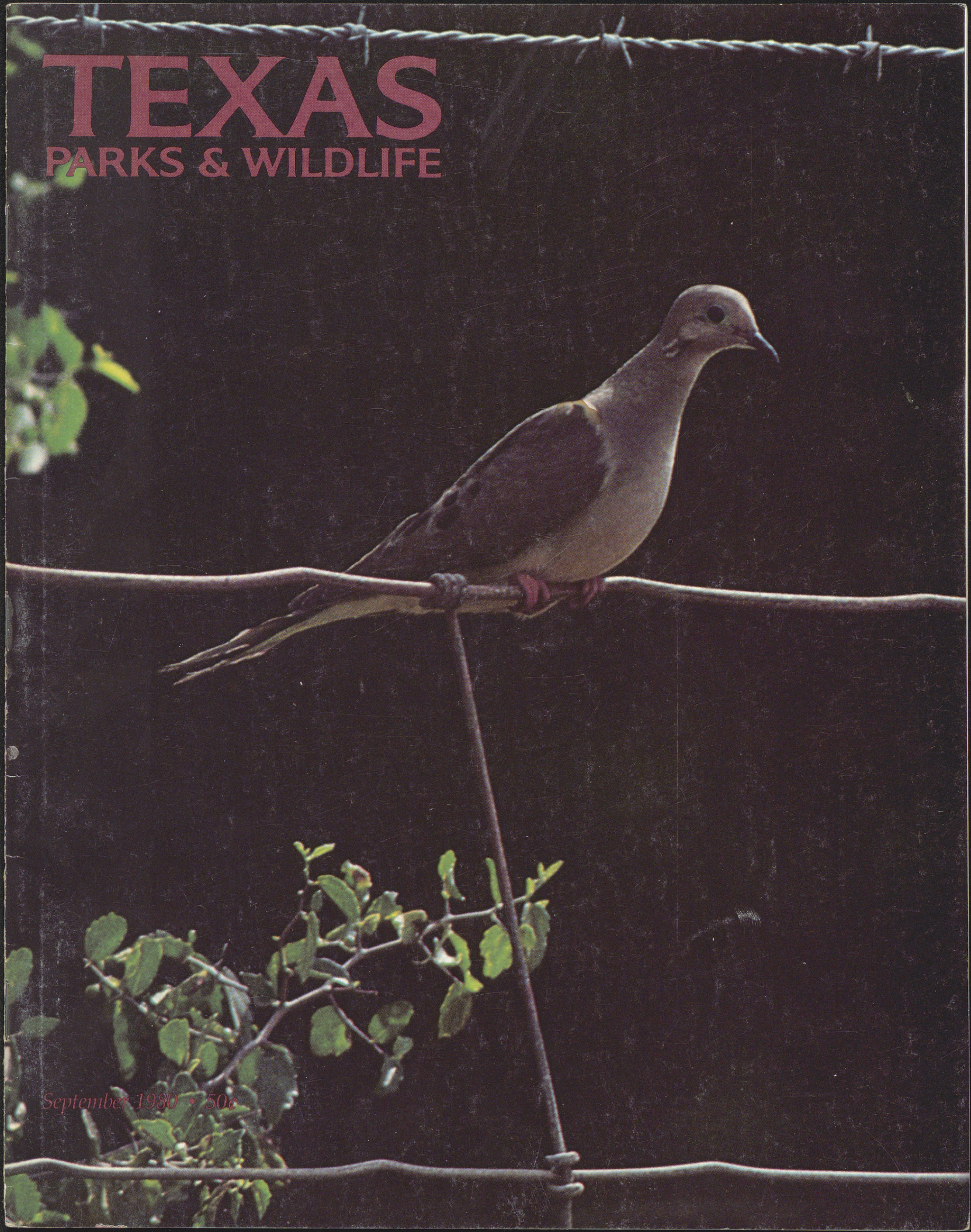
TEXAS
PARKS & WILDLIFE



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TEXAS PARKS & WILDLIFE
magazine
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Dedicated to the conservation and enjoyment of Texas wildlife, parks, waters and all outdoors.

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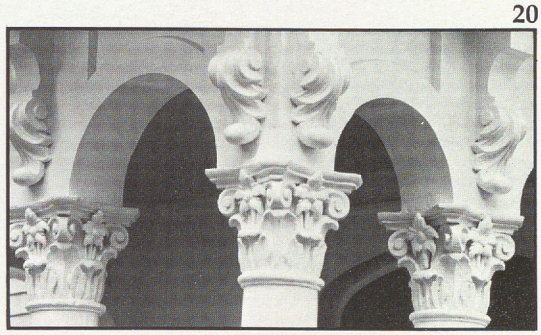

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TEXAS PARKS & WILDLIFE

September 1980, Vol. XXXVIII, No. 9

Front Cover: Most widespread of the several species of Texas doves, the mourning dove launches the long-awaited fall hunting season this month. (See doves on page 16.) Photo by Bill Reaves.

Inside Front: Hunters find the scaled quail a difficult bird to bag. This resident of the semiarid western half of Texas spends most of its time on the ground. Photo by Wyman P. Meinzer Jr.

Enchanted Rock

by Mary-Love Bigony

Generations of History and Legends

In times past, Enchanted Rock has been considered haunted, possessed and endowed with supernatural powers. The bald, granite mountain has been part of the life and culture of the Llano Uplift for thousands of years and significant historical events have occurred in this area. Today, as a state natural area, Enchanted Rock attracts thousands of visitors each year.

Bill Reaves

Comanche Indians dominated Central Texas more than 200 years ago. These fierce and skilled warriors defended their territory fearlessly and engaged in frequent battle with Spanish troops from San Antonio. But there was one object the intrepid Comanches regarded with particular awe and reverence—a massive, oval-shaped bald mountain.

Strange noises were said to come from the huge rock, and eerie spirit fires reportedly danced on its summit. Legends, passed down from the time of the Comanches, indicate the Indians believed the mountain had a spirit and possessed supernatural powers. Such legends tell of sacrifices by the Indians hoping for successful raids on white settlements, such as the chief who sacrificed his daughter on top of the mountain. But this displeased the gods instead of appeasing them, so the story goes, and the chief was condemned to wander over the rock for eternity.

Countless other tales seek to explain how the rock became haunted. An Indian maiden who saw her people slaughtered by an enemy tribe threw herself from the top of the mountain, and her spirit continues to haunt the site; a wild white woman escaped Indian captivity and fled to the mountain, and still can be heard screaming every night; a band of brave warriors defended themselves at the huge rock for years, and when they finally were destroyed their spirits possessed the mountain.

Today, such legends are nothing more than interesting folklore. The rock's groaning noises could have been caused by the stone contracting in the cool night air after a hot day, and the eerie lights probably were simply the crystalline particles that make up the stone. But the name the Indians gave this bald, granite mountain has remained—Enchanted Rock.

Since 1978, Enchanted Rock has been a state natural area. But this is only the most recent chapter in the history of a landform that has been part of the life and culture of the Llano Uplift for thousands of years.

Enchanted Rock is part of a huge batholith formed during the Precambrian age, 800 million to one billion years ago. Molten magma pushed up from within the earth, but cooled and hardened before reaching the surface. Later, at the end of Cretaceous time, regional uplifting removed the Cretaceous Sea and unveiled the batholith. Subsequent erosion stripped away Cretaceous and Paleozoic rocks, exposing Enchanted Rock's granite surface.

The rock's smooth shape is the result of exfoliation, a breaking of the surface into sheets that eventually waste away. Present-day visitors can see some of these large flakes of rock lying on the surface, many of which still are attached to the main rock. Weathering of the rock's minerals has resulted in shallow depressions called gnammas where slightly acidic water accumulates following rainfall. The larger gnammas often support grasses and other vegetation.

Some of the oldest rocks in Texas, as well as in the United States, are found at Enchanted Rock, and the area has become a natural laboratory for the study of geologic processes such as igneous intrusion, deposition and erosion of sedimentary rocks and weathering of granite. The many interesting landforms enhance Enchanted Rock's natural beauty, so in order to preserve the park's unique geological, biological and archaeological features, rock collecting is prohibited, as well as collection of plants or archaeological artifacts.

Human occupation of the Enchanted Rock area goes back some 12,000 years, when Indians used distinctively fluted and parallel-flaked spear points to hunt big game such as bison, the mammoth and the mastodon. The Archaic cultures of some 5,500 years ago left burned-rock middens—huge garbage heaps which contained burned heartstones and soil, stone tools and animal remains. Ancestors of the Tonkawa Indians came to the region about A.D. 500, and used the bow and arrow instead of spears for hunting.

The area's rich history of human occupation yielded 120 recorded State Archaeological Landmarks spanning 10,000 years totally or partially within the park during a 1979 survey. Ten of these are being studied for nomination to the National Register of Historic Places, and care is being taken to plan park facilities so that they will not interfere with these cultural resources.

