. Watch for the rabbits trying to sneak away from you as you approach and stop every once in a while both to look around and to make the rabbits nervous. Often the rabbit will be listening to your approach and when he hears you stop, he thinks that he has been sighted, breaks from his cover and tries to use his speed to get away from danger.

If the rabbits don't seem to want to run on the day you are hunting, you may need to scare them out of the brush. Kicking smaller clumps of brush or throwing sticks into larger briar patches may work but remember that rattlesnakes, cottonmouthed moccasins and copperheads may also be sharing the same habitat as the rabbits. On warm days, snake-proof leggings may



Martin T. Fuller

make you feel more secure and high-topped boots are a must. Look before you pick up sticks to throw at the brush, and when you reach to pick up the dead rabbit make sure there are no snakes next to him.

Along the coastal marshes there are two methods of hunting the rabbits: walking along levees and shooting the rabbits as they run along their raceways tunneled through the marsh grasses, and nightlighting the rabbits along irrigation ditches, edges of bayous or levees. Nightlighting for the rabbits is the most effective way for a person to collect many pounds of good meat for the freezer while having a lot of fun.

Along the coast a favorite time for hunting swamp rabbits is on a night when the temperature drops down into the lower 30's or 20's. On these nights the hunters can shoot the number of rabbits they want and then hang the animals outside for the rest of the night. It is cold enough for the animals to chill quickly and not spoil, and after they have dried overnight they are easier to clean. Probably the best reason for doing this is that few hunters feel like sitting in the cold, in the middle of the night to clean rabbits.

When the weather is warmer, clean the animals soon after they have been shot. The rabbit's thick fur traps the body heat inside for a long time and the meat may spoil. Some hunters choose to gut the animals as soon as they have been shot and then skin all of the animals after the hunt.

If you decide to completely clean the rabbits as you shoot them, it is easy. With a small sharp knife, cut an inch slit in the skin across the rabbit's back at a right angle to the spine. Insert a finger of each hand in this slit and pull it apart, taking the skin over the legs and neck. Cut off the head and sever the legs at the ankles. Then run the point of the knife along the rabbit's chest and belly, being careful to not cut into the membrane holding the innards. Cut through the bridge of the pelvis—the bone joining the hind legs—so the large intestine can be easily removed. Hold the rabbit by the front legs and flip the body downward with a sharp motion to throw the innards away from the body. Wipe the body cavity with some of the paper towels you conveniently brought along. If you take along a pair of pruning shears, they will enable you to cut off the head and feet easier.

Some people consider these big rabbits less tasty than the popular little cottontail, but in reality, properly

cooked swamp rabbits taste very good, whether fried, broiled, stewed, in chile or potbroiled. Here are only a few recipes which you may want to try.

BAKED RABBIT WITH HERB DUMPLINGS

½ cup flour
1 teaspoon paprika
½ teaspoon salt
½ teaspoon pepper
1 rabbit, cut into pieces
¼ cup shortening
1 cup water
1 can small onions, drained
1 can cream of chicken soup

Combine flour, paprika, salt and pepper. Coat rabbit with seasoned flour. Brown in melted shortening in heavy skillet, turning frequently. Add water and simmer until tender, 1 to 1½ hours. Remove meat from bones in large pieces. Place meat and onions in casserole. Add soup to drippings still in skillet. Warm mixture and pour it over rabbit in casserole. Arrange herb dumplings on top around edge of casserole. Bake at 400° until dumplings are deep golden brown, around 20 to 25 minutes.

HERB DUMPLINGS

1 cup dry bread crumbs
1 tablespoon poppy seed
1 teaspoon poultry seasoning
1 teaspoon celery seed
1 teaspoon dried onion flakes
1 can buttermilk biscuits
¼ cup melted butter

Combine bread crumbs and herbs. Dip biscuits in butter and then in crumb mixture before placing on top of casserole.

PRESSURE COOKED RABBIT

1 rabbit, cut into pieces
¼ cup wine
¼ cup water
2 cans mushroom soup
2 onions, sliced
1 teaspoon salt
Dash of tabasco sauce
Dash of Worcestershire sauce
2 strips bacon

After soaking rabbit pieces in salt water overnight, remove them and dry on paper towels. Flour meat and braise until golden brown in an open pressure cooker. Add remaining ingredients and place bacon strips over the top. Cook 20 to 25 minutes at 10 pounds of pressure.

ROASTED RABBIT

2 rabbits, cut in pieces
½ pound butter or margerine
4 slices bacon
juice of 3 lemons
onions, sliced
celery stalks
large apple, quartered
¼ bottle Worcestershire sauce
½ box raisins
1 can mushroom soup
salt & pepper

Grease roaster well with butter. Salt and pepper rabbit pieces and place them in the roaster with a pat of butter on each piece. Cover with roaster top and bake in 360° oven for 1½ hours. Then spread bacon slices over meat and add remaining ingredients. Cover and bake for an additional 45 minutes.

CHILE CON CONEJO (RABBIT & CHILE)

2 tablespoons olive oil
1 clove garlic, mashed
1 cup hot water
½ teaspoon salt
½ teaspoon pepper
1 can tomato paste
1 teaspoon chile powder
1 can kidney beans
1 tablespoon grated cheese
1 rabbit, cut in pieces

Brown rabbit pieces in olive oil and garlic. Add remaining ingredients except cheese. Cover and simmer gently for 2 hours. Place in baking dish, sprinkle with grated cheese and bake for 15 minutes at 350°.

HASENPFEFFER

1 cup vinegar
1 can beer
2 onions, sliced
1 tablespoon pickling spices
1 teaspoon salt
½ teaspoon pepper
1 rabbit, cut in pieces
¼ cup flour
½ cup fat
1 tablespoon sugar

Combine vinegar, beer, onions, pickling spices, salt and pepper in large bowl. Add meat, cover and let stand in refrigerator one or two days, turning meat several times. Dry meat with paper towels and dip it in flour. Brown meat in melted fat in large skillet. Pour off fat. Strain marinade and add it to meat along with sugar. Bring liquid to a boil, reduce heat, cover and simmer 40 minutes or until meat is tender. Thicken mixture with a flour-water mixture if desired. **

Coyotes yapped and howled now and then. Earlier, an owl had sailed overhead, and a doe had browsed past. Nothing else stirred except a few buzzing insects and the mice that rustled in the brush beside us.

As the hours dragged by, I became sleepy, and sprawled in the dark shadows beneath the hackberry tree and dozed. A gentle nudging on my arm startled me.

"Hogs!"

The whisper in my ear sounded like a shout. I sat up and saw an enormous shadow drifting across the sendero. The thing seemed unreal as it appeared to glide along in the moonlight. It became a reality when my partner flicked on the spotlight, and we glimpsed the grizzled old boar as he ducked through a hole in the fence and ambled on to raid the field of irrigated milo.

The sight of that boar was my introduction to the ugliest but sportiest animal on Texas soil. I say he is the ugliest simply because he is, but I say he is the sportiest for a number of reasons. He is big, cunning and potentially dangerous; he makes an impressive trophy; he's good eating; and he's available to most Texans throughout the year on a no-bag-limit basis.

Until that moonlit hunt many summers ago, I hadn't taken hog hunting seriously. Like most hunters, I thought that hogs were relatively scarce and that you either lucked onto them while hunting deer or you set out after them with a pack of dogs. I was totally wrong. You needn't be lucky, nor must you chase along behind a pack of dogs.

So far as the hog population is concerned, I've also learned that there are far more hogs than most people realize. An estimated 10,000 European hogs were found in South and Central Texas in 1966 and this number has increased. Another 500,000 to one million hogs of mixed ancestry are found in the eastern half of the state. One gets the impression that they are scarce because they are rarely seen. They are primarily nocturnal, and are especially so in areas where ranchers and hunters have taken pot shots at them.

Hogs are not, however, native to Texas. No fossil record exists to indicate they lived here in pre-historic times. Nor are they related to the javelina in any way. Hogs were domesticated thousands of years ago from the wild boars of Europe and Asia, and the first ones to reach Texas came with the early explorers.

In 1539, DeSoto landed in Florida

with 600 men and a batch of 13 hogs. A year later, according to the records, the herd had increased to "three hundred swine." (That figure may seem farfetched, but a sow can farrow from six to 13 pigs twice a year.) An expedition of DeSoto's men explored into Texas, apparently bringing hogs with them.

The original seed of wild hogs may have stemmed from that expedition or from hogs that LaSalle brought with him about a hundred years later. At any rate, Spaniards reported seeing pigs running wild near the ruins of LaSalle's fort on Lavaca Bay in 1689.

Pork was the staple meat in the early days. It could be cured and kept without refrigeration, and the rendered lard was used in cooking. Like the explorers, early settlers invariably brought hogs with them. Their hogs usually were allowed to range freely, and many of them reverted to the wild.

Wild Hogs

THE UGLIEST TEXANS

More recently, sportsmen-ranchers imported and stocked their game preserves with the pure strain of European boars. These hogs inevitably escaped to mingle with the feral hogs, and their characteristics are apparent in the hogs that roam several areas of the state.

Wild hogs may be red, black or white, or any combination of these colors. White hogs with black spots are especially common in the hill country, and solid black hogs are predominant throughout the rest of the state. But regardless of coloration, they may show European characteristics such as tails that are straight rather than curled and very long snouts and tusks (which, incidentally, grow throughout the hog's lifetime). Their shoulders may be very high, sloping back to rather small hind quarters. The European coloration is a black or brown that appears frosted or grizzled from a distance. And on close examination, one will find that their bristles have non-split ends.

The European and feral hogs differ

little in size. Old rangeland boars normally grow to about 300 pounds, but some giants who have successfully plundered grain fields for years may near the 500-pound mark. These hogs come equipped with four- to five-inch tusks and very tough "shields" that cover their shoulder areas. A shield may be one to 1½ inches thick and is developed through fighting. It is nothing more than dermal scar tissue.

With such armament, hogs shouldn't be taken lightly. Most deer rifles are adequate, however, I wouldn't recommend anything lighter than the .243 Winchester with 100 grain bullets. The bowhunter should, in my opinion, use at least a 50-pound bow. The careless hunter with a wounded boar on his hands could be in for a bad time.

A few years ago, I took a crack at a little sow streaking up the side of a hill and hit her too far back. Later, my partner and I cornered her in a persimmon thicket. We could hear her popping her tusks like a javelina.

The sounds were so impressive that neither of us felt like moving in to finish

by Adrian Benke

her off. Instead, we held a council of war at the edge of the thicket. But before we could lay any plans, the little sow came thrashing at us through the brush. We climbed all over each other trying to get out of her way. Since then I've come to respect hogs.

They bear little resemblance to the lazy, oinking image most of us have of barnyard pigs. As they mature, hogs tend to wander solitarily. This characteristic probably frees them from cholera which is spread through the ingestion of feces, a common occurrence among tightly penned animals. Parasites have little apparent effect on the hogs. Probably there is less risk in eating pork from the wild than in eating pork from the pen. Nonetheless, one should always take care in preparing





system. Body heat is dissipated through respiration and through a few sweat glands located around the top of the snout. To help cool himself, especially in hot weather, a hog must have mud for wallowing. Without a protective mud covering, he suffers from heat prostration and quickly loses weight. And although there may be plenty of food, he will soon die if rains do not fall. Drought, therefore, may be the major factor in population control.

