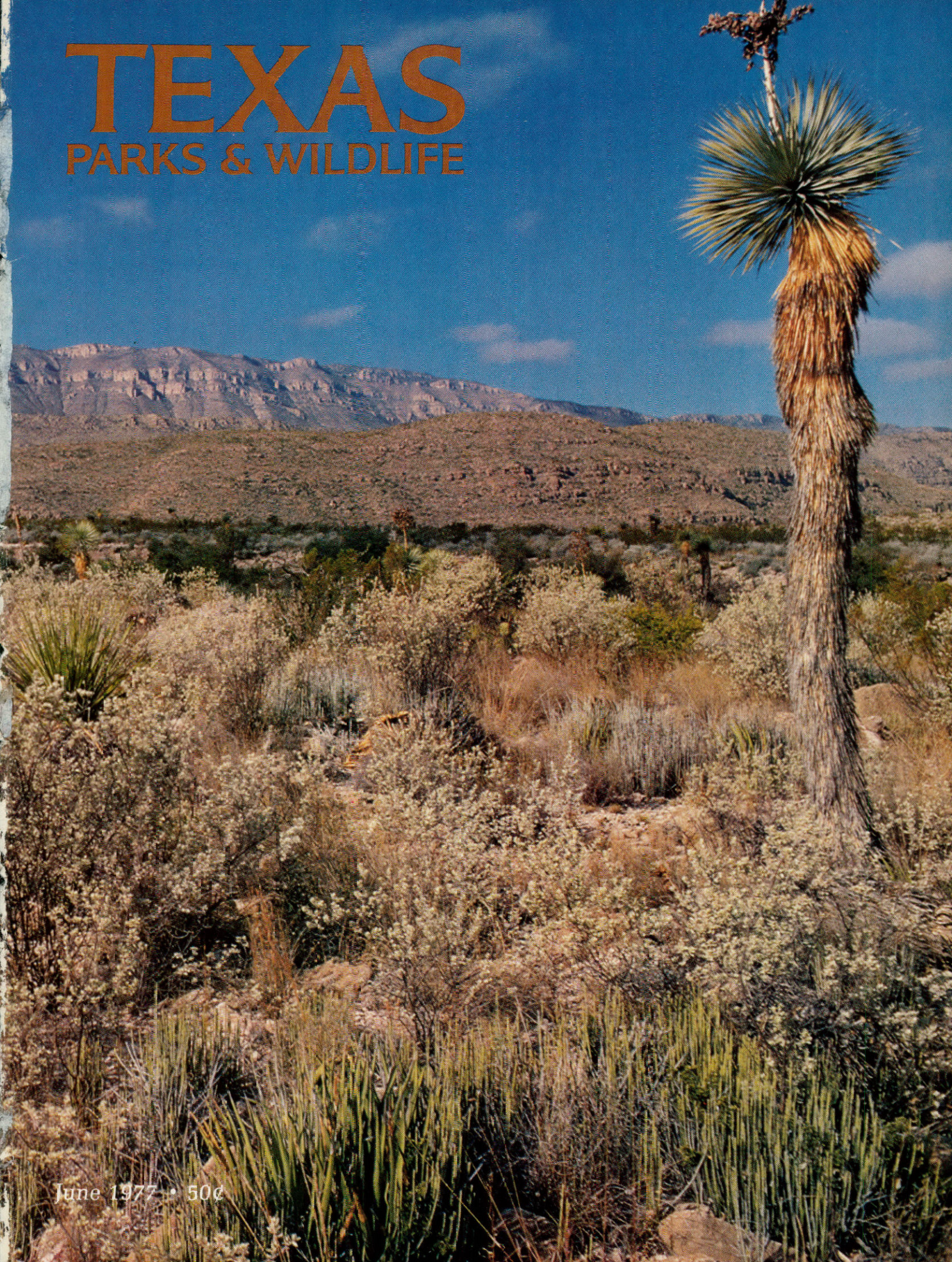


TEXAS PARKS & WILDLIFE



June 1977 • 50¢



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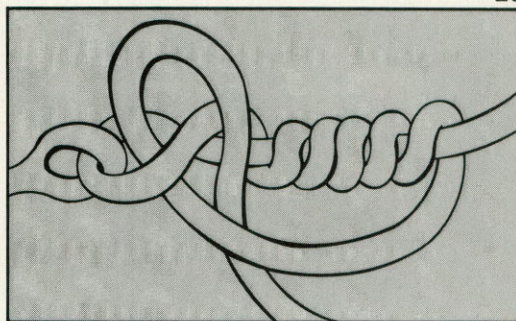
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Front and Back Covers: Cenizo, candelilla and yucca adorn this West Texas landscape. Photo by Bill Reaves.

Inside Front: The collared lizard is most often seen basking on a rock or running after its prey with forelimbs lifted off the ground and tail raised. Photo by Jim Whitcomb.

Fish Follow the Shrimpers

Article and photographs by
by Ed Dutch, Information Officer, Edinburg



Even though there are more than 12,000 square miles of open fishing waters within easy reach of offshore fishermen, it's sometimes difficult to find fish.

That's why these fishermen look for oil rig platforms, rocks or irregularities in the Gulf bottom and anchored shrimp boats for fish concentrations. Of these, shrimp boats usually offer the most varied action since an easy food source attracts schooling species.

Shrimpers drag their nets during the night and anchor about sunrise. The night's catch is usually culled during the early daylight hours and the small trash fish, crabs, squid and shrimp heads are shovelled off the deck into the water and into the mouths of sometimes several hundred fish.

These feeding frenzies are comprised of several species of fish from the smallest perch to the largest shark. The drama of a food chain can be witnessed as the larger predatory species devour the smaller fish that have been attracted by the "chum."

At times like these, almost anything might be caught. Bonito, blackfin tuna, mackerel, amberjack, barracuda, sharks of all sizes and sometimes even red snapper and sailfish can be hooked. Of course, fishing methods vary according to whatever species are desired or observed in the water.

Fishermen can try trolling lures or bait, freelining ribbonfish or squid or casting assorted lures into the chumline.

Next time you head into the Gulf look on the horizon for the shrimpers anywhere from nine to 15 miles offshore. Those anglers who venture into the Gulf can anticipate a day of excitement and a day after of sore muscles from fighting strong and stubborn Gulf fishes around the shrimp boats.

**



When the small trash fish, crabs, squid and shrimp heads culled from the night's catch are shovelled off the deck of the shrimp boat the following morning, they attract quite a concentration of fish. The resultant feeding frenzy is a fisherman's delight. Almost anything can be caught as bonito, blackfin tuna, mackerel, amberjack, barracuda and all sizes of sharks gather to feed on the many species of fish attracted by the chum.



Beware of the Sun



Bill Reaves

by Ilo Hiller

Sunlight gives us warmth, helps grow our crops and, someday, may be our main source of energy. However, its ultraviolet rays also can harm us if we are not careful.

These rays will cause mild or severe sunburn, depending on the time of day and the length of time the body is exposed to them. The sun is the warmest and its rays the most dangerous between 10 a.m. and 2 p.m. (Standard Time). Since these rays can go through clouds, your chances of getting sunburned on a cloudy day increase because the cooling shade of the clouds may cause you to stay exposed longer than you would on a hot, sunny day.

It also is possible to get sunburned while sitting in the shade of something like a beach umbrella because your skin is still exposed to reflected sunlight. Sand, city paving and snow are good sunlight reflectors. Although water is considered another reflector, ultraviolet rays will go through it. For this reason, it is possible to get as bad a burn on the parts of the body under the water as those on top. Many fishermen wading knee- or waist-deep in water wearing cutoffs or swimsuits have gotten badly sunburned legs. Children sitting in shallow water also have received severe sunburns on their legs. Their mothers have mistakenly thought the layer of water stopped the burning rays and, therefore, took the precaution of protecting only the top half of their children's bodies with clothing or suntan lotion.

When ultraviolet rays hit dust, water particles and other objects in the air they are deflected, or scattered. These scattered rays, called sky radiation, can hit the body from all directions and cause sunburn even when you are shaded from direct sunlight and not exposed to reflected sunlight.

Your body is covered with a microscopically thin covering of skin that contains five distinct layers. The innermost layer contains cells which produce a brown pigment called melanin. The amount of suntan your body can get depends on the amount of melanin your cells can produce. Fair-skinned people who have less melanin than darker-skinned individuals sunburn more easily and, usually, more severely.

About 20 percent of the ultraviolet rays — the very shortest ones — pass through the outer layers of the skin to trigger the release of the melanin in the innermost layer. At the same time, about 10 percent of the longer waves strike any melanin in the upper layers and immediately start turning them a darker shade of brown. However, the deep-working, shorter waves, which produce new melanin, create the long-lasting tans. Their results cannot be seen for a couple of days, and the darkening process continues for as long as two weeks after exposure.

For this reason, daily exposure to the sun during the hours from 10 a.m. to 2 p.m. for gradually increasing periods of time builds up a protective layer of melanin and pro-

duces the best tan. First exposure should be no more than 10 minutes on each side of the body. The time of exposure can be increased about five minutes on each following day.

Although a good suntan does protect the body from painful sunburn and allow you to remain in the sun for longer periods of time, that "healthy" tan everyone tries to get each summer really is not good for your skin. Information released by



Neal Cook

Fun in the sun at the beach may cause a painful sunburn that breaks down skin tissues to release fluids that form blisters. When blistering is severe, a doctor's attention may be required to prevent infection.

Light-skinned people, who have less melanin in their skin, sunburn more easily and, usually, more severely than darker-skinned individuals.

Although the top skin layer may turn brown following overexposure to the sun, the damaged cells usually peel off and the temporary tan is lost. Ice-cold milk compresses applied every half hour will help remove the heat from sunburned skin. For a sunburn that covers the whole body, try soaking in a bathtub filled with cool water to which a cup of cornstarch and one-fourth cup of baking soda have been added. Call the doctor if chills, fever or delirium occur.



Robert Gonzalez



hours of 10 a.m. and 2 p.m., protect your skin with clothing, a shielding compound such as zinc oxide or chemical sunscreens such as commercial suntan lotions, creams and oils. Do not use homemade suntan lotions made with baby oil, mineral oil, vinegar and other such ingredients as they will not prevent the ultraviolet rays from striking the skin. Protection from these rays must come from chemicals that absorb the rays before they reach the skin.

If protective creams and lotions are rubbed vigorously into the skin, they may cause irritation. Apply them gently to the surface of the skin since their purpose is to prevent the ultraviolet rays from reaching the skin, not absorb them after they strike the skin. To provide the necessary protection, all commercial creams, oils and lotions must be used according to the manufacturers' directions and reapplied whenever they are washed off in the water or weakened by perspiration.

A mild sunburn causes a swelling of the blood vessels, inflammation and redness. More severe sunburn breaks down the skin tissues releasing fluids that form blisters. They eventually burst and the damaged cells peel off.

If for some reason you ignore all safeguards and warnings and get sunburned, there are several things you can do.

(1) Call the doctor if the burn is severe, especially if there are any chills, fever or delirium. Blistering may also need a doctor's attention because of the danger of infection.

(2) Apply ice-cold milk compresses every half hour to less severe burns to help remove the heat from the skin.