Various Tonkawan bands dominated the Enchanted Rock region until the early 18th century. Around that time, they were overpowered by Lipan Apaches who mounted raids from the north against the Spanish mission in San Antonio. Not until Spanish authorities began sending punitive expeditions north against the Apaches did Europeans first encounter the Llano region and Enchanted Rock.

Spanish campaigns against the Apaches went out from San Antonio in 1723, 1732, 1739 and 1745, but there is no record whether any member of these expeditions ever saw Enchanted Rock. The Spanish then changed their tactics, believing that the establishment of missions would be more effective for subduing the Apaches than military campaigns had been. In 1753, Lieutenant Juan Galván led an expedition from San Antonio in search of a mission site. The party located a site on the San Saba River and received a friendly reception from the Apaches. Upon the expedition's return to San Antonio, 10 others left with Apache guides in search of a profitable mine. But Galván reported that the Apaches deserted the group for a gathering at La Rodilla—the knee—the first written record of a landmark that could be Enchanted Rock.

Bill Reaves

Spanish explorations continued, many of them to investigate the area's economic potential. Bernardo Miranda y Flores discovered what he believed was a rich silver mine south of Enchanted Rock in 1756, but the mine never was officially opened. Nevertheless, this stimulated speculation about the region's mineral wealth that would last for years.

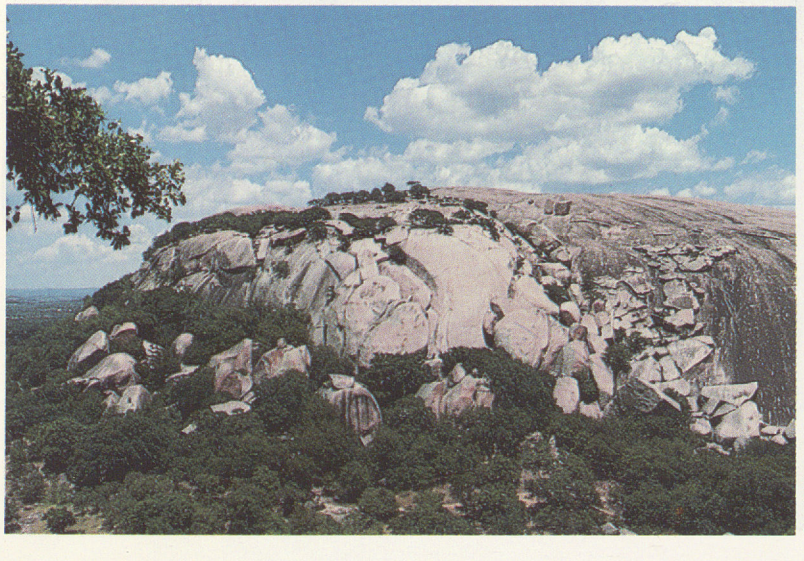
By the middle of the 18th century, Comanches dominated the area. In 1758, 2,000 Comanches destroyed the mission Santa Cruz de San Saba and soon after, Comanche warriors raided south past the Rio Grande. Warfare between the Comanches and Spaniards was frequent and bloody. When frequent military campaigns failed, the Spanish adopted a peace policy and tried to buy off the Comanches. Even so, the Comanches never totally abandoned their raids.

Nineteenth century Anglo settlers had much the same problem. Chief Buffalo Hump's Comanches massacred 13 members of the Webster wagon train in 1839, took Mrs. Webster and her children prisoners and rendezvoused at Enchanted Rock. The Websters remained with the Indians for more than a year before escaping to San Antonio where Mrs. Webster related stories about the Enchanted Rock area's gold and silver mines and brilliant stones that resembled diamonds.

The next year, 1841, John Coffee (Jack) Hays and 15 to 20 others surveying near Enchanted Rock were attacked by Indians. Hays was cut off from the others and climbed to the top of the mountain where he was able to hold off the Indians single-handedly for three hours until his companions could come to his aid.

Tales of gold and silver in the area continued. Stephen F. Austin made his first reconnaissance of Texas in

Bill Reaves



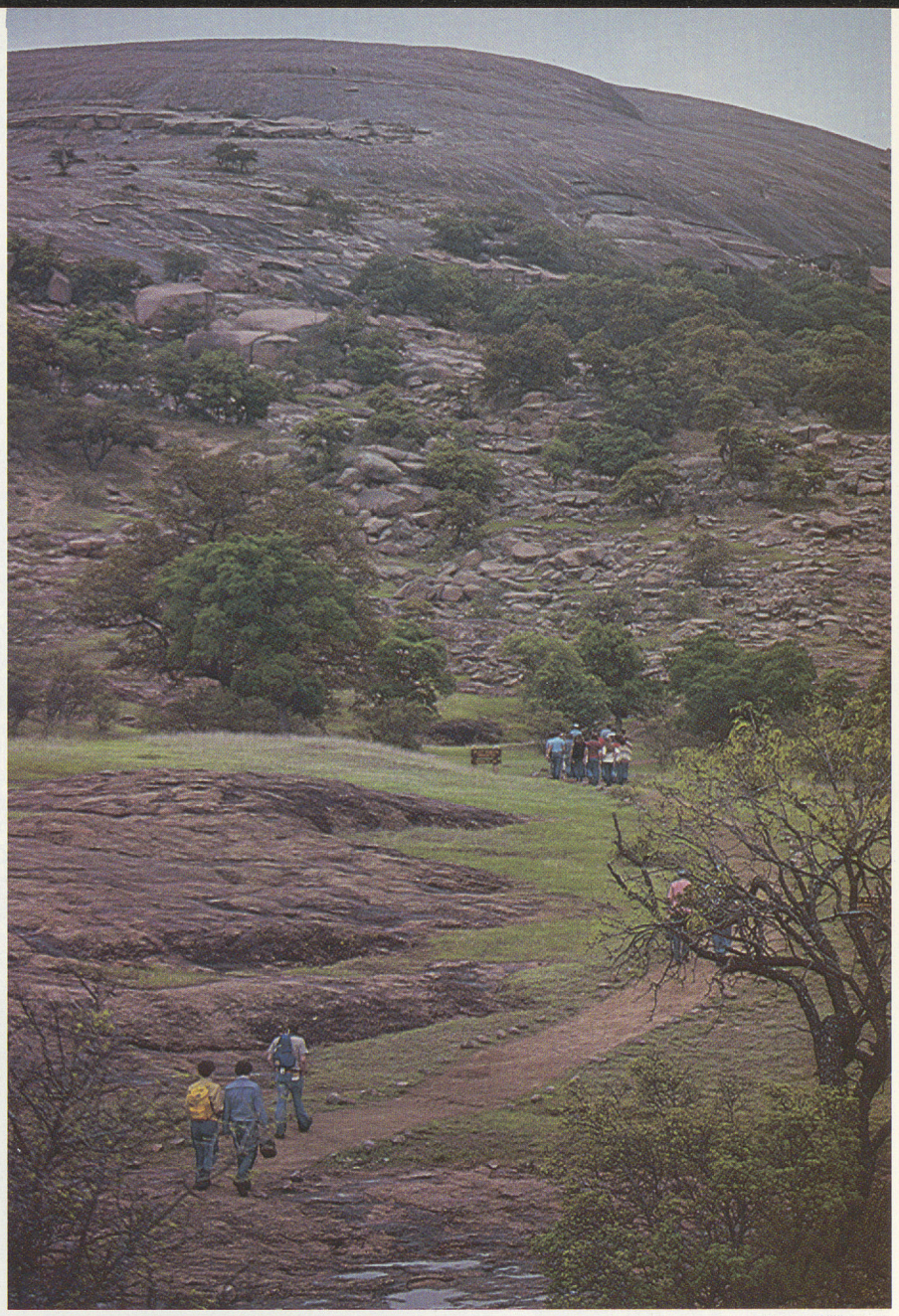
Glen Mills

Enchanted Rock's smooth surface is the result of a process called exfoliation, in which the surface breaks into sheets that eventually waste away. Many of these large flakes of rock still lie on the mountain's surface. Lichens in a variety of colors are abundant on Enchanted Rock (above), and are dense enough in places to change the color of the pink granite. Wild flowers in the park include the skeleton weed, *Lygodesmia texana*, (opposite page). A number of rare or endemic plant species occur in the park, but plant collecting is prohibited, as well as collection of rocks or archaeological artifacts.

1821 with plans for bringing colonists from the United States, and in an 1831 promotional pamphlet, Austin mentioned a silver mine and a gold dust mine in the Enchanted Rock area. William Kennedy, a British diplomatic secretary, perpetuated dreams of gold and silver in an 1841 book on Texas. Then in 1842, increasing internal problems and overpopulation in Germany prompted the formation of a society to aid German emigration into Texas. William Kennedy's book was highly recommended by the German Emigration Company and German colonists began settling in the area.