The hunter should have little trouble in identifying wallows. They are dished-out, rooted-up areas along the edges of pot holes and tanks or beside leaky cisterns and water troughs. After covering themselves with mud, hogs like to scratch. Consequently, nearby rocks, posts and tree trunks will be caked with mud. The mud, and sometimes hair, may also be left clinging around holes in netting fences, marking the places as favorite crossing sites. For the hunter, wallows and crossings are ideal places to hunt.

On some properties such sites are either not overly abundant or are non-existent. When this is the case, try baiting. This technique is most effective during the winter and early summer or when other foods are in short supply. Look for rooted-up areas, paying special attention to creeks and other low-lying areas. When you've found evidence of activity, lightly scatter shelled yellow corn in the grass or among bushes. The grass or bushes will discourage cattle but not deer, goats, raccoons and other animals. To protect your corn from these animals, pour some of it into armadillo holes if they are handy, or pour some into piles and cover them with large rocks and logs. It may take the hogs several nights to find your bait, but when they do, you'll know it. The armadillo holes will be cratered and even heavy boulders will be tossed aside. After they've found your bait, the hogs will be back. Then, it's up to you to have more corn waiting for them. If they return for two or three consecutive nights, you are ready to begin your hunting vigil.

Whether you are watching a wallow, crossing or baited area, the best time to hunt is on a moonlit night. With a full moon overhead, you can see a hog a hundred yards away. Although it is possible to shoot by moonlight, it's a good idea to switch on a bright spotlight. The light helps you to positively identify your target and to place your shot.

On dark nights, you will have to move in close and either rely on your hearing or use one of the red-beamed

lights made for varmint hunting. Such a light is an advantage in that a nocturnal animal is totally unaware of its presence—even when he is in its direct beam. A regular light gives off much more illumination, but it quickly alarms a skittish animal. Therefore, you shouldn't flick on such a light until you think you are ready to shoot.

You have to rely primarily on your hearing, and when you do, you're in for an eerie experience. You become acutely aware of the night sounds you never really heard before. Small noises become big noises, and an armadillo or even a rat may sound like a 400-pound boar. When hogs do arrive, however, you'll know it. In a wallow, they make slopping sounds, and can't resist oinking or grunting contentedly. They can easily be heard from 30 to 35 yards away.

The same is true of baited areas. Hogs make plenty of noise. Even a solitary hog can be heard chomping corn for quite some distance. Crossings present a problem. Hogs usually pass through them rather quickly and quietly. To remedy this, merely dump a gallon or so of corn right beside the crossing. The corn will stop the hog and the noise he makes will let you know you're in business.

If you use the red-beamed light, you're in for a treat. You can leave it on continuously, and it won't disturb hogs or any other animals, even when they're in the light's direct beam. Consequently, you have the opportunity to watch nocturnal animals in their natural habitat. This is an interesting way of passing time while waiting for the hogs to arrive.

When they do arrive and you make your shot, be careful. Don't make the mistake I made when I shot my first night-time hog, a tremendous old boar. Without making certain he was dead, I ran up to him the instant he hit the ground and began examining him with a dim two-cell flashlight. As the beam flickered across those curved tusks, I realized what might have happened if he'd only been wounded and that I had been rather foolish.

The meat from that old boar, as I recall, was quite rank. In fact, I had trouble giving it away. I've had similar experience with other old boars, but I know hunters who claim to have had better luck with such meat. Sows and younger boars, up to 150 pounds or so, are in another class so far as I am concerned. When barbecued or served as steaks or roasts, they are absolutely great. But then, in general, so is the hog. **

tically impossible to discern a hog that is marked from one that is unmarked. Nonetheless, many local courts will back up a landowner's claim of ownership. The prospective hog hunter should check the local laws as well as the practices of nearby landowners.

It is also wise to call your local game management officer and let him know where you will be hunting and that you will be using spotlights.

The traditional and most effective hunting technique is to use a pack of trained hog dogs. The average hunter, however, doesn't have access to such dogs or large enough properties on which to run them. A lean hog with a pack of dogs snapping at his heels may run for miles before coming to bay. In doing so, he suffers greatly.

Hogs have a rather inefficient cooling

OUTDOOR BOOKS

AN INTRODUCTION TO POLLUTION
by Harold E. Schlichting, Jr. and Mary Southworth Schlichting; Steck-Vaugh Company, 1972; 48 pages, \$2.95.

Speaking to young people on the different kinds of pollutants, the authors define pollution as: "the addition of anything to the environment in quantities which are harmful to the forms of life living there." The term is not easily defined because there are not only man-made pollutants, but natural ones as well.

The authors objectively look at what is being done as opposed to what can be done with the environment. On considering man's effect, they conclude that pollution is primarily the effect of man upon his environment. As the natural resources remain the same, the population is increasing at a rapid rate.

Quality of the environment depends on man's management of the five pollutants: chemicals, solids, gases, noise and waste products from nuclear reactions.

The authors, dealing primarily with water, discuss methods and treatment of sewage, control of water pollution and zones of water quality. A body of water is broken into severe pollution zones, nutrient enriched zones, recovery zones and clean water zones.

Illustrated by Frank O'Leary, the book includes diagrams and sketches of sewage treatment systems, water purification processes and smoke stack operations, along with a map of North and South America showing the major pollution problems of each area. Over 53 sketches are used to illustrate different phases of pollution.

The authors indicate that pollution could be considered as "resources out of place" and offer solutions for the environmental problem. Recycling of glass, metal and paper is one such possibility. An average of 10 pounds of waste are produced daily per person, or 400 million tons annually.

The authors call upon youth to begin in their community or neighborhood to learn how wastes are disposed of and to check the litter situation around them.

As an educational book, *An Introduction to Pollution*, is striving to involve young people in the environment. As more and more emphasis is placed on pollution, it is the duty of each person to be aware of what is being done and of some of the possible solutions—*Terrie Whitehead*

THE HUNTER'S COOKBOOK by Betty Melville; Little House Press, Austin, 1972; 141 pages, \$7.95.

Twenty-five years of experience in wild game cookery stand behind Betty Melville and *The Hunter's Cookbook*. Her culinary handbook is a collection of over 200 wild game recipes as well as a guide to field-dressing and meat-processing methods.

So whether the hunter bags small game (rabbit, squirrel, opossum, raccoon or javelina), large game (deer, antelope, elk, Barbary sheep, bear or buffalo), or one of the game birds (dove, quail, duck, goose, turkey, pheasant or grouse), Mrs. Melville has instructions for field care and one or two recipes for its preparation.

Spices, herbs and wines enhance the flavor of wild game, so one of the chapters is devoted to describing the various seasonings with suggestions as to their use. Wine is recommended as a marinade for the meats because it tenderizes and brings out the flavor.

Recipes for sauces and stuffings, which also complement the meat, appear in the book's last chapter. The hunter's wife may also find use for these recipes with meat purchased at the local grocery store.

Increasingly strict laws concerning meat processing are causing more and more locker plants to refuse wild game, so the hunter should appreciate her information on how to process the meat at home. Carcass charts illustrating how various game animals should be divided to provide the different cuts of meat are included along with hints on freezing, canning, corning and drying the meat.

If the hunter is not a successful butcher and his efforts at meat pro-

cessing reward him with pounds of unrecognizable cuts, he will be pleased to know that Mrs. Melville includes 22 recipes for using stew meat and 51 recipes for ground meat.

The Hunter's Cookbook is not a run-of-the-mill cookbook. It is a guide to assure that the game animals harvested by the skilled hunter are not ruined due to poor field care or improper cooking methods, and no hunter's kitchen should be without one—*Ilo Hiller*

WILD RIVER by Laurence Pringle; J. B. Lippincott Co., Philadelphia and New York, 1972; 128 pages, \$15.00.

What mental picture does the word river create for you—a liquid garbage dump clogged with sewage and industrial wastes where even rough fish have to struggle to live; a clear, flowing stream unpolluted, undammed and rich with living organisms; or something somewhere in between? The answer will probably depend upon where you live.

Many individuals have never had the opportunity to see a natural wild river because all the waters in their area have fallen prey to dam builders and river straighteners. However, there are still a few wild river areas left in the United States which, although not untouched by man, are relatively natural. And if they are protected and allowed to remain in their natural state, wild river areas will provide recreational enjoyment for countless years to come. Future generations will be able to go white-water canoeing, rafting and kayaking; experience prime fishing for trout, bass and salmon; or huddle around a morning camp fire and watch the mist rise from the river as it did when Indians camped in the same area centuries before.

Wild River is more than a well-illustrated book about these precious waters, their beginnings, the effects they have on the land through which they flow and the life in and around their unpolluted shores. It is a call to arms—a ringing cry for those who care to dedicate themselves to effective action to preserve these, our last, wild rivers by placing them under the protection of the National Wild and Scenic Rivers System.

Don't miss Laurence Pringle's *Wild River* if you are interested in a comprehensive, beautifully-illustrated, up-to-date book about North American stream ecology published for the general reader.—*Ilo Hiller*

PHOTO AND ART CREDITS

Front Cover—Leroy Williamson; Hasselblad 500C, 50mm; Ektachrome.
Inside Front—Martin T. Fulfer; Nikon-F, 400mm; Kodachrome X.
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Pages 30-31—Illustrations by Annette Morris Neel.
Inside Back—Henry Compton; colored ink pencil and gouache on illustration board.
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LONG SHOTS SHORT CASTS

compiled by Neal Cook

Returnables?: Specialists at Pennsylvania State University have come up with some good news about the cans and bottles littering the countryside—they will break down under the influence of natural forces and return to their natural state. But the specialists included some bad news—aluminum cans will take about 500 years, tin cans 100 years, some plastics 200 years and glass bottles possibly millions of years. Thus, if Columbus had popped the top on a cold drink in an aluminum can when he first set foot on America's soil in 1492 it would still be another 20 years before that can would break completely down into dust-sized bits of aluminum oxide. The life-span of plastic containers varies according to the types of plastics involved. One of the more widely used plastics is polyvinyl chloride (PVC) which takes about 200 years to break down if buried and much longer if not buried. One problem with plastics is that they sometimes break down into poisonous chemicals. Therefore, bacteria starting to break down a styrofoam cup releases a type of poison that kills the bacteria. Glass is one of the most durable materials known. Glass beads made by Egyptians are well over 4,000 years old, and there are examples of glass-like rocks such as obsidian that may be as old as the earth which still have not changed.

Thank you, Mexico: The fishing department of the Mexican Industry and Commerce Ministry has released 11,400 sea turtles raised in special protected nests into the Pacific Ocean and the Gulf of Mexico as part of its program to protect sea turtles from extinction. Between September 1971 and May 1972, the turtles were raised in 314 nests in five special turtle camps established in the states of Tamaulipas on the Gulf coast and Jalisco and Guerrero on the Pacific. During the same period 17 boats used by turtle poachers were captured and material valued at \$9,600 was confiscated.

Cheap Camera Case: An Army surplus .50 caliber ammunition box makes a cheap, tough camera case. Another benefit is that it may not tempt a thief as would a fancy leather or aluminum case.

Bats In Belfry: There are at least 24 species of bats found in Texas.