(3) Add a cup of cornstarch and one-fourth cup of baking soda to a bathtub filled with cool water to

soak a sunburn that covers the whole body.

(4) Use sparingly aerosol or lotion sunburn soothers that contain painkillers such as benzocaine. These preparations can cause skin reactions on some people.

One last warning concerns the taking of medicine before exposing yourself to the sun. Even mild exposure to bright sunshine multiplies the power of the drug. This reaction is technically called "photosynthesis."

Antibiotics are probably the most common offenders. Tranquilizers, sulfa drugs, antihistamines and some of the compounds used to treat diabetes and high blood pressure can also be dangerous. Kidney and liver damage are quite common results along with hives, bumps and other skin reactions all over the body.

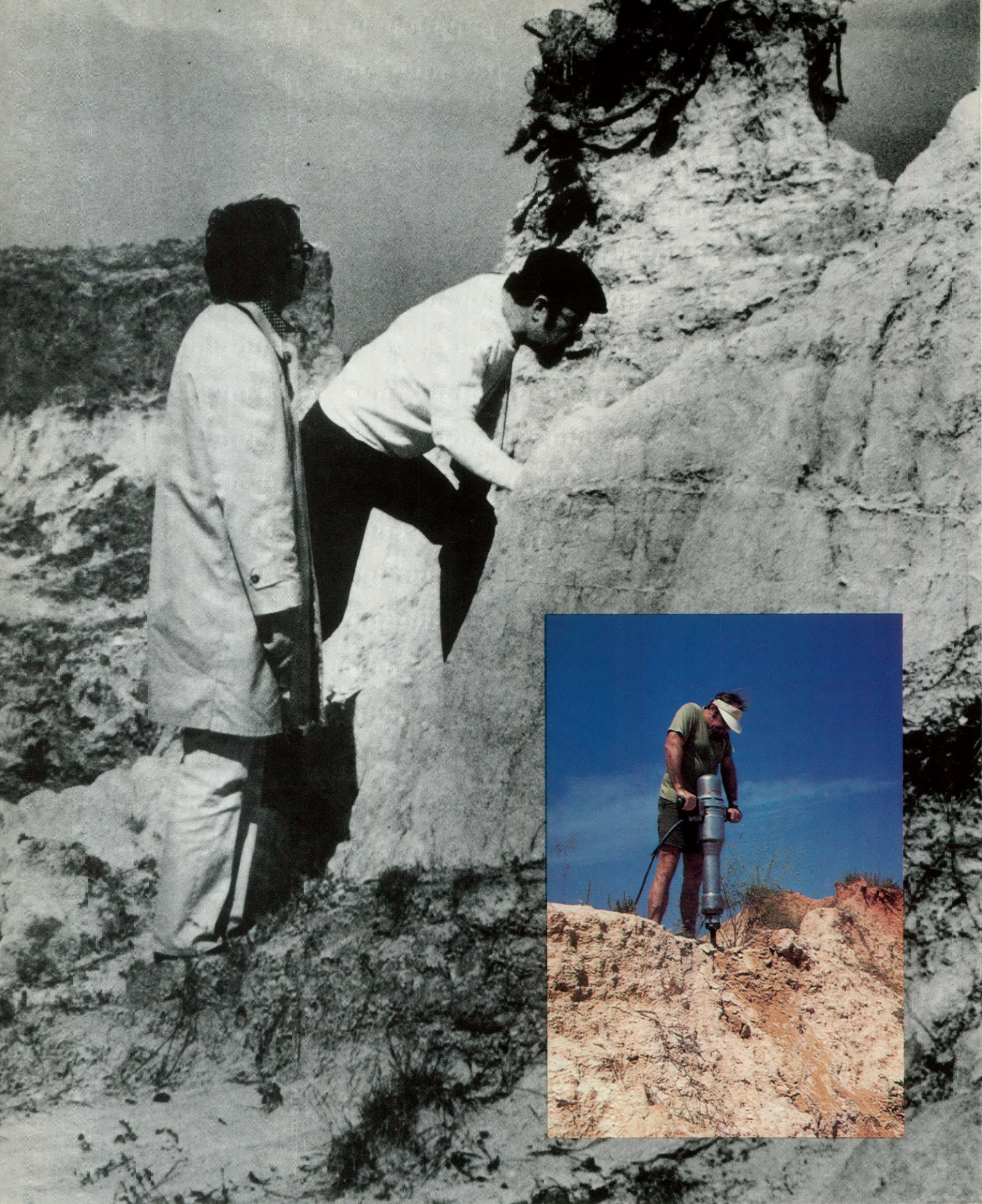
In one recorded case, a patient who was given antibiotics for a stubborn chest cold exposed himself to the sun's rays on a fishing trip out in the Gulf. After three hours the fisherman collapsed. A fishing partner elevated the victim's feet and placed a towel soaked in ice water on his hot forehead. Vomiting and body tremors occurred as the victim was rushed back to the shore where a helicopter, contacted by radio, was waiting to fly him to a hospital. The victim remained on the critical list for several days and was given constant fluid transfusions. A week passed before he could recognize his family and understand what had happened to him.

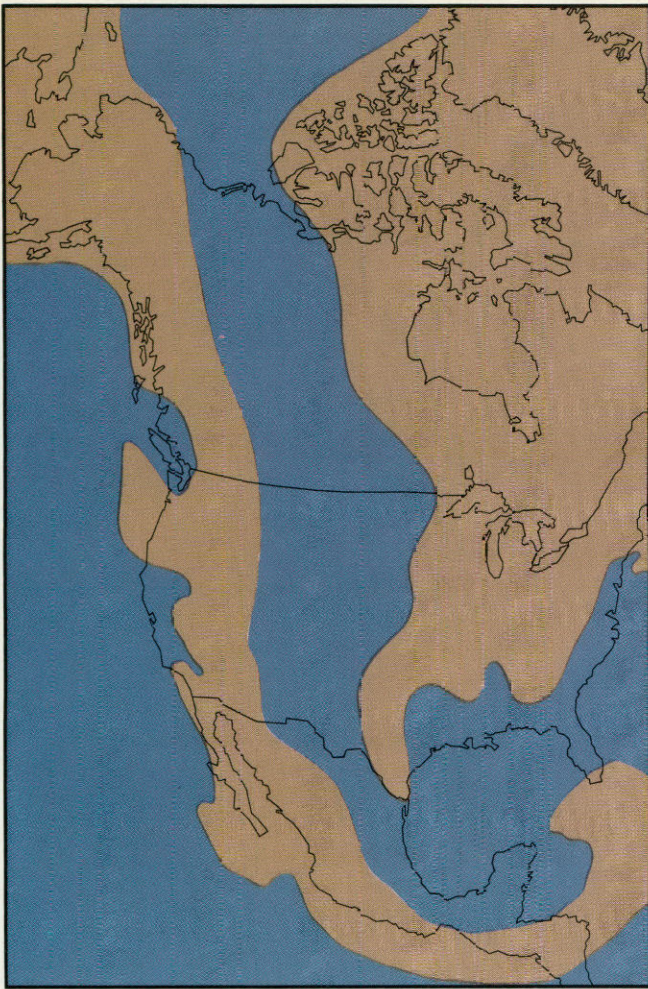
This may be an extreme case, but it shows how dangerous the mixture of sunshine and drugs can be.

Sunshine can be good to you, or it can harm you. The choice is up to you. **

the American Medical Association states that overexposure to the sun for a period of years breaks down skin tissue causing it to age faster. This aging process, brought on by excessive exposure, cannot be reversed. The exposed skin becomes wrinkled, leathery and coarse and can develop skin diseases, including cancer. Areas of the body most likely to develop skin cancers are those most often exposed to the sun — the nose, forehead, lips, ears, neck and the backs of the hands.

If you must be out in the sun for long periods of time during the





Tons of fossil-bearing sediments from Greenwood Canyon and other sites were processed through fine screens and the insolubles sorted under microscopes to find the tiny teeth. It was often necessary to use jackhammers to remove the sterile, hard clay sediments from over the "sweet zones" or productive layers. The map shows where the land and seas were during the deposition of the sediments from which the tiny specimens were extracted.

are exposed layers of bedrock commonly occurring on steep hills, stream banks, road cuts and other excavations.

Many people don't realize just how far back into the past the innovations took place that turned certain reptiles into mammals. Their origins date to the Triassic period some 200,000,000 years ago, not long after the dinosaurs made their first appearance.

The first mammals no doubt still laid eggs as do most reptiles. It seems likely that at least two groups crossed the reptile-mammal boundary. One, the Morganucodonts, gave rise to several subgroups that were destined to become extinct long before the dinosaurs gave up their dominance over earth. They may however, be the ancestors of modern Monotremes (platypus and spiny anteater).

The other group, the Eupantotheres, is our main interest. Even by the end of the Jurassic period, 70 million years later, there still were no mammals that can be referred to either of the two groups making up 99.9 percent of the modern mammalian fauna, which consists of marsupials (pouched animals) and placentals (young born more or less completely developed).

Therefore, it is in sediments deposited in streams, ponds and on deltas during the first half of the Cretaceous period (130,000,000-110,000,000 years before the present) that we must seek the stem ancestor of most living mammals. Texas has three related formations exposed from the Red River in north-central Texas in a narrow strip to south-central Texas that are of this age. The lower, the Travis Peak Formation and the upper, the Paluxy Formation are mostly of freshwater origin. Sandwiched between these is the Glen Rose Formation which is of shallow marine origin. It is in the latter that the famed Dinosaur Valley State Park is located.

Similarities between the dental structures of the more primitive members of these groups suggest that marsupials and placentals had a common ancestor.