Mining continued to attract settlers as the area's population grew, and in 1888 a mineral finally became commercially valuable—not gold or silver, but granite. By 1908 there was a firmly established granite business in Llano County.

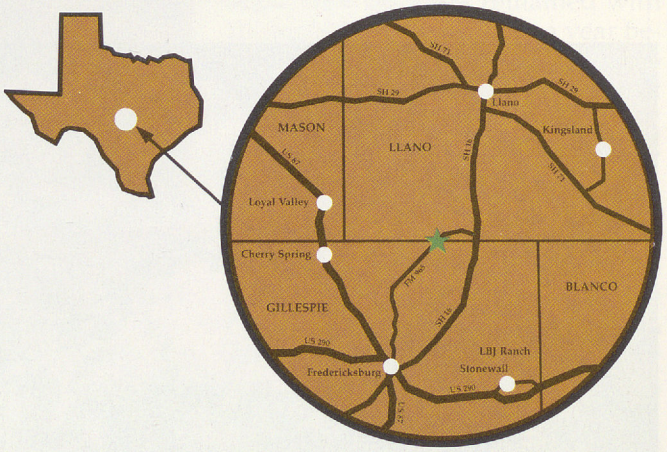
During all this time, the bald granite mountain and its legends fascinated everyone who heard of it. In 1927, Tate Moss opened a public park at the base of Enchanted Rock. Governor Dan Moody called Enchanted Rock "Texas' most wonderful summer resort" in his 1929 dedication speech. Charles H. Moss acquired the property in 1946 and continued to operate the park. In 1971, the National Park Service des-



Leroy Williamson

Enchanted Rock State Natural Area ★

Location: Gillespie and Llano Counties, 18 miles north of Fredericksburg on FM 965.
Facilities: 20 picnic sites; 30 temporary unimproved campsites.
For reservations or information: call 915-247-4934
or write Enchanted Rock State Natural Area,
Fredericksburg Route, Box 42, Llano 78643.



ignated Enchanted Rock a National Registered Natural Landmark.

When the owners decided to sell the property in 1977, there were fears this unique area would be subdivided. But The Nature Conservancy, a nonprofit organization concerned with preserving ecologically important land, negotiated a contract with the owners for 1,643 acres. The conservancy sold the site to the Texas Parks and Wildlife Department and the Department of the Interior assisted in the purchase with a grant to match the state's contribution.

Present-day visitors to Enchanted Rock have much the same first impression as the Indians and Europeans probably did. Going north from Fredericksburg the traveler approaches a juniper-covered limestone escarpment before descending to the plains below where the massive pink granite dome comes into view, seemingly incongruous with the gently rolling terrain.

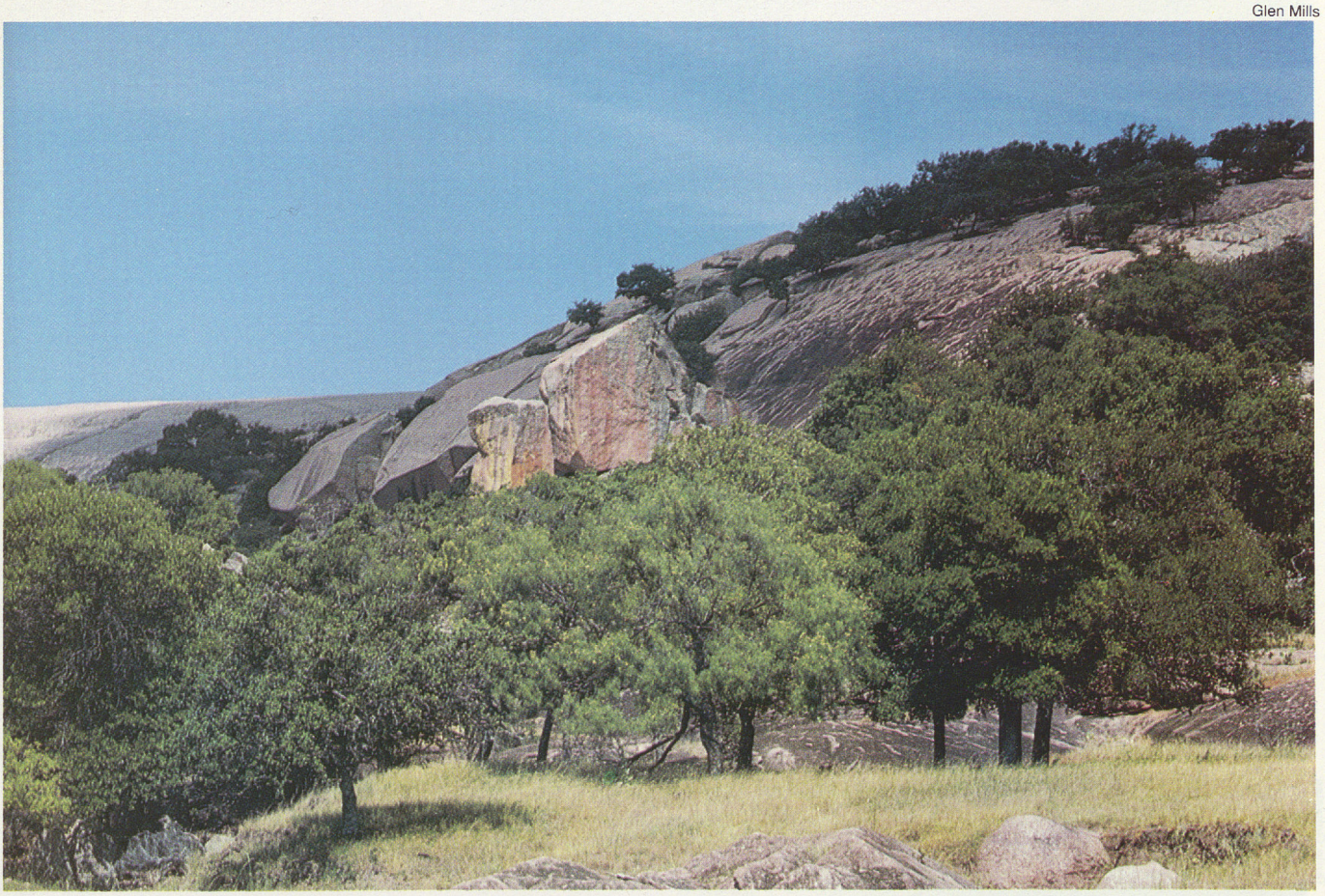
But the rock's desolate appearance is deceiving; a surprising number of plants grow there. Abundant lichens in a variety of colors are dense enough in places to alter the appearance of the pink granite. Several hardy fern species also can be found. Some wildlife species approach the limits of their geographical range at Enchanted Rock, such as the vermilion flycatcher, rock squirrel and red-shouldered hawk. Many species' ranges overlap here. Enchanted Rock provides sanctuary for a number of birds threatened by habitat loss, such as the eastern bluebird and the orchard oriole.