Alligator Harvest: Louisiana had a controlled hunt for alligators for the first time in over 10 years last spring. The Louisiana Wildlife Department opened the 13-day season because it felt there was surplus of the animals and that a controlled harvest would not hurt the population. The 60 trappers who harvested the animals collected about 1,300 hides which sold for \$74,617.

YOU'RE THE SOLUTION
TO WATER POLLUTION

SPORTSMEN PAY THEIR WAY

Sportsmen's dollars can meet increased costs in wildlife research and management.

by David Baxter

Remember 1957? That was the year of hula-hoops, bomb shelters and ducktail haircuts.

It was also the year your fishing license went up 50 cents, to the \$2.15 you paid for the 1972-73 license. The hunting license also increased by a dollar and today it costs \$3.25, a dime more than the 1957 fee.

Long time ago, wasn't it?

Are you aware of disappearing wildlife habitat, more leisure time, new lakes, inflation, hybrid game birds and fish and overpopulated game ranges?

They're here, in 1973.

Responsibilities and services of the

Texas Parks and Wildlife Department have increased and broadened. Additional employees have been required at every level of wildlife projects, law enforcement and conservation education. Their salaries have risen to present-day standards and the costs of fish and game programs have swelled with inflation.

Two- and three-dollar fishing and hunting license fees kept Special Game and Fish Fund Number Nine equal to spiraling costs for 15 years, but the parallel no longer exists.

In 1971, some 58 percent of the total Fund Nine revenue was derived from

the sale of hunting and fishing licenses. The Federal Government added 22 percent and sand, shell and gravel revenue contributed another 11 percent. Fines, arrests, sales of this magazine, grazing leases on department land and other income accounted for the remainder of the 1971 Fund Nine income.

The price of conservation continues to rise. If the Texas Parks and Wildlife Department is to answer increased demands for outdoor recreation from an urban Texas public, Texans must finance the progress.

Hunting and fishing license fee increases are urgently needed to meet

Martin T. Fulfer



expenses for the next two years.

There are thousands of reasons for the increase, and here are a few to consider.

The Texas Legislature directed the Parks and Wildlife Department to study and administer the wildlife resources of counties under the Uniform Wildlife Regulatory Act. In 1957 there were 80 such counties. Today there are 228.

Harvesting antlerless deer is the product of regulatory authority. Antlerless deer accounted for only 1,643 of the deer bag in 1957 but 82,246 in 1971. Seasons on antlerless deer help keep deer herds within the carrying capacity of ranges and provide more recreation for Texas hunters without jeopardizing broodstock.

Management studies in regulatory counties justify longer quail seasons, spring turkey hunts; and open seasons with significant harvests of prairie chickens, antelope, ringneck pheasants and aoudad sheep.

The price tag on wildlife studies, by far the most expensive department wildlife function, has tripled since 1957.

To keep Texas wildlife healthy, a wildlife disease project was initiated back in 1956. This study is nationally recognized as the most outstanding such program operated by any state.

Started as an identification program of diseases in native deer, the project has expanded to include the study and control of bluetongue disease in the threatened bighorn sheep which has increased the chances of reestablishing this big game sheep in its former West Texas range. Investigations of the dove killer, trichomoniasis (*Texas Parks & Wildlife* magazine, February 1972), are currently underway. An effective control of this disease could materially increase the number of birds available for the annual dove harvest.

In addition to the disease program, a statewide mourning dove project was started in 1966 as the first comprehensive investigation and management of a single game species. Data from this project was instrumental in the first

basic change in Texas dove regulations in 20 years.

The Parks and Wildlife Department must protect all Texas wildlife resources to include nongame species such as the endangered red wolf (*Texas Parks & Wildlife* magazine, March 1972), birds of prey and alligators. More department investigation and better management of these nongame creatures is necessary as loss of habitat and other environmental problems increase.

Over the remainder of the decade, maximum effort will be made to reestablish the Eastern wild turkey in East Texas. Besides direct transplants, rearing turkey from wild-caught broodstock under controlled conditions is being considered to speed up repopulation of East Texas with wild turkey.

The number of Rio Grande turkey is still on the upswing. Texas has more Rio Grande turkey than any other state, 85 percent of the total population of this game bird lives within the state. The birds are considered to be underutilized and with proper management, four to five times as many turkeys could be harvested.

As the harvest of Rio Grandes increases and available habitat decreases, management will become

critical.

Waterfowl numbers are declining while hunting pressure is increasing. Heretofore, our waterfowl investigations have been limited to the coast. In 1973, a statewide project will evaluate the waterfowl resource.

That's what the hunter is getting for his license money, but how about the fisherman?

Both fresh and saltwater fisheries have made remarkable progress since 1957.

During this 15-year period, the Texas shrimp fishery has grown in pounds and total value. Commercial boats landed 100 million pounds of shrimp in Fiscal 1972. Ten thousand sports shrimp trawls were licensed the same year as an indication of the amount of pleasure derived from the shrimp fishery.

The legislature has directed the department to annually monitor shrimp populations in the bays. The migration of these shrimp from the bays to the Gulf of Mexico where they spend their adult lives is monitored in the bays and passes. In the Gulf they are studied by personnel on the 72-foot research vessel *Western Gulf*. The *Western Gulf* was equipped by the department in 1967, 10

Year	Antlerless Deer Harvest	Buck Deer Harvest	Turkey Harvest
1953	946	44,780	4,423
1954	3,329	44,400	5,000
1955	2,592	43,770	3,906
1956	2,703	97,000	3,000
1957	1,643	94,900	—
1958	3,501	127,393	6,200
1959	11,304	160,000	7,500
1960	16,948	180,500	5,000
1961	49,661	210,000	5,500
1962	59,515	200,500	4,500
1963	88,160	220,649	13,680
1964	74,594	202,177	14,345
1965	48,781	211,548	18,852
1966	70,066	271,500	18,257
1967	75,699	239,317	10,400
1968	70,107	280,475	24,412
1969	74,402	296,764	19,000
1970	72,353	290,706	27,686
1971	82,246	263,128	14,813
Totals	808,550	3,479,507	206,474

1957 turkey harvest figures not available.

As a result of the department's continuous management program under regulatory authority, the harvest of game species has been greatly increased while still providing adequate protection of broodstocks.

A statewide study in 1973 will evaluate the waterfowl resource in Texas and make recommendations for future conservation efforts by this department. Without waterfowl research, scenes such as the one at left would probably not be possible.

years after the modest 1957 license increase.

Back in 1965, a coastwide monitoring program discovered the reason for the decline of the popular speckled trout in the Lower Laguna Madre. The fish had high levels of DDT in their ovaries. At the instigation of the department and with the cooperation of area agriculture, the use of DDT in the Rio Grande Valley has been restricted.

Bays and estuaries are important to the well being of just about every major species of game fish. Estuaries are areas where salt and fresh water mix to form nutrient-rich water. The Texas estuaries are some of the most productive areas on earth.

Recent and proposed inland water development threatens to destroy or reduce the production of our bays by restricting the flow of fresh water. The department has studies underway in Matagorda and San Antonio Bays to determine the volumes and timing of freshwater discharge to maintain production in these bays.

Fresh and saltwater fisheries projects complement each other in two major areas: redfish and striped bass. Both fish are capable of living in freshwater (*Texas Parks & Wildlife* magazine, May 1972).

Redfish are some of the most popular of the coastal species. Their rapid growth and large adult size would make them valuable additions to the freshwater game fishes. Research efforts with the redfish have centered around hatchery production of young fish to

stock in inland waters. Department biologists at the Palacios Marine Research Station made a major breakthrough in October 1972 when they hatched tiny redfish fry from fish reared in captivity.

The freshwater redfish is more a reality now than just the dream of biologists and fishermen.

Fifty-pound white bass? Not quite, but a close relative of the white bass, the saltwater striped bass, can live and thrive in fresh water.

Limited work with striped bass was done in 1960-61 and the program was accelerated in 1972. Established striper schools in Lake Bardwell, Spence and Navarro Mills are now producing fish in the 10-pound class. Many other Texas rivers and reservoirs are suitable for striped bass and an all-out effort is needed to establish the species.

Since 1957, Texas has acquired or enlarged 56 additional lakes. Some of the major lakes include Sam Rayburn, Canyon, Amistad and Toledo Bend. There are now over 170 major public lakes representing 1,870,000 acres of public water.

The department has 13 field crews responsible for fisheries research and management on the million-plus acres of water with an additional five crews to provide assistance for privately owned water. The demand for fisheries services has required an increase in personnel and operating funds.

Since most Texas lakes are artificial impoundments, the state has no naturally evolved species of fish that can

successfully use the vast areas of open water. The black bass is a stream fish and dwells along the periphery of large, open lakes. We need something to fill the "hole in the lake" and to feed on the rapidly expanding rough fish populations which threaten to choke some of our reservoirs.

The Parks and Wildlife Department has some fish in mind. Walleye, striped bass, redfish and northern pike are big, voracious predators and make fine trophy fish. Striped bass have already made it in some lakes, redfish are on the way and walleye are successful in Lake Meredith. The Texas record walleye is from Meredith and weighed eight pounds, 14 ounces. Stocking all Texas waters which are suitable for walleye will require use of many more hatchery rearing ponds.

In 1971, walleye were stocked in the San Angelo Reservoir. Department biologists netted some of the fish in the fall of 1972 and found that they had grown to about 19 inches in length and weighed 3½ pounds. Biologists found the walleye's stomachs contained carp up to six inches in length. It's obvious that walleye can take advantage of rough fish such as carp.

New fish are being introduced and we are making native ones better.

"Bass fever" is epidemic in Texas and the department is searching for a bass which will satisfy the angler's demand for lunkers. Enter the "Super Bass."

Fisheries biologists have initiated a program to produce a bigger, faster growing hybrid bass from Florida and



Species of game animals such as the pronghorn antelope (above and right) have been trapped and transported to areas throughout Texas where there is suitable habitat. This program has increased the number of antelope to allow controlled harvest by hunters each year.



Texas adults. The program was accelerated in 1972. Adult brood stock from Florida and Georgia were crossed with native Texas black bass. Georgia is the home of the world's record largemouth bass.

Offspring of these fish have been released in several experimental lakes for comparative growth studies. Hopefully, the program can be expanded to include introduction into several large

public reservoirs.

Bass are not the only fish the department is trying to improve. East Texans, especially the ones who fish Caddo Lake, are familiar with the jackfish or chain pickerel. This slender, toothy and lightning-fast fish seldom weighs over four pounds.

The jackfish's first cousin, the northern pike, reaches 20 to 30 pounds in a few years and may be an ideal fish

for our waters. Pike are very predaceous, a desirable characteristic since many of the state's waters are overcrowded with rough fish and stunted panfish which pike love to eat.

Production of northern pike requires a good brood fish source and a lot of growing space. Work with the northern pike started in 1967 when Green Belt Reservoir was stocked with pike fry. A 13-pound Texas record pike was hauled from Green Belt in 1971.

New and improved fish put quite a demand on the state fish hatcheries. Most Texas fish hatcheries were constructed in the 1920's and 1930's with the last one completed in 1955. The demand for native fish such as catfish, bass and crappie to stock new and renovated lakes has continued to climb. The 457 acres of production ponds in the hatchery system cannot provide adequate numbers of fish to stock 2,000,000 acres of public and private waters and still produce walleye, striped bass, northern pike, redfish and super bass.

