

Duff
BIOLOGY LIBRARY
TEXAS
PARKS & WILDLIFE





PRESTON SMITH
Governor of Texas

**PARKS AND WILDLIFE
COMMISSION**

JACK R. STONE, Chairman Wells
PEARCE JOHNSON Austin
HARRY JERSIG San Antonio
MAX L. THOMAS Dallas
JOE K. FULTON Lubbock
BOB BURLESON Temple

**PARKS AND WILDLIFE
DEPARTMENT**

JAMES U. CROSS Executive Director

ASSISTANTS

GEORGE H. COOK Legislative Affairs
GEORGE C. ADAMS Land Acquisition

DIRECTORS

RON D. JONES Planning
ROY T. HUFFMAN Current Operations
JOHN D. MACKLIN, JR. Personnel and
Administration
RICHARD A. McCUNE Information and
Education
SAMUEL W. KENDRICK, JR. Support Services
CLAYTON T. GARRISON Finance and
Data Processing

REGIONAL DIRECTORS

Region I HENRY BURKETT, San Angelo
Region II A. W. LEWIS, Waco
Region III JOHN M. CARLISLE, Tyler
Region IV ERNEST MARSH, JR., La Porte
Region V TOM D. MOORE, Rockport

**TEXAS PARKS & WILDLIFE
magazine**

Dedicated to the conservation and enjoyment
of Texas fish, game, parks, waters and all
outdoors.

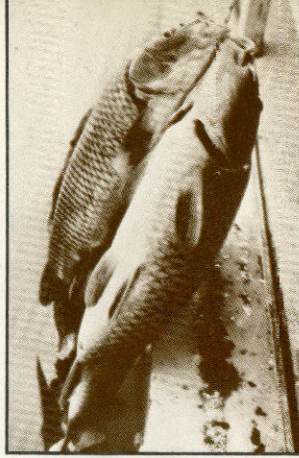
NEAL COOK Editor
DAVID BAXTER Associate Editor
ILO HILLER Assistant Editor
ANNETTE MORRIS NEEL Art Editor
JIM WHITCOMB Photo Editor
ETHEL SPECK Advertising-Circulation

Published monthly by the Texas Parks and
Wildlife Department, John H. Reagan Bldg.,
Austin, Texas 78701. Republication of mate-
rial is not permitted except by special written
permission. The inclusion of advertising is
considered a service to subscribers and is not
endorsement of products nor concurrence
with advertising claims. Rate schedule avail-
able upon request. Subscription rates: \$3.15
for one year and \$5.25 for two years. Single
copies and all back issues, 53c. Prices include
5 percent sales tax for Texas residents. For-
eign subscription rates: \$4.00 for one year,
\$7.00 for two years.

Postmaster: If undeliverable, please send
notices by form 3579 to Reagan Building,
Austin, Texas 78701. Second class postage
paid at Austin, Texas, with additional entry
at Oklahoma City, Oklahoma.

2

June 1972; Vol. XXX, No. 6



6

20

TEXAS PARKS & WILDLIFE

Sucker for Dough Bait *by Ilo Hiller* 2
Carp are the most abundant fish in many of our lakes so we might
as well take advantage of them.

Sport Diving *by David Baxter* 6
Scuba diving is one of today's fastest growing, most exciting water
sports.

Don't Blame Big Game *by Richard DeArment* 12
Research has shown that antelope, auodad and whitetail deer are
innocent of infecting Panhandle cattle with disease.

Sand Mounder *by Tate Pittman* 16
The pocket gopher is well-equipped for a subterranean life and
rarely pops his head above the ground.

Parks for Texas *by Ilo Hiller* 20
State parks just don't happen; it has taken 47 years of hard work to
build a recreational system for Texans.

How To: Repair Rods *by Dwane Smith* 26
Don't throw out that broken fiberglass rod; it can be fixed in no
time at all.

Bee Stings *Ilo Hiller* 30
Young Naturalist takes a look at one of the more unpleasant aspects
of summer.

Outdoor Books 10 Long Shots, Short Casts 11
Photo and Art Credits 11 Park Information Chart 18
Letters to the Editor 32

Outside Cover: The killdeer is the largest and noisiest member of the "ringed"
plovers. Photo by Jim Whitcomb.

Inside Front: Usually a nocturnal animal, this raccoon prowls the mud flats
in broad daylight. Photo by Perry Shankle, Jr.

SUCKER FOR DOUGH BAIT

Carp are a source of angling fun overlooked by most Texans

by Ilo Hiller

Have you ever considered carp fishing? Now don't frown and shake your head; carp will bite on a hot summer day when other fish refuse to cooperate.

My husband, Jim, and our camping buddies, Joe and June, had heard about carp fishing and how much fun it could be, so we decided to try it on our next camping trip to the lake.

We had been told that carp were similar to a bunch of pigs rooting around on the bottom of the lake and all we needed to do was bait an area and wait for the herd to move in. Fermented maize and corn, bags of rotten potatoes, or commercially prepared range cubes were suggested for this purpose.

We decided a bag of range cubes would be the easiest for us to use, so I was delegated to go by the feed store and get it. When I asked for the cubes, the salesman's query, "What size?" threw me for a loop. What size—they came in sizes? Trying to be helpful, he asked whether they were for cattle, sheep or goats. I mumbled something about carp bait, and although he had not heard of using range cubes to attract carp, he suggested the medium size.

Upon arriving at our favorite campsite Friday afternoon, Jim and Joe decided the first priority was baiting the fishing spot. To do this, we stood on shore and threw handfuls of range cubes all over the area we were planning to fish. Our theory was that a cast would go about as far as a throw, so the fishing area would be well covered. We used about half the cubes for the first baiting.

The next morning we knew the carp had moved in because they occasionally broke the water's surface. We figured if half a bag got them there, periodic baiting might keep them there, so we threw in the rest of the cubes over the course of the day.



Robert Felling

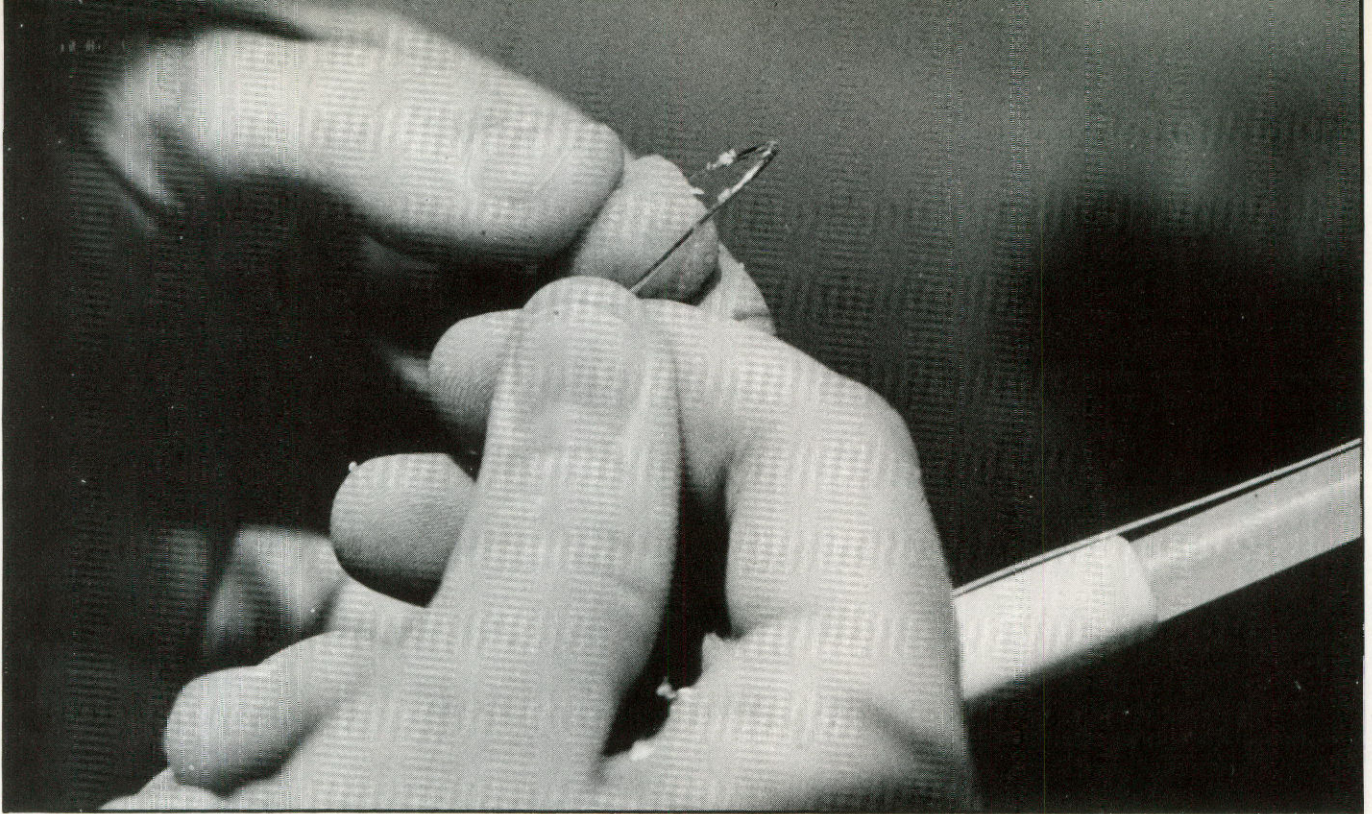
As soon as breakfast was out of the way, June and I mixed up some carp dough bait according to the following recipe:

1 cup yellow cornmeal
1 cup flour
1 tablespoon sugar
1 tablespoon vanilla extract

Mix all ingredients together and add enough water to form a heavy dough. Add additional flour if the mixture gets too soft. Make small balls of the dough, no larger than a dime, and drop them into boiling water, being careful not to let them stick together. Boil a couple of minutes until done. (If they bounce when dropped on a hard surface, they are done.) Drain them on a paper towel and repeat procedure until all dough balls are cooked. Allow them to cool before sealing in a jar or container. Prolonged exposure to the open air will dry them out and cause crumbling.



Martin T. Fuller



Martin T. Fuller

Thread the hook into the dough ball until only the shank is exposed. Like any other angling, carp fishing takes patience and skill. When a big "bull" carp takes the bait and the hook is set, there's plenty of fast action as he fights to get free.

- 1½ cups yellow corn meal
- 2 tablespoons instant oatmeal
- 1 tablespoon sugar
- 1 cup cold water

Blend the water, sugar, oatmeal and one cup of the cornmeal. Place mixture in pan on medium hot fire and stir constantly for five to seven minutes until the dough works up into a stiff ball. Remove pan from fire and add remaining cornmeal, working it into the cooked mixture. Place the dry dough on a piece of paper and thoroughly knead it. Allow dough to cool before wrapping or it will sweat and soften. If too much sugar is added, the dough will be sticky. If not enough, the dough will not be rubbery.

Some other homemade dough baits used by carp fishermen are:

- 1 box bran flakes
- 3 ounces grated longhorn cheese
- 5 tablespoons honey
- water
- flour

Crush bran flakes. Add cheese, honey and enough water to make mixture the desired consistency. If it becomes too thin, thicken it with flour.

- 1 cup flour
- 1 cup cottonseed meal
- 1 cup cereal
- 1 cup oatmeal
- 1 cup molasses
- 1 cup water
- ¼ cup vanilla extract

Mix cereal, oatmeal, molasses, vanilla and water. Blend thoroughly and add this wet mixture to the cottonseed and flour mixture. Knead until the right texture is achieved.

Commercially prepared mixtures are available if you don't want to make your own dough bait.

As soon as our first batch of dough balls were cooked and before they had a chance to cool, Joe and Jim baited their hocks and cast into the middle of the fishing area.

We had been told that the first rule of carp fishing is don't hold your pole, so the guys had placed forked sticks in the ground on which to rest the rods.

Since carp usually "mouth" the bait a bit before swallowing it, the slight twitch of the pole tip will tell you when one is nosing around. The skill of the catch is guessing when the bait is in the carp's mouth and being ready to set the hook at the first steady pull.

The rods were also secured with ropes because we had been warned that a large carp could take the bait—rod and all.

Joe got the first action on his pole, but in his eagerness he pulled the bait away from the fish. After several unsuccessful attempts, he finally hooked one and the fish took off across the bottom of the lake

like a locomotive. That fish didn't stop or even slow down until all the line was stripped from the reel leaving a surprised fisherman sitting on the bank.

With a determined look on his face, Joe refilled his reel with 15-pound test line, baited the hook and cast it out to try again. His next effort was rewarded with a five-pound carp which fought and pulled for several minutes before it was finally in the landing net.

We all managed to catch a few carp before the day was over, and with each one were amazed at the fighting ability of this rough fish. Even working one right into the shore was no guarantee of landing the fish since it could make a turn and with brute strength peel the line off the reel again.

All the carp we caught that day were scaled carp, the most abundant in Texas waters. There are, however, two other types found in our lakes—the mirror carp which has only a few large scales scattered over its body and the leather carp which has no scales at all. The carp is a native of Asia which was imported to the United States. During the May and June spawning season, the female can lay as many as 24,000 eggs per pound of body weight which explains why this import has taken hold in American waters.

It is a shame that the abundant and spunky carp has not been more accepted as a food fish because of its many small bones. Perhaps one of the following recipes will inspire you to try it.

After catching and before cleaning, hang the carp by its head and cut off the tail to bleed the fish. Skin and fillet it, being sure to discard the dark, strong-tasting meat down each side. Use these fillets in the following recipes.