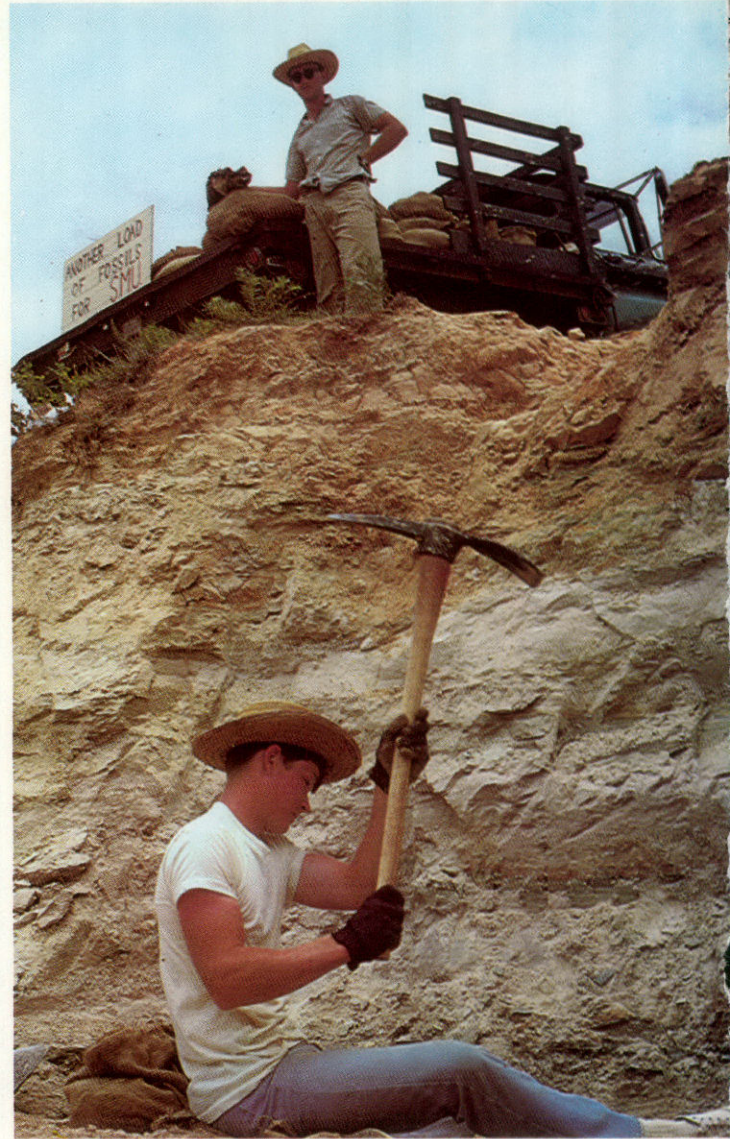
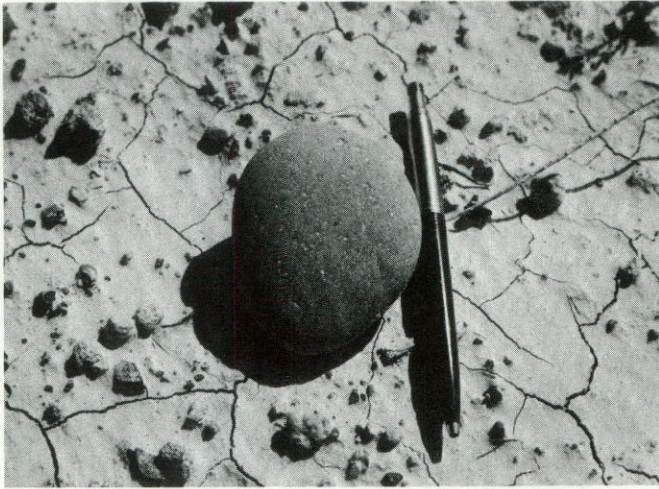
As so often is the case, a trick of fate opened a whole new area for the search to take shape in. Dr. Rainer Zangrel of the Field Museum of Chicago in 1948 wrote Glen Evans of the Texas Memorial Museum, inquiring about the possibility of finding fossil turtle material in the Middle Cretaceous formations of Texas. Not long before, Luis Bridwell, an amateur lepidopterist from Montague County, Texas, had reported to the Texas Memorial Museum his sighting of numerous fossils eroding from gulleys and canyons on the farm of Virgil Greenwood in north-central Texas and mentioned bone scraps of turtles. Evans arranged for Bridwell to

Search for the First Mammal

Article and photographs by BOB H. Slaughter

Man always has been fascinated by his origins and the search for fossil remains of his distant ancestors continues at an ever-increasing rate. Almost annually, the antiquity of our species is pushed backward in time and we await even older fossils of human and subhuman types.

Although less publicized, a number of paleontologists around the world are equally dedicated to the discovery and interpretation of fossils representing the ancestry of all living mammals. Naturally, deposits of much greater age must be sought out. The oldest remains of humans, or subhumans, now date back some three million years or so. The ancestors of all mammals, including man, lie hidden in sediments 30 to 40 times that old. What makes the task even more difficult is that the tiny size of these beasts that were to inherit the earth after the demise of the dinosaurs makes them almost impossible to see on an outcrop. These outcrops



meet Drs. Zangrel and Robert Denison on their way to the 1949 meeting of the Geological Society to be held that year in El Paso, Texas.

While searching the erosions that were to become known as Greenwood Canyon, Dr. Denison discovered a fragment of a tiny mammal jaw. The specimen was examined under a microscope at the El Paso meeting and a number of excited paleontologists accompanied Zangrel and Denison back to the site after the meeting. Among the group were Dr. George Gaylord Simpson, recognized authority on early mammal evolution, and Dr. Bryan Patterson of the Field Museum. Denison further distinguished himself as a prospector by finding a second jaw fragment of a primitive mammal. Patterson immediately made plans to return the following summer.

After three summers he had collected and processed some 50 tons of the fossil-bearing sediments through fine screens. After the insolubles were sorted under

microscopes the collection was found to contain a number of isolated mammal teeth representing several extinct groups.

Among the tiny teeth were some that were similar to those of the more primitive members of marsupials and placentals. They must be close to the time of divergence, perhaps even representing the stem ancestor. Patterson reported these specimens in 1956.

Stimulated by the Patterson discoveries, the Shuler Museum of Paleontology of Southern Methodist University undertook a prospecting program of the extensive outcrop of the same formation in the hope of finding additional, and perhaps more productive, localities for similar fossils. The work began in 1965 and continued for six summers.

Three of the first Texas dinosaurs of Middle Cretaceous age were discovered in the process and were collected. More than 200 miles of creek banks, gulleys and road cuts literally were crawled over and nearly 50



Excavations during the search for the microfossils also disclosed a camptosaur dinosaur and this possible dinosaur gastrolith, or stomach stone. Of the 40 localities sampled by S.M.U. only five produced any mammal material, and only two, Greenwood Canyon and Butler Farm, produced more than three teeth each. Clays were washed through screens to recover microfossils.

localities were found that had fossil bone exposed at the surface. Each time any bone was found, 1,000-pound samples were collected and returned to the S.M.U. campus where they were dried, dissolved in water troughs and panned through fine screens. The residues then were sorted under microscopes for the recovery of the tiny mammal teeth.

Two hundred and sixty tons of sands and clays were thus processed. Of the 40 localities sampled only five produced any mammal material and only two of these produced more than three teeth each. One locality was the original Greenwood Canyon site and the other was known as the Butler Farm. Often backhoes and jackhammers were brought in to aid in the removal of overburden of sterile sediments from the "sweet zones" as productive layers came to be called. Although teeth and bones of fish, frogs, salamanders, lizards and small dinosaurs were fairly abundant, the total collection of the sought-after mammal teeth can be stored in a single, small match box. Nevertheless we considered the effort well worthwhile.

After careful study of the newly recovered micro-mammals, it was decided that our sediments were deposited too late in the geologic past for us to find the stem ancestor of marsupials and placentals. Although so close to the point of divergence that the teeth were very similar, one still could distinguish groups with diagnostic features of placental mammals and marsupials. The representative of the marsupial group was named *Holoclemensia* and could be called an opossum even though it was the size of a small house mouse. Another animal with the prerequisites for the ancestry of later placental mammals was named *Pappotherium*, which in Greek means "grandfather mammal."

Two other experimental mammals present at Butler Farm and Greenwood Canyon did not survive the rigors of time. Patterson gave the impressive name

Astroconodon denisoni to a triconodont (mammal with teeth having three simple cones) which was thought to have been the last of the group until the recent discovery, by Dr. Richard Fox of the University of Alberta, of a single specimen of a more advanced form dating back a mere 90,000,000 years. Triconodonts were found during the Texas work at all five mammal-producing sites, three of which were deposits of shallow bays.

The other mammalian groups were found only at Butler Farm and Greenwood Canyon, associated with freshwater forms such as frogs and salamanders. This, plus certain analogies between the teeth of *Astroconodon* and those of mammals known to eat fish, led to the speculation that this little ancient may have been semiaquatic and fed on small minnows.

The field work was long and hard, but very exciting. The recovery of the tiny specimens and their evaluation was stimulating even though we only pushed the known existence of marsupials and placentals back another 15 million years. We had hoped in the beginning to find the stem ancestor. Now we must look elsewhere for that elusive stem.

Sediments deposited in streams, ponds and on deltas during the time just prior to formation of the Texas clays and sands are known in Siberia, Lebanon and England. Russian scientists are busily crawling over the Siberian outcrops, while the Shuler Museum of Paleontology has initiated some work in Lebanon in cooperation with Dr. Ziad Beydoun of the American University of Beirut and in England with Dr. Kenneth Kermack of the University of London. Even now the tiny key specimens may be eroding from some stream bank or may be lying in some road cut on a super highway passed by hundreds of automobiles daily.

The search for the key to our ancestry continues the world around. **

history of pheasants in Texas

by Phil Evans, Coordinator Regulatory Programs

The history of pheasants in Texas began with small scattered populations in the Panhandle slowly developing into huntable numbers.

The ring-necked pheasant immigrated into the High Plains of Texas from Oklahoma during the 1940s. Since that time the High Plains has become a large producer of grain crops, primarily irrigated grains, that sustain the pheasant. This sweeping change in agricultural practices from ranching pastures to irrigated croplands has resulted in large huntable populations of pheasants.

Pheasants successfully establishing themselves in the Panhandle, coupled with recognition that there was diminishing game habitat, led the Texas Parks and Wildlife Department to release pheasants in other grain-producing areas of Texas. With the decline of native game habitat, it was appropriate for the department to search for game species that can successfully occupy areas of contemporary land usage. One such game bird is the ring-necked pheasant which can depend largely on agricultural lands for its habitat.

Texas has large areas of grain farming in varied climatic and vegetational types which may potentially support huntable populations of pheasants. With this in mind, in 1964 the department began releasing pen-reared pheasants in four principal areas of Texas: the Lubbock area, the Trans-Pecos, along the Red River and along the Gulf Coast.

The releases of the Korean

pheasant along the Red River have been unsuccessful. The releases of Afghan white-winged pheasants in the Lubbock-Brownfield-Plainview areas have resulted in a low, but stable, population. Evidence does suggest that the pheasants are established in this area, but are limited in number due to lack of habitat. The stocking of white-winged pheasants in the Trans-Pecos appears to be the same as in the Lubbock area.

Hybrid, pen-reared pheasants released along the Texas Gulf Coast since 1966 have been successful and hunting was allowed in limited areas of Liberty County in January 1977. The hybrid is a cross between wild-trapped pheasants from the Sacramento Valley of California and the Western Iranian blackneck pheasants. This hybridization was chosen to obtain a bird with a higher rainfall tolerance than other subspecies of pheasants.

Wild-trapped pheasants from California also have been released along the Gulf Coast since 1964 in counties west of where the "cross" pheasants were released. A limited area in Matagorda County was opened to hunting in January 1977. Both of these pheasant subspecies have proven successful and are established in several coastal counties. Liberty is the county in which the cross pheasant has been so successful, and Matagorda County is where the wild California pheasants exist in huntable numbers. Both subspecies of pheasants were released in the rice-producing areas of the counties. Success of the coastal cross and California pheas-

ants seems to depend largely upon the fallow rice fields which provide nesting cover and year-round food sources.

The success of the Gulf Coast pheasant populations has given additional impetus to release pheasants into other vegetative areas within the state. Current cross pheasant releases have been made in the Oak Savannah, Blackland Prairie, High Plains and Gulf Prairie ecological regions.

Releases are made for three successive years in order to balance out adverse climatic conditions that might occur one year, lessening the chances for a successful nesting season. Grain-producing areas selected for pheasant releases are generally 10,000 acres in size. Releases are made in the summer and early fall.