Sooner or later, every Texas fisherman and hunter will meet with the Parks and Wildlife Department through a game management officer. Like every other major law enforcement branch in the country, the department's force needs more officers with better pay.

In 1957, the Law Enforcement Division had 125 game wardens on the payroll. Today we have 302 game management officers. Average yearly salary in 1957 was \$3,800 as compared to \$8,700 at present.

Major Texas Reservoirs Constructed Since 1957

Sam Rayburn Reservoir
Lake Tawakoni
Canyon Reservoir
Campion Creek Reservoir
Lake Buffalo Springs
Waco Reservoir
(enlargement)
Loma Alta Reservoir
Lake Kurth
Big Hill Reservoir
Farmers Creek Reservoir
Navarro Mills Reservoir
Brushy Creek Reservoir
Lake Palestine
Twin Buttes Reservoir
Johnson Creek Reservoir
Proctor Reservoir
Lake Mexia
Mount Pleasant Lake

Cedar Creek Reservoir
Hubbard Creek Reservoir
Victor Braunig Lake
Lake Quitman
Lake Hawkins
Lake Winnsboro
Lake Holbrook
Lake Athens
Brady Creek Reservoir
Lake Meredith
Somerville Reservoir
Stillhouse Hollow Reservoir
White River Reservoir
Amistad Reservoir
Toledo Bend Reservoir
Lake Palo Pinto
Lake Bastrop
Lake Calaveras
Lake O' the Pines

Bardwell Reservoir
Lake Pat Cleburne
Iowa Park Lake
Lake Conroe
Lake Ray Hubbard
Moss Lake
Pat Mayse Reservoir
Lake Arrowhead
Coleman Reservoir
Mud Creek Lake
Greenbelt Reservoir
Houston County Lake
Livingston Reservoir
Decker Lake
Robert Lee Reservoir
Granbury Reservoir
Lake Cypress Springs
Lake Graham
New Lake Waco

Texas now has over 170 major public lakes representing 1,870,000 acres of water, and another 25 lakes covering over 500,000 acres are planned within the next 10 years. Maintaining good fishing in these lakes is continually a more costly responsibility of the department.



Fisheries personnel are continuously making an effort to produce the best possible fishing in all areas of the state. Development and stocking of new lakes along with the renovation of older ones by controlled fish kills (above and left) help fishermen fill their stringers.

Wardens in 1957 enforced 570 state game and fish laws. Today there are over 1,100 such laws in addition to enforcement of the Texas Water Safety Act.

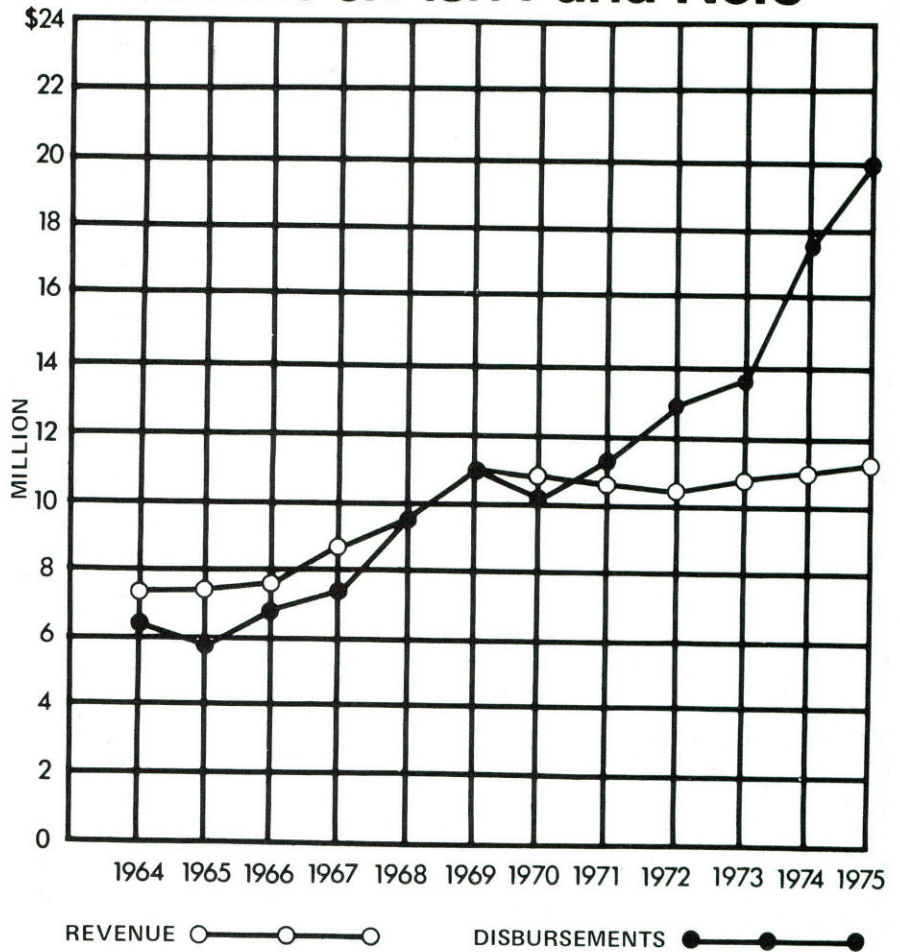
The GMO force has doubled in the past 15 years but management studies show that the department still needs an additional 130 men. That's men, training and equipment.

With a continued increase in outdoor activities, a drastic increase in the responsibilities of the enforcement division is projected for the next 15 years. You can get some idea of future budgets if you consider the difference between the 1957 and 1972 budgets. In 1957, the total law enforcement budget was \$1.3 million and in 1972, \$4.3 million.

There they are: new programs, more game and fish, more laws to enforce, more demands on wildlife habitat and that old bugaboo, inflation.

Texans have always paid their way, particularly for their game and fish. And game and fish are just like any other resource, you get what you pay for. **

Game & Fish Fund No.9

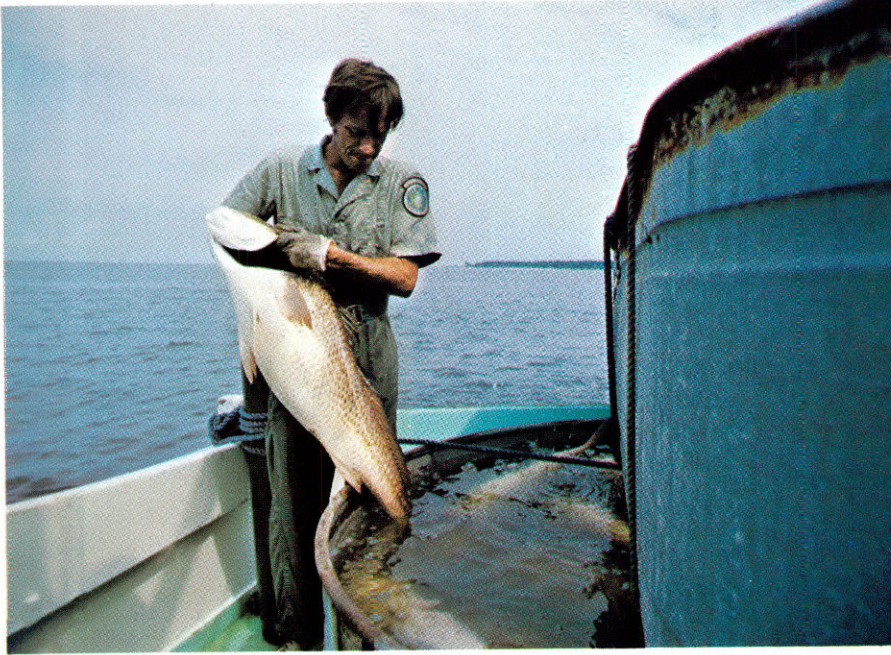


NOTE: 1964 THRU 1972 ACTUAL, 1973 THRU 1975 ESTIMATED. (ESTIMATED REVENUE DOES NOT INCLUDE LICENSE FEE INCREASES.)

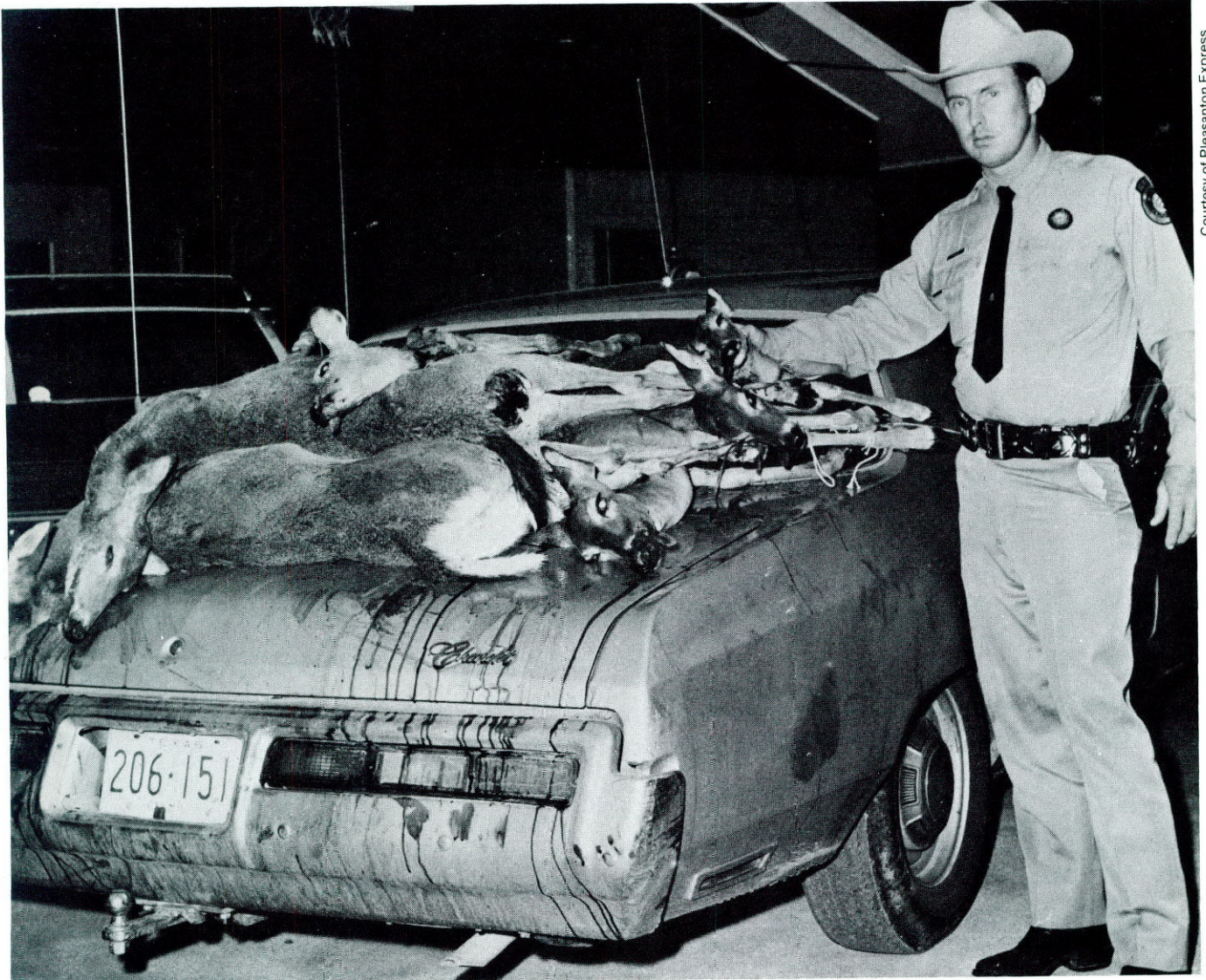
Trapping and transporting turkeys (right) to suitable areas is part of an effort by this department to reestablish wild turkeys in East Texas. Management of these birds is critical to insure a maximum harvest for hunters in East Texas and throughout the state.