SERBIAN CARP

2 pounds carp	salt
¼ pound butter	red pepper
2 finely chopped onions	flour
3 tablespoons tomato paste	water
¼ pound chopped mushrooms	

Roll carp in flour seasoned with salt and red pepper. Sear in butter. After removing carp, sautee onions and mushrooms. Add tomato paste and a little water. Put carp in and stew until well done.

CARP IN BEER

2 pounds carp	1 teaspoon salt
2 12-ounce cans dark beer	1 sprig parsley
1 medium onion	¼ pound butter
1 stalk celery, chopped	½ cup gingerbread crumbs
1 bay leaf	
½ teaspoon thyme	

Mince onion, add celery, bay leaf, thyme, parsley, beer and salt. Bring to a boil. Cut carp into pieces and place in the sauce. Cook for 10 to 15 minutes on low fire. Remove carp from sauce and thicken sauce with gingerbread crumbs. Strain sauce and stir in butter. The sauce must be creamy and hot; pour it over the carp.

CARP STEW

4 pounds carp	1 cup tomatoes
¼ pound bacon	¼ teaspoon salt
¼ cup onion, chopped	½ teaspoon sugar

Fry bacon in a dutch oven or small kettle until crisp. Add other ingredients and simmer for 45 minutes.

CARP CAKES

1 cup flaked, cooked carp	½ tablespoon butter
3 cups mashed potatoes	½ teaspoon pepper
1 egg, beaten	½ teaspoon salt
2 tablespoons bacon grease	½ teaspoon paprika

Mix carp, potatoes, bacon grease, butter, salt, pepper and paprika; then add beaten egg. Shape into cakes and pan fry in hot grease until a golden brown.

CARP CHOWDER

2 pounds carp	dash of thyme
2 stalks chopped celery	salt
¼ cup butter	pepper
¼ cup flour	water
chopped onions	

Simmer carp, onions, celery, thyme, salt and pepper slowly in water for 30 minutes. Thicken with a mixture of butter and flour.

Carp can also be baked and the following is a recipe for the stuffing.

4 cups bread crumbs	6 tablespoons melted butter
3 tablespoons finely chopped onion	¾ teaspoon salt
¼ cup finely cut celery	½ teaspoon pepper
	1 teaspoon sage

Cook celery and onion for a few minutes in the butter. Mix the other ingredients and add to butter mixture. Wipe dressed fish with damp cloth and salt lightly inside and out. Stuff with dressing and sew or tie with string to retain stuffing. Place in pre-heated oven and bake at 375° for one hour.

Canning experts say that carp will taste like salmon or tuna depending on the method used in preparing it. For salmon flavor, cut off fins and tail. Place one teaspoon salt in a pint jar. Add hunks of skinned carp. Cook in a pressure cooker at 10 pounds of pressure for two hours. For tuna flavor, hot cottonseed oil or hot olive oil can be added to the carp (about two ounces per pound of fish). About one-half ounce of salt per pound should also be included in this canning process.

Give carp a chance the next time you are looking for fishing action. Once you have tried it, you may join the ranks of fishermen who swear there is nothing like tying into a stubborn, tackle-bending carp that will give you a fight for 10 minutes, let you think it is ready to be landed and then give a lunge, dive for the bottom and fight you for another 10 minutes. **

SPORT DIVING

by David Baxter

Got a paid-up insurance policy? Tired of living and want to end up as fish bait?

Every diver who has donned his scuba gear before a crowd of beachside kibitzers has run into such reassuring talk.

But the comments quickly fade as the diver slides beneath the water leaving all land-locked creatures behind. Too bad they can't be a part of a sport which combines technology, physical stamina and adventure.

Just being in the water with a scuba rig is exciting. To hear air pulsating through the regulator or see aquatic life with sunlight filtering through the surface above is enough to impress anyone. The sensation which overrules all is the incomparable three-dimensional freedom of weightlessness. Few of us will walk in space and scuba diving is the closest thing to it.

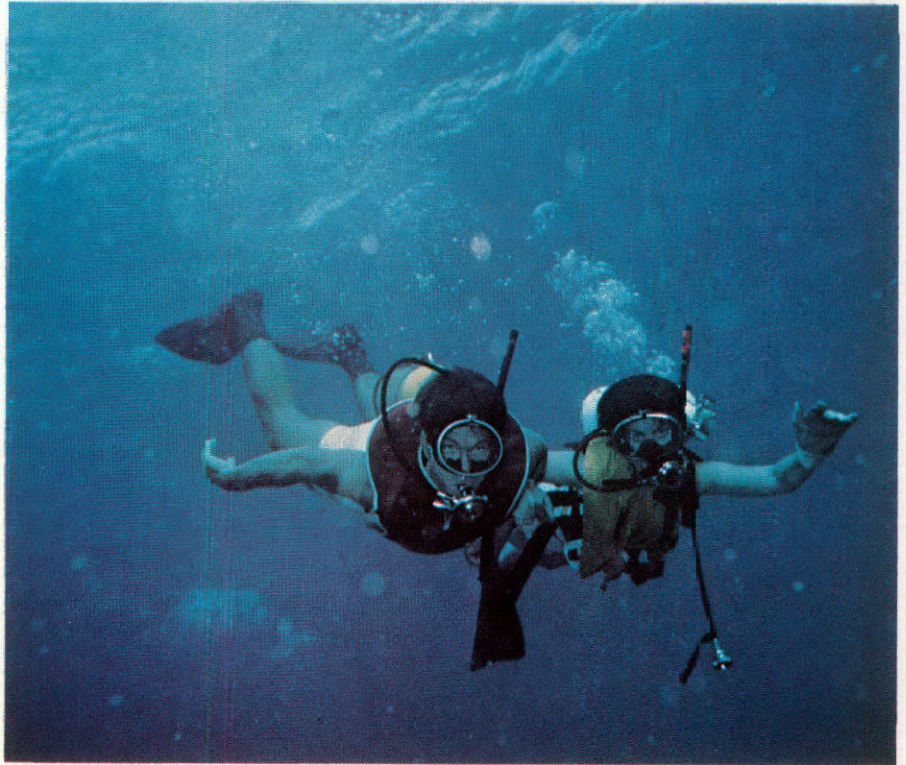
Scuba diving is a legitimate sport and should grow in popularity as more people crowd into parks and scramble for tennis courts and putting greens. In 1970, 1,500 new divers were certified in Houston alone and the projected number of certified divers nationwide in 1972 is 68,000.

Like any other sport, those who excel at diving have overcome both its physical and psychological aspects. Of these two athletic limitations, the latter is perhaps the most formidable. The greatest threat to a diver's safety is himself.

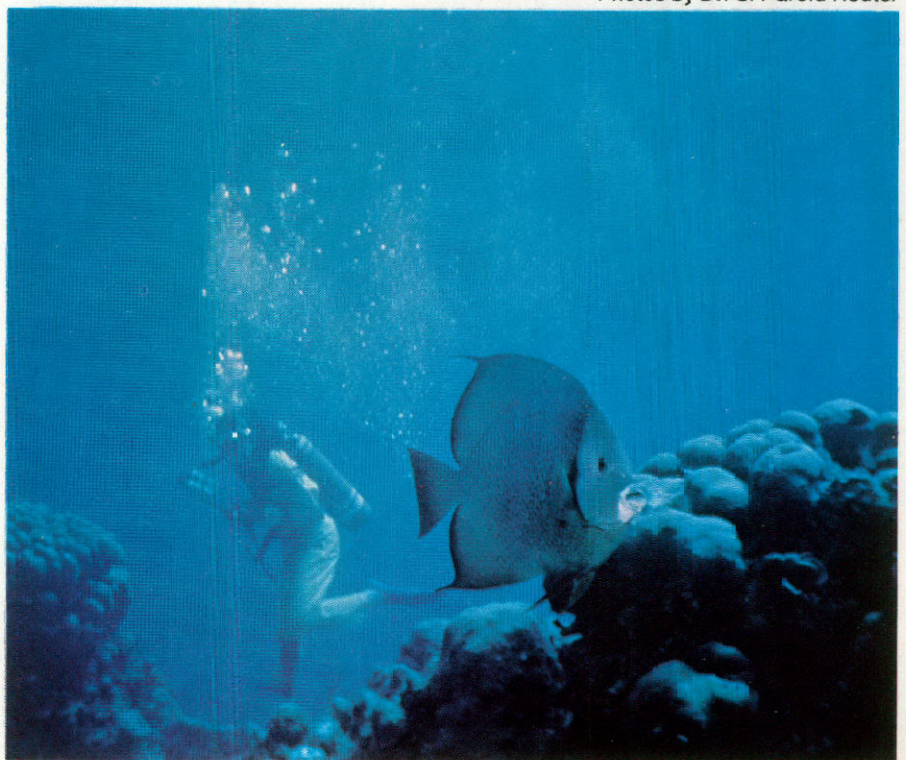
Panic is easy when visibility drops to zero and your buddy disappears in the gloom. A sudden rush of cold water under a wet suit hood shocks the warm ear and produces vertigo, a sensation like being sucked into a huge whirlpool.

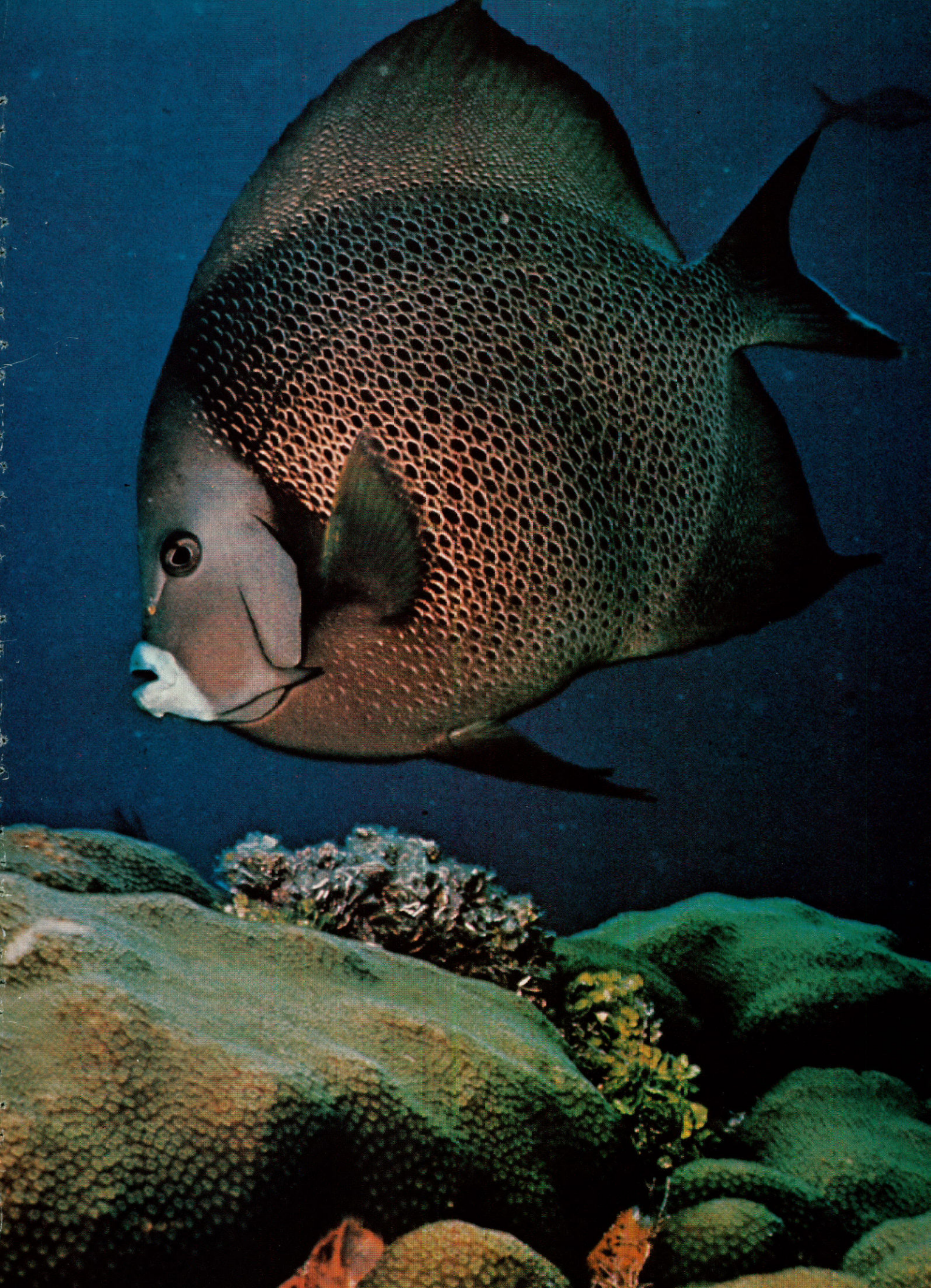
The competence and self-confidence of a rookie diver are threatened by strange equipment and the

Scuba diving is growing in popularity among those who enjoy water sports, and it is safe if you adhere to a few simple rules like taking a buddy along. Diving is fun and it opens up a world of underwater beauty such as the black angelfish which are found on the Flower Garden reef off the Texas coast.



Photos by Dr. S. Harold Reuter





new environment. Here is where instruction provides invaluable groundwork for anyone intrigued by the world under the water's surface.

Good scuba instruction is improved if an individual is relaxed in the water and capable of performing the following:

1. Swim 300 yards without fins.
2. Tow an inert swimmer 40 yards without fins.
3. Stay afloat 15 minutes without accessories such as floats and fins.
4. Swim underwater 15 yards without fins and without pushing off the bank on bottom.

If you can perform these simple tasks and don't panic when water gets in your eyes and nose, you are ready to dive with mask, fins and snorkel.