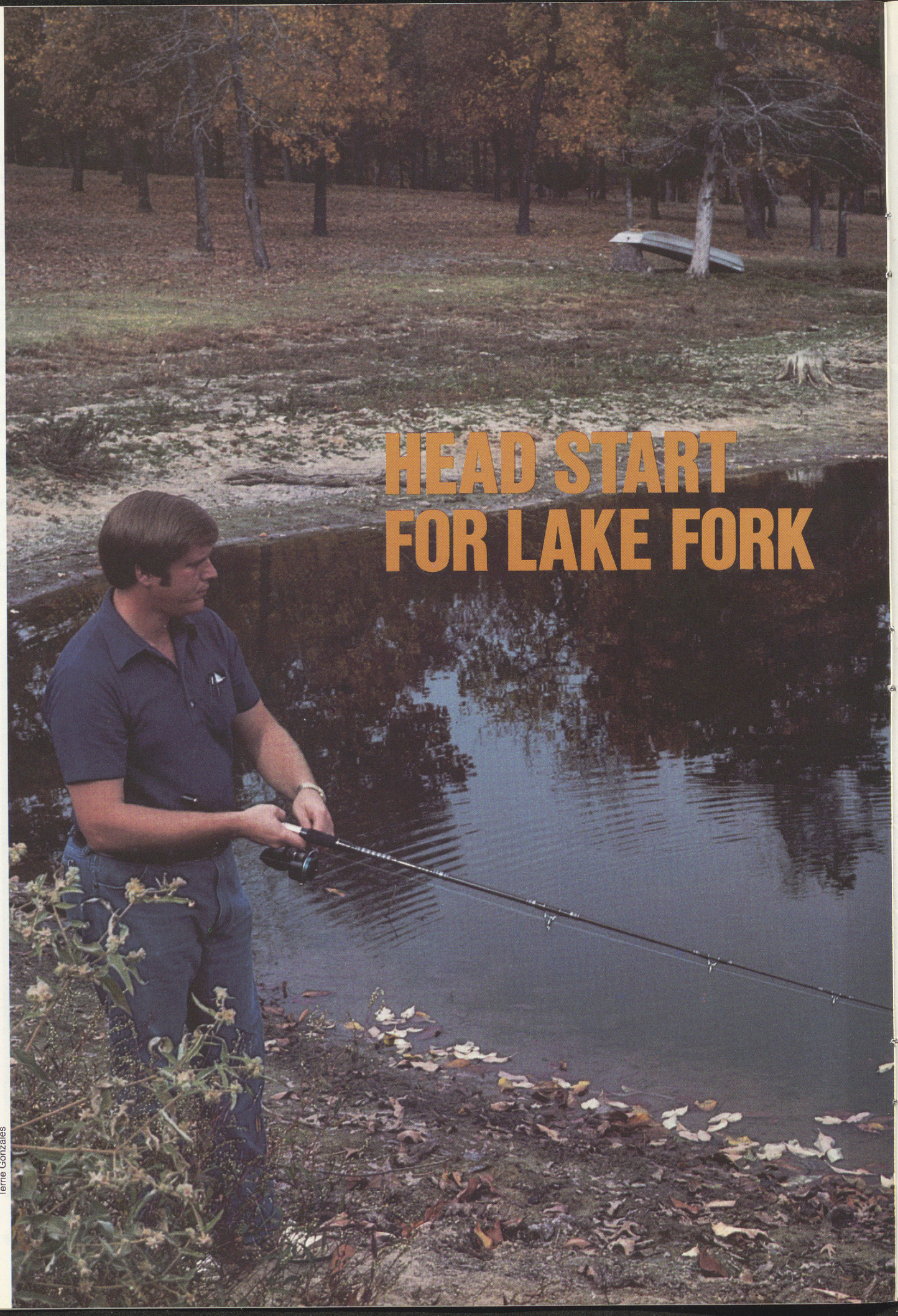
Enchanted Rock seems custom-made for nature study, climbing, picnicking, camping and hiking. A mile-long trail leads to the top of the mountain. Development is being planned so as not to interfere with the area's exceptional resources. There will be a headquarters complex with an interpretive area, a trail head pavilion, group pavilion and three primitive camping areas reachable only by foot, giving Enchanted Rock more primitive camping area than any other state park.

Park visitors may indeed find themselves enchanted by the rock—probably not in the same way as the Indians, but by its majestic beauty and unusual landforms, as well as generations of history and legends. **

Rising 400 feet above the Hill Country terrain, Enchanted Rock is one of the most popular spots in the state for rock climbing, but climbers may not use bolts or pitons. The mile-long trail leading to the top of the mountain continues to be the biggest attraction.

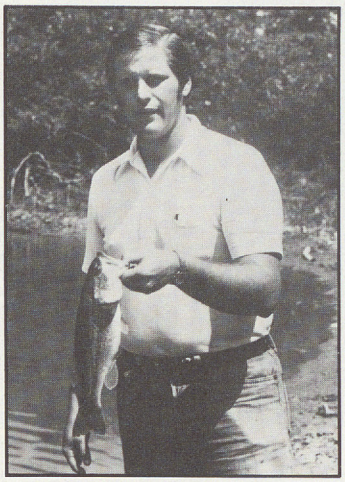
Glen Mills





HEAD START FOR LAKE FORK

Terrie Gonzales


Steve Smith

Quality Bass Fishing Aim At New East Texas Reservoir

by Steve Smith, Fisheries Biologist, Tyler

The most intensive fishery management program ever applied to a new reservoir in Texas is now on trial at Lake Fork, which opens for fishing in mid-September.

Realizing the potential of this fertile, wooded lake site near Quitman in Northeast Texas, Parks and Wildlife Department biologists began working with Sabine River Authority officials in 1976 to develop an innovative preimpoundment program to get the lake off to a good start in the production of largemouth bass and other game fish species.

Biologists emphasize that fishermen should not expect to catch many large fish in the first few months, since the lake rose to its present 7,600-acre level only this spring and fish are scattered. Most of the largemouth bass are well below the 14-inch minimum length limit established for the new lake. However, stocking techniques used in the waters of the lake bed before impoundment will assure the presence of ample brood fish for rapid expansion.

Long before lake waters began to rise, a number of existing stock tanks and ponds were treated with rotenone and then stocked with mature Florida-strain largemouth bass, spotted bass and channel and flathead catfish. Some of these nursery areas already have been inundated, others will be flooded when the lake fills completely and some will remain as permanent nursery ponds.

Biologists expect these preimpoundment efforts to give bass and catfish a vital jump on rough fish, and allow them to become firmly established in the lake's ample habitat. Other native species present in the watershed before impoundment include crappie and several varieties of sunfish.

Department officials feel credit is due the Sabine River Authority for using restraint in the amount of timber-clearing done in the lake bed. The authority cleared 5,000 acres of timber, but this only involved areas adjacent to the dam and space needed for boat lanes along the two main arms of the reservoir. Lanes also were cut from the main channel to most bridge crossings to facilitate boat access. Vast areas with timber, brush and other structure were left intact, creating the type of environment favored by the popular largemouth bass.

Another thing Lake Fork anglers should notice is a special 14-inch minimum length limit and bag and possession limits of five bass per day, 10 in possession. These limits were adopted to help prevent initial overharvest of the small and medium-sized fish which will provide the backbone of an expanding fishery in coming years. They will be reviewed periodically by biologists who later may recommend alterations to the limits as the bass population changes.

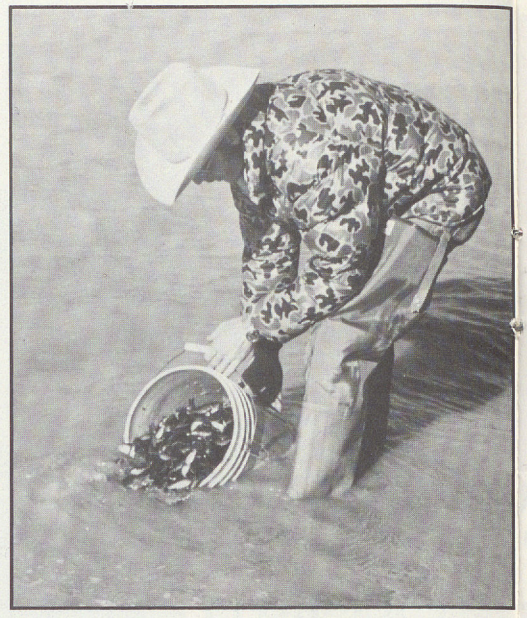
The restrictive bass limits at Lake Fork are similar to those of another new reservoir—the Fayette Power Project Reservoir near LaGrange. There are differences, however. The Fayette lake is much smaller than Lake Fork, at about 2,400 acres. It was closed for a longer period and had a full-fledged largemouth fishery by the time it opened a year ago. The bag and possession limits are somewhat different, with Fayette maintaining a more restrictive 16-inch minimum length limit and bag limit of three per day, six in possession.

Both reservoirs represent a new view toward bass fishery management, as it has become increasingly apparent to biologists that the tremendous fishing pressure applied to new lakes can indeed damage a vulnerable resource. In the past, new reservoirs traditionally have provided a brief boom in production, followed by a noticeable decline.

Fishing pressure is not the sole reason for these declines, as habitat, rough fish, water quality and perhaps

Lake Fork could be one of the state's best bass-producing reservoirs in a few years. Preimpoundment work began in 1976, and an intensive fishery management program includes special length limits and bag and possession limits. Biologists emphasize that many fish caught during the first few months will be below the 14-inch minimum length limit, and they urge fishermen to handle these young fish carefully to assure their survival on release.