Bill Duncan



Stocking of saltwater fish in freshwater has become a reality through continued research. Redfish (left) have successfully been introduced in several Texas lakes. (below) Many more Game management Officers are needed to prevent occurrences such as the one shown below where two men shot all these illegal does and fawns during one night.



Courtesy of Pleasanton Express

Second Chance at Doves

**Experimental
late season
to test results
of additional
hunting pressure
on doves**

by Howard Barnett



Bill Reaves

Talk dove hunting to most Texans, and you'll be talking a universal language of the discomforts which plague dove hunters in Texas—the long hot afternoons, the chiggers, the sudden torrential rains and the stifling humidity. The calendar says it's fall when the dove season comes to Texas. But as far as Texans are concerned, the calendar is a liar.

This year Texas dove hunters will move into a different environment, that of parkas and mittens, Thermos bottles of hot coffee and aching, numbly cold feet.

The occasion is an experimental split dove season, the first segment conforming to the traditional season opening and the second half starting January 6 and running through January 21 in both the north and south zones.

The traditionalists, of course, can still be happy with the heat and chiggers if they want to, but the late segment of the season offers a different experience for dove hunters, and colder weather is just part of it.

Doves have different habits in the winter than those exhibited during the fall. They concentrate into flocks, and the net results are spottier shooting and more searching. At least, there should be few complaints of small

immature birds, since most of the winter kill should be composed of mature doves. But once hunters have found the doves, the action should be lively.

Texas Parks and Wildlife Department officials stress that this year's split season is experimental, and next year, the season could very likely revert to fall-only.

Hunters have been clamoring for a winter season for years, but biologists say that until now, they had no way to evaluate the effect of such a season on dove populations. Now, harvest surveys and banding programs will enable them to determine the origin of doves present in Texas during January and the effect of a late season on the overall harvest.

A portion of the dove population in Texas during the winter is comprised of migrants from other states, and these may have been hunted quite heavily prior to arriving in Texas. Biologists will be keeping a close eye on the winter kill to determine if a winter season may adversely affect the breeding populations in Texas and other states.

Until they are sure a winter season won't be detrimental, Parks and Wildlife Department officials say they cannot prudently approve a permanent winter season. **



Texas State Rifle Association

Organized 1919 AFFILIATED WITH THE NATIONAL RIFLE ASSOCIATION

CALLING ALL OUTDOORSMEN — TSRA Seeks Your Membership!

In the interest of the general public, to promote better sportsman-landowner relations, to represent you in public matters, and to foster public sentiment favorable to the shooting sports, we seek your membership. Conservation, wildlife and its environment, ecology, law and order — all pressing issues of our time can be dealt with only through the unified voice and action of concerned citizens. Through your membership in the Texas State Rifle Association, you can stay informed and be represented in such matters.

Organized in 1919, the purpose of the Association, then and now, is clearly stated in our constitution and bylaws...

“...the objects of this Association shall be to educate the youth of this State in marksmanship; to encourage marksmanship throughout the State of Texas among all classes of citizens, both as a sport and for the purposes of qualifying as finished marksmen those individuals who may be called upon to serve in time of

TSRA MEMBER'S PLEDGE

I certify that I am not now and never have been a member of any organization which has as any part of its program the attempt to overthrow the government of the United States by force or violence; that I have never been convicted of a crime of violence; and that if admitted to membership in the Texas State Rifle Association I will fulfill the obligations of good sportsmanship, and uphold the Constitution of the United States and the Second Amendment thereto.

NAME _____

ADDRESS _____

CITY, STATE _____

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war; to encourage competition in marksmanship between individuals and teams in all parts of the State of Texas; to hold one annual competition for each branch on behalf of the Texas State Rifle Association and to declare championships in all divisions; to encourage legislation for the furtherance of ideals and purposes of the National Rifle Association; to combat all unfavorable laws against such purposes and ideals; to encourage the building of suitable ranges; to secure the issuance of arms and ammunition to practice on such ranges; and to create a public sentiment for the encouragement of rifle practice both as a sport and as a necessary means of National Defense.” To these principles we shall be absolutely devoted.

Each year, each member receives the “Snortin’ Bull” decal with his membership, along with quarterly issues of the TSRA “Sportsman.” Periodically and as required, the TSRA publishes special bulletins of interest to its members. For example, the TSRA arranged for the mailing to sportsmen throughout the state of over 70,000 bulletins concerning legislation pending before the 62nd Texas Legislature. Additionally, the TSRA encourages hunter safety programs and seeks to pass along to younger hunters the skills and high ethical standards of sportsmanship essential to a true outdoorsman. We take pride in our high standards, and our assistance to the Texas Legislature is a matter of public record.

Dues are \$3.00 annually, and memberships run from January first through the following December 31st. We urge you to join your fellow Texans and be a member of this honorable organization. You'll be glad you did.

(Please allow 45 days to process your application.)

Make Checks Payable To: **TEXAS STATE RIFLE ASSOCIATION**

Mail Application and \$3.00 Membership Dues To:

TEXAS STATE RIFLE ASSOCIATION

Lafe R. Pfeifer, Secretary, P.O. Drawer 34809, Dallas, Texas 75234

(Your ZIP code is an essential part of your address. Without it, your application cannot be processed.)

This is Probably the Most Unique Magazine in the World!

It is dated October, 1923!

Talk about a collectors' item!

We are reissuing in facsimile form the old Hunter's FRONTIER TIMES, starting with Vol. 1, No. 1.

We know people who would pay \$100 for certain single copies of the originals!

Written when it happened! Many of these accounts were written on the day the event happened, printed in the local newspaper, and then run later in Hunter's Frontier Times exactly as it appeared.

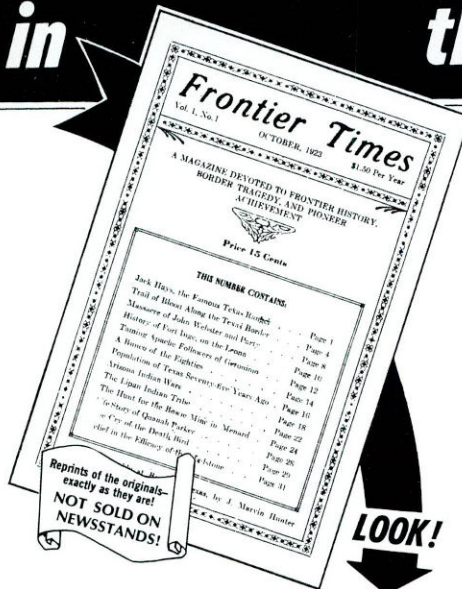
In these extremely rare copies of a magazine conceived a half-century ago you can relive the Old West in accounts written by actual participants in the daily struggle with Indians, outlaws, and forces of nature which people entering the West neither understood nor anticipated. In the twenties many pioneers and frontiersmen were still living, and Marvin Hunter sought them out. It isn't dry history—some of these true, on-the-scene accounts are hair-raisers!

Charter subscribers will be able to receive a complete set from No. 1 to the last issue that Hunter printed!

Our advisers say we should charge \$1.00 or even \$2.00 per copy but we want these magazines in the libraries of as many lovers of the real Old West as possible, so we are charging just 50¢ per copy. But don't lay this magazine down without filling out the coupon since we are printing a limited number and you wouldn't want to have to start out with Vol. 1, No. 2—or later.

Get this coupon and your check in the mail no later than the day after you read this and we'll guarantee you'll receive Vol. 1, No. 1 in good condition. We are mailing each copy in an envelope so it will reach you in mint shape.

Tell your friends. Sometimes what you don't know can hurt you! We believe this is an offer that nobody even faintly interested in the Old West as it actually was would want to miss.



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—Joe “Hosetail” Small

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Winter Camping in State Parks

Cozy cabins and screened shelters add comfort to this cold weather activity.

by Ilo Hiller

WINTERTIME—a time for staying indoors, huddling near the fire and wishing for the fun of summer? Nonsense! Don't deprive yourself of the pleasures of the out-of-doors just because the winter months are here.

Although the temperature may drop quite low at night, it doesn't take the sun long to make a winter day pleasant for most outdoor activities. And those state parks which were hot and overcrowded during the peak of the summer season are

now cool, deserted and waiting for your enjoyment.

Doesn't the idea of hiking in a state park area appeal to you more now than it did during the heat of summer? Think of fishing with no water skiers churning up the water. And, wouldn't a hot bowl of camp stew or chili be more enjoyable now than it was when the temperature was soaring?

Perhaps the idea of winter camping appeals to you, but a lack of equipment, small children or a



Bastrop State Park Photos by Martin T. Fulfer

spouse who enjoys the creature comforts more than roughing it have put a damper on the thoughts. If one of these problems is keeping you from enjoying winter activities, we have a solution. Try reserving one of the furnished guest cabins located in six of the state parks--Bastrop, Caddo Lake, Daingerfield, Garner, Lake Brownwood and Possum Kingdom.

One of these rustic cabins will provide a snug haven when night temperatures drop or if the weather takes a turn for the worse. All have heating of some type, and many have wood-burning fireplaces to add to the cozy atmosphere. Blankets and linens are supplied, but a cold-natured sleeper may want to take along an extra blanket or two.

Although considered rustic, each cabin has modern sanitary facilities, and towels are provided for the shower.

The efficiency kitchen, complete with range, refrigerator and hot water, should make meal preparation and clean-up tasks relatively simple and allow the cook time to enjoy outdoor activities too. Cooking and eating utensils are not furnished, so plan to bring what is needed for your group.

These cabins are available for \$6 per night for one or two persons, and children under six years of age may occupy the cabin with adults at no extra cost. A charge of \$1.50 will be made for each additional adult and 75¢ for each additional child between the ages of six and 13 years.

Reservations may be made in writing or by telephone. Enclose your personal check or money order, made payable to the park in the amount of one night's lodging, with your request for a reservation or as a follow-up to the telephone request. Include your name, address, date and time of arrival, date of departure, and number of persons in your party. Reservations will be confirmed by return mail if accommodations are available for the requested time.

If you are planning a winter visit to the Davis Mountains State Scenic Park in West Texas, don't let thoughts of cold weather worry

you. There are no cabins, but rooms are available at the Indian Lodge in the park. Rates begin at \$9 for a single and \$11 for a double. A charge of \$2 is made for each additional adult and \$1 for each additional child between the ages of six and 13. There is no charge for children under six if they occupy the same room as the adults.