A free diver uses only these three pieces of gear with the addition of a knife and a safety vest. Contrary to Hollywood misconceptions, the knife is not a weapon to battle sharks but a tool. Any diver who has been tangled in monofilament or seaweed knows how good a tool it can be.

There are several brands of safety vests on the market. The vest is usually constructed of rubber-impregnated nylon which can be inflated with a CO2 cartridge or by mouth. It can automatically return the diver to the surface or keep an exhausted or injured diver afloat. It can also help the diver achieve perfect equilibrium and weightlessness when used in combination with weights.

The free diver who progresses to scuba gear has several advantages over the fellow who runs out and buys the whole rig. The free diver is familiar with the basic equipment and knows how to react when his mask floods. It's also cheaper to start out with only a few pieces of gear since the full retail price of a new air tank and regulator is close to \$200.

Free and scuba diving share several of the fundamental rules.

1. Always dive with a buddy.
2. Know the basics of first aid, especially mouth-to-mouth resuscitation, and pack a first-aid kit

in your dive bag.

3. Do not dive with a cold or sinus condition, shortly after an illness or while on medication.

4. Warn boaters of your presence with the red and white dive flag.

5. Dive with a good safety flotation device, sheath knife and a snorkel.

Why dive with a useless snorkel dangling from your mask if you have a scuba tank? Simple, you can conserve air by snorkeling on the surface out to the point where you plan to dive. And a snorkel makes it easier to swim back to shore with an empty tank pushing your head underwater.

So, there are a few basic do's and don'ts of diving. Now, do you run out and buy some gear and head for the water? Not unless you really do have a paid-up insurance policy. Invest in some scuba lessons before you buy equipment.

The quality of scuba instruction varies from region to region. Several associations have been formed for the purpose of teaching people how to dive, and in the past few years they have improved both in instruction and instructors. YMCA's with pools usually offer such a course as does SCIP (Southwest Council Instructor Program) which is affiliated with NAUI (National Association of Underwater Instructors). Other organizations include PADI (Professional Association of Diving Instructors) and NASDS (National Association of Skin Diving Schools).

For the most part, the certification card issued after completion of a course offered by these organizations is recognized throughout the United States. Why is it so necessary to be certified by one of these groups? Obviously it is in the interest of the diver's safety to know what he is doing before plunging into the sea. And to put a bite into the certification program, most shops which sell compressed air and rent gear refuse to do either if the diver cannot present a certification card.

Perhaps you think that is just a way of giving business to the instructors. Maybe so, but it is in

the best interest of those who make their living in the sport diving industry to establish their own regulations and police themselves before government at some level reacts to underwater deaths and injuries and imposes regulations.

Give the instructor a call and find out what the course involves and how much it costs. Insist on one thing—open water instruction. It's one thing to dive in the clear, placid waters of a pool and another to dive in the surging Gulf of Mexico. If the instructor does not conduct a dive in either open fresh or salt water, demand your money back and write a censoring letter to his group's home office.

In my opinion, a well-schooled and experienced diver is in greater danger driving an automobile to the coast than he is swimming 50 feet below the Gulf's surface. There are not many creatures in the ocean big enough to swallow a man, and ones big enough are just as surprised to see you.

I have found that anxiety during a dive can be alleviated by having something to do other than worry about equipment failures. An apprehensive diver needs something to occupy him so he will enjoy the dive.

There's more than sight-seeing for the sport diver to do. Spear fishing is allowed in fresh water but the species which can be taken are the so-called rough fish: carp, gar, buffalo, suckers, shad, Rio Grande perch, gaspergou, pickerel, bowfin, mullet and goldfish. Any fish you think you can handle may be speared in salt water and the usual fishing license is required for both salt and freshwater fishing.

Scuba diving has been continually refined since Jacques Cousteau took the first plunge 25 years ago with his aqua-lung. The newer air cylinders have been made stronger and lighter with aluminum, regulators have been improved to offer more air with less effort and nitrogen-blown wet suits keep a diver comfortable for longer periods of time.

The most formidable obstacles in a diver's schooling, the prodigious U.S. Navy Diving Tables, have been

simplified. The tables are an indication of how deep a diver can go and how long he can stay without danger of decompression sickness or the "bends." A fellow Texan, Dr. S. Harold Reuter of Houston, has modified the Navy's information into four simple tables which require no last-minute, head-scratching computations for those of us who are mathematically incompetent.

Perhaps the best way to pursue the hobby is to join a diving club. Most of the major cities and several of the universities and colleges in the state have active clubs. Such

organizations will keep you informed and interested in the sport. Some of the larger ones like the Houston Underwater Club have enough membership to charter boats for offshore trips to the Flower Garden Reefs and Stetson Bank. The Flower Gardens are tropical reefs growing about 114 miles out in the Gulf southeast of Galveston. Stetson Bank is 30 miles northwest of the Flower Gardens.

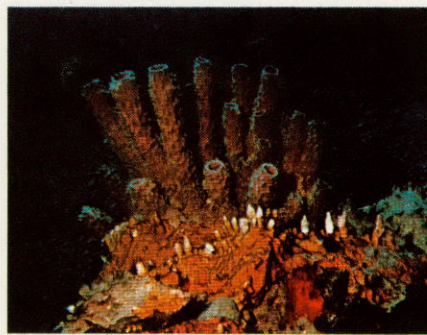
Other diving along the coast is on jetties, reefs, wrecks and under oil drilling platforms. Contact any of the dive shops on the coast for current information.

Freshwater diving is popular in Canyon Lake, Lake Travis and Possum Kingdom. Dive shops are also located in the vicinity.

Diving in neighboring Lake Travis is a particularly painful experience for me. Over the years the water has grown less transparent, algae covers the rocks and the bottom grows more littered with barrels, cans and other debris. Fishermen who toss their beer cans overboard and land developers who create runoffs with bulldozers and construct shoddy septic tanks should take a quick dive. They might realize why they don't catch as many fish as they used to and it might cast a few doubts as to the future desirability of some subdivisions.

And of course, most of the junk which remains suspended in our lakes ends up in the Gulf. I'd hate to have my Army shot card brought up-to-date to go diving, and I'd like to think that anything I speared would be fit to eat.

There are many more techniques to safe and enjoyable diving which I have purposely omitted. This is not intended to be a quick lesson in free and scuba diving. Rather, and forgive the pun, it is meant to whet your interest in the sport. **



This diver has inflated his safety vest to support him after a dive in the Gulf of Mexico. The world below the surface of the Gulf is alive with color, particularly on the Stetson Bank. Tube worms in the lefthand photo extend their gills to form a miniature Christmas tree. They must be approached carefully because the hint of a nearby diver makes them furl their plumage. Tubular sponges grow on a coral head in the upper photo.

References and periodicals about the sport of diving:

Underwater Hunting by Bill Barada; Doubleday and Co., N. Y., 1969.

U. S. Navy Diving Manual compiled by the Government Printing Office; Washington, D. C., 1970.

The Complete Manual of Free Diving; J. Y. Cousteau, P. Talliez, F. Dumas; 1957.

The New Science of Skin and Scuba Diving edited by B. E. Empleton; New York.

The Problems and Techniques of Underwater Photography by S. Harold Reuter, M.D.: Reprinted from the Journal of the Biological Photographic Association, July, 1971.

The Silent World by J. Y. Cousteau; Harper, New York, 1953.

Dive Magazine: 8490 Sunset Blvd., Los Angeles, California.

Skin Diver Magazine; P. O. Box 7765, Long Beach, California.

OUTDOOR BOOKS

HOOFED MAMMALS OF THE WORLD by T. Donald Carter and Ugo Mochi; Charles Scribner's Sons, New York, 1971; 253 pages, \$9.95.

For the first time in one volume, over 300 species and subspecies of hoofed mammals are carefully depicted and illustrated as they exist in their natural habitat. *Hoofed Mammals of the World* possesses a unique style of its own: a combination of simple, yet scientific language by T. Donald Carter united with Ugo Mochi's silhouetted outlines of animals.

Mochi's tools are a simple lithographer's knife and black paper and his products are masterpieces of interpretation and style. Because color and shade are merely secondary distinguishing characteristics of a mammal, the artist concentrates on illustrations which relate to shape and motion.

T. Donald Carter uses his knowledge and talent to produce an interesting description of 35 families and 300 species. Physical characteristics are included as well as habitat and how the animals are related. Although 90 species are listed as rare or endangered, hoofed mammals or ungulates are the most important group of animals to man. From the beginning of man's existence to the present, ungulates have been domesticated, used for transportation and recreation, and bred for food and clothing.

The use of scientific terms is kept to a minimum throughout the book. However, the Latin genus and species are given for each because common names are not standardized. Carter noted, as an example, that a gopher in Texans is a tortoise in Florida.

Hoofed Mammals of the World has become a classic since its first publication in 1953. Copies of the original editions are collector's items and sell for as much as \$100.

Ugo Mochi was born in Florence, Italy and attended the Art Academy in Berlin. Examples of his unique art are displayed in the New York Metropolitan Museum of Art and the American Museum of Natural History.

Donald Carter was a former staff

member of the New York Zoological Society and Assistant Curator of the American Museum of Natural History and has studied animals on expeditions from China and Indochina to Brazil and Venezuela. The team combines simplicity and precision to portray the natural history of hoofed mammals.

Because it is the first volume to include all hoofed ungulates, it is a must for environmentalists who are concerned with endangered species and interested in broadening their own scope. This book will be referred to many times and will never grow old.—Terrie Whitehead

A FIELD GUIDE TO THE BIRDS OF MEXICO AND CENTRAL AMERICA by L. Irby Davis; University of Texas Press, Austin, 1972; 282 pages, \$10 clothbound and \$6.50 paperback.

This field guide will prove an invaluable aid to the birder fortunate enough to travel in Mexico and Central America because it contains illustrations of over 1,000 different kinds of birds. Variations in plumages due to color phases, sex or immaturity are shown to assist the student in field identification. However, only those species not found in United States field guides are illustrated. North American birds that winter in the tropics and species of the Southern United States are covered in the text.

Since size is often an important factor in bird identification, the length of the bird from bill tip to tail tip is shown after the species name. Species accounts are given under family headings, and in the case of large families, accounts are listed in subfamilies.

An important feature of this book is the inclusion of many voice descriptions. These vocalizations are described or indicated by man-made sounds. Timing is shown as exactly as possible, with the approximate pitch given when known. Since many "species groups" look very much alike and can be distinguished only by voice, this feature will

prove a valuable aid in positive identification.

The author has been making birding trips to Mexico and Central America for 35 consecutive years and has specialized in recording and studying voices since 1950. In recognition of his work on the vocalizations of tropical American birds, he was made a fellow of the John Simon Guggenheim Memorial Foundation.

The illustrations for this guide are by F. P. Bennett, Jr.—Ilo Hiller

PILGRIMS OF THE WILD by Grey Owl; Charles Scribner's Sons, New York, N. Y., 1971, first printing 1935; 282 pages, \$7.95.

This first-person narrative relates how the lives of a wilderness trapper and his Indian wife were changed when they accepted the responsibilities of raising two beaver kittens left motherless by their traps.

Their experiences while raising the animals make interesting reading, but they convinced me that I would not want to tackle the job of raising beaver in my home. Visualize a small tired beaver falling asleep draped across the back of your neck or a wet beaver creeping into your bed several times during the night to cuddle. Imagine having the area under your bed barricaded by your pets with wood from your wood box plastered over with mud obtained from a tunnel dug under your house through a hole chewed through your flooring. Think of coming home from a visit to find your house in shambles due to your two inquisitive friends who, being unable to reach things on the table, decided to chew off the legs to bring down the coveted items.

Grey Owl stresses throughout his book that the love and affection given and demanded by these "little people" far surpass any difficulties caused by their inquisitive natures. Their affection was able to touch his heart and lead him to become a devoted protector of the species. In the course of achieving this goal, he became a well-known writer and lecturer and worked tirelessly to protect beaver from the wholesale slaughter of the times. His efforts were finally rewarded and Grey Owl was selected to found a colony of beaver under the protection of the Canadian Government to be used for observation and study. When Grey Owl died, he was buried at Beaver Lodge.—Ilo Hiller

Outside Front—Jim Whitcomb; Nikon-F, 400mm Leitz-Telar; Kodachrome.

Inside Front—Perry Shankle, Jr.; technical information not available.

Page 2—Robert Felling; Hasselblad 500C, 80mm; 2¼ Ektachrome.

Page 3—Martin T. Fulfer; Hasselblad 500C, 500mm Zeiss; 2¼ Ektachrome.

Page 4—Fulfer; Hasselblad 500C, 80mm with extension tube; from 2¼ Ektachrome.

Pages 6-9—Dr. S. Harold Reuter; technical information not available.

Pages 12-13—Bill Reaves; Nikon-F, 400mm Leitz-Telar; Kodachrome.

Pages 14-15—Reagan Bradshaw; Hasselblad 500C, 250mm; from 2¼ Ektachrome.

Page 16—Nancy McGowan; egg tempera on illustration board.

Page 20—Bradshaw; Hasselblad 500C, 80mm; 2¼ Ektachrome.

Page 21—Bradshaw; Hasselblad 500C, 80mm; 2¼ Ektachrome.

Page 22—Information not available.

Page 23 (upper)—Ron Perryman; Nikon-F, 50mm; from Kodachrome. (lower)—Leroy Williamson; Hasselblad, 80mm; from 2¼ Ektachrome.

Page 24—(upper)—Reaves; Nikon-F, 80-200mm zoom; Kodachrome. (lower left)—Bradshaw; Nikon-F, 55mm Micro-Nikor; Kodachrome. (lower right)—Williamson; Hasselblad 500C, 50mm; 2¼ Ektachrome.