Large releases of pen-reared pheasants (400 per area) are thought necessary to overcome the mortality due to predation upon propagated birds and other mortality factors related with being released into a new environment.

Two release areas six miles apart were selected in one coastal county last year. This double release may

Releases along the Texas coast of hybrid, pen-raised pheasants (a cross between wild-trapped birds from the Sacramento Valley of California and the Iranian blackneck pheasant) have proven successful. Both hybrids and wild-trapped California pheasants were hunted in limited areas of Liberty and Matagorda Counties in January 1977.



Ring-necked pheasants have successfully established themselves in the Panhandle area of the state, and hunters are reaping the benefits of the management and stocking efforts conducted there. A walk through the corn stubble or a grain field can produce a fine bird for the table. Coastal hunters should be able to look forward to improved conditions as released pheasants become better established in the coastal counties. Food and movement studies are being conducted to enable biologists to better manage this resource.

Jim Whitcomb



Leroy Williamson



determine if huntable pheasant populations can be built up more rapidly with larger infusions of birds.

Releases in Carson and Gray Counties in the Texas Panhandle of propagated ring-necked pheasant began in 1974. These two counties are south of the Canadian River break country. The break country poses as a geophysical barrier to southward migration of the "natural" pheasant populations from the northern tier of Panhandle counties. The habitat in these counties is similar to that of the northern counties, with large acreages of irrigated grain farming.

The criteria for pheasant releases is large acreages of grain farming, interspersed with pastures, hay fields and odd areas. These odd areas and hay fields are an essential ingredient in pheasant biology as they are necessary for successful nesting.

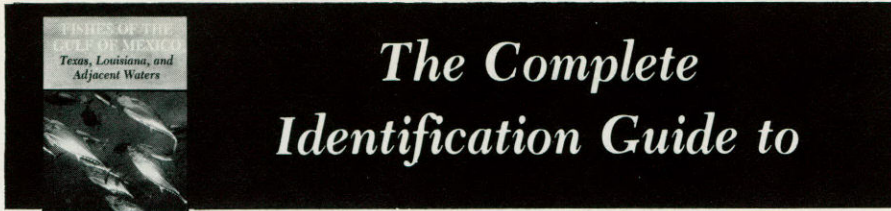
In the Midwest, the pheasant population is on the decline due to increased land being put into crop production. This decline in pheasant habitat represents primarily a loss of nesting habitat everywhere — the critical factor. In Texas' pheasant areas, irrigated fields are almost essential. Just the opposite conditions prevail in the Midwest's pheasant country.

Current field studies of the pheasants along the coast include a study to determine where the pheasants are on a seasonal basis and a study to determine what they eat, also seasonally. Preliminary findings of the two studies have shown that fallow rice fields play a large part in the pheasants' life and waste grains (rice) are a seasonal favorite with pheasants, but begin to play out in November.

The agricultural practices of the farmer are of vital importance in determining whether the pheasant makes it or not in his new home.

The farmer, Texas' pheasants and the department can make more hunting opportunities available for sportsmen. **

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The Complete Identification Guide to

Fishes of the Gulf of Mexico Texas, Louisiana, and Adjacent Waters

By H. DICKSON HOESE and RICHARD H. MOORE

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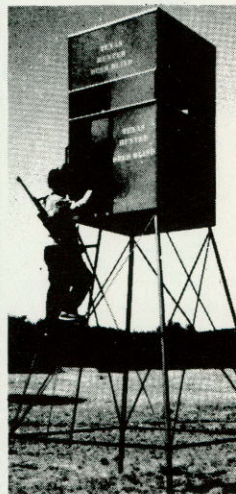
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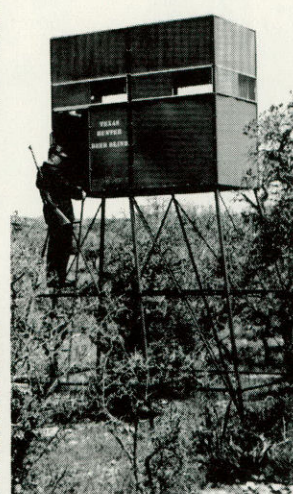


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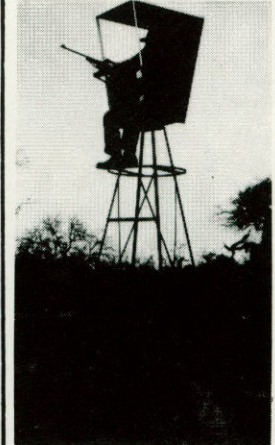
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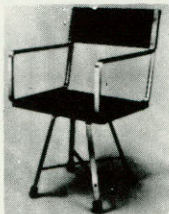
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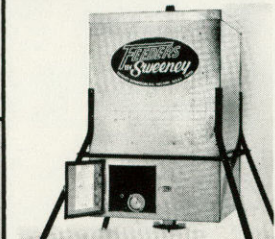


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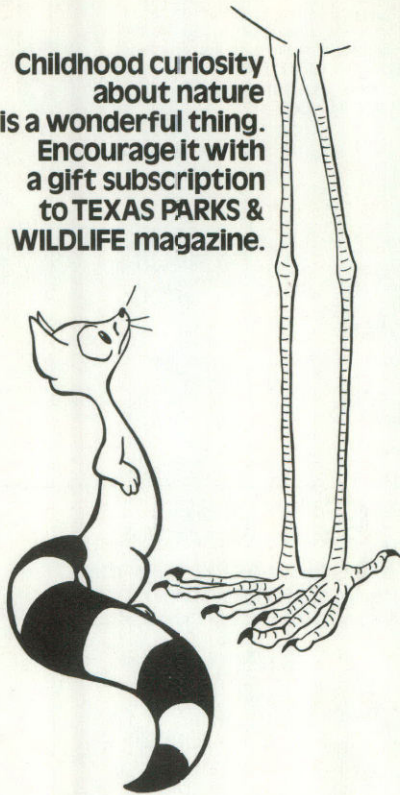
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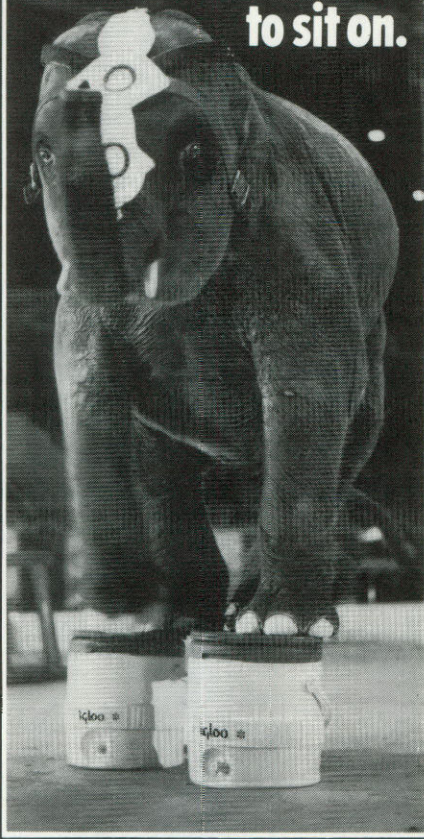


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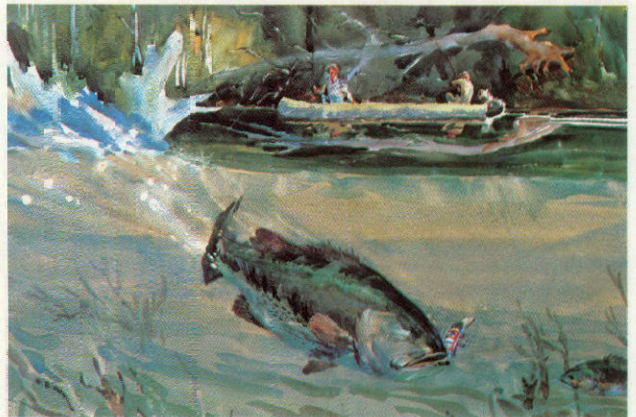
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Blanco Crabapple

by Debbie Darr and C. C. Wiedenfeld

Back in the 1850s, some Illinois folks decided to move to Texas and grow apples. Since they didn't know of a suitable place one of them asked a soldier who had traveled in that state for advice. "Go down by the Blanco River," he said. "A small green apple grows wild there." So the family moved to Texas, started their apple orchard and, eventually, the town of Blanco was born.

This old story may be a "a bit windy," as they say in Blanco, but a few remnants of that once-famous orchard still may be seen. And, according to this local legend, Blanco owes its existence to those little green apples.

Today those apples are dying out.

Pyrus ioensis var. *texana* (Rehd.) Bailey is a special type of wild crabapple that grows only in the Hill Country. Commonly called "the Blanco crabapple," because its largest population occurs near Blanco, this small tree bears thousands of fragrant pink flowers in April and matures yellow-green fruit around September or October. Like all

apples, it is a member of the rose family, Rosaceae.

Once, the Blanco crabapple enjoyed a much greater range than it does today. Names like Crabapple Road, Crabapple Creek and Crabapple Community indicate its former abundance in places it is now rare or extinct. Where it still occurs, the crabapple seems to require fairly rich soil, and it never grows far from a spring or a creek. Commonly seen on the slopes of limestone hills and at the heads of draws, the crabapple forms dense thickets in ungrazed areas because its underground roots form new trees. Only scattered trees or small thickets grow in grazed areas, and it is rarely found atop a hill.

At this time, the Blanco crabapple is known to exist only in three counties — Kerr, Blanco and Kendall. Most common along the Blanco River and its tributaries in southwest Blanco and northeast Kendall Counties, it also is known to occur in Boerne and along Cypress Creek and other tributaries of

Little green apples such as this one grow on a rare variety of wild crabapple trees found in the Texas Hill Country. Known locally as the Blanco crabapple, it once enjoyed a much greater range than it does today. At this time it is found only in Kerr, Blanco and Kendall Counties and is on the decline.

the Guadalupe River near Comfort and Waring. It is possible that this crabapple exists elsewhere, but its distribution is poorly known and herbarium specimens, essential for proving the existence and uniqueness of the crabapple, are few and far between.

In 1885, the French pioneer and collector Julien Reverchon first collected the crabapple in Blanco County. Since that time, only a handful of specimens from Blanco, Kerr and Kendall Counties have been recorded. Other records show that the crabapple once occurred in Gillespie County near Crabapple Creek and Fredericksburg, where the plant now may be extinct.

The Blanco crabapple is recognized as a threatened plant by two organizations — The Texas Organization for En-

dangered Species (T.O.E.S.) and The Rare Plant Study Center at the University of Texas at Austin. Although the Blanco crabapple probably numbers less than 2,000 plants, it is not listed in the Smithsonian Institution's Report on Endangered and Threatened Plant Species of the United States (1974). The main reason for this unhappy omission is that, in botanists' terminology, the Blanco crabapple is not a "taxonomically distinct" group. Some botanists regard our plant as merely a local form of the prairie crabapple, *Pyrus ioensis* (Wood) Bailey, an extremely variable species that is widespread through the central part of the United States. Many botanists do not even know that the Blanco crabapple exists. Despite this fact, the trees have successfully "pioneered" the Texas Hill Country for hundreds of years. While the descendants of the first Texas settlers still prosper, the surviving Blanco crabapples are facing hard times indeed.