Photos by Steve Smith



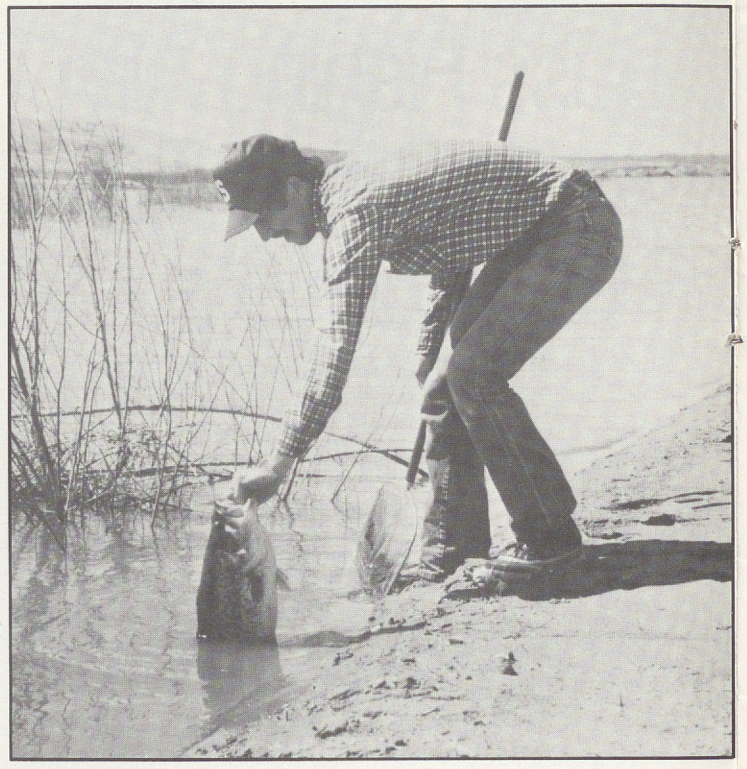
Before lake waters began to rise, biologists treated existing stock tanks and ponds with rotenone (opposite page) and stocked several species of mature fish. Some large tire reefs were placed in the lake (above left), and stockings have included fingerling channel catfish (above right) and Florida largemouth bass brood fish (right).

other factors also enter into the picture. However, the increase in bass fishing popularity, coupled with the advancements in sophisticated gear used by bass anglers, has prompted the department to explore ways to prolong a new lake's productivity.

Anglers fishing Lake Fork in its first weeks after opening no doubt will catch large numbers of bass under the 14-inch minimum size limit. This is to be expected, as the most numerous age classes are those from the 1979 stocking of 500,000 fingerling Florida bass, combined with fish spawned in the wild. There are also numerous Floridas in the seven- to nine-inch class which were stocked in May 1980.

The presence of these undersized fish makes an effective catch-and-release program highly important, and fishermen are urged to handle the young fish carefully to assure survival on release. Landing nets should never be used on undersized fish. The fish should be grasped by the lower jaw to remove the hook and should be returned to the water as quickly as possible. Grabbing a bass' midsection, touching its body with dry hands or allowing it to flop around in the bottom of a boat can cause internal damage and stimulate fungus and bacterial infections.

Lake Fork should provide the ideal medium for assessing the long-range effects of intensive bass management. It will be large, about 28,000 acres when eventually filled to capacity, and it possesses the soil and vegetation types typical of the better bass-producing reservoirs of East Texas. And as mentioned before, the hardwood timber and other structure in the lake conceivably could make Lake Fork the state's number-one bass producer in a few years.



The Lake Fork story began long before the dam was closed and waters started rising. In 1975, the Sabine River Authority started water quality and invertebrate studies of Lake Fork Creek. Department biologists completed their preimpoundment stream study in 1976. These combined investigations yielded considerable data on fish species present, water quality, soil types, available habitat, shoreline development and land-use practices within the drainage area which will affect the fertility of the reservoir.

The department's overall management plan for Lake Fork included recommendations for habitat improve-

Steve Smith

ment, fisherman information and access, fish population manipulation and regulations.

The type of habitat in a reservoir dictates the kind of management to be applied. Habitat considerations include water quality, shape, design and use as well as the amount of fish cover.

Water quality can be predicted by comparing reservoirs with similar habitat and land-use practices within and outside the watershed. Lake Fork's prospects are good, as its water promises to have the slightly acid to neutral balance with abundant plankton and aquatic vegetation seen in other productive East Texas lakes. The presence of dairy farms in the watershed also may assure a measure of water fertility.

The shape of a reservoir also is a factor in management. Shoreline development is a biological term which describes a lake's shoreline areas, including the number of coves, pockets, projections and the like. The more irregular the shoreline, the more favorable the habitat is for centrarchid species (largemouth bass, crappie and sunfish). This is because these native species evolved as stream fish and still prefer the stream-type habitat shorelines provide. Lake Fork is blessed with a tremendous amount of this type of habitat.

Surprisingly, artificial fish attractor reefs constructed of old automobile tires also are part of the lake's overall management plan. Even though the lake has thousands of acres of timber and other habitat, clearing in the lower reservoir area created a need for some artificial habitat. Several long points project from the shoreline near the Lake Fork and Caney Creek channels. Before impoundment, several large tire reefs were placed at locations which eventually will be under 10 to 25 feet of water. One of these reefs was made of 30 heavy-equipment tires. The nonbiodegradable tire reefs will be marked with buoys. Although none are fishable yet, anglers should take note of the reef locations for future reference when the lake rises.

Another fishing aid is the marking of preferred fishing sites in creek channels under bridge crossings. Crappie fishermen in particular will be able to profit from markings on pilings of the 14 bridge structures indicating the locations of creek channels. Many of the bridge crossings were rerouted alongside existing roads which now form unimproved boat launching sites. The Sabine River Authority has built two temporary ramps of soil-cement, but permanent ramps will not be installed until the final pool level is achieved, likely several years from now.

The department's intensive largemouth bass management program at Lake Fork has two primary objectives: to provide a quality bass fishery for a longer time, and to maintain healthy populations of larger predator fish to help control less desirable fish species. **

Angler's Guide:

Lake Fork

by Jim Cox

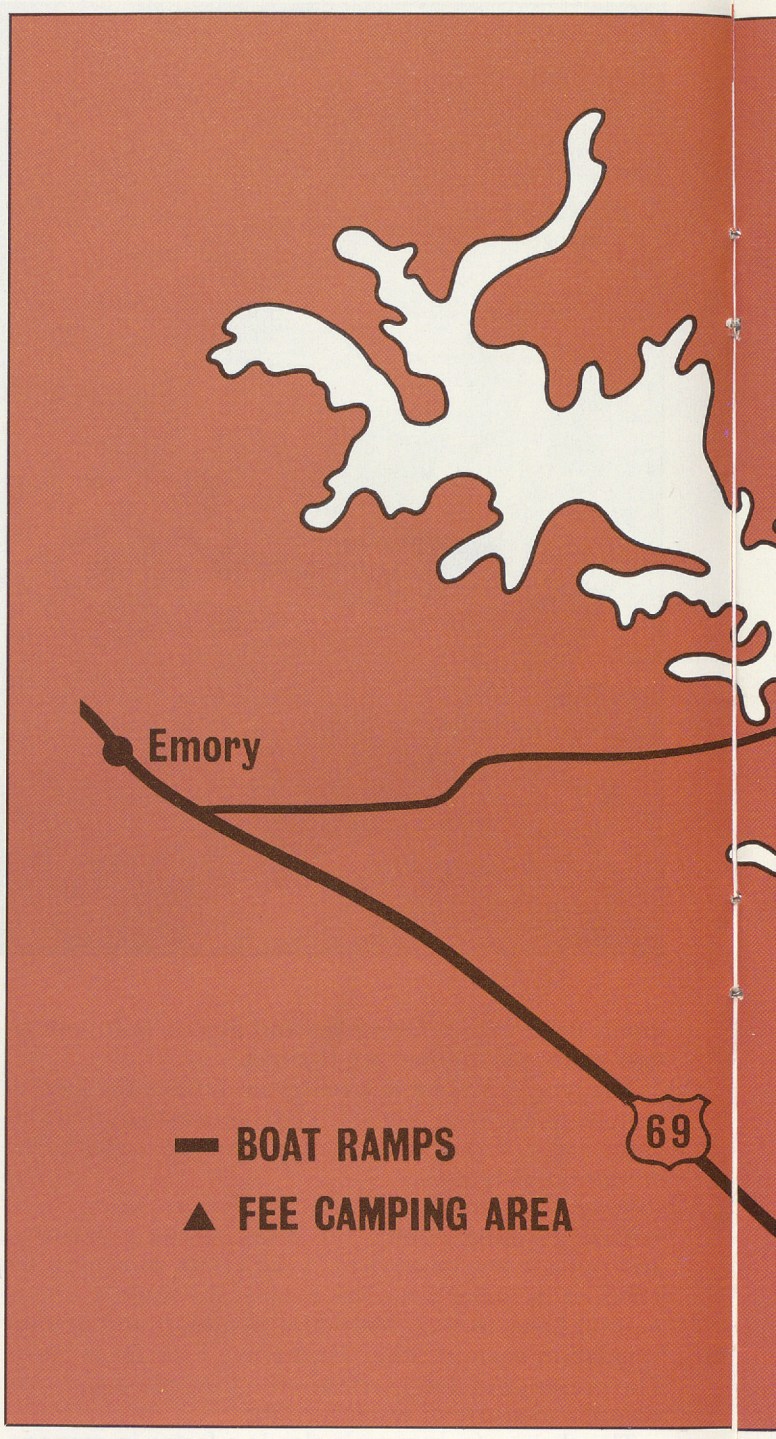
Many a bass fisherman's heart will skip a beat upon first seeing Lake Fork.