Page 25—Bradshaw; Nikon-F, 300mm Nikon; from 35mm Kodachrome.

Page 26-27—Fulfer; Nikon-F, 55mm Micro-Nikor; Tri-X black and white film.

Page 31—Cindy Burleson; pen and ink on illustration board.

Inside Back—Henry Compton; colored ink, pencil and gouache on illustration board.

Outside Back—Fulfer; Nikon-F, 55mm Micro-Nikor with tubes; Kodachrome.

LONG SHOTS SHORT CASTS

compiled by Neal Cook

Fantastic Flight: In October 1965, Wyoming Game and Fish Department personnel tagged a female pintail and released her near Garland, Wyoming. A recent announcement from the USSR Academy of Sciences Zoological Institute in Moscow stated that the duck was killed May 22, 1969, near Omsukchan in the Magadan region of Russia—some 1,500 miles from Alaska's west coast.

Don't Hurt Industry: In a U. S. Senate Interior Committee hearing to discuss the electrical development of the Southwest, much of the discussion was about the Four Corners area where New Mexico, Arizona, Utah and Colorado join. This area has no major cities extremely close, but the air pollution in the area is worse than New York City's. Primary cause of the pollution is a group of electrical power generating plants. At the committee meeting Dr. W. T. Pecora, Under Secretary of the Interior, said that when it is too expensive for a power plant to modify equipment to meet environmental regulations then perhaps the regulations are too strict and need changing.

Instant Fish: New Mexico health officials are trying a novel biological control of mosquitoes that spread encephalitis. The mosquitoes are found near playa lakes which only fill during occasional rains and then become dry soon afterwards. The health officials have found a minnow that lays eggs which can stand prolonged dry spells and then hatch months later when the lakes fill again. So instead of chemical pesticides, they are scattering dry fish eggs in dry lakes—instant fish to eat the mosquito larvae when the rains come.

Few Fishermen: The records of 10,000 inmates in a large southern prison showed that less than two percent had ever owned hunting or fishing licenses.

Endangered Wildlife: Over one-half of the endangered wildlife species in the United States are found in the State of Hawaii. This figure dramatizes the fragile balance between the plants and animals on the limited landscape of the islands. Many factors are involved in the pressure on the island creatures, ranging from the introduction of predators and diseases to the destruction of essential habitat as farms, resorts and home developments increase. The outlook is encouraging as work is advancing on preserving habitat and transplanting species.

When disease strikes livestock

Don't Blame Big Game

By Richard DeArment,
Wildlife Biologist

“That herd of antelope has to go,” declared the irate Panhandle rancher. “They’ve infected my cattle with disease, and I won’t sacrifice my cows for the sake of wildlife.”

Angry landowners have confronted Parks and Wildlife biologists in the past with fears that wildlife will transmit disease to their livestock. One such rancher found that one of his cows had contacted Bang’s disease or brucellosis. He anxiously asked his neighbor how his cow became infected and his friend pointed to a small herd of antelope grazing on the Panhandle horizon and said, “She got it from those antelope yonder.” And that did it.

On another occasion, a rancher demanded that the department either destroy or remove his antelope herd, “because the animals have given leptospirosis to my cattle.”

A month earlier, the rancher had lost 18 head of cattle in the same pasture from I.B.R. (infectious bovine rhinotracheitis). He was convinced that the antelope were carriers of the diseases, and he wanted the game department to remove them by whatever means necessary.

Such confrontations were repeated all too often during the early 1960’s when leptospirosis caused cattle losses in the Texas Panhandle. Antelope, because they are conspicuous animals on the level, High Plains, seemed to many to be the logical “whipping boys” as disease carriers for leptospirosis, brucellosis, I.B.R. and B.V.D. (bovine virus diarrhea).

Almost any disease which causes a high fever in the infected animal which is pregnant at the time will make the animal lose its young. Bang’s disease, leptospirosis, I.B.R. and B.V.D. are the most prevalent of the abortive diseases and cause the greatest concern among ranchers.

Parks and Wildlife Department personnel had long been aware of the increase of these diseases on Panhandle ranges. They became seriously concerned about such diseases when deer and antelope fawn production





declined during the late 1950's. In 1958, deer fawn production was approximately 100 percent but the rate dropped to 48 percent by 1960. Antelope fawn production declined from 59 percent in 1959 to 32 percent the following year.

These severe declines in reproduction among deer and antelope, concurrent with the increasing incidence of leptospirosis, led to concern that cattle-borne diseases might be affecting the big game animals. This possibility plus the impending threat to game animal herds posed by irate cattlemen called for immediate research to reveal the facts of the situation.

The job was initiated under the Panhandle Regulatory Survey Project in 1960 and concluded in 1970. During this period, blood samples, blood films and kidneys were collected from the fresh carcasses of deer, antelope and aoudad sheep harvested during Panhandle hunts and the samples sent to labs for analysis.

As a further check, young antelope fawns were captured each spring for two years and fresh blood films were made and rectal swabs were taken. These fawns were then color marked for field identification and released. These "tested" and marked fawns would provide data on fawn survival.

Throughout the 10-year period no evidence of brucellosis was found in a total of 1,145 blood samples from 827 antelope, 40 aoudad sheep and 278 deer despite the fact that brucellosis continued to occur in Panhandle cattle throughout the early 1960's. This is significant because it exonerates antelope, aoudad sheep and deer as brucellosis carriers.

No leptospirosis infection could be verified in a total of 865 blood samples from 809 antelope and 56 aoudad sheep. Also, only one specimen out of those taken from 256 deer showed a reaction for leptospirosis, and this sample was believed contaminated during the collection process.

A total of 75 serum samples from antelope was sent to laboratories for I.B.R. analysis. These included the 18 duplicate samples sent to

different commercial laboratories from the ranch where a loss of 18 head of cattle from I.B.R. had been reported. Five samples had a low to medium incidence of I.B.R. However, the duplicates of these samples were negative and careful field observations and examination of hunter-killed animals revealed that all antelope were fat and in excellent condition.

Failure to verify the presence of abortive diseases in adult big game animals led biologists to test for presence of these diseases in antelope fawns. The fawns referred to earlier as having been captured and marked were resident on a ranch where reproduction and survival was a critically low 12 percent. Tests for diseases, including one for salmonella, proved negative. Since these fawns were color marked, it was possible to follow their movement and survival in the ensuing months. Of the 18 fawns that were tested the second year, all disappeared within a month. The fact that the antelope fawns which had been tested and found free of abortive disease were lost so quickly leads us to believe that predators instead of disease killed them.

The evidence is quite clear that only quick, decisive action in initiating the disease study saved many hundreds of antelope from being annihilated in the Texas Panhandle.

Game animals do contact disease from livestock and vice versa but American animals have built up resistance to most of the diseases. Diseases such as leptospirosis are very prevalent and can be transmitted through water supplies, and insects such as grasshoppers have been known to carry the malady.

It should strongly indicate that in all probabilities the incidence of abortive diseases in antelope, deer and aoudad sheep is generally much lower than would ordinarily be expected. It should also clearly indicate that in many instances things are not necessarily as they would appear when it concerns wildlife. If hasty and incorrect conclusions are acted upon in wildlife management without known facts, it can often be disastrous. **



This investigation was carried out under Pittman-Robertson Project (Federal Aid) W-45-R, Panhandle Game Management Survey.



Antelope, auodad sheep, and white-tailed deer were examined in the Panhandle for a period of 10 years and found to be innocent of infecting live-

stock with abortive diseases. Ranchers may be generally assured of the peaceful co-existence of big game and livestock.



McGOWAN
179

sand mounder

by Tate Pittman Information Officer, Waco

One of nature's most efficient digging machines is a fascinating little member of the rodent family, the pocket gopher. Weighing less than a pound, this busy little bundle of fur tunnels through the earth like an underground torpedo.

Early French settlers were responsible for giving the gopher his name. Noticing how his burrows honeycombed the soil, they called him *gaufre* meaning "honeycombed." Naturalists later added "pocket" because of his two big fur-lined pouches outside his cheeks—not merely cheeks but true pockets with outside slits.

In East Texas the pocket gopher has acquired the unlikely name "salamander." The name can be traced back to early English settlers who called the rodent "sand mounder" because of the heap of dirt around its burrow. Sand mounder was run together to make "sandymounder" which eventually became salamander.

Six species of pocket gophers are indigenous to Texas: the Botta, Bailey, chestnut-faced, New Mexican, South Texas and plains pocket gophers. Botta pocket gophers, *Thomomys bottae*, are found only in the western part of the state south of the High Plains while the Bailey, *T. baileyi*, occurs only in the Trans-Pecos. The chestnut-faced, *Cratogeomys castanops*, is also in the Trans-Pecos but extends his range into the Panhandle. Around El Paso we find the New Mexican pocket gopher, *Geomys arenarius*. Then, as the name implies, the South Texas species, *G. personatus*, makes his home from the Nueces River southward to the Rio Grande. Plains pocket gophers, *G. bursarius*, are found in all of Texas except for the brush country and the Trans-Pecos area.

A pocket gopher spends 90 percent

of his life underground living the life of a hermit. He is rarely seen above-ground except during the main breeding season in the spring when he searches for a mate or later on when there are young in the nest.

As a rule, only one gopher occupies a burrow. At other times gophers fight on contact. Indians used this fighting habit to hunt for gophers. They leashed one gopher and put him in a burrow. When the intruder and resident locked in combat, the hunters would extract them, kill the second gopher and then repeat the process in another tunnel.

Most species of pocket gophers have only one litter of two to six young per year. At birth the young are blind and naked and their skin lacks pigment. Growing very rapidly, they obtain their parents' size in only three months, at which time they leave the nest and search for a home of their own.

These rodents dig their vast burrows while foraging for food. They regularly eat most tubers and such green tops and available seeds as can be pulled down into the tunnels through root holes.

As the pocket gopher searches for food, the razor-sharp claws on his hefty forelegs scratch away at the earth with a motion so rapid it produces only a blur. As the soil is pushed underneath him, the back legs are brought into play, and he propels the mound of earth behind him. Then, using his blunt head and forelegs, he pushes the earth out side exits of his burrow, forming little horseshoe-shaped mounds.

The gopher's overhanging front teeth are used to shear away soil or to cut through roots. These teeth grow at the rate of about 46 inches per year and must be constantly used to keep them worn down.

The burrow of the pocket gopher is

divided into many little rooms and chambers off the main runways, each with a purpose—sleeping, storage and a place to deposit waste. A nest is built even if there are no young. He builds as he searches for food pausing to eat and stuffing the remainder into his cheek pouches. When the pouches are full, he squeezes the cheek pouches forward like a tube of toothpaste and deposits the contents into one of the little chambers. Food is stored for periods of scarcity, especially droughts when burrowing is very difficult.

The pocket gopher is well equipped for traveling through his underground home. Although his eyesight is poor, the gopher has an extremely sensitive nose to guide him forward and an equally sensitive tail to aid him in traveling backwards. Sometimes he does a little somersault by pushing his head between his hind legs and with a quick twist he faces the other way.

Mention pocket gopher to anyone and you are apt to receive the response of "eradication." True, pocket gophers are destructive when they dig up farmland, orchards, irrigation ditches and earthen dams. But in the wild the gopher's digging brings tons of subsoil to the surface each year. They are one of the chief cultivators of the soil, and much wild vegetation depends on them.

Pocket gophers, as well as other small mammals, are buffers between predatory animals and livestock. When gophers are in good supply, predators such as foxes, skunks, weasels, coyotes, mink and bobcats are not as likely to disturb farm and range stock.

For these reasons, control rather than total extermination of the pocket gopher is recommended, and control should be used only where he becomes a real pest. **

LIVE-CATCH TRAPS



Write for FREE CATALOG Low as \$4.95

Traps without injury squirrels, chipmunks, rabbits, mink, fox, raccoons, stray animals, pets, etc. Sizes for every need. Also traps for fish, sparrows, pigeons, turtles, quail, etc. Save on our low factory prices. Send no money. Write for free catalog and trapping secrets. MUSTANG MFG. CO., Dept. N 37 Box 10880, Houston, Tex. 77018



CAMPING SHOULD BE TAKEN LIGHTLY

We specialize in lightweight camping equipment for the hiker, climber, canoeist, hunter, cyclist, and all outdoorsmen. For the discriminating enthusiast, we stock the finest in goose-down sleeping bags, light-weight tents, packs, frames, rucksacks, climbing gear, boots, kayaks, and a full line of mountain and trail products. Gerry, North Face, Camp Trails, Sierra Designs, Old-Town, Kelty, Eiger, Chouinard, Gerber, Vasque. We are Wilderness Equipment, Inc. and we do take camping lightly - seriously.

Wilderness Equipment Inc.

643 WESTBURY SQUARE / HOUSTON, TEX. 77035 / (713) 721-1530

MINNOW SAVER

Every Fisherman Needs One

Keep minnows & shrimp alive in buckets. Not a gimmick, not a toy—but an attractive, efficient, cordless agitator. Restores oxygen to the water.



Prices:

One for \$3.95

Two for \$7.00

Three for \$10.00

(Add 5% Texas Tax)

IMMEDIATE SHIPMENT

- New Type 1200 RPM Sealed-in Motor
- Operates Up to 6 Hours on One Standard C Flashlight Battery
- No Wires—Can Use Any Bucket
- Only 7½ Inches Long
- Fully Plated to Prevent Rust

Mail Check or Money Order with Name, Address & Zip Code. Sorry—No C.O.D.