Why is the Blanco crabapple in trouble?

For one thing, it thrives on the same

sort of land that farmers and ranchers need for their fields and pastures — deep, rich, well-watered soil. When land was being cleared for crops, many crabapples were uprooted.

Old-timers today can point to fields that were once pure crabapple thickets, so loss of habitat is probably the primary threat to the crabapple's success today.

Cows enjoyed the apples, too, but the tree's popularity was, at least once, fatal for both when one farmer cut down a thicket after some of his cows died from gorging themselves on the fruit.

Confining domestic stock to an area containing the crabapple also has a harmful effect on the tree. Because it is a choice browse plant, the tasty leaves and shoots are heavily browsed. If cows, goats and sheep are rotated among several grazing areas, browsing pressure on the crabapple and other valuable plants will be less severe.

Another blow to the crabapple has been the abundance of deer. Deer are so numerous in some areas of the Hill Country that they cause severe habitat destruction, and they must be effec-

tively managed before such destruction, fatal to crabapples and other plants, can be reduced.

Several Blanco ranchers report that the drought of the 1950s killed many crabapples. Surely other droughts have done the same, but droughts are normal and plants always have had to contend with them. Plants on good sites survive; plants on poor sites do not.

No one has examined the remaining crabapple populations for disease. However, disease may be a factor in their decline, since crabapples often are extremely susceptible to the rusts which destroy cultivated apples.

All these setbacks could be solved if the tree could reproduce fast enough to outgrow its problems, but it can't. Many of its seeds don't mature and when they do, germination often is poor. The crabapple's reproductive forte is sending sprouts up from its roots, but young sprouts rarely escape browsing nowadays. New thickets aren't given much of a chance to form.

Like many rare plants, the crabapple is difficult to protect. In areas that are

Marshall Johnston



suitable, the tree is fairly common; in areas that aren't, no one has ever heard of it. On some ranches in Blanco, crabapples seem as common as grass burrs, and are about as important.

Why should we try to save it? There are lots of reasons, but primarily because the crabapple is a viable component of the Hill Country ecosystem and man, as a custodian of this ecosystem, should strive to maintain all of its component parts.

There are also economic reasons: (1) Crabapples are attractive, valuable ornamentals; a thicket of them in full bloom is a joyous sight. (2) The thickets provide excellent food and cover for all wildlife. (3) The fruits are valuable, but only to folks who know about them. One Blanco rancher learned this fact the hard way when he was unsuccessful in selling crabapples in San Antonio. (4) The species may even be valuable as a potential food crop. Someday, these wild apples might be used as stock for the grafting of domestic apples or to produce new varieties. (5) Finally, there is a gastronomic reason that should not be overlooked. Some say crabapples make the best jelly in the world.

In Blanco, crabapple jelly is a tradition that is dying out with the trees, and one that should be preserved (no pun intended). Here is how you make it:

Pick your apples after the first frost by shaking the tree and letting the ripe ones fall on the ground. Take the apples home; a sackful will perfume the whole room with a delicate, sweet, wild apple

scent. When you're ready to make jelly, boil the apples until they crack. Then poke the cores and seeds out the bottom. (We use a hackberry limb whittled down to pencil size that we keep around from year to year.) Throw out the first water because it's too bitter for jelly. Then boil the apples some more and take the juice. You can do this several times. Then follow the Sure-Jell recipe, which will tell you the right portions for juice, sugar and other ingredients, or use your favorite jelly recipe.

Jelly is the most popular, but not the only use for the crabapple. Preserves are made from the cooked apple remains, and crabapple butter can be made by running the cooked apples through a sieve, adding sugar and Sure-Jell and cooking the mixture slowly over low heat. Crabapple-grape jelly, combined with the native winter grape, *Vitis berlandieri* Planch., is a favorite in some homes. During the Depression, ingenious families canned whole apples, and made applesauce, apple syrup, relish and fried pies from the crabapples. They were eaten raw on all-day hunts or by children who didn't realize how sour they were. Some families even cooked, strung and dried the apples to preserve them.

No completely satisfactory method of propagation for the crabapple has yet been found. Transplanting small trees or taking root cuttings rarely succeeds, although there have been some transplanted successfully to spots as likely as Blanco and as unlikely as Houston.

Debbie Darr

Propagation by seed is slow, and germination success variable. The Rare Plant Study Center now has about 100 tiny crabapple seedlings coming up, after several unsuccessful attempts to germinate seeds.

If you wish to try growing crabapples from seed, gather the mature fruit around September or October. Separate the seeds from the pulp and immediately plant them outdoors. Germination of some related species is best if the seeds are planted early enough to provide several weeks of warm weather before frost. You also may stratify the seeds for spring planting; in this case, store them in moist material just above freezing for 60 to 90 days. Dried seed in sealed glass jars may be kept at low temperatures for longer periods. Plant outdoors one-fourth to one-half inch deep, preferably in a seedling flat filled with a potting soil mixture of 12 parts peat, seven parts sand, three parts perlite, four parts vermiculite and one-fifth part bonemeal. The seedlings probably will die of iron deficiency if planted in soil that is too limey. Later, transplant the seedlings to gallon containers.

Protect your seedlings from animals and keep them well watered. Weed out all competing plants, and give the sprout a little shade in the summer. Hopefully, you will be able eventually to gather your own apples from one of the most rare and beautiful trees in Texas — the Blanco crabapple.

The University of Texas Rare Plant Study Center especially would like to know of new Blanco crabapple locations. You can send or receive any further information about the crabapple, or get access to seeds, by contacting the Center through the University of Texas at Austin, P.O. Box 8495, Austin 78712. **

Since many of its seeds do not mature and germination is poor, sending up sprouts from its roots is the crabapple's primary method of reproduction. Today young sprouts rarely escape browsing and new thickets have little chance to form. Thousands of fragrant pink flowers cover the little trees in April and its yellow-green fruit matures around September or October.



by Bob Alexander,
Wildlife Biologist

A variety of good foods in our diet is good insurance against sickness and disease. We are fortunate that a typical supermarket in an American city of 12,000 persons carries approximately 3,500 edible products on its shelves, a mixture of food (some good, some bad) from throughout the world.

The need for variety in the diet, however, is not restricted to humans. All too often, this important point is overlooked or ignored by individuals who plan and implement land practices that are detrimental to variety as it pertains to wildlife habitat.

Ask any squirrel hunter what squirrels eat and the reply will probably be "acorns." Some might add, "and hickory nuts." Nothing wrong here, squirrels do depend heavily on acorns and hickory nuts as staple food items in their diets, but acorns and hickory nuts alone will not support squirrel populations on a year-round basis because

where squirrels, crows, jays, raccoons and other culprits of the wild are unwelcome guests that harass the orchard owner.

Hickories other than pecan generally are common in the forests of East Texas and, when they are available, squirrels begin cutting them while the nut is still in the dough stage, well before it matures. Squirrels continue feeding on hickory mast and burying the nuts until the supply is exhausted. Hickories that are important in East Texas include the mockernut and black hickories of the upland habitats and the shagbark, bitternut and water hickories of the low-lying habitats. A rather rare hickory of the United States, the nutmeg hickory, is locally abundant and an important species in northeast Texas in the Sulphur River Drainage Basin. Kernels of the hickory nut provide a high-energy food source but furnish only a moderate amount of protein and phosphorous.

During an average year, acorns provide in excess of 50 percent of a squirrel's annual food intake. Squirrels appear to favor acorns from the

white oak group over the acorns from the red oak group. Oaks important in East Texas that are in the white oak group include the white oak, post oak, overcup oak, burr oak, willow oak, water oak and bluejack oak. The red oak group includes southern red oak, blackjack oak, black oak and Shumard oak. Although the white oak group of acorns is preferred by squirrels when available, these acorns deteriorate more rapidly and sprout sooner than those of the red oak



Live oak by Leroy Williamson

Variety... Key to Abundance

they generally are not available that consistently, nor do they contain all the nutritional elements necessary to support healthy populations of squirrels. Acorns and hickory nuts are generally low in protein and phosphorous, and other foods are needed to satisfy these requirements.

Food habit investigations conducted over a period of many years by research biologists throughout the forests of the southeastern United States have revealed that squirrels prefer a large variety of nuts, seeds, buds, fruits, stems and flowers from many of the trees, shrubs and plants growing in southern forests.

Food items native to our southern forests that rank highest in squirrel preference are pecans and hickory nuts. Most pecans today are available only in planted orchards,



Sweetgum by Bill Reaves

group. Acorns provide needed energy but are low in protein and phosphorous.

Red mulberry is a tree that in late spring and early summer produces fruit relished by squirrels. An experienced squirrel hunter will seek out the mulberry trees during summer hunts, knowing that if fruit is present, he is sure to bag his share of squirrels.

Buds, stems and flowers of a variety of trees and shrubs are required eating in winter and early spring on most squirrel habitats today. It is during this period of the year that stress from extreme weather conditions and food scarcity generally takes its toll of squirrels. New, succulent buds of trees such as the elms, including the American elm, winged elm and cedar elm, provide the quality forage required for survival during these periods of winter stress. Other tree species that squirrels prefer for their buds include the red mulberry, sweetgum, blackgum, red maple, dogwoods, ash, oaks, hophornbeam and black willow.

During spring and summer

months, maturing fruits such as plums, blackberries, dewberries, grapes, mayhaws, persimmon, black gum, osage orange and hackberry are some that are taken. Fruits provide high energy but are not usually high in protein.

Seeds from a variety of species, including grasses, are utilized by squirrels, and normally have a better protein content than fruits. Some legume seeds are very high in protein. Seeds from locusts, cottonwood, beech, chinquapin, birch, elm, osage orange, magnolia, sweetgum, pine, yaupon, deciduous holly, American holly, red maple, dogwood, gum elastic, ash and ironwood are probably the most important ones in squirrel diets.

On the forest floor squirrels seek bulbs from wild onions or roots of sedges and certain grasses. Mushrooms are a favorite food when available as well as other fleshy fungi growing in damp environments with little sunlight. Insect larvae provide a valuable source of protein, and an occasional small frog or lizard may be eaten.

Variety of plant and tree species

in forest habitats might be looked upon as insurance against that time when certain food species, for whatever reason, fail to produce normally. With a variety of species present, squirrels or other wildlife can simply turn to the next desirable food product that is available.

Forest managers who wish continued squirrel abundance should include in their management plans measures that favor a variety of tree and shrub species known to be producers of preferred squirrel food. Variety should include age classes as well as species, to insure an adequate supply of den trees for squirrels and other wildlife that depend on them for homes and rearing of young.