The off-season is also a good time for groups to schedule camp-outs, but many hesitate to do so because weather conditions are not the best for sleeping out under the stars. Group barracks and mess hall facilities at Bastrop, Bonham, Cleburne and Fort Parker state parks will solve this weather problem. Barracks and mess hall facilities for a group of one to 50 individuals may be reserved for a total of \$40 per day. Each additional person increases the cost by 75¢. Mess hall facilities alone, which may also be used for meeting purposes, cost \$25 per day.

Just pick out the park which has the facilities you need and make your cabin, room or group facility reservation direct. To assist you, the following addresses are provided:

**Bastrop State Recreation Park
P. O. Box 518**

Bastrop, Texas 78602
(13 cabins available plus group barracks and mess hall facilities)

**Bonham State Recreation Park
Route 1**

Bonham, Texas 75418
(group barracks and mess hall facilities)

**Caddo Lake State Recreation Park
P. O. Box 316**

Karnack, Texas 75661
(9 cabins available)

**Cleburne State Recreation Park
Route 2, Box 97**

Cleburne, Texas 76031
(group barracks and mess hall facilities)

**Daingerfield State Recreation Park
P. O. Box B**

Daingerfield, Texas 75638
(3 cabins available)

**Davis Mountains State Scenic Park
P. O. Box 786**

Fort Davis, Texas 79734
(39 rooms in Indian Lodge)

**Fort Parker State Recreation Park
Route 1, Box 256**

Mexia, Texas 76667
(group barracks and mess hall facilities)

**Garner State Recreation Park
Concan, Texas 78838**

(17 cabins available)

Lake Brownwood State Recreation Park

**P. O. Box 87
Brownwood, Texas 76801**
(19 cabins available)

Possum Kingdom State Recreation Park

**P. O. Box 36
Caddo, Texas 75661**
(7 cabins available)

If cabin camping sounds just a little too soft and you want to rough it but still have a roof over your head to protect from possible rain, one of the 488 screened shelters found in 24 of the state parks may satisfy your needs. However, an electric light, electrical outlet and picnic table are the only furnishings of these shelters. A waist-high barbecue grill and water faucet are located outside, and sanitary facilities are nearby.

The screening on the back wall and half of the sides is covered with board louvers which keep out rain and provide a bit of privacy in the back half of the structure. The screens on the front half are not covered. There is no way to heat these shelters, so plan on adequate clothing and sleeping gear.

These shelters are available for \$3.50 per night for the first vehicle and \$1 per night for each additional vehicle. Use is limited to the occupants of three motorized vehicles per shelter.

Whatever your choice in winter camping, your Texas state parks can meet your needs. Visit one and see. **

Your Texas State Parks

	Located Near The Town Of	Camping	Screened Shelters	Group Facility	Trailer Sewer Facilities	Trailer Water and Electricity	Restrooms	Showers	Cabins	Picnicking	Groceries	Fishing	Swimming	Water Skiing	Boat Ramp	Museum and/or Exhibit	Historic Structure	Day Use Only	Miscellaneous
Recreation Parks																			
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	Atlanta	●				●	●	●		●									N
	Balmorhea	●				●	●	●	●	●									⊕
	Big Spring	●		P		●	●	●		●						●			D
	Blanco	●	●	P		●	●	●		●		○	○						M
	Bonham	●		C		●	●	●		●									D ⊕
	Buescher	●	●	H		●	●	●		●									B
	Cleburne	●		C		●	●	●		●		○	○						⊕
	Copano Bay	●				●	●	●		●									L
	Copper Breaks	●				●	●	●		○		○							N
	Daingerfield	●				●	●	●	●	●		○	○						⊕
	Eisenhower	●				●	●	●		●		○	○						⊕
	Fairfield Lake	●				●	●	●		●		○	○	○	○				⊕
	Falcon	●				●	●	●		●		○	○	○	○				⊕
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	Garner	●		S		●	●	●	●	●		○	○						M
	Goose Island	●	X			●	●	●		●		○	○						BR ⊕ MN
	Huntsville	●		P		●	●	●		●		○	○						GB ⊕
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	Lake Arrowhead	○				●	●	●		○		○	○						
	Lake Brownwood	●		S		●	●	●	●	●		○	○	○	○				
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	Lake Corpus Christi	●				●	●	●		●		○	○	○	○				
	Lake Somerville	○				●	●	●		●		○	○	○	○				⊕ Airstrip
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	Possum Kingdom	●				●	●	●	●	●		○	○						⊕ N
	Tyler	●	●	S		●	●	●		●		○	○						⊕ N
Scenic Parks																			
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	Bentsen-Rio Grande Valley	●				●	●	●		●		○	○						N ⊕
	Brazos Island	○				●	●	●	●	○		○	○	○	○				N
	Caddo Lake	●	●			●	●	●		○		○	○						D
	Davis Mountains	●				●	●	●	●	○									L ⊕
	Dinosaur Valley	●				●	●	●		●									⊕
	Lonehorn Cavern	●				●	●	●		●									⊕
	Monahans Sandhills	●				●	●	●		●		○	○						⊕ N
	Palmetto	●				●	●	●		●		○	○						RDL ⊕
	Palo Duro Canyon	●				●	●	●		●		○	○						⊕
	Pedernales Falls	●				●	●	●		●		○	○						⊕
Historic Parks																			
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	Ft. Richardson	●				●	●	●		●		○							⊕
	Goliad	●	●	GT		●	●	●		●									⊕
	Gov. Hogg Shrine	●				●	●	●		●									⊕
	Hueco Tanks	●				●	●	●		●									⊕
	Jim Hogg	●				●	●	●		●									L N A
	Lyndon B. Johnson	●				●	●	●		●		○	○						N
	Mission Tejas	●				●	●	●		●		○	○						G
	San Jacinto Battleground	●				●	●	●		●		○	○						
	Stephen F. Austin	●		S		●	●	●		●		○	○						
	Varner-Hogg Plantation	●				●	●	●		●									
	Washington-on-the-Brazos	●				●	●	●		●									
Historic Sites																			
	Acton -	●				●	●	●		●									
	Eisenhower Birthplace	●				●	●	●		●									
	Fannin Battleground	●				●	●	●		●									
	Ft. Lancaster	●				●	●	●		●									
	Ft. Leaton	●				●	●	●		●									
	Ft. McKavett	●				●	●	●		●									
	Monument Hill	●				●	●	●		●									
	Old Ft. Parker	●				●	●	●		●									
	Port Isabel Lighthouse	●				●	●	●		●									
	San Jose Mission	●				●	●	●		●									

NOTE: Many of the parks listed above are undergoing major developments. Certain facilities and services indicated may be temporarily unavailable. You are urged to inquire directly to the park in advance of your visit.

*Facilities Not Operated by Texas Parks and Wildlife Department
 ○ Permitted But No Facilities Provided
 ● Facilities or Services Provided for Activity

A-Auditorium
 B-Boats for Rent
 CT-Chemical Toilets
 C-Group Camp
 D-Scenic Drive
 G-Golf
 H-Group Hall
 L-Texas Longhorn Herd

M-Miniature Golf
 N-Nature Trail
 P-Group Picnic Shelter
 R-Rental Horses
 S-Screened Group Hall
 T-Trailer Rentals
 ⊕-Trailer Dump Station
 X-Open Shelters
 GT-Group Trailer

Molting birds are SITTING DUCKS

by C. D. Stutzenbaker
Federal aid project W-96-R

The nightly music of croaking frogs, humming mosquitoes and other nocturnal creatures was harshly interrupted by the roar of an engine. Every creature in the marsh was awakened or disturbed and, more so than any other, the Texas mottled duck was having a tough time getting a good night's sleep.

Texas Parks and Wildlife department employees kept swooping down on the ducks in noisy airboats, blinding them with bright lights and scooping them up in long-handled nets.

This past summer's banding effort terminated a three-year coastal waterfowl project in which department personnel have been capturing, banding and releasing substantial numbers of mottled ducks. The purpose of the banding work was to determine the annual movements and mortality information on which to base a proper management plan for this important wildlife resource.

Several methods of capture were used during the banding study but the most productive technique involved the nighttime use of airboats rigged with ultra-bright lights and long-handled dip nets. The earlier capture attempts (reported in the November 1970 issue of the *TEXAS PARKS & WILDLIFE* magazine) made use of helicopters and air-transported retriever dogs. Biologists in the helicopters would spot the ducks and then force them from the water into denser surrounding vegetation. The helicopters would then land and the retriever dogs would be released to find the hiding ducks.

During the late summer, all adult mottled ducks undergo an annual molt cycle. This is called the post-nuptial molt and it leaves the birds flightless for about one month. During this molt, the adult ducks drop all wing feathers and then

begin replacing the flight feathers which had become worn during the daily activities of the past year.

Before this molt begins, the adult birds seek suitable molting areas with a persistent water level, good escape cover and an abundant food supply. During the flightless period, the birds then have an adequate place to endure the dangerous period when they are subject to the problems of being grounded. The molting areas are generally large marsh areas or marsh-type reservoirs.

Aerial reconnaissance preceded banding work to locate the most productive molting areas. When good molting areas were located, airboats with 150-hp aircraft engines were brought in by trailer.

Each airboat was equipped with a gasoline powered electrical generator and a light frame on the bow holding five photo-flood photography bulbs. Dark, moonless nights when no wind was blowing were the most productive for the location and capture of the flightless mottled ducks.

The airboats were maneuvered at slow speeds through dense marsh vegetation. Flightless, molting mottled ducks temporarily blinded and disoriented by the bright lights were easy to capture with the long-handled dip nets in the dense vegetation. On dark nights, flying young-of-the-year and adults not yet in molt were caught on the water after being disoriented by the bright lights and the steady hum of the airboat engine and the electric generator.

The captured birds were placed in holding boxes in the airboat until several were available to be banded. The birds were banded and released at the approximate capture site. During 1971, over 2,500 mottled ducks were captured and banded using airboats and night lights.

Preliminary findings of the





three-year study were quite interesting. A significant number of mottled ducks raised along the southeast Texas coast contribute heavily to the annual harvest in the State of Louisiana. Also, many birds showed a strong resident tendency as some of them were eventually shot one to several years later on the same pond on which they were banded as ducklings. More significant findings are expected as sufficient numbers of reports of banded birds shot by hunters are accumulated.