M & S SALES COMPANY

P. O. Box 7313-W Waco, Texas 76710

MASSIVE HEWN WOOD MANTEL SHELVES WITH WALNUT PERMA-FINISH



SHELF KIT CONTAINS: HEWN SHELF (Hewn both ends, front edge, and bottom). Hewn brackets, hardware and instructions. Dimensions are nominal.

3'x10'x5'	\$30.08
3'x10'x6'	\$34.39
4'x10'x5'	\$40.56
4'x10'x6'	\$46.73

Add 5% Sales Tax Shipped Freight Collect. Send Postal Money Order. No C.O.D.'s.

Send to
RAIN VENT
8605 Labron Dr.
Dallas, Tx. 75209

YOU'RE THE SOLUTION TO WATER POLLUTION

NOW Set or Take up Trotline in 5 Minutes!

BOOKLET ON HOW TO **20 PAGES**

Catch em!

"TROTLINE FISHING SECRETS" ... written by experts.

How, when, where to set trotline, illustrated. Bait

lows, tackle. Send 25¢ for mailing cost.

LAWRENZ MFG CO., DEPT T, P.O. BOX 3837, DALLAS, TEX 75208



The FEED-ALL

Game-proof, 5-gallon feeder dispenses dry grain and pellets. Self operated by breeze; only one moving part. Simple control cone adjusts opening to dispense and provide positive control of flow of various types of feed. Rust-resistant steel construction. \$6.95 prepaid plus 5% tax. PAT. #2,972,334

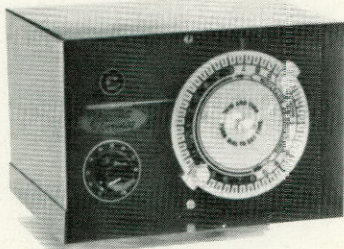
BRADEN WIRE & METAL PRODUCTS, INC.

1310 West Laurel St. P.O. Box 2007 San Antonio, Texas 78201



AUTOMATIC FEEDER MODEL DF-1

It's square—not round like a barrel—because it is designed and fabricated for one specific purpose. Model DF-1 holds 300 pounds of corn and stands on four legs. Constructed of heavy gauge galvanized steel. Lockable door to controls and battery. Feed the amount you want when you want. DF-1 comes complete with 12 volt dry battery and the DFT-1 Automatic Timer. Extension pipe legs are not included.



AUTOMATIC TIMER MODEL DFT-1 (PAT. PEND.)

Hundreds of feeders already in the field do not function properly because of inefficient and unreliable timing mechanisms. The DFT-1 Automatic Timer can rejuvenate these feeders and make them dependable, easily operable units. Jeweled 24 hour clock movement. Electronic circuitry for precise feeding cycles. Up to eighteen operations per day. No flashlight batteries or photo cells. Adjustable from 0-30 seconds. Twelve volt D. C. Automatic or manual operation. Simple to program. By far the finest battery powered timer made.

12 months warranty. Free brochure. Dealer franchises.



SWEENEY INSTRUMENTS
WELFARE, TEXAS 78036
(512) 537-4244

PARKS FOR TEXAS





by Ilo Hiller

When Governor Pat M. Neff discovered Texas did not have a state parks system or a state department authorized to hold title to park lands for public use, he appealed to the 38th Legislature in 1923 to create the State Parks Board. This newly formed board, composed of members serving without pay, was instructed to solicit donations of land, investigate possible park sites and report their findings to the Legislature.

Prior to the formation of this board, only a few private areas were available to the public for picnics, camp meetings or political rallies. One such area located southwest of Waco belonged to Isabella Neff, the Governor's mother. In her will, dated June 2, 1916, she donated a six-acre tract with a pecan grove to the state which later became the first state park. The park has now been expanded to 259 acres and is known as Mother Neff State Recreation Park.

Activities of the State Parks Board for the first 10 years were limited to accepting donated park sites since no funds were available for park purchase or development. However, economic recovery acts passed in 1933 during the Great Depression provided both money and manpower for park development. The Civilian Conservation Corps, the National Youth Association and the Works Progress Administration constructed facilities, laid out roads and otherwise developed the donated park land in cooperation with National Park Service master plans.

The State Parks Board was granted authority by the 43rd Legislature to purchase its first parks—Longhorn Cavern and Palo Duro Canyon—on vendor lien notes payable out of park proceeds. Longhorn Cavern's 708 acres of land were purchased in 1931, and receipts from the park admission fee paid off the note against this park on schedule—July 13, 1939. The 15,104 acres at Palo Duro Canyon were purchased



in 1933; however, the revenue collected there from 1933 to 1947 was insufficient to pay off its \$377,600 indebtedness, and the note was in default. To remedy this situation, the 50th Legislature authorized the State Parks Board to issue \$300,000 in revenue bonds which were retired on May 15, 1966, through park entrance fees collected at Palo Duro.

Legislative action in 1949 transferred all historical parks, with the exception of Fannin and San Jacinto battle-grounds, to the jurisdiction of the State Parks Board. Prior to this action, these historical parks had been under the State Board of Control.

All of the parks in the state park system in 1961, with the exception of Palo Duro Canyon and Longhorn Cavern, were either transferred to the State Parks Board by legislative action or acquired through donations from private individuals and groups or local governments, or leases from the U.S. Army Corps of Engineers.

Since the small appropriations granted the State Parks Board went only to keep existing structures in repair, no money was available for the development of new parks. There were

no nature trails, only one archeological exhibit and only two or three historical exhibits of any merit.

Aware of its many problems, the State Parks Board requested that the Texas Research League make a comprehensive study of the parks system and recommend methods for improvement. This survey was completed in October 1961. The League concluded that the state parks system was "badly out of date" and recommended a complete park planning program which was accomplished through an inter-agency agreement with the Department of Park Administration, Horticulture and Entomology at Texas Tech.

Appropriations were given to the State Parks Board for the development of Garner, Huntsville, Inks Lake, Lake Corpus Christi and Fort Parker state parks in accordance with proposals made by Texas Tech, and a total of \$633,000 was expended on these developments.

As a result of the Research League's survey, Governor John Connally stated in his address to the Joint Session of the Texas Legislature on January 16, 1963, that "Our present State Park Sys-

tem is sick to the point of dying. Our parks are many, scattered and without tourist-attracting features needed for effective use. I propose the consolidation of the State Parks Board and the Game and Fish Commission under a three-member commission. These agencies perform different aspects of the same function and the administrative structure and field organizations of each can be meshed to provide stronger programs in each area with greater efficiency" . . . "We must make giant strides, because time has run out. We must decide what we want in the way of parks and what it will cost, then provide this service to our people, or not attempt to engage in the activity at all."

House Bill 21, which was passed by the Legislature, signed by the Governor and put into effect August 23, 1963, provided that the Game and Fish Commission would be reconstituted and known as the Parks and Wildlife Department. The State Parks Board was abolished and all its powers, duties and authority were transferred to the Parks and Wildlife Department. So ended the first 40 years.



As a result of the merger, 58 state parks came under the administration of the Parks Services of the Parks and Wildlife Department. These 58 parks consisted of 62,023 acres—46,713 land acres and 15,315 acres of water. Since Palo Duro Canyon State Scenic Park claimed 15,104 of the land acres, only 31,609 acres were left in the remaining 57 parks to serve the recreational needs of the state, and only a small portion of this land had been developed for recreational use prior to the merger.

Port Lavaca Causeway State Park, acquired through a transfer of jurisdiction from the Texas Highway Depart-

ment, was completed on May 26, 1964. This 3,200-foot fishing pier was constructed from portions of the old Lavaca Bay Causeway which was destroyed by Hurricane Carla in 1961. Funds for the construction of this pier were provided by legislative action.

Appropriations for developments at Falcon, Lake Whitney and Martin Dies, Jr. (formerly Cam B) state parks, in accordance with plans prepared by Texas Tech, were made by the 58th Legislature—\$279,413 for Falcon, \$451,500 for Lake Whitney and \$511,050 for Martin Dies, Jr. This money was used for the construction of park roads; water and sewage systems; fish cleaning shelters; trailer camping areas; screened and shade shelters; electrical service; boat launching ramps; headquarters, concession and maintenance buildings; ranger residences; restrooms; and even a dirt landing strip at Falcon.

The 59th Legislature placed the 440-acre San Jacinto Battleground, where Texas won its independence from Mexico, and the 13-acre Fannin Battleground, where Fannin and 284 of his men surrendered themselves to the Mexican General Jose Urea, under Parks and Wildlife jurisdiction on September 1, 1965. That same year the Legislature appropriated \$1,943,214 to be used for the development and expansion of facilities in 10 parks—Kerrville, Eisenhower, Stephen F. Austin, Tyler, Palo Duro, Governor Hogg

Shrine, Davis Mountains, Bastrop, Meridian and Old Fort Parker.

The Statewide Comprehensive Outdoor Recreation Plan was put into effect during the fiscal year 1965-66. This five-year plan, a requirement of the Bureau of Outdoor Recreation, United States Department of the Interior, enabled Texas to participate in the Land and Water Conservation Fund Program. This program provides federal funds to a state on a 50-50 matching basis for planning, acquisition and development of outdoor recreation areas and facilities which meet certain federal and state requirements. Through this program, the Parks and Wildlife Department received \$388,162 for 1965, \$3,356,807 for 1966 and \$2,418,825 for 1967 to acquire and develop parks.

The 269-acre Lyndon B. Johnson State Historic Park was acquired in 1967 through donations of money from private individuals. This park lies along the south bank of the Pedernales River opposite President Johnson's ranch home. The area is rich in history and many people living near the park can trace their ancestry back to the German settlers who developed this land in the heart of the Hill Country.

When a new bridge was constructed across Copano Bay near Rockport, jurisdiction for the old causeway was transferred from the Texas Highway Department to Parks and Wildlife and it became Copano Bay Causeway State Park. Five hundred feet of the old causeway were removed for navigational purposes and the causeway was divided into two parts with 6,000 feet on the north end and 2,390 feet on the south end. This lighted fishing pier provides accessibility to saltwater fishing for many who would otherwise be unable to participate in the activity.

Fort Leaton, Fort McKavett, Fort Lancaster and Fort Richardson historic sites were donated to the state during the fiscal year 1967-68. These forts played an important part in the development of the state as deterrents against Indian attacks on early settlers. Architectural surveys were initiated at these sites through provisions of House Bill 58. This bill authorized the department to initiate a program for the acquisition, restoration and maintenance of historical and geological sites and other sites relating to prehistoric animal or plant life.

Legislation authorizing a \$75 million state park acquisition and development program was enacted by the 60th Legislature, presented to the public on November 11, 1967, and approved by



Reagan Bradshaw **Fort Griffin**



Leroy Williamson **Inks Lake**



stairstepped rock formations and litter-free creeks and canyons—contains 4,851 acres. Galveston Island's 1,922 acres span the island at its middle with two miles of marshy tideland shore on Galveston Bay and two miles of sandy beach on the Gulf of Mexico.

At no cost to the state, the county of El Paso conveyed by warranty deed 738 acres containing the well-known Hueco Tanks. These natural cisterns collect precious rainwater and historically provided the only water for miles around. The area became a favorite camping place for Indians, and their pictographs can be found on cave walls in the park. An adjacent 121-acre tract of land was acquired for improved access to the park.

A 1,655-acre lake and 500-acre park site at Lake Colorado City were added to the park system through a no-cost, 50-year lease from the Texas Electric Service Company with an option to renew the lease for an additional 50 years.

The 62nd Legislature levied a tax of one cent per package of cigarettes on July 1, 1971, and \$7,782,980 has been credited to the "Texas Park Fund" through this tax as of February 29, 1972. The Parks and Wildlife Department was authorized to use this money for the planning, acquisition and development of state parks and state historic sites.

In late 1970, four new parks were added to the system—Lake Arrowhead, Copper Breaks, Lake Somerville and McKinney Falls.

Lake Arrowhead's 524 acres were purchased from the City of Wichita Falls and are located on the north side of the lake just above the dam. This site had previously been used as a city park with limited facilities.

Copper Breaks, located in Hardeman County, was purchased from Mr. and Mrs. H. L. Gossage of Quanah. Flat mesas in 1,934 acres of otherwise broken range overlook the Pease River. Small lakes, created by earthen dams, are found in many of the scenic canyons on the site. This park is representative of the stark and rugged beauty common to many parts of North and West Texas.

Lake Somerville, leased for 25 years from the United States Corps of Engineers, is composed of two tracts. The Nail's Creek Unit on the southwest side of the lake contains 300 acres and the Birch Creek site's 640 acres are located on the north side.

The 632 acres at McKinney Falls were donated to the state by Mr. and Mrs. J. E. (Pete) Smith and Annie M. Smith of Austin. This site, located on Onion

Creek, south of Austin, contains untouched wooded hillsides along the waterfalls and rapids. The new headquarters building for the Parks and Wildlife Department is to be located in this park.

During 1970, Fort Richardson was expanded through the acquisition of three tracts of land. A 40.51-acre tract immediately west of the park was purchased from Mr. and Mrs. Hershell E. Eichler, Jr. This tract includes a 100-year-old residence built of native stone. A small lake, previously the site of an old rock quarry, is located on the 23.87 acres purchased from Mrs. Annie R. Andrews and Mrs. Brunette Sewell. The largest tract, 278 acres on the southern border of the park, was purchased from Mr. and Mrs. E. B. Sewell.

Fairfield Lake State Park, located in Freestone County, was obtained in November 1971 at no cost to the state through a 25-year lease from the Industrial Generating Company. This company is owned by Dallas Power and Light, Texas Electric Service Company and Texas Power and Light. The park contains 1,460 land acres and borders the 2,450-acre Fairfield Lake which was created to hold cooling water pumped from the Trinity River. The woods surrounding the lake are predominantly oak and offer a sanctuary to birds and wildlife.