Failure to provide for assorted species and age classes on our forested lands of East Texas will ultimately result in reduction of many forest-dwelling species of wildlife, including squirrels. Variety is as important to our wildlife resources as it is to human welfare on this planet, and it is considered by game managers to be the key to game abundance. **



Magnolia by Frank Aguilar

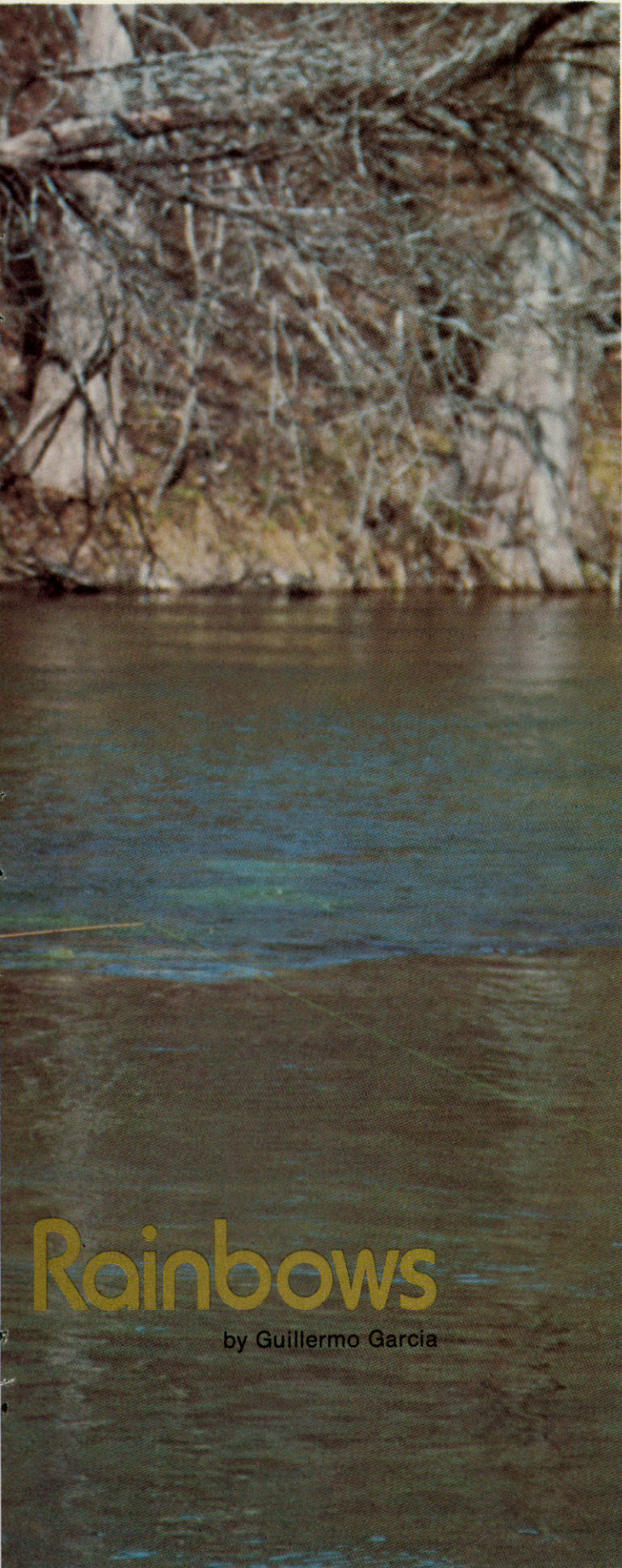


Dogwood by Jim Whitcomb

Squirrels rely heavily on acorns for their diets, but acorns alone will not support a squirrel population on a year-round basis. Buds, seeds, stems and flowers of a variety of trees and shrubs add nourishment during winter and early spring on most squirrel habitats. Although summer fruits provide high energy and are heavily utilized, they usually are not high in protein.



Tailrace



Rainbows

by Guillermo Garcia

Clear, cold fast-running water swirls around the fly fisherman's legs, which are kept only slightly warmer than the 55° water by hip boots. The wading angler knows rainbow trout are in the swirling, rippling waters. With long, sweeping arcs of the line he casts the cheese-baited hook and small spinner so it will be carried downstream by the current. Suddenly, he feels a slight tug, then another as the fish attempts to free itself from the hook, but for all its fight, the spunky, multicolored rainbow is caught. Carefully, the fisherman reels in his catch, and adds the beautiful fish to his creel.

This scene did not take place in a mountain stream in the Colorado Rockies. Instead, the angler was fishing in the Guadalupe River tailrace below Canyon Dam where, since April 1966, the Texas Parks and Wildlife Department has been stocking brown and rainbow trout. This stocking program, one of the more popular and successful ones conducted by the inland fisheries division, has provided a bonus to fishermen from around the state, purist trout fishermen and novice alike.

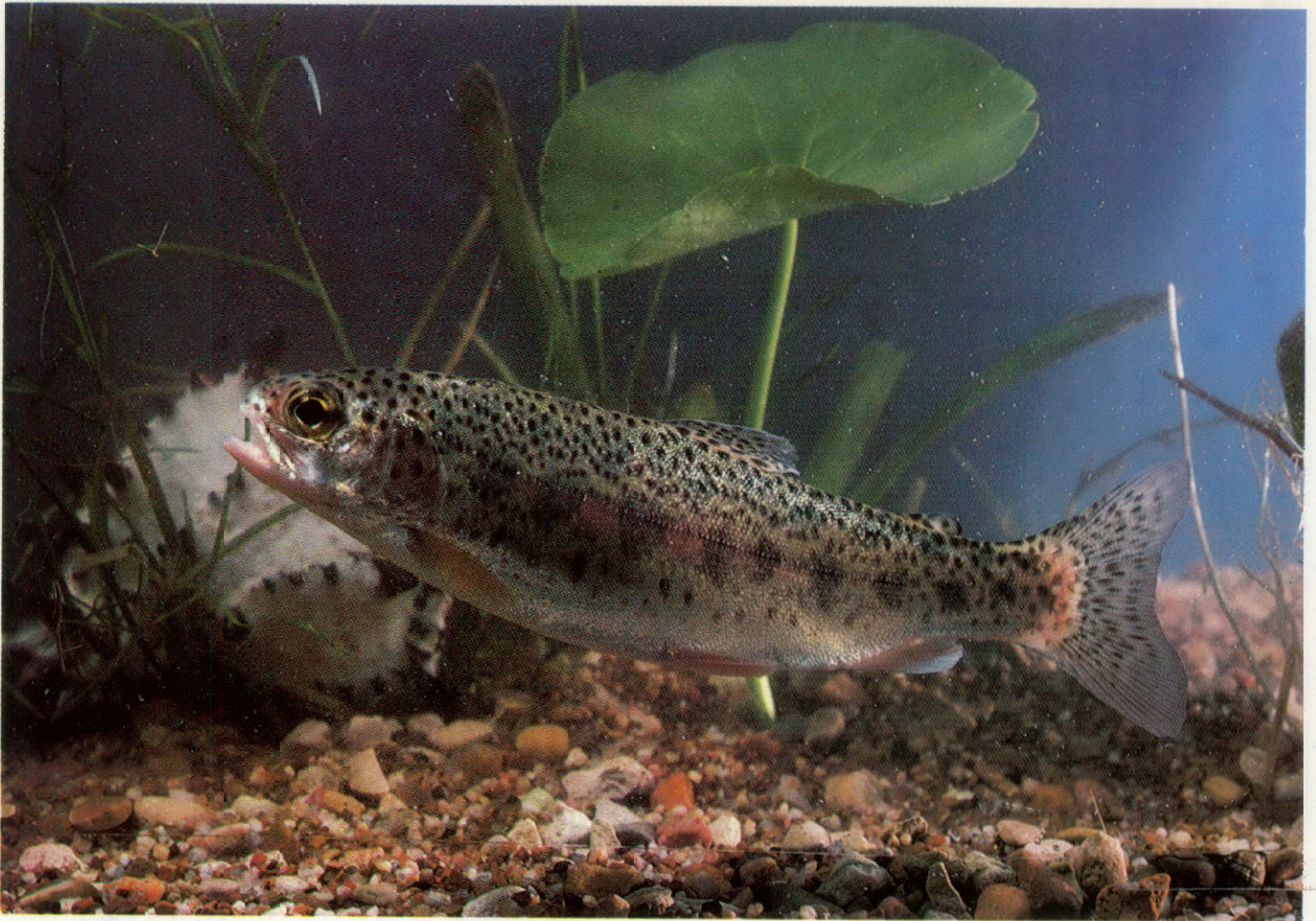
In strictly monetary terms, the program is estimated to provide \$28 worth of recreation for every dollar spent by the department in stocking efforts. However, it is difficult, if not impossible, to place a true dollar value on the recreational opportunities provided to the fishermen of Texas.

The Guadalupe River trout fishery came about as a result of the construction of Canyon Dam. The proposed dam, among the deepest in the Southwest, was designed to release water from the bottom of the reservoir. Since this relatively cold water would all but eliminate the native game fishery in the tailrace area, biologists began a search to find a game fish that could survive in cold water, that would be relatively acceptable to fishermen and relatively easy to culture. Trout met all the qualifications.

The Guadalupe River trout fishery is a put-and-take proposition; that is, stockings are made yearly with the anticipation that all fish stocked into the river will be caught before the following year's stocking. Catching these trout actually takes much less time than one year, owing to the tremendous popularity of the program. Every month, hundreds of people call this department to find out when trout will be stocked in the river. During the first month after stocking, the river experiences the heaviest angler pressure.

There are obvious advantages for the angler. Trout fishing is made available to the bank fisherman who is unwilling or unable to wade. The trout readily take just about any bait, be it cheese, corn or small bronze-colored spinner baits. Another characteristic of hatchery-reared trout is that they do not disperse far beyond the point in the river where stocked. There

Since April 1966, brown and rainbow trout have been stocked in the Guadalupe River tailrace below Canyon Dam to provide a bonus for Texas fishermen. The 55° water released into this area from the bottom of the reservoir is well-suited to the put-and-take hatchery trout fishery.



More than 120,000 rainbows were stocked in the Guadalupe River trout fishery during the first quarter of 1977. On the average, they were eight inches long and weighed four ounces. These hatchery-reared trout are relatively fast growing and adapt easily to the river's 54° to 60° water.

may be some movement upstream or downstream, but the majority remain congregated in the area were stocked. Currently, trout are stocked into the river at seven different points along a 13-mile stretch below Canyon Dam and anglers tend to concentrate at these points. There is a five-per-day, ten-in-possession limit on the trout. And, of course, a fishing license is needed.

Ultralight line of four- to eight-pound test and small hooks or lures work best on the Guadalupe River trout. Hooks with long shanks, preferably #8 or smaller, or lures with bodies no bigger than one-inch long are ideal when used with ultralight spinning gear.

A combination rod and reel that is growing in popularity is a fly rod adapted to hold a spinning reel. The fly rod guides must be changed to the larger-diameter guides used for the spinning reel.

Trout in the Guadalupe have an abundance of food. The heavy canopy of overhanging cypress, sycamore and cottonwood trees provides the terrestrial insects and larvae, while the fast-moving stream provides the invertebrates and small crustaceans that make up most of the trout's diet.

Hatchery-reared trout are a good example of a strain of fish developed to meet particular needs. Fisheries biologists say the rainbows currently stocked in the Guadalupe have been selected because they are easy to rear in a pond situation, are relatively fast growing and adapt easily to the 54° to 60° temperature range that exists almost year around in the Central Texas river. Although several thousand brown trout were stocked in the mid-1970s, rainbows now are stocked exclusively in three streams and two reservoirs around the state. The Guadalupe River fishery is the largest, with more than 120,000 rainbows stocked there during the first quarter of 1977.