The 7,600-acre lake in Wood, Rains and Hopkins Counties has hundreds of miles of shoreline of the type bass anglers dream about. Wooded coves, inlets, brushy creek channels, weed and moss beds and virtually any other form of habitat known in the bass fisherman's jargon as "structure" are present. And when the lake finally reaches its full elevation a few years hence, it will constitute a truly promising major reservoir of 28,000 acres.

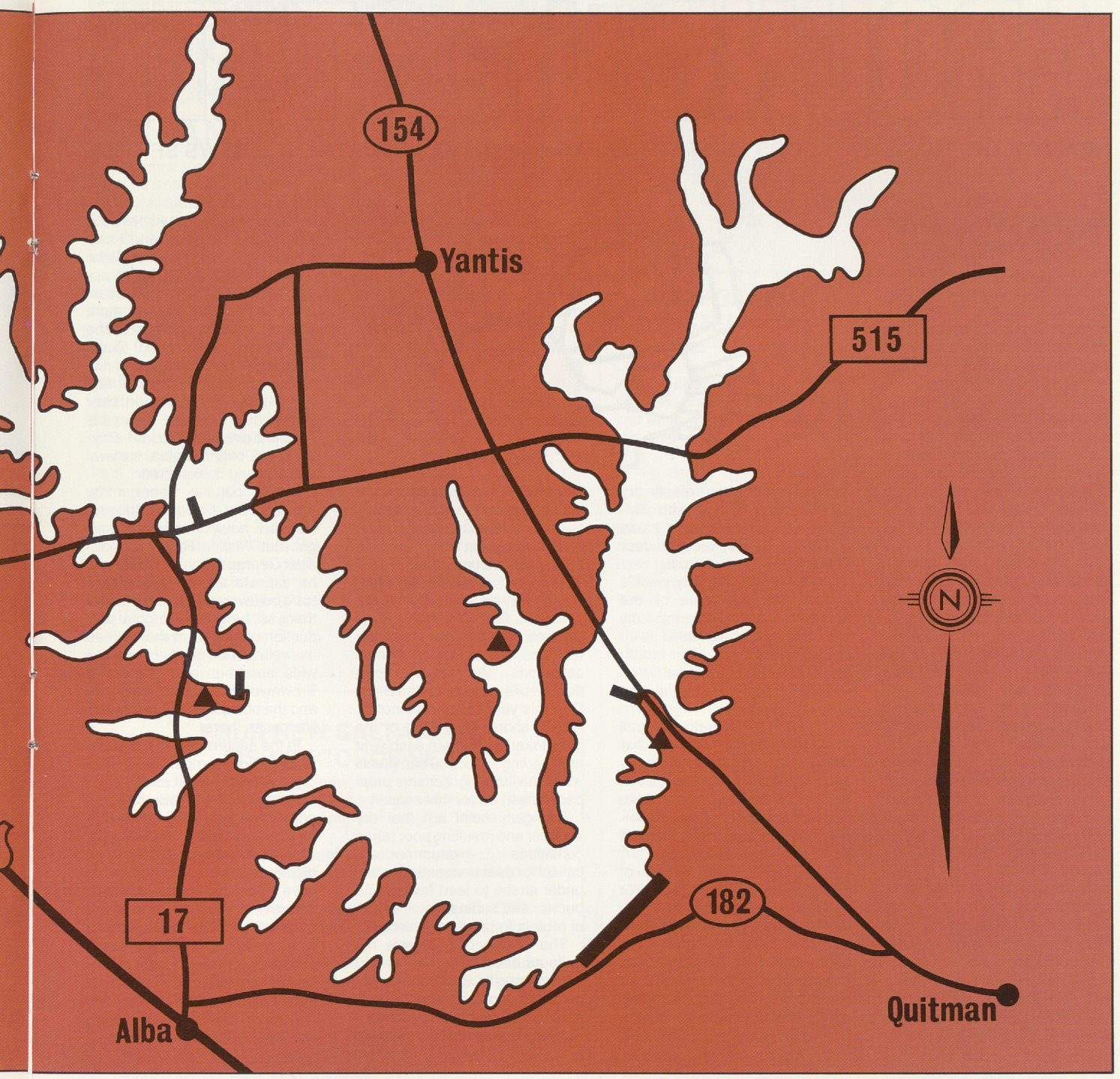
Its proximity to the Dallas-Fort Worth area is another bit of good news for anglers in that region. The lake is five miles west of Quitman on State Highway 182, which places it about 90 miles from downtown Dallas.

Although the lake is producing mostly undersized fish at present, by 1981 biologists believe it could be one of the state's best fishing lakes. It is expected to be outstanding for largemouth bass, crappie, catfish and sunfish. Of course, bass fishermen will outnumber all others when the lake hits its peak, and they shouldn't be disappointed.

Shoreline fishing for bass will be the main activity on Lake Fork, as anglers go after native largemouths and the faster-growing Florida strain of largemouths stocked by the department. Plastic worms, spinner baits and topwater lures are expected to be best for Lake Fork, due to the great amount of visible structure around the shoreline and the presence of underwater snags that foul crankbaits and other nonweedless hooks. Shallow-running lures in shad colors may prove effective because of the lake's strong populations of shad and silverside minnows.



New reservoirs in East Texas often have been characterized by excellent rod and reel fishing for channel catfish, and Lake Fork should be no exception. Channel and flathead catfish, along with Florida largemouth bass and spotted bass, were stocked in rearing ponds in the watershed before the lake was impounded. These fish should



provide a fast-developing fishery.

There is no charge for access to Lake Fork, and at present there are virtually no facilities other than three temporary soil-cement boat ramps and three camping areas (see map). There also are numerous inundated roadways which can be used for launching.

A bass fisherman's best friend on a new reservoir is a good map, and some are available for Lake Fork. Topographic maps may be obtained from the Department of the Interior, U.S. Geological Survey Distribution Section, Federal Center, Denver, Colorado 80225. To get the correct maps, specify the quadrangles for Arbala, Yantis, Pleasant Grove, Alba and Calvary. The quadrangles are $1.25 each. When the five map sections are placed together, the lake's final elevation can be traced by finding the Highway 182 bridge crossing of Lake Fork Creek at the dam site. Extend the bridge crossing line to the 403 elevation at either end. By following this 403 contour, the final shoreline can be drawn on the map. **

AROUND the STATE

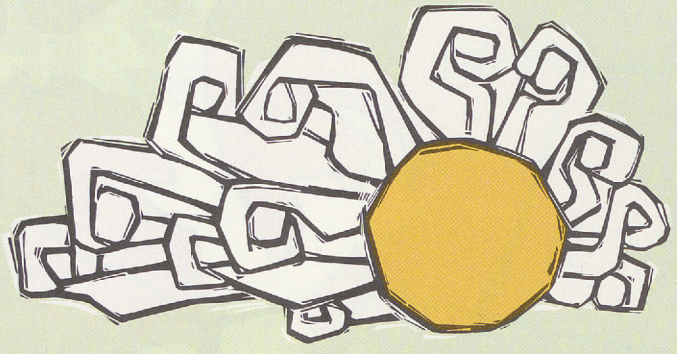
NEWS OF THE TEXAS OUTDOORS FROM THE PARKS & WILDLIFE DEPARTMENT'S NEWS SERVICE

ALLEN'S RAIN MAY BOOST WILDLIFE

Rains associated with Hurricane Allen may have averted further deer die-offs in drought-plagued South Texas, but they came too late to improve overall conditions drastically for wildlife in the coming months. Texas Parks and Wildlife Department biologists point out that dry weather during the critical spring and early summer months put a damper on reproduction and antler development, and caused significant deer die-offs in portions of five counties in western South Texas. "The rains may have prevented further die-offs which were imminent in that area, and they may help the existing deer, especially fawns, survive through the fall months," said deer program leader Horace Gore. "However, they came too late to help reproduction or antler development, and probably won't add much to the winter food supply." The important acorn crop already is considered a total loss over most of the driest areas, Gore said. The counties which already have experienced deer die-offs are Dimmit, LaSalle, Kinney, Maverick and Zavala.

Dozens of other counties in a broad band from the Trans-Pecos south to Brownsville also have been in the grips of a severe dry spell.

Biologist Jerry Cooke of Pearsall said Kinney County may have less than half the deer population this fall compared to fall 1979. "A year of extremely dry conditions combined with outbreaks of anthrax in some areas last fall have really reduced deer populations," Cooke said.