Mr. and Mrs. Charles C. Stringfellow, Jr., made a gift to the department of .58 acres adjacent to Fort Leaton State Historic Site. This small strip of land provides direct access to the park from the highway and contains the ruins of a small chapel.

The Governor Hogg Shrine, expanded by three acres acquired by the department in 1970, received another 6.7 acres in 1971, donated to the state by Ima Hogg.

On January 20, 1972, the department acquired the hospital tract at Fort McKavett by purchase from Mrs. Camilla Ball Edwards of San Angelo. This tract contained 2.66 acres. Mrs. Edwards also made a gift to the department of three additional tracts containing a portion of the fort's parade grounds. The total area acquired was 9.821 acres.

The Parks and Wildlife Department is currently engaged in a vigorous program for the acquisition of new park sites as well as additional acreage for the expansion of existing parks. The department is also striving to develop all park sites under their jurisdiction to full potential for the enjoyment of the people of the State of Texas as well as out-of-state visitors.

**

How To: Repair Rods

by Dwane Smith
Inland Fisheries Biologist

SLAM! That hungry trunk lid just bit off the tip of another fishing rod.

Don't discard the broken rod. Broken or damaged rods can either be mended or parts can be salvaged and used for repairing other rods. Repairing the rod depends on where it broke and the type of rod. It also depends on whether or not you mind losing the rod's original action.

If you decide that you can't repair the rod, salvage the eyes and handle for spare parts and buy a new one. Another method is to send the rod back to the manufacturer for him to replace or repair the broken section.

Almost all rod manufacturers repair their products. Check the warranty when you buy a rod, or, if you have a broken rod and are not sure of the warranty, ask a tackle store for the manufacturer's address. When you send a rod back for repairs, send the whole thing, not just the broken section. Pack the rod so it will not be further damaged in mailing and enclose a letter telling what you want done, your address and any comments pertaining to the rod. Mark the package "First Class Letter Enclosed" and add standard letter postage to the cost of shipping the rod.

Most manufacturers will supply you with a cost estimate, but this only delays repairs and it is wisest to let them bill you. They want satisfied customers and will be fair in their charges.

If only the tip is broken, it is possible to add another top line guide with a larger inside shank diameter. Cut off the mashed or splintered part of the rod, and use fine sandpaper to remove old paint, varnish and glue. Take the broken rod to the tackle shop to get the correct size and guide.

Use ferrule cement to attach the new guide. This cement is available at hardware and sporting goods stores. To use, heat it over an open flame, spread it on the rod tip and then push on the new guide. Reheat the guide to align it with other guides and to insure a proper seal.

Another method of repairing a break about halfway between the tip and the joint on a two-section rod is to take the pieces to a tackle store and buy new ferrules to connect the broken sections. This will turn your two-piece rod into a three-piece one. Some action will be lost, but it is relatively easy to attach

the ferrules.

If the break is too far back to use a new top line guide, cut the rod to a point where the broken piece can be inserted into the hollow glass rod. Insert the stub of the rod tip and secure it with epoxy glue. Align the guides and wrap the rod at the joint as described in the May issue.

Large saltwater rods are usually expensive and worth mending while some of the smaller or less expensive ones may not be worth repairing. It is wisest to repair these rods only when the break is in the bottom half of the rod. Many times, the rod will lose some of the original action, and some new areas of stress will be created which may weaken the rod.

Repairs to large glass or hollow fiberglass rods can be made using fiberglass cloth, polyester resin and the catalyst, mixing container, knife, a piece of bond paper and something to spread the resin. Kits for rod repairs are sold at some sporting goods stores or large discount houses. Be sure to use regular fiberglass resin instead of epoxy glue.

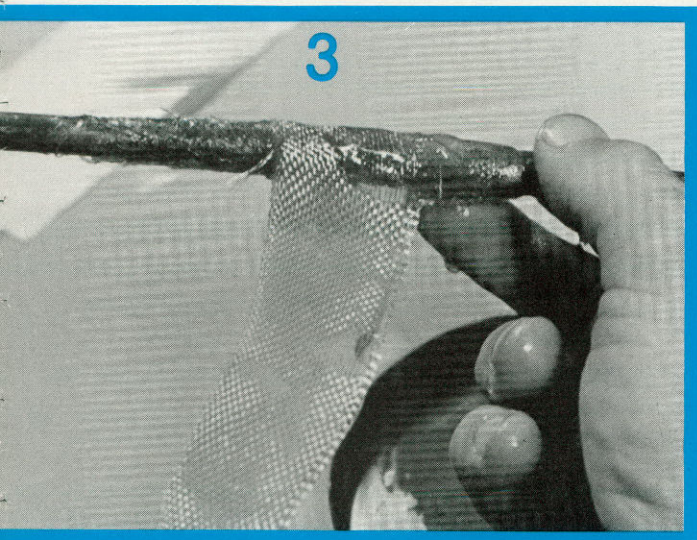
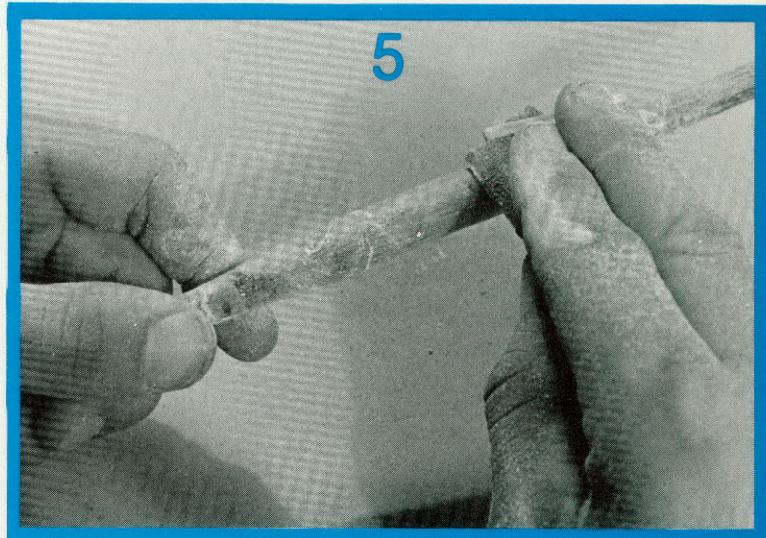
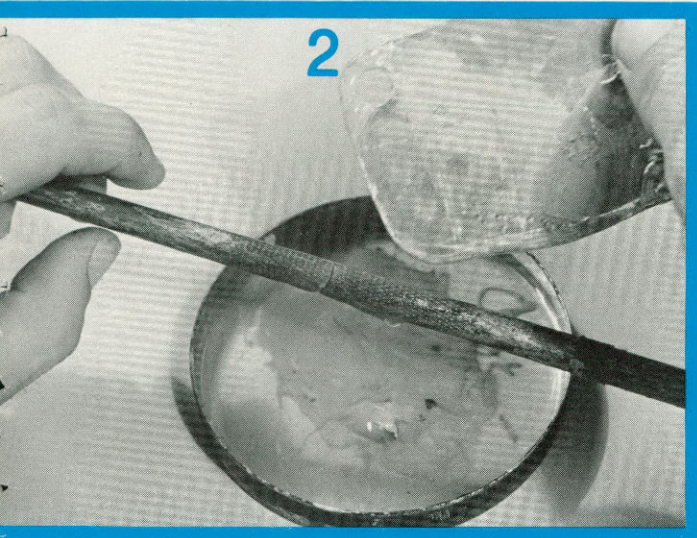
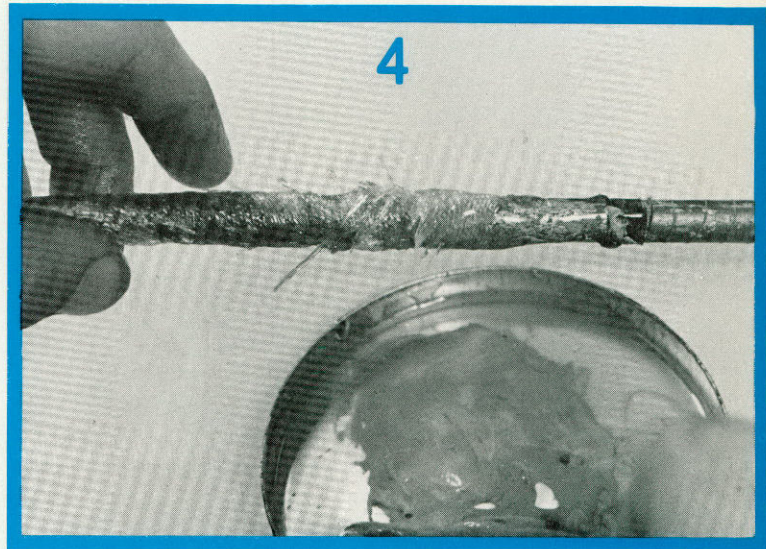
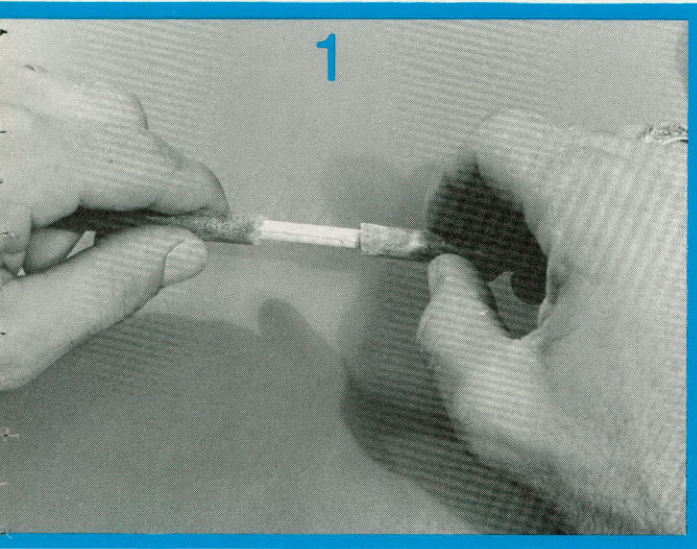
Remove all splinters and sand the two ends to be joined. Roll the piece of bond paper, beginning at one corner, into a tube and insert it into the rod parts to hold them together.

Cut the fiberglass fabric to desired length allowing enough to make two complete wraps around the rod. Mix polyester resin and catalyst according to directions and apply to rod at the joint and on either side as far as the fiberglass fabric will be. Wrap the fabric around the rod and apply a liberal amount of resin between the layers. Complete the two laps, extending the fabric several inches on each side of the break, and let cure. Don't let rod parts slip while curing, so as to maintain alignment of the line guides.

As soon as the resin hardens, sand it smooth and apply another coat of resin, let it cure again and sand to smooth finish. Let cure overnight, then sand smooth again. There will be an unsightly bulge at the repair point but this method will save the cost of a whole new rod.

Remember that the broken rod will never have the same action it had before being repaired, and it may not be pretty. But you will be able to fish with it and land almost any fish you could catch with the unbroken rod.

**



Repairing large glass or hollow fiberglass rods is easier than it sounds. Photos one through five demonstrate the repair sequence with fiberglass fabric and resin. Mix only a small amount of the resin and work quickly with it because it hardens in less than an hour. Spread the resin with a brush, spatula or similar tool as in photo number two. Most fiberglass repair solutions cure in about three hours so a rod broken one morning can be ready to go the next day. Don't worry about frayed fiber ends like the ones in the fourth shot; they can be sanded smooth. The mend may not be pretty but it is strong.

"RIO GRANDE" WILD TURKEYS

*SELECT HATCHING EGGS

\$11.95 Dozen

Feb. thru May

85% fertility guaranteed

*DAY-OLD POULTS

100% LIVE DELIVERY

\$2.50 each—Postpaid

Mar. to June

*STARTED POULTS

3 wks.—\$3.50, 8 wks.—\$5.50

(Sold only with prior booking)

*FREE INFORMATION ON

REQUEST CONCERNING

RE-STOCKING

*WE'RE AS CLOSE AS

YOUR TELEPHONE

TEXAS GAME BIRD RETREAT

Route 2, Fredericksburg, Texas

512-997-4586 or 257-7072

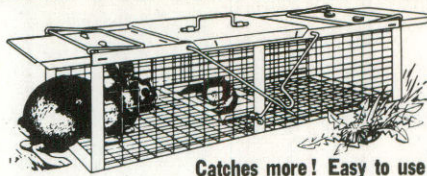
**YOU'RE THE SOLUTION
TO WATER POLLUTION**

WAGONYARD

Crockett, Texas—FM 229—2 mi west of Loop 304. Camp in beautiful East Texas. Trails for hikers, bikes and horses. Facilities for your horse.

Restrooms—Showers—Sanitary Dump

CATCH THEM ALIVE AND UNHURT!



Catches more! Easy to use!

Amazing HAVAHART trap captures raiding rats, rabbits, squirrels, skunks, weasels, etc. Takes mink, coons without injury. Straying pets, poultry released unhurt. Easy to use—open ends give animal confidence. No springs to break. Sizes for all needs. FREE booklet on trapping secrets. HAVAHART, 149 Water St., Ossining, N. Y. 10562

Please send new guide and price list.