On the average, trout are eight inches long and weigh four ounces when stocked. There are some 12-inch, one-half-pound trout caught in the Guadalupe, but the largest reported catch has been a four-pound, 12-ounce rainbow trout landed during the program's early years. In 1975, fisheries biologists confirmed several 2½- to 2¾-pound brown trout were caught.

Chances are slim that the weekend bank fisherman will land this size fish, but armed with his inexpensive, closed-face reel, complete with worm, cheese or corn, he may land a fair-sized trout.

Whether you are a purist, complete with wicker creel, fly rod and waders, or not, all it takes is one successful trip to the Canyon Dam tailrace to get hooked on trout fishing in Texas. **

the Forgotten Battle

by Art Black, Historic Sites and Restoration Branch

“Indians Attack Fort Lancaster; Gallant Defense by the Troops; Coolness of the Officers; Courage of Officers’ Ladies; Indians Killed; Trophies Captured; Narrow Escape of the Mail Party.”

These few lines begin an otherwise ordinary-appearing article on page four of the January 9, 1868, issue of the *San Antonio Express*, and appear to have been the only public announcement of the battle. During the past 109 years, memory of the battle has largely faded, but interest was recently renewed by a brief mention of the battle in *The Buffalo Soldiers* by William H. Lec- kie. This book relates the history of Negro troops who served in the West.

Camp Lancaster was established on August 20, 1855, by Companies H and K of the 1st Infantry and became officially known as Ft. Lancaster a year later. Company K remained at the fort until March 19, 1861, when the beginning of the Civil War forced the abandonment of the post. Company H had moved west to establish Ft. Stockton in 1859.

Although these troops were involved in several skirmishes, it wasn't until after the Civil War that the post became the site of what was probably one of the largest military engagements with Indian forces in West Texas. On December 26, 1867, a force of 900 to 1,200 raiders, consisting of Kickapoos, Lipan Apaches and probably renegade Mexicans and Americans, swept through the valley of the Pecos River to encounter Company K of the 9th Cavalry at Ft. Lancaster, one of several regiments of all-black troops that were stationed in Texas.

The enlistment of black soldiers in the U.S. Army was allowed only after much opposition during the Civil War, but their ability was soon proven on the field of battle. After the war, in spite of continued op-



Frank Aguilar

All that remains of Ft. Lancaster are a few broken chimneys standing above the ruined walls of the soldiers' barracks and officers' quarters. However, a century ago forts such as this played an important role in the westward movement.

position, six regiments of Negro troops were authorized, including two cavalry units. The 9th Cavalry was organized in late 1866 in Greenville, Louisiana, under Colonel Edward Hatch.

Despite many difficulties, including disease, illiteracy among the troops, lack of time for training and a shortage of officers, the regiment was transferred to Texas in March 1867. Along with several other companies, Company K was stationed outside of San Antonio where civilians and disorders among the troops added to the problems already faced by their officers. However, continued military training improved the discipline of the troops, and by May they were ordered west to reoccupy two forts abandoned during the war, Ft. Stockton and Ft. Davis. From these and other temporary posts, troops

were to guard the stage route from San Antonio to El Paso and to offer some measure of protection to the scattered settlers of western Texas. Indian raids had been a hazard for many years and had gotten worse on an unguarded frontier during the Civil War.

During the fall of 1867, Captain William Frohock and Company K of the 9th Cavalry reoccupied the ruins of Ft. Lancaster. The fort had been burned during the war, possibly by Indians, and only crumbling walls remained.

During most of the remainder of 1867, Indian raids continued, following hit-and-run tactics. Except for brief fights with stage escorts, the Indians managed to elude the troopers. Then, on December 26, 1867, Company K of the 9th Regiment of Cavalry faced their test of fire.

"I arrived here yesterday afternoon with the mail party, which consisted of five men of the U.S. Cavalry . . . About one mile before we came to the hill named after this place (Lancaster Hill), we crossed another much larger trail (of horses) going in the same direction. On top of the hill we met Captain Smith of the 9th Cavalry, stationed here, who came up to see if he could see anything of the mail party; as we were, fortunately for ourselves, a few hours behind time, they felt uneasy about our delay; Captain Smith told us that the Post had been attacked by a large party of Indians the day before. The Indians surrounded the Post, formed four different lines of battle; one party made a charge for the horses, while another party made two charges on the place where the men were, and were only repulsed by the coolness of Colonel Frohock, Captain Smith and the men of their company. Even the two ladies did their part; they nobly carried ammunition to the men while the fight lasted. They all deserve great credit for the gallant defense of the place. They killed two Indians, and certainly must have wounded several. The Colonel thinks there must have been about 1,200 Indians although he has reported but 900. I have been out to see all the different trails and positions of the Indians yesterday; from what I saw, I think the Colonel's estimate is low. They picked up a great many articles that the Indians dropped, several bows and arrows, one Remington six shooter pistol, one new Infantry coat, a magnificent head dress with 20 silver plates which was dropped by the Indian that a Corporal shot; I have no doubt but he was the chief, I have seen several of the same kind of head gears but never one so magnificent as this; if he was not killed there is no telling what the consequence might be. I have but little doubt that they were the Kickapoos and would not be surprised if they try their hand on Stockton and Davis on this raid."

Official accounts describe a three-hour battle during which 20 of the attacking Indians were killed and many others wounded. The



only casualties among the troops appear to have been three herd guards who were taken captive. Their remains were found nearby three months later. Research has identified what may be the grave of these soldiers.

Although little known, this battle was the first major confrontation with a superior enemy force to be faced by the untested troops of the 9th Cavalry. It was to be many years before the Indians would be driven from their homelands, and there would be many other battles, some well-known and many forgotten. However, the troops of the 9th Cavalry remained in the West, and they eventually played a major role in its settlement and development.

Even though Ft. Lancaster was reoccupied for only short periods after the Civil War, some evidence of these brief occupations survived to be discovered by archaeologists in recent years. Information recovered during several seasons of archaeological excavation at the fort has indicated that even though it was used as a sub-post after the Civil War, the fort was never officially rebuilt. However, it was found that the remains of some buildings were partially dismantled to supply materials needed to make livable temporary quarters in parts of other structures. It is possible that the men of Company K performed the work, as they were probably the first troops to be temporarily stationed at

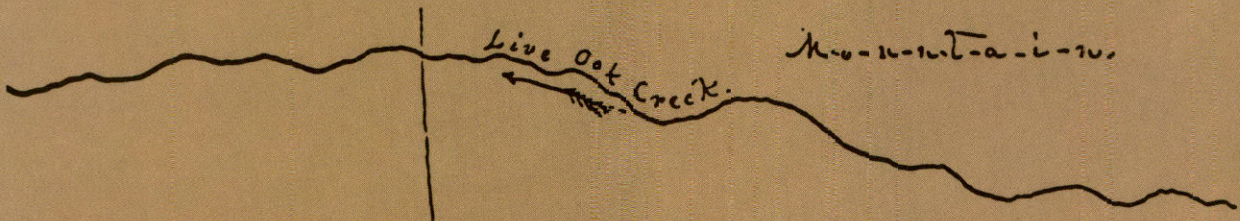
Ft. Lancaster after the Civil War.

Excavations have also revealed many fired cases of the .56-50 Spencer cartridge, used in a rifle developed during the Civil War. Until the recent discovery of the description of the battle at Ft. Lancaster, the presence of these fired cartridge cases in a post that had been abandoned several years before the development of the cartridge was not completely understood. Now, however, it appears that these may be the remains of the ammunition fired by the soldiers during the battle.

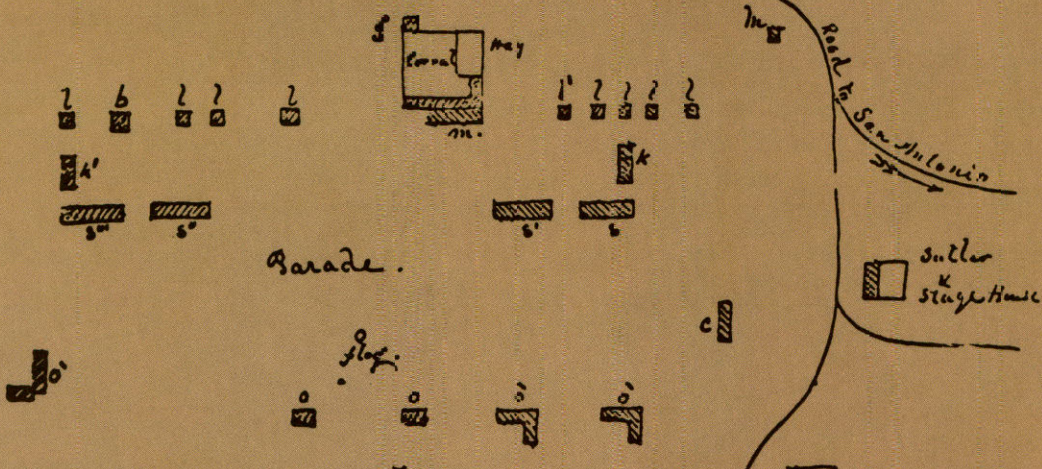
Today, all that remains of the site are a few broken chimneys standing above the ruined walls of the soldiers' barracks and officers' quarters that gave protection to Company K more than a century ago.

Fort Lancaster State Historic Site is in the western part of Crockett County, 10 miles east of Sheffield on U.S. 290. It is a typical example of an early, isolated, frontier military post and for those interested in visiting the ruins, the visitor center contains displays presenting and interpreting the history of Ft. Lancaster and its role in the westward movement. **

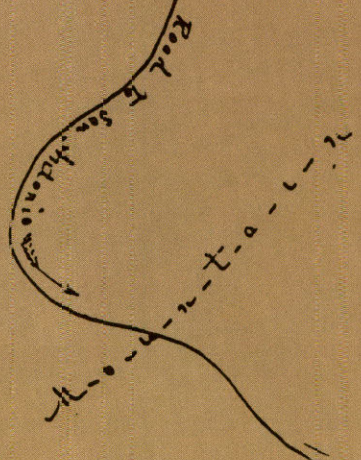
Location of the fort with relation to the creek, mountains and roads to San Antonio and El Paso can be seen in this November 1860 map of the area. Although it may be a bit difficult to read, the legend identifies each structure.



Fort. Lancaster.
Nov 1860.