Deer are not the only wildlife species hurt because of the drought. "Normally during July we see plenty of quail with chicks," said Cooke. "This month the birds already have gathered in coveys, and we're not seeing many young quail."

Gore said a late hatch of quail is possible in some areas because of the moisture. "We have seen it happen in the past, even as late as August," Gore said, "but if it does, there may be a number of immature birds around when hunting seasons open."

The Trans-Pecos region of West Texas is always arid, but veteran biologist Sam Brownlee of Alpine said he cannot remember conditions any drier than they were before Allen. "We had not gotten a significant rain since August 10, 1979," Brownlee said. "In fact, we have had a total of 1.23 inches since then."

Brownlee said pronghorn antelope fawn survival is expected to be very low this year, and he also feels certain some losses of mule deer are occurring.

The Black Gap Wildlife Management Area, located adjacent to the Rio Grande and Big Bend National Park, is a good indicator of Trans-Pecos Region habitat conditions. "We had no reproduction of quail at all on the Black Gap this year," Brownlee noted. "Since about 75 percent of the quail taken by hunters each year are yearling birds, you can guess what the hunting season prospects might be for this season."

Biologists point out that dry weather and resulting poor range conditions in midsummer are critical for deer because does are under stress to feed fawns, and bucks need substantial amounts of protein to produce antlers.

The dry conditions were not quite as bad in the most southerly counties of South Texas, according to biologist Mike Hobson of Laredo. "We haven't yet had a significant deer die-off, but doe deer are in what I would describe as only fair condition and I certainly don't expect a good fawn crop," Hobson said. Bucks appear to be faring well for the present, and antler development should be about average in the areas from Webb and Duval Counties south, he added.

Nesting success for quail and turkey generally has been poor throughout Texas, biologists said, and even with the late-arriving rains, only marginal survival of the young is expected.

In the popular deer-hunting areas of the Edwards Plateau, deer are not in immediate danger, but Wildlife Regional Manager George Litton of Waco said he expects antler development to be below average. "It looks like there will be only a marginal production of turkeys in the Plateau as well," Litton said. He said a wide area between Waco and Brownwood is still critically dry and the possibility exists for wildlife losses there.

In the eastern half of the state, record high temperatures and dry weather caused stress similar to that in West Texas, but not quite as severe. Regional Director Bob Van Cleave of Tyler said, "We don't have a clear-cut indicator of losses yet, but we do have a possible loss of fawns if it doesn't rain soon." He said the quail hatch in East Texas is about average and some turkey reproduction was noted. Squirrel reproduction also may be hurting, although carryover populations may keep populations at acceptable levels this fall.

DIVER REPORTS FISH AT ARTIFICIAL REEF

Fishermen might wonder as they cast a line over an artificial reef just how effective the structure is.

During a recent survey at Possum Kingdom Lake in North Texas, biologist John Moczygemba of the Texas Parks and Wildlife Department decided to get a first-hand look at some reefs installed in late 1978.

Using scuba gear, Moczygemba dove in the areas and identified several species of fish before they darted from view.

"I was surprised to see so many small bass ranging up to two pounds," he said. "There were lots of sunfish, along with a three-pound flathead catfish and a two-pound channel catfish."

AMISTAD SCORES HIGHEST IN BASS CLUB SURVEY

Amistad Reservoir on the Texas-Mexico border captured first place in the Texas Parks and Wildlife Department's bass club tournament survey program for the first six months of 1980.

Rankings of the top 10 bass tournament lakes were determined by analysis of data collected from 155 bass clubs which held 445 tournaments across the state from January through June.

Amistad ranked first in the category of pounds of bass caught per hour, and third in percent angler success and number of bass caught per hour.

The other categories are average weight of bass caught and hours required to catch a bass over six pounds.

Amistad ranked fifth in the overall tournament statistics for the complete 1979 calendar year, behind Toledo Bend and Houston County (tied for first place), Conroe and Travis.

NONTOXIC SHOT ZONES EXPANDED

Regulations which will expand the state's nontoxic shot zones to include all state and federal waterfowl hunting areas in Jefferson County and require the use of nontoxic shots in all gauges of shotguns in these areas have been approved by the Texas Parks and Wildlife Commission.

Under the approved regulations, the newly opened McFaddin Marsh and Sea Rim National Wildlife Refuges will become steel shot zones for the 1980–81 waterfowl season along with the J. D. Murphree Wildlife Management Area and Sea Rim State Park, both of which had nontoxic shot requirements last year. Approximately 33,000 acres of the four steel shot zones in Jefferson County in Southeast Texas are expected to be opened to public waterfowl hunting this fall, according to Bill Brownlee, TP&W migratory bird program director.

The requirements for use of nontoxic shot in all gauges of shotguns will effectively limit hunters in the steel shot zones to 10-, 12- and 20-gauge shotguns since steel shot shells will not be available for 16-, 28-, and 410-gauge guns.

The commission also approved an expansion of the nontoxic shot zone for the 1981–82 waterfowl season which would include all the area south and east of Interstate Highway 10 from the Louisiana state line to Houston, thence south on Interstate 45 to its junction with Highway 35, thence south on Highway 35 to its junction with the Brazos River, thence east along the east shore of the Brazos to the shoreline of the Gulf of Mexico, thence southeast to the three marine league limit. This advance action was taken to allow shot shell manufacturers enough notice to meet expected shot shell needs for the expanded zone.

The expansion of the nontoxic shot zones was approved to help reduce the ingestion of toxic lead shot by wintering waterfowl in Texas. An estimated two to three percent of the annual fall population of waterfowl is lost to this form of lead poisoning, according the the U.S. Fish and Wildlife Service.

FOUR NEW SALTWATER FISH RECORDS SET

Texas fishermen have set new state records in four saltwater categories, according to the Texas Parks and Wildlife Department. They are swordfish, southern stingray, blacktip shark and lemon shark.

A 317-pound broadbill swordfish caught a year ago near the Flower Garden Reef off Galveston has set a new mark for that species.

J. P. Bryan Jr. of Houston caught the fish July 21, 1979, on 80-pound-test line. It was 11 feet, 10 inches long and three feet, 11½ inches in girth.

The swordfish displaces a 286-pounder caught by James Lee Culver of Matagorda off Port Aransas in 1978. The world rod and reel record swordfish is a 1,182-pounder caught of Iquique, Chile in 1952.

A southern stingray weighing 200 pounds earned a state fish record certificate for Laurie Londrigan of Galveston. She caught the ray June 21 in Galveston Bay.

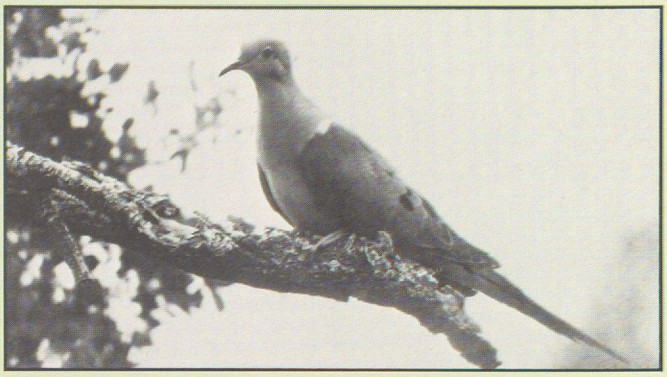
The stingray was 63½ inches long and 59 inches in girth. It beat the old record, caught in 1978, by only three pounds.

Richard S. Goldgar of Missouri City caught a 166-pound blacktip shark June 2 off the Port Aransas jetties. The former record blacktip weighed 136 pounds.

Goldgar caught the shark while drift fishing from a party boat. It was 86 inches long and 41½ inches in girth.

A 357-pound lemon shark caught east of the Buccaneer Field off Galveston June 7 is a new record for that species. L. J. Schaper Jr. of Hitchcock caught the shark on 80-pound-test line.

The former record lemon shark, caught in 1978, weighed 323 pounds.



DOVE SEASON DATES SET

The Texas Parks and Wildlife Commission at a public meeting in late July adopted hunting seasons and bag limits for mourning and white-winged doves under a two-zone arrangement as in the past.

The North Zone mourning dove season will be September 1–October 30, 1980. The continuous 60-day season represents a change from the split season used last year.

For mourning doves in the South Zone, the season dates will be September 20–November 2, 1980, and January 3–18, 1981.

The white-winged dove season dates are September 6–7 and 13–14 in Brewster, Cameron, Culberson, El Paso, Hidalgo, Hudspeth, Jeff Davis, Kinney, Maverick, Presidio, Starr, Terrell, Val Verde, Webb, Willacy and Zapata Counties.

In South Zone counties having an open season on whitewings, the fall season for mourning doves will end October 29, 1980. In counties which have days with concurrent whitewing and mourning dove hunting in either zone, the legal shooting time for those days is noon to sunset. In all other counties in both zones, shooting hours are one-half hour before sunrise to sunset.