Name _____ Zip _____

Address _____

Bottle Collectors

WHAT ARE YOUR BOTTLES WORTH? Identify and price over 2,500 new and old collectible bottles. Beams, Avons, Fruit Jars, Medicines, Inks, Snuffs, many others. "BOTTLE COLLECTOR'S HANDBOOK AND PRICING GUIDE", by Yount is the most complete bottle book you can buy. All 18 categories. Illustrated new edition! Plus, free bonus directory: "Where To Buy and Sell Bottles" \$3.95 Postpaid. Infobooks, Box 5001 San Angelo, TX 76901

BIRD DOGS

Chandler Kennels, one of the largest in the business offers to you for your selection over 100 top trained POINTERS, SETTERS & BRITTANIES. These dogs are all registered out of top blood lines. We guarantee all our dogs as advertised to suit you, the Hunter. Also puppies & started dogs.

Call, write, or come by:

CHANDLER KENNELS

P. O. Box 1011, La Porte, Tex.

Call: Area Code 713-GR 1-4023

Hollen Chandler - Owner

NEW! INDICATOR



Valuable newly developed, easy to read measuring instrument for operators of boats, cars and house trailers. Indicates if vehicle is resting level, measures acceleration and deceleration rates, degree of incline and decline rates - also degree of banking. Simple installation on any smooth surface Plus a manual.

ONLY \$6.50 Postpaid

Texas residents add 3% Sales Tax. No. C.O.D.'s. Ten day money back guarantee. Supply limited to present stock.

ORDER TODAY FROM: CASCO, Dept. CLI121, Box 20106, San Antonio, Texas 78220.

ELECTRONIC GAME FEEDER

Build your own game feeder with our pre-assembled electronic Motor/Control. Control operates once or twice a day with adjustable run time. Motor/Control and construction plans only—\$39.50 plus tax, post. Brochure available.

JACKSON MANUFACTURING

P.O. Box 1216,
LaPorte, Texas 77571

Year Round

"Guaranteed Trophy Hunting"

Russian Boar—Javelina—Bobcats

All exotic game

Gun—Bow

Safariland Guide Service

Junction Hwy., Box 1913 Kerrville, Texas 78028

(512) 257-7567



**"NO
GAME
NO
PAY"**

BLACK BUCK
ANTELOPE

SAFARI STYLE HUNTING

- OVER 125 SQUARE MILES
- GAME FROM FOUR CONTINENTS
- EXCELLENT MEALS, LODGING
- CUSTOMER ENTERTAINMENT PROGRAM

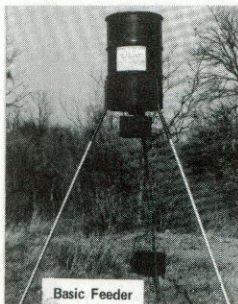
CALL OR WRITE TODAY



**Y. O.
RANCH**

BOX 220, MOUNTAIN HOME, TEXAS 78058

Telephone (512) 654-2076



Basic Feeder



**AUTOMATIC ELECTRIC
FEEDERS for
GAME • FISH • LIVESTOCK**



Feeder Kit

Feeds daily anywhere at Dawn or Dusk or Both. Patented electronic timer, photocell operated, battery-powered. Feeds at optimum times regardless of the seasons for greatest effectiveness and feeding efficiency. Adjustable dispensing rate and time. 110 volt A-C powered models also available.

	Shipping Weight	Price
Basic Feeder — Model PTF (Includes battery)	85 lbs.	\$139.50
Feeder Kit — Model PTFK (includes battery, universal funnel for 5 gal. cans and larger, complete except for feed container)	20 lbs.	\$89.50
Pipe Leg Suspension — Model PLS (As shown)	38 lbs.	\$10.00
Tripod-Winch Suspension—Model TWS (Not shown)	140 lbs.	\$69.50

Send for free brochure of complete line.

SPENCO

SPENCO, Inc.

5911 Bullard Drive, Austin, Texas 78731 Phone 512/454-3355

SPECIALTY PRODUCTS
AND ENGINEERING

LLANO COUNTY LEASES

Excellent hunting available for season, week, or weekend. Individual pastures with cabins and/or campsites for each group. Deer, Turkey, Dove, Quail, Hogs. Reservations accepted now at reasonable prices.

BEN A. WALLIS & SON

LLANO, TEXAS 78643

(915) 247-5207

VICKERS SNAKE REPELLENT

4 POUND BAG TREATS 1400 SQ FEET

\$4.95 POST PAID (NO C.O.D.'S)

USE ON CAMPSITES, BLINDS

UNDER MOBILE HOMES

SATISFACTION GUARANTEED

VICKERS INDUSTRIES

5607 RANSOM

HOUSTON, TEXAS 77017

Hunters Fishermen

C. B. Radios

Mobiles, Base Stations, Walkie Talkies, Antennas, Crystals, Accessories. We service and install what we sell.

Communications Equipment Inc.

P.O. Box 5451 • 512-732-8288

1216 Fredericksburg Rd., San Antonio, TX 78201



TEXAS HUNTER®

For Safety and Comfort!

FOR THE HUNTER ON THE MOVE

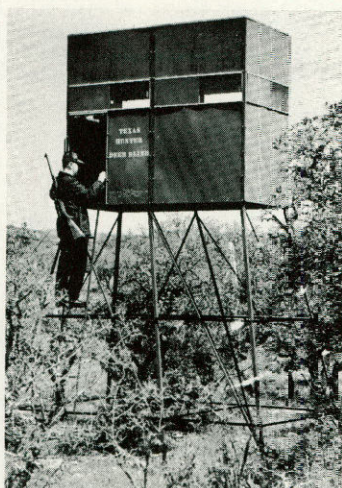
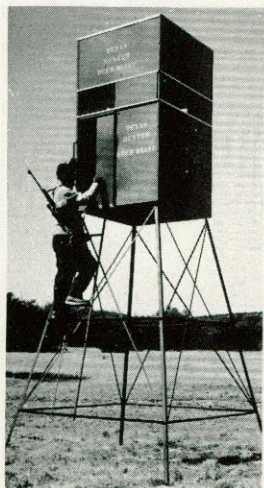


THE RIGID LIGHTWEIGHT TRIPOD STAND, allows the hunter to move from one location to another with ease. The stand is fabricated of aluminum with handle for easy carrying. The seat is fabricated of aluminum and wood with gun rest and silent 36C degree swivel. Stand is shipped assembled, the seat knocked down. Complete on 10' stand 44 lbs. \$89.00.

SWIVEL ARM CHAIR



Full-turning, aluminum and wood chair is extra strong and roomy, with proper tilt for comfort. Designed for use in the enclosed blind. \$16.00.



Warm, Dry ENCLOSED DEER BLINDS

feature rigid steel frame construction, galvanized metal roof, 1/4" tempered masonite sides and 3/4" plywood floor. Steel ladder to free-sliding door and safety hand-bar at left side allows easy entrance and exit. Improved shooting ports on all four sides provide complete visibility. Bypassing glass sections and panels are in divided channels of non-warp, extruded aluminum. Inside height of both blinds 6'3". Blinds may be used on ground or on Texas Hunter's portable, rugged all-steel towers. Shipped knocked down.

SINGLE BLIND 4' x 4'		SIAMESE BLIND 4' x 8'	
Without Tower	\$ 98.00	Without Tower	\$179.00
on 10' Tower	\$145.00	on 10' Tower	\$260.00
on 15' Tower	\$192.00	on 15' Tower	\$345.00
on 20' Tower	\$258.00		



SWIVEL "HIGH CHAIR"

Weather-and-sun protected observation chair enables full view of hunting area. Silent, 360-degree turn-seat, aluminum framework. Side arm rests. Front safety bar provides gun rest. All-steel stand, wide base spread for extra safety. Shipped knocked down.

ON 10' STAND, \$89.00
ON 15' STAND, \$125.00



NOW!

A FULL COLOR MAP and DEPTH GUIDE OF YOUR FAVORITE FISHING AREA

Actual aerial photo with depths diagrammed on lake to show every cove and inlet, navigational aids, etc. Area surrounding lake is marked with highways and roads. Easy to read! Accurate!

PICTO-MAP and DEPTH GUIDE
1972 Editions Now Available

- CANYON LAKE
- BRAUNIG AND CALAVERAS LAKES
- GREERS FERRY

Produced by

BOOKMAP™ CORPORATION

Affiliated with International Aerial Mapping
8927 International Dr.
San Antonio, Texas 78216
Phone: (512) 826-8681

ORDER YOUR PICTO-MAPS and DEPTH GUIDES NOW

Please send me Canyon Lake Greers Ferry Braunig and Calaveras

Name _____

Business Name _____

Address _____

City and State _____

Enclosed is \$1.00 each for my Picto-Map(s). Postage and handling charges included.

Yes, I am interested in Picto-Maps for re-sale at my place of business.

- Prices FOB San Antonio, plus 5% sales tax. • Discount on quantity purchases.
- Special units designed and fabricated on request.



BRADEN WIRE & METAL PRODUCTS, INC.

1310 West Laurel St. 512-734-5189 P.O. Box 5067 San Antonio, Texas 78201

Young Naturalist

Bee Stings

by Ilo Hiller

When you are out in the yard this summer trimming hedges, cleaning weeds out of flowerbeds or just climbing trees, you may meet a member of the Hymenoptera (hy-men-OP-ter-ah) family.

Hopefully, the meeting will be a pleasant one since members of this family include the honeybee, bumblebee, yellow jacket and paper wasp.

These are all stinging insects, but did you know that they only sting in defense if frightened or if the hive is threatened? One can land on you, and if you remain calm, quiet and make no sudden moves, it will probably fly away with no mishap. A sudden movement, however, will put the insect on the defensive, and its defense is its stinger.

Let's examine a bee's weapon. Glands containing a poison or venom are located at the base of the hollow stinger inside the bee's body. As the bee stings, muscles force the poison from the glands through the hollow stinger into the wound. It is this poison which causes extreme pain.

The honeybee's stinger has several small hooks or barbs on the end which catch in the skin during the stinging process. As the honeybee struggles to free itself, the stinger, poison glands and the muscles which control them are torn from the bee's body. This injury is fatal to the bee and it dies within a short time.

The muscles will continue to pump poison into the wound and force the stinger deeper into the skin, so it is important to remove the stinger as soon as possible. Removing it with tweezers will only force more poison into the skin. Instead, scrape the stinger out with a fingernail or knife.

Wasps, hornets and yellow jackets do not have barbed stingers and are usually not harmed by the stinging process. In fact, they sometimes sting several times in succession.

Simple first aid is all that is needed if the victim is not sensitive to insect bites and stings. Run cold water over the wound or apply ice to help prevent the spread of the poison. A paste of baking soda and water or cold cream will help ease the pain. Later, an application of calamine lotion will relieve the itching.

However, if the victim is allergic to bites and stings, prompt medical attention is necessary to prevent an extreme reaction or, in rare cases, death.

Painful stings can be avoided with caution and common sense. Do not put your nose in a flower to smell its fragrance before checking to see if the bloom is occupied by a honeybee or bumblebee. Avoid climbing flowering trees because they always attract bees. Look carefully before reaching into bushes and hedges to retrieve baseballs or you might bump into a paper wasp's nest.

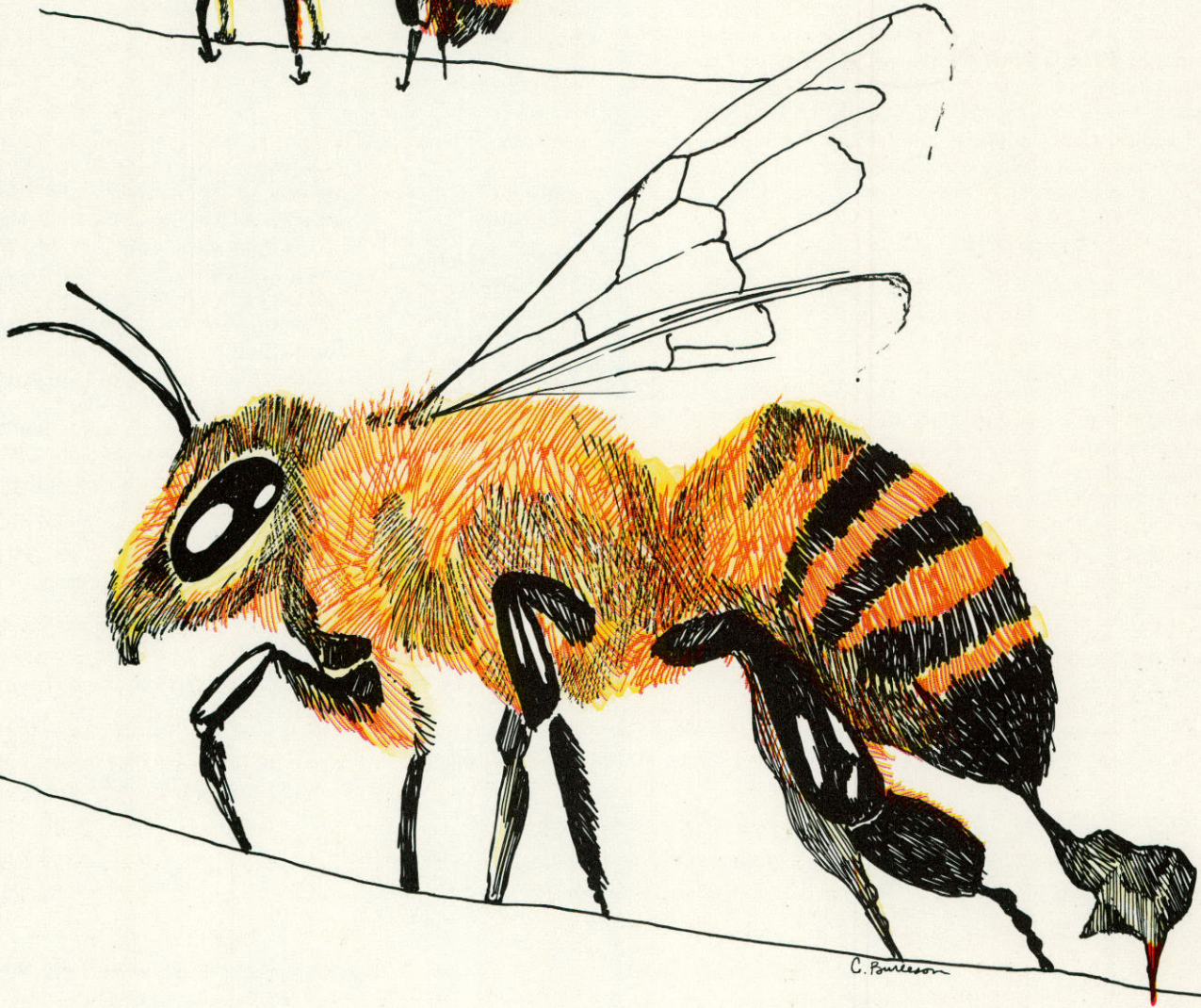
Learn to live in harmony with these stinging insects, because they are helpful to man. In the process of gathering their pollen food and flower nectar, they carry pollen on to other flowers. This is called cross-pollination and it helps make healthier plants and better fruits. In fact, some plants cannot produce seeds unless they are cross-pollinated.