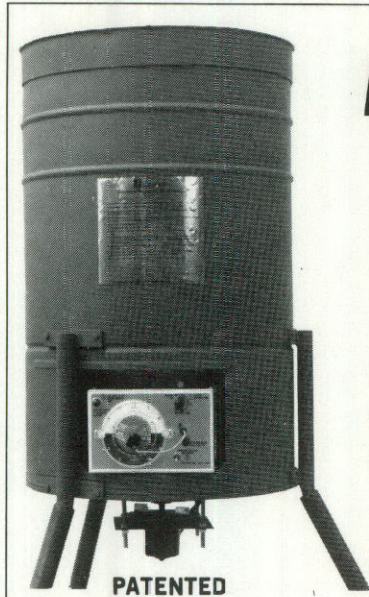


- a. Soldiers quarters thatched.
- a'. " " shingled.
- k. Kitchen & Mess.
- o. Officers quarters shingled.
- o'. " " thatched.
- s. Commissary store & Adjutant's office.
- s'. Soldiers quarters shingled & vacant.
- k'. " Kitchen & Mess vacant.
- c. Commissary issuing store.
- h. Hospital.
- b. Bakery shingled.
- S. Guard House.
- m. Quartermasters granary & Store House.
- v. Carpenters Shop.
- l. Laidrises.
- m. Smith's shop.



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Young Naturalist

Bobber Basics

by Ilo Hiller



Martin T. Fulfer

Now that school is out, how are you planning to spend those summer days ahead of you? Why not go fishing?

Most of us live near some kind of water and, whether it is a farm pond, creek, river or lake, it would be very unusual if it contained no sunfish. These little bait-stealers can provide you with hours of fishing fun, and you don't have to be an expert or have a lot of expensive fishing gear to catch them.

Handlining is the simplest way to fish, and it requires the least amount of equipment — a line, small hook and bait. Of course, you might like to add a split-shot sinker to the line to sink the bait faster; a float of some kind to hold the bait at a certain depth, float it over a larger area or give you something to watch; and a piece of wood or plastic to which the line can be tied. This last item not only gives you something to hold besides the bare line, but also the line can be wrapped around it when you are through fishing for the day.

If you prefer holding a pole and want something a

Small pieces of bread rolled into dough balls big enough to cover the barbs on the hooks will always attract the ever-hungry sunfish to your handline rig. The fish can be found feeding along rock ledges such as this and usually are no more than three to six feet deep.

little more elaborate than a stick, you might want to buy a cane pole. Those that come apart in sections and can be shortened to the size easiest for you to handle are best. The next step up is an inexpensive rod and reel that will enable you to do a little casting as well as sunfishing.

Bait is no problem since sunfish will bite on almost anything. The standard has always been worms, but items from the kitchen often are easier to get and sometimes more acceptable than worms to young fishermen.

Wieners, cut into pea-sized chunks; small pieces of bacon, bologna or other lunch meat, ham, raw meat and cheese; corn kernels; small pieces of bread rolled into dough balls just large enough to cover the

Photographs by Martin T. Fulfer

Kitchen baits such as whole kernels of corn or cut-up pieces of bacon, lunch meat, ham or cheese may be easier to keep handy than live baits. Hooks are not too hard to remove from the mouth area, but when the fish swallows the bait, hook and all, you'll just have to pull out the hook. Be sure to bend the hook back in shape if it gets straightened out in the process. Learn to tie your hooks on your line with a fisherman's knot such as the illustrated improved clinch knot. Directions for tying are found in the text.

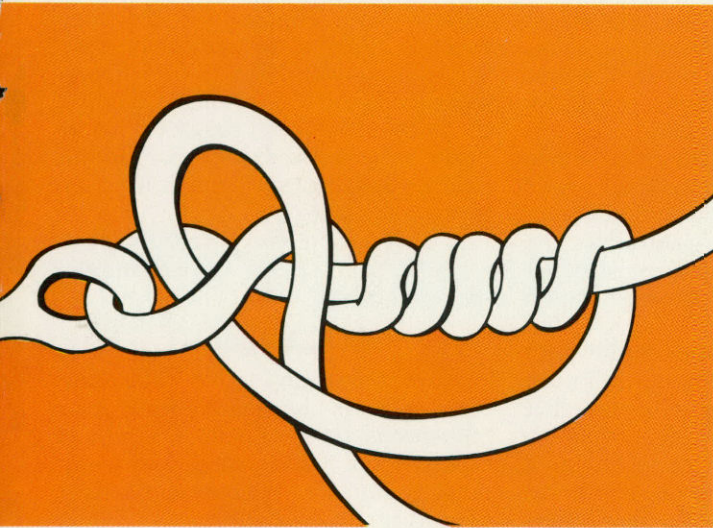


barb on the hook; or other sun food items will attract the ever-hungry sunfish.

If you prefer live bait, use earthworms, golden larvae (mealworms), caterpillars, grubs, minnows, crickets and grasshoppers. When fishing with whole crickets and grasshoppers, no float is used and the bait is allowed to just touch the water's surface. Jiggling the insect on top of the water should cause enough disturbance to attract a fish. Don't be surprised if a catfish or bass comes to this bait too. Minnows also are more likely to attract other fish as well as sunfish.

With the exception of the minnows, crickets and grasshoppers, use only enough bait to cover the barb and allow a little to hang from the point. If you cover the entire hook or use pieces too large, the fish will strip off the bait without getting hooked on the barb. They aren't known as bait-stealers for nothing!

The type of hook you use is a matter of choice, but most sunfish anglers prefer the small, No. 12 or No. 14, long-shank size. Long shanks make the hooks easier to remove from the fish. Although it may sound a little gory, when a sunfish swallows your bait, hook and all, the only way to remove the hook is by pulling it out. If the hook straightens or bends, you can always bend it back into shape once or twice before replacing it.



While discussing hook replacement, it might be a good idea for you to learn how to tie at least one good fishing knot. All knots reduce the strength of a line to some degree, and poorly tied knots will slip, so tying a good knot can mean the difference between landing and losing a fish. A good all-around knot to use to attach either a lure or a hook to your line is the improved clinch knot. This knot, properly tied, only reduces the strength of the line five to 10 percent.

Look at the illustration closely and you should be able to follow these directions.

- (1) Run the end of the line through the eye of the hook or lure.
- (2) Wrap this short end of the line around the main part of the line at least five times.
- (3) Stick the end of the line through the opening between the hook and the start of the twists.
- (4) Stick the end of the line through the large loop created by Step 3.
- (5) Pull slowly on the main line, making sure the end doesn't slip out of the large loop.
- (6) Snug the knot tight against the eye.
- (7) Trim off the short end.

After you have decided on your equipment, learned to tie the fishing knot and selected your bait, all that is left is picking a spot to fish. Some good places are found around rock ledges and steep shady banks, under trees that overhang the water, near boat docks and marinas that provide good cover for the fish or any place where you can see plate-sized depressions in the bottom. These depressions are nests prepared by the male sunfish to attract females for spawning.

It is not necessary to fish deep to catch sunfish. In

fact, some of the best fishing can be found no more than three feet deep. Larger fish can generally be found in four to five feet of water a little ways out from shore and about two feet off the bottom. If the water is murky, adding a small spinner in front of the hook may provide the flash to tempt a big sunfish.

In the excitement of catching a stringer of fish and spending some of your summer days on or beside the water, don't forget to keep water safety in mind. Statistics for 1975 showed that of the 8,000 drowning in the United States that year, more than 3,000 happened when people fell into the water from bridges, docks or dry land and were unable to swim to safety. If you can't swim, wear a life jacket.

If your nonswimming fishing buddy falls in wearing no life jacket, think twice before you jump in and risk the chance of being drowned by your buddy's frantic thrashings. Try extending your fishing pole for him to grab first. One of the quickest ways to become a drowning victim yourself is to try to rescue someone if you have not been trained to handle a struggling victim.

If you are a good swimmer, but have had no training, you could attempt the rescue by swimming out to the victim with a floating object. The important thing to remember is to keep the floating object between you and the victim for your own protection. You must push the floating object under one of the victim's thrashing arms because, unless the nonswimmer can support himself in the water with leg kicks, he usually cannot reach out for the object. As soon as he has hold of the floating object, start swimming toward shore pulling the victim along. If the victim panics and tries to climb across the floating object to you, release it, and swim out of reach. Don't let the victim grab you. If you cannot calm the victim enough to be able to complete the rescue, leave the floating object to help support the victim until additional rescue assistance can be attempted, and swim back to shore.

Drownings are a tragic waste of life, and most of them could be prevented if everyone learned how to swim and used common sense around the water.

Hours of fishing pleasure are out there waiting for you if you use common sense and learn the basics. Why not give the sport a try? You may find that Mom and Dad are right there on the bank beside you trying to help fill your stringer. **

LETTERS TO THE EDITOR

Battleship Funds

As coauthor of the article on the Battleship Texas, which appeared in the September 1976 issue, I would like to correct an error. The article states that money was needed to tow the Texas 2,000 miles from Norfolk and that the Battleship Commission was created to raise the necessary funds. Actually, the funds raised were for the construction of the slip where the Texas now rests at the San Jacinto Battleground near Houston.

Towing was arranged by Texas' Admiral Joseph Hutchison of Tyler. Admiral Hutchison persuaded Admiral Nimitz to tow the Battleship from Norfolk to Houston. Commercial rates for this job would have been in excess of \$100,000 and the Battleship Texas owes a debt of gratitude to Admiral Hutchison for this historic accomplishment.

R. N. Aylin Sr.
Houston

Odor Neutralizer

About 25 years ago my dogs tangled with a polecat in my backyard bordering

on the river in downtown San Antonio. As I was in active medical practice at that time and away from home frequently at night, the dogs slept in our house. You may imagine the consternation caused by the incident.

Having heard for years that tomato juice would rid a dog of his musk odor, I reasoned that, since the acid of the tomato juice evidently neutralizes the musk secretion, the musk must be alkaline. Therefore, vinegar also should neutralize it.

The dogs were wet thoroughly with vinegar in water, followed with soap and water, with complete success. I have told many people about this experience, but have never seen anything in print concerning the use of vinegar except a short notice by "Heloise" after I called her attention thereto.

Vinegar water also will rid clothes of urine odor, which I recently proved by saving a friend's beautiful leather coat from the trash can. The coat, left lying on the bed, had been soaked by the family cat that was inadvertently locked in the house. Drycleaning and sunshine had no effect on the terrible odor.

After the vinegar treatment the odor was gone, but when the coat dried, the leather was stiff and hard as usually happens when leather has been wet. Having once noticed a shoemaker softening leather with a silicone aerosol, I sprayed the coat and rubbed the silicone into the leather. The coat was restored to its original softness.

Since outdoorsmen's leather articles, such as gloves, often get wet, they may find this softening treatment of interest. There are several kinds of silicone aerosols on the market and, if staining might be a problem, I suggest a test be made on a small area before using a silicone preparation made with a petroleum distillate.

Otto J. Potthast, M.D.
San Antonio

CCC Request

Anyone traveling to the older state parks of Texas has seen the work of an industrious group of people who built cabins, lakes, trails, fences and many other facilities as workers on Civilian Conservation Corps' projects.

To give recognition to some of the people who helped build a fine state park system during the 1930s and early 1940s, we would like to feature an article on the CCC in our state parks. If you, or a member of your family or a friend worked in a state park on one of these projects, we would like to hear from you. We would like to have your name; where you live now; which park or parks you worked on; what your job title was; some of the structures you helped build; and, in 50 words or less a memorable experience you had as a member of a CCC work project. Please send this information to Neal Cook, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744.

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INSIDE BACK COVER

Although summer is not considered to be the best time for catching red snapper, this game fish can be found off the Texas coast year around. Photo by Neal Cook.