With this information the department can form sound management recommendations for our Texas mottled ducks and the many wet, cold mosquito-dominated nights spent by personnel night lighting the birds will be rewarded. **

Laughing Gull



Female Yellowthroat—Reagan Bradshaw
Male Cardinal—Bill Reaves

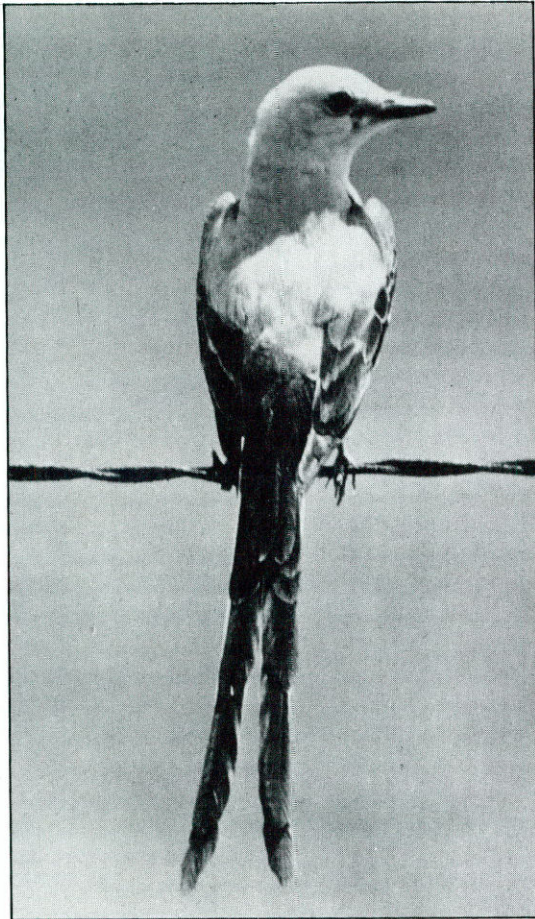


DON'T SHOOT THAT BIRD!

by Terrie Whitehead

“But, Sir, it was only a blue jay. We’ve got lots of ‘em. I’ll tell you what ... let me off this time and I promise it won’t happen again.” Ever try to explain to a game management officer why a protected bird is dead and why it was killed by a gun just like the one you have in your hands?

Hunting birds when you really don’t know the laws can be risky



business. In fact, you could pay a fine up to \$500.

Confusion often exists on what birds *can* be hunted. The hunter must know not only state laws but also federal regulations. Ignorance leaves him in the embarrassing position of saying, "Well, I just didn't know."

But ignorance is not a valid excuse as far as the officer is con-

cerned. The way to avoid such a situation is simple: don't hunt protected birds. And if you don't know what is protected, just remember that only three birds are unprotected—European starling, English sparrow and feral pigeon.

Of the more than 500 species of birds in Texas, each falls into one of three categories: game, non-game and unprotected. Game birds are

protected and hunted by regular seasons and are not confused by most people. However, non-game and unprotected birds become a controversial issue because of changing state and federal laws governing them.

From the total perspective, only the three birds mentioned above may be shot at any time. It is interesting to note that these birds are city dwellers and their eggs and nests may be destroyed or taken at any time.

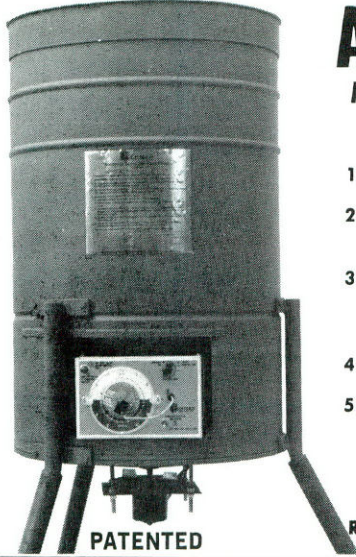
The federal government protects hundreds of bird species, most of which are also protected by state laws. Such groups include all song birds, raptors, shore birds, other non-game species and all game birds. On March 10, 1972, the United States and Mexico agreed to add 32 families of migratory non-game birds to the list of protected species. Misunderstandings have arisen because several birds are now protected that could formerly be hunted according to both laws.

Species in dispute are crows, grackles, red-winged blackbirds and cowbirds. These birds are still unprotected by state law and the federal government added a clause to its bill stating that a federal permit would not be required for control of these birds if "found committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance." Depredation is defined as plundering or laying waste.

In Texas we have a clause in the section on the protected birds which allows individuals to kill predatory birds to defend and protect domesticated animals, but federal laws protect all birds of prey except the horned owls.

Just remember, there are only three birds that federal and state laws allow you to kill at any time without question, and there are four more that are legal to the extent that you must be able to justify your reasons for killing as far as federal laws are concerned. All other birds are a "no-no" and are protected by state as well as federal law. **

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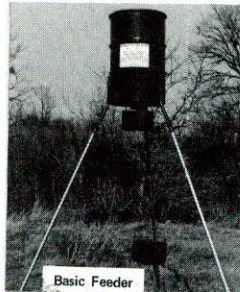
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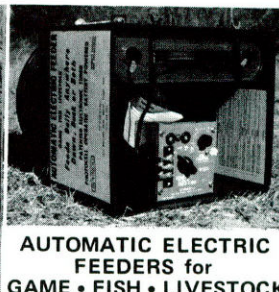
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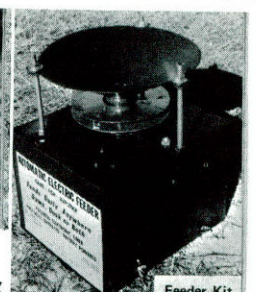
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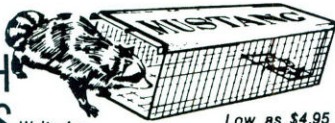
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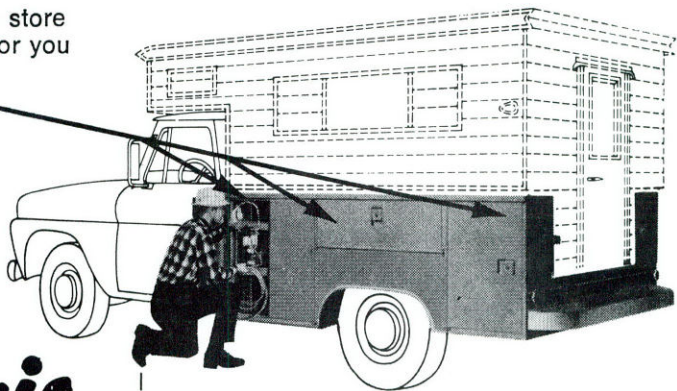
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Young Naturalist

BB Gun

by Terrie Whitehead

If Santa Claus left a new BB gun at your house this Christmas, he also left you the responsibility for the safe handling of this weapon. A gun is not a toy and should never be considered as such.

As a beginner, you should start with a thorough examination of your gun. Become familiar with it before you load it for the first time. Have an experienced person answer any questions you might have concerning the mechanics of the weapon which are not explained in the instruction booklet that should come with the gun.

There is an old saying that the way to learn is by doing. And there is no better way than target practice to learn how to shoot accurately. However, target practice does not mean potshooting the neighbor's dog or cat or killing the neighborhood's bird population. (Remember that except for the European starling, the English sparrow and feral pigeon, all birds are protected by either state or federal laws.)

Almost all cities have ordinances against shooting BB guns within the city limits, and you must make sure that you are within the law when shooting your gun. Another problem you may face is having your neighbor worry about your accidentally shooting his house. When you decide to start shooting, invite your neighbor over to see where and how you have your targets arranged. Remember to respect the other person's property.

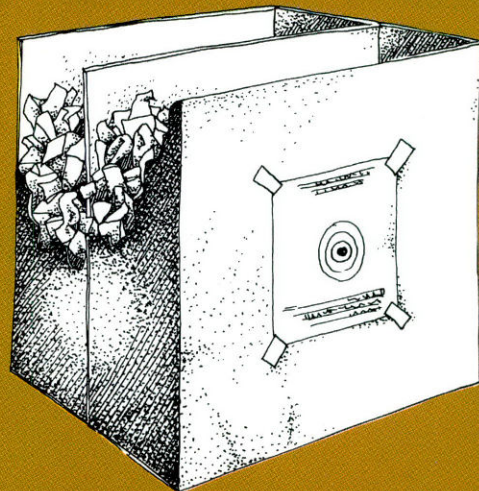
Target practice means just what the name says—shooting at a prepared target. However, before the first shot is fired, a safe backstop should be provided behind the target to keep track of the BB shot which may have a range of 200 to 300 yards. A "backstop" will definitely stop and contain the BB while a "backdrop" will only retard the flight of the bullet but may not stop it. A piece of canvas or even a blanket will act as a backdrop as well as a backstop for some guns while a slanted piece of steel may be necessary for some of the more powerful guns which can be pumped to high-velocity.

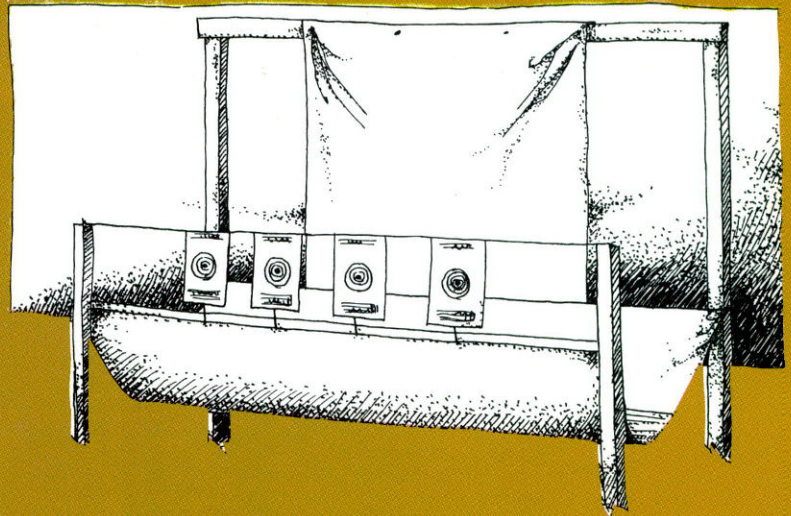
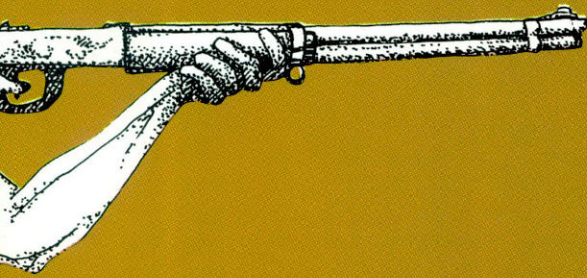
Commercial targets are available for sale in most sporting good stores, but you can make your own, and you don't have to be particularly creative. One of the simplest is a plain piece of paper with a large "X" drawn in the middle of it. The object is to hit

as close to the center of the "X" as possible.

A cardboard box filled with paper makes a good target. Just draw a bullseye right on the side of the box. For the target shooter who wants more reality, paper silhouettes of animals may be sketched or traced on black construction paper, cut out and attached to the side of the cardboard box. Magazine picture cut-outs of animals may also be used. Make different targets for all four sides of the box and you will have a four-in-one game.

Although targets may be hung from a tree limb or from a rope strung between two trees, the backstop may be difficult to arrange satisfactorily. Mom's empty clothesline may be the answer for low-velocity guns. The targets may be suspended from one line and the backstop hung from another. For more powerful guns this is not enough of a backstop.





A milk carton filled with paper makes a challenging target as it rocks in the wind, but if you really want to get a "bang" out of your shooting, hang a small balloon against the safe backstop. This explosive target may be more difficult to hit than you think, especially if the wind is blowing a little. As your skill improves and you become more accurate in your shooting, cork fishing bobbers hanging from the line will serve as targets.

Naturally it is more fun to shoot with friends than alone, but when other people are present, your responsibilities for gun safety increase. You not only have to be sure that you are practicing safe gun handling, but you must be sure your friends also observe the rules of safety.

If your friends are shooting with you, these target practice sessions will become competitive. Each

shooter wants to be the one to hit closest to the intersecting lines of the "X" or the center of the bullseye or burst the most balloons or hit the swinging milk carton.