In addition to the helpful pollinating activities of honeybees, these tiny insects produce enough honey for man to harvest between 150 and 200 million pounds of this sweet treat each year. Beeswax is also obtained from the honeycomb and is used in polishes, cosmetics, ointments and candles. It is estimated that 50 million dollars' worth of honey and beeswax are produced each year.

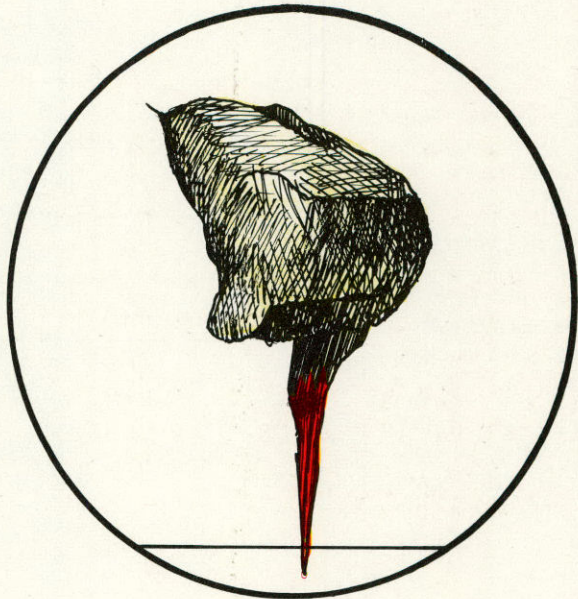
Thousands of harmful insects are eaten by paper wasps, so we should be glad to have their nests hanging in our trees and on our house eaves.

Remember that everything has its place in nature, and if you leave the bees alone they will leave you alone and perform their helpful tasks.

**



The defensive honeybee worker jabs her barbed stinger into the skin where it holds fast. As she struggles to free herself, the stinger, poison glands and muscles are torn from her body. The muscles then drive the stinger deeper into the skin while injecting more poison into the wound.



LETTERS TO THE EDITOR

Typo

We made a typographical error in the photo caption on page 12 of the April issue of Texas Parks & Wildlife. "Bethnic" should read "benthic" and refers to organisms which live on the bottom of bodies of water.

Squirrels

When I moved here in 1955 there were both yellow and black fox squirrels, which were easily trained to eat out of our hands and crawl all over us. I was told by an acquaintance that he cut a tree down once and a nest in it contained a black and a yellow squirrel. Can you tell me if this can be true? The black squirrels disappeared from our place about five years ago.

About a year ago, gray (cat) squirrels began to show up here and soon afterward the fox squirrels disappeared. Can it be that the gray squirrels ran the fox squirrels off? Or, is there another explanation? We do not think they have been killed.

In 1955, there were many kinds of birds, which we fed. We could count

as many as 20 cardinals at a time. Now, only three or four. I would like to know if you can advise me why these birds have disappeared? The woods are still thick. We used to buy as much as 20 pounds of feed, where 5 lbs. will now last a long time.

Charles McKim, Sr.
Livingston

It sounds as if the area in which you live is becoming a mature forested area. When an area is new or newly opened (cut over) there are many types of plants and animals in the area. As the area grows older the trees begin to shade out the vegetation that is on the ground, and the number of types of plants that are found in the area becomes fewer. This is referred to as approaching climax growth. Climax animal species are those that dwell only in deeply wooded areas. One of these is the gray squirrel; the cardinal is a species that prefers to have some open pasture-like land nearby. If you desire to have a number of different types of birds and animals around your place it might be that you should cut away some of the trees that may be



shadowing the ground. I don't think that the gray squirrels ran the fox squirrels off or affected them adversely. It is probable that conditions are now more favorable for gray squirrels than they were in the past.

You asked about coloration of squirrels, particularly the color phases of the fox squirrel. Your friend was probably right in saying that he saw two different color phases in the same litter. The black phase squirrels are like albinos in that they do not breed true; they can have young that are different in color than either parent.

Back Issues

I have most of the issues from 1954 to the present, but I am missing a few copies through the years when my son was in school as he used the magazines in his classwork. I have some duplicate copies for the years 1963, 1964, and 1965. Perhaps some interested readers could get in touch with me to exchange copies.

Paul H. Ruddick
Fort Worth

TEXAS PARKS & WILDLIFE

Send check or money order to:

TEXAS PARKS & WILDLIFE DEPT.
John H. Reagan Bldg., Austin, Texas 78701

Check one

RENEWAL

Paste your last magazine address label into space indicated and mail with payment.

CHANGE OF ADDRESS

Paste recent magazine label into space indicated, show change on form and mail.

NEW SUBSCRIPTION

Fill out form at right and mail with payment.

GIFT SUBSCRIPTION

Show recipient's name and address in form, indicate gift signature and mail with payment.

CHECK ONE

Out of U.S. (except APO and FPO) 1 yr. \$4. 2 yrs. \$7.

Attach recent magazine address label here for renewal or change of address.

Name _____

Address _____

City _____

State _____

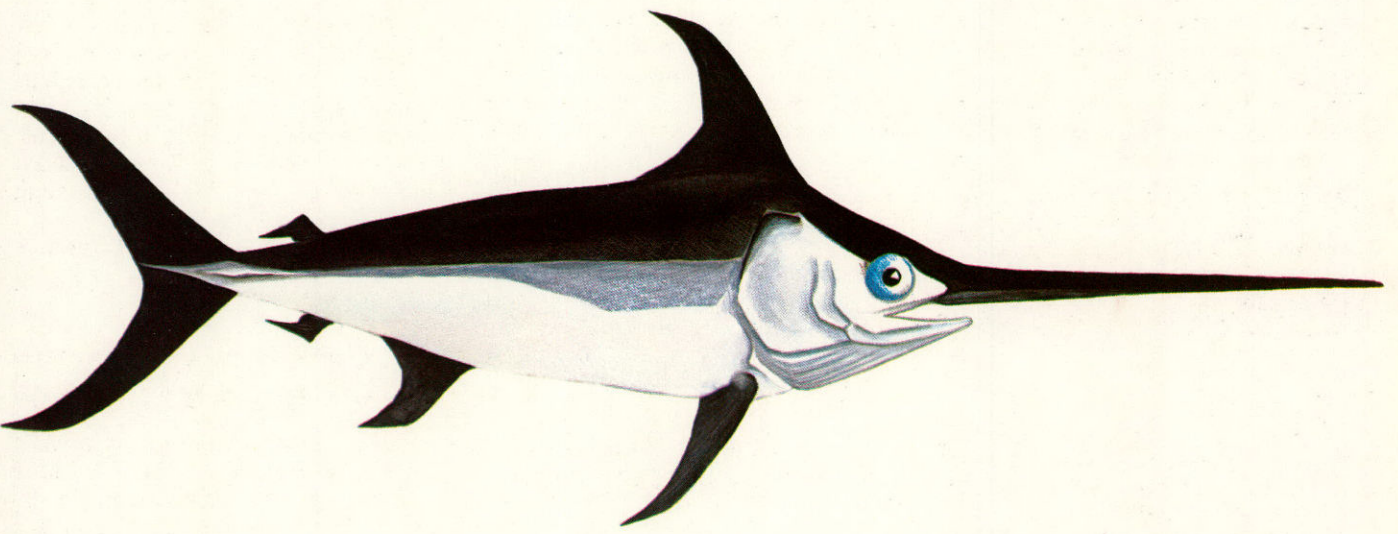
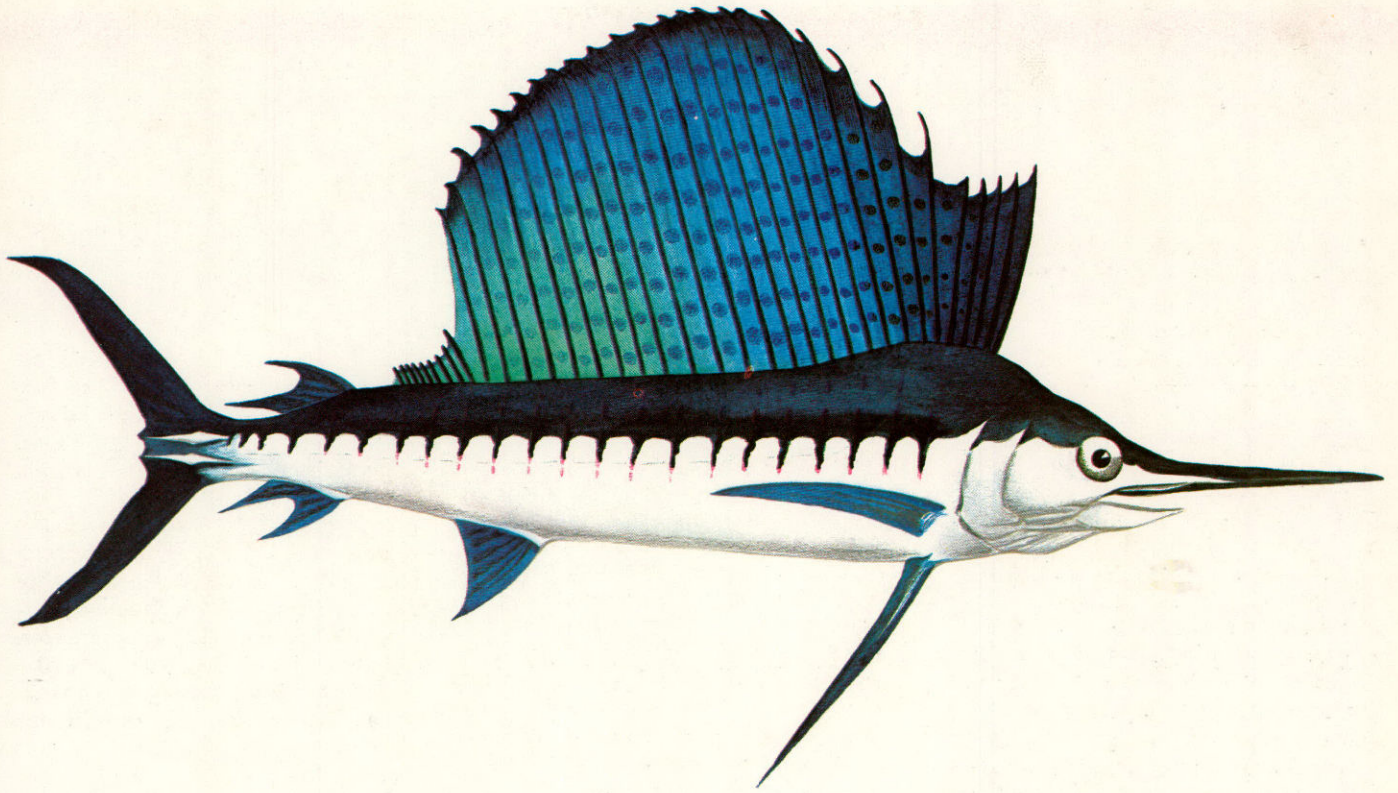
Zip Code _____

Sign Gift Card

1 yr. \$3.15 incl. tax 2 yrs. \$5.25 incl. tax

OUTSIDE BACK

The whiptail lizards are a large family confined to the New World with the greatest number and variety of species found in South America. The only genus in the United States is *Cnemidophorus*. These reptiles are skillful, open-field runners and extremely hard to catch when they are on the prowl. When relentlessly pursued they often take refuge in vegetation or burrows. Whiptails feed on insects, spiders, scorpions and other small animals, some of which they dig out of the ground and evidently detect by odor. Photo by Martin T. Fulfer.



TEXAS SALTWATER FISHES

Two "bluewater" fishes, the Atlantic sailfish and the broadbill swordfish, are the deep sea fisherman's delight. The sailfish, shown at top, inhabits the Atlantic from South America to Massachusetts. They are usually caught off the Texas coast from May to July and a hooked sailfish puts up a splendid leaping fight which may go on for hours. The Texas saltwater record sailfish measured 7 feet 11 inches and weighed 87 pounds.

The broadbill swordfish, lower, averages 100 to 400 pounds and is found in all seas. Like its cousins the marlins and sailfish, the swordfish feeds on squids and smaller fish. When it feeds in a compact school of fish it slashes its bill about and maims its prey which it picks up at leisure. The state record for swordfish is open with no minimum weight but the world record is a 1,182-pound fish caught off Chile.

Artwork by Henry Compton.