Targets can also be turned into games of skill. How about a modified version of tic-tac-toe? Draw the tic-tac-toe lines on some paper and let two players take turns shooting at the target. After each shot, the square hit is marked by the shooter with either his "X" or "O." The game is played according to regular tic-tac-toe rules. Shooting accuracy plays a big part because, without it, the player will not be able to hit the proper squares to win the game.

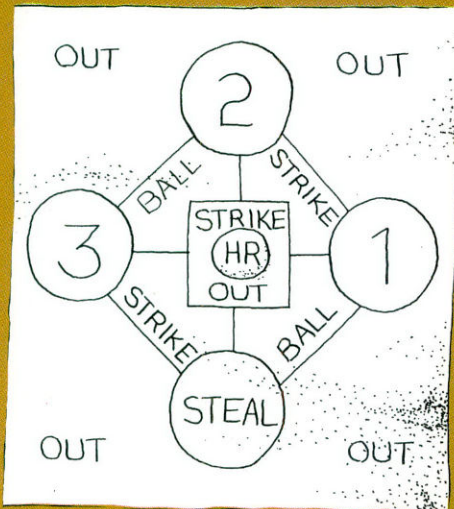
For a more complex target for skilled shooters, the name of the game is "baseball." Simply draw a target as illustrated. Each player shoots, advancing runners and scoring runs, until he has made three outs. Then the next player takes a turn.

For indoor plinking when the weather is bad or if city ordinances and your neighbors forbid outdoor shooting, the garage can be transformed into a target range, but a safe backstop is still necessary. Playing cards make excellent targets for closer range. When you have mastered the flat side, try turning them edge-wise.

Candy mints with a hole in the center are also fun to shoot. The object is to shoot through the hole without nicking the candy. If you don't happen to have any mints, you can use the reinforcement rings for notebook paper holes.

Keep in mind at all times that practice makes perfect. Until you have mastered safe target shooting, you cannot consider yourself a marksman and you may never bag a trophy buck when you graduate to the high-powered rifles one day.

Your BB gun can provide many hours of fun and entertainment as well as teach you proper respect and safety for firearms. Remember, it is not a toy. **



LETTERS TO THE EDITOR

Dear Folks

A trip through the Texas Hill Country can be very gratifying. There are beautiful trees of all shapes and sizes. There are unusual rock formations and limestone figurines. If you drive slow enough, you can see plenty of deer, squirrel, quail, dove, and other wild game along the winding roads. You can also stop by one of the many clear and sparkling rivers or creeks and have a picnic, fish, swim or just enjoy the beautiful landscape.

Then on your way back, if you hold your head at a different angle you can see an astonishing assortment of colors. Along each side of the road are flashing reds, deep blues, startling greens, fancy purples, glowing whites, abashing yellows, dark browns . . . I could go on but I have no more adjectives. "Highway signs?" you say. No, these are *extracto homo sapiens* . . . better known as soda water bottles and beer cans. They are placed there by big humans and little humans, skinny ones and fat ones, old ones and young ones. It's done with a magnificent twist of the wrist out of an automobile window

that would make Joe Namath envious.

Now if I sound indignant, then I am. Don't get me wrong, though. I'm a *homo sapien* myself. A very ordinary one, in fact. I like to hunt, fish, swim, hike, go canoeing and do many other things. I also like to drink beer and soda water, as does my family. However, there is one thing that is a little different about my family and me; we have never contributed to the rainbow of colors along the road.

I don't ask anyone to do anything I don't do myself. It's easy for some to say, "I'll never pass this way again," and just not care. But your children or someone else that cares might.

We'll never stop people from drinking as they drive along, this I know. But we can and should stop this disgraceful addition to nature's terrain. It really doesn't take much effort on your part, John Doe. You can dispose of bottles and cans at a roadside park, filling station, or when you get home. I guarantee you'll feel better towards yourself tomorrow.

Let us ALL keep our country BEAUTIFUL.

John F. Hurst
Adkins

Rattlers

I would like to have some information on rattlesnakes.

I have always heard that you could tell the age of a rattlesnake by its number of rattles. Some people also claim rattlers shed these rattles each year, which I can't believe.

Also, did you ever hear that all poisonous snakes have tail plates in a single row whereas non-poisonous have two rows? It seems to work on copperheads and rattlers so far as I know.

Edith Funk
Sadler

A feature article by Tate Pittman in the October 1971 issue of *Texas Parks & Wildlife* magazine stated that: "It is a popular but incorrect opinion that the diamondback grows a new joint or ring of the rattle every year and that his age can be determined by counting the rattles. Actually the western diamondback normally acquires from two to three rings each year, but the rattle seldom attains a length of more than 10 to 12 segments because the rings wear off.

A new-born western diamondback is provided with a soft button on the tip of the tail which cannot produce a sound. This young snake sheds its skin in a few days and starts feeding on small mice or other young rodents. Growing rapidly, the snake sheds its second skin in two months and uncovers the first ring or segment of the rattle, which dries and hardens after a few days. Now when the tail is shaken, it produces a faint buzzing sound, and the snake has a miniature rattle. A segment of the rattle is produced with each molt or shedding of the skin."

This applies to all of the rattlesnakes.

In answer to your other questions, rattles are never shed although they may break or wear off and give this indication. The tail plate statement may be considered a generality as it does apply in most instances. Exceptions, though, in both types of snakes actually make it an invalid statement.

BACK COVER

A bountiful harvest of swamp rabbits awaits the hunter in the eastern half of Texas whether he hunts the rabbits with beagles or just walks along kicking them out of the brush. The big swamp rabbits are usually twice the size of the more familiar cottontail. Photo by Martin T. Fulfer.

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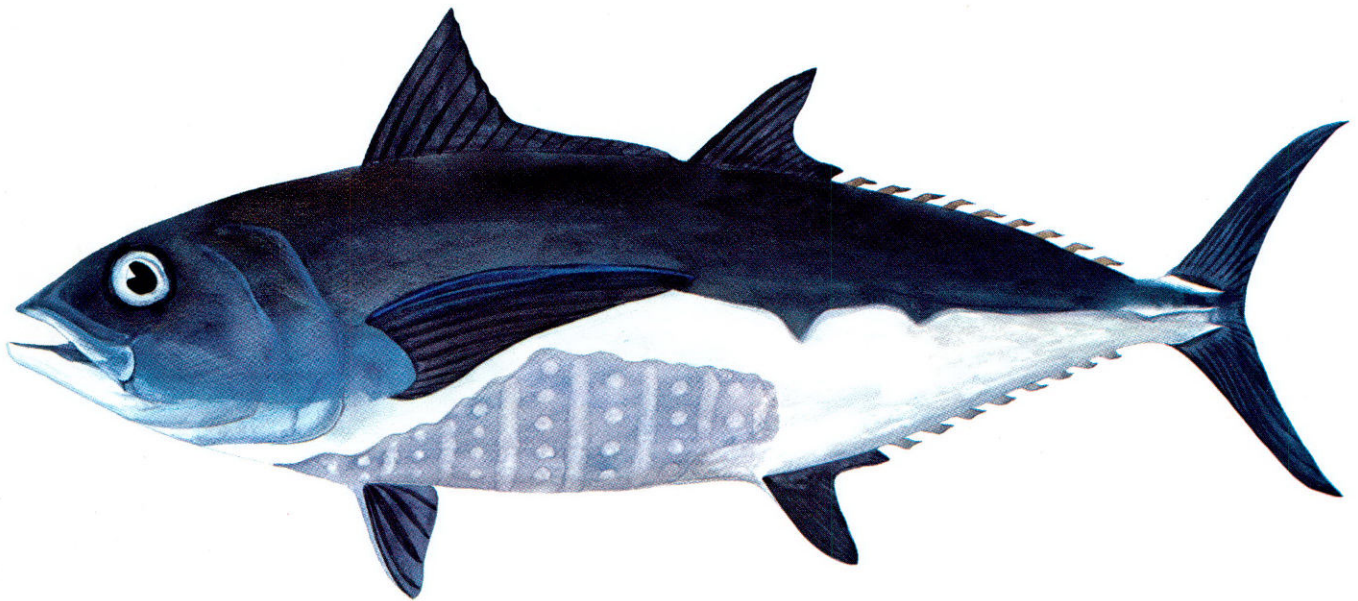
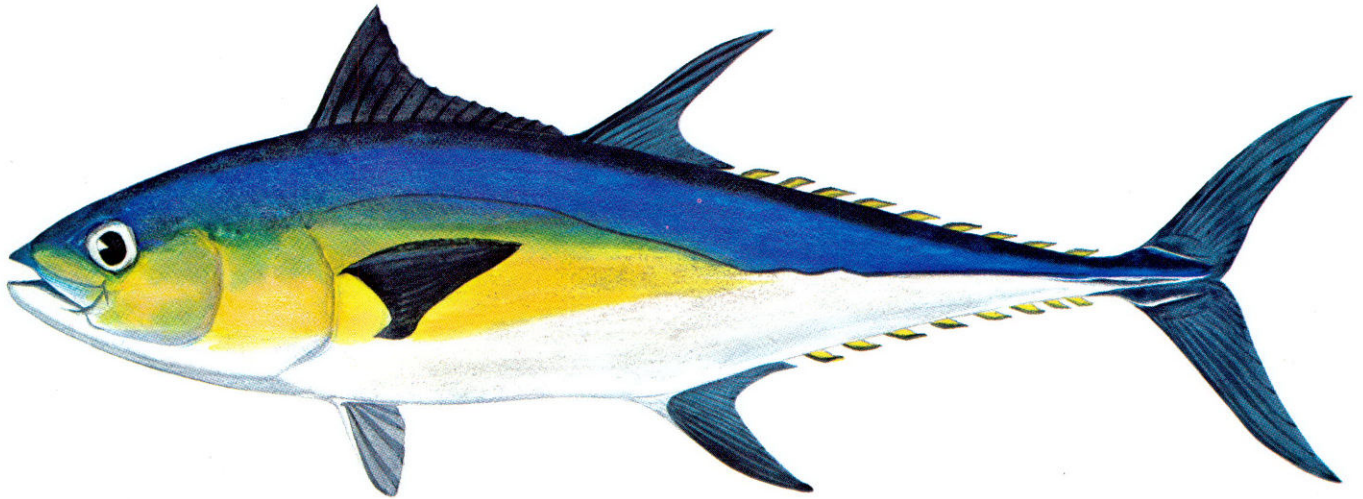
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TEXAS SALTWATER FISHES

Both these tunas, the bluefin tuna (top) and the blackfin tuna (bottom), are members of the mackerel family. They both frequent the waters of the Texas coast with the blackfin being the more popular with anglers. Ranges for the fish differ in that the bluefin is found in all the oceans of the world while the blackfin is restricted to the western Atlantic from Cape Cod to Brazil.

Although they are both members of the same

family, their size differs greatly. The bluefin is the larger of the two and sometimes weighs in excess of 1,000 pounds while the blackfin seldom exceeds 35 pounds. The Texas record blackfin weighed 36 pounds and was caught out of Port Isabel in 1968. No Texas record is on the books for the giant bluefin, but the world record is 1,065 pounds caught off of Nova Scotia.

Artwork by Henry Compton.