Dove Program Leader Jim Dunks advised the commission that the split hunting season for mourning doves in the North Zone has received opposition from some hunters who contend that they are penalized by having the winter season. "The winter season in the North Zone will remain controversial, but it appears that the straight season will appeal to the majority of hunters," Dunks said.

In adopting the two-zone alignment, the commission set aside a proposal to establish a three-zone setup after reviewing written and verbal objections. The three-zone plan would have set a later than September 1 opening for a large portion of North and Central Texas and would have combined the Trans-Pecos region with the Rio Grande Valley in the same zone. Objections to the three-zone plan were strong from sportsmen in the San Antonio and El Paso areas.

As was the case last dove season, one fully feathered wing must be retained on all dressed dove carcasses in all of the South Zone at all times, and in counties of the North Zone which have a concurrent whitewing and mourning dove season.

The North Zone is comprised of Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, Williamson, Milam, Robertson, Leon, Houston, Cherokee, Nacogdoches and Shelby Counties and all counties to the north and west. The South Zone includes all counties to the south and east.

Bag limits for mourning and white-winged doves will remain unchanged from last year, at 10 per day, 20 in possession. Hunters may take a limit of each species during the whitewing season in counties offering a whitewing season.

The commission also set the early teal duck season for all teal species for September 13–21, 1980, with shooting hours from sunrise to sunset. Bag limit will be four per day in the aggregate; possession limit eight in the aggregate.

The rail and gallinule season will be September 1–November 9, 1980, with shooting hours from one-half hour before sunrise to sunset. The daily bag limit on large rails (king and clapper) will be 15 in the aggregate per day; possession limit 30 in the aggregate. The daily bag limit on small rails (sora and Virginia) will be 25 in the aggregate per day; possession limit 25 in the aggregate. The gallinule limits will be 15 per day; possession limit 30.

TEXAS DOVES AND PIGEONS

A guide to game and protected species

White-winged dove

Article by Ilo Hiller
Illustrations by Debbie Anderson Horst

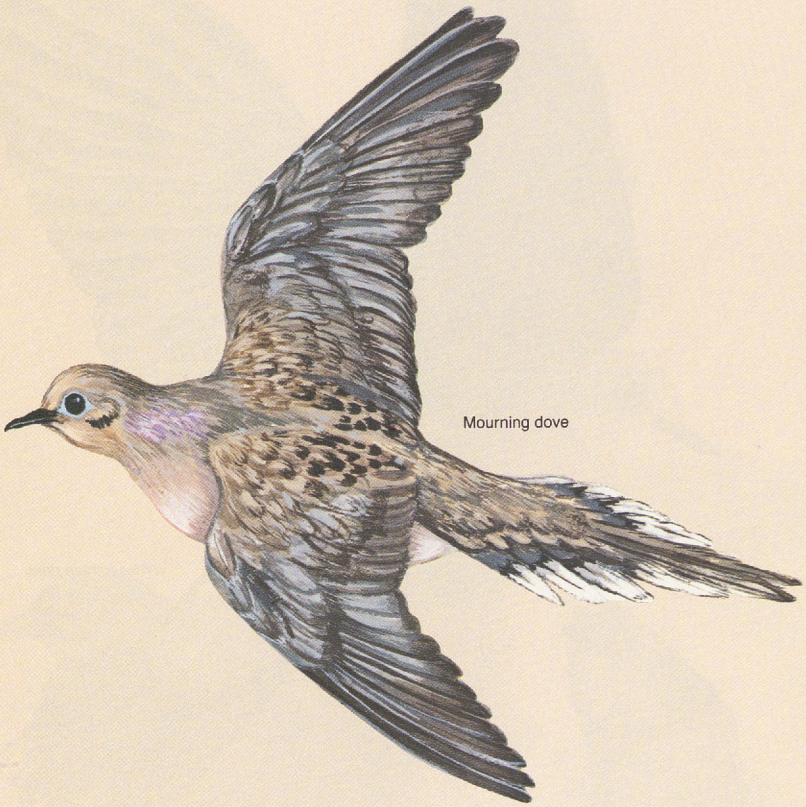
Completely different images come to mind when we hear the words pigeons and doves, but technically, no difference exists between the two and the terms often are used interchangeably. True, those small, fast-flying game birds, able to challenge the shooting skill of any hunter, are doves; however, that plump pigeon perched on a building ledge or waddling around the city park looking for a handout is also a dove—a rock dove.

All pigeons and doves are members of the Columbidae family. They have soft, thick plumage in a variety of colors and patterns, with most species displaying some type of iridescent glossing. No seasonal changes in coloration occur and, except for the female being somewhat duller, the sexes are alike.

Both sexes share in incubating the eggs and feeding the newly hatched young a substance called "pigeon milk," which is secreted from the adult's crop. Later the parents regurgitate partially digested food for the young. Adults eat seeds, fruit and vegetable matter, and a few species also eat a variety of insects and other small invertebrates. Instead of drinking in the typical bird manner of taking a sip, tipping back the head and allowing the water to trickle down the throat, the pigeon or dove immerses its bill and drinks with sustained sucking.

Of the 289 dove species found in the world, only the eight illustrating this article are considered full-time or part-time residents of Texas. Of these eight, only the mourning and white-winged doves are legal game birds.

The **mourning dove**, slightly smaller than the whitewing, is the most common and abundant game bird in the United States. It breeds in each of the contiguous 48 states, and is the only native Texas bird that occurs in all of the state's 254 counties. As long as there is enough water present to allow the bird to drink once a day, the mourning dove can thrive in almost every habitat. This adaptive ability and its multiple-nesting cycle contribute to its abundant numbers. Millions are harvested each year without endangering the population. When flights of mourning doves and whitewings mix, the mourning dove can be distinguished by its more



Mourning dove

Rock dove

rapid wingbeat, erratic flight path and pointed tail.

The **white-winged dove** has a conspicuous white bar on its wings and a long, moderately rounded tail. This popular game bird generally is found south of a line extending from El Paso to Del Rio to San Antonio to Corpus Christi, with the heaviest concentrations in Starr, Cameron, Hidalgo and Willacy Counties. An isolated population is found on Galveston Island, and wandering birds occasionally may be spotted throughout the state in the fall.

Whitewings nest in the Lower Rio Grande Valley in native brush and citrus trees. Their adaptation to citrus is helping to counteract some of the losses brought about by the destruction of native brush in the area.

Rock doves, commonly called domestic pigeons, need no introduction to city dwellers. These 12- to 13-inch birds are extremely variable in color and pattern, ranging from gray to brown to all white with every combination of the three and occasional black markings. All display a white rump patch.

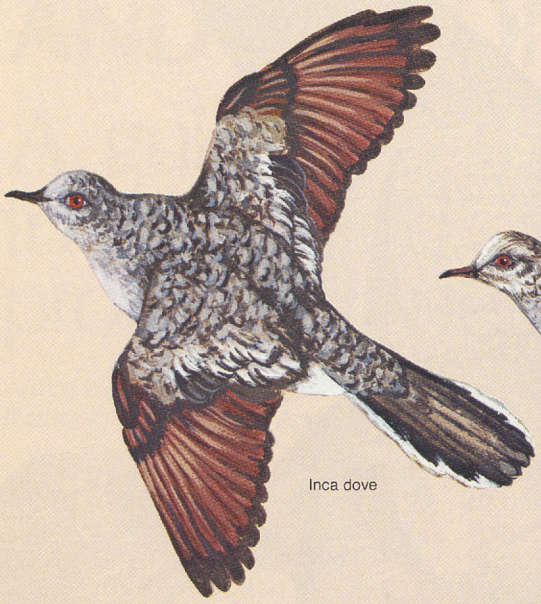
Except when the weather is extremely hot or cold, the rock dove's distinctive *oo-roo-coo* or *coo-roo-coo* call can be heard year around.

Their dependence upon handouts in the city and their habit of eating cattle and chicken feed in rural areas make the rock doves seem quite domestic. Few people consider them as true wild birds. They generally fly in flocks and do not readily mix with other wild birds.

Man has introduced the rock dove into almost all parts of the world and individuals often raise them as well as other varieties of racing and fancy pigeons.

It has not been too many years since feral pigeons were not protected by law; however, the rock dove is now a protected bird and may not be hunted.

White-fronted dove



Inca dove

Ground dove

About half the size of a mourning dove, the small **Inca dove** has an overall scaly appearance and a long tail with white margins. It displays strong domestic tendencies, choosing to live near humans. It adapts readily to urban areas and city parks, and seems to be as much at home eating livestock and poultry feed as eating weed and grass seeds along the roadsides or in pastures.

The bird usually holds its head erect in the dovelike manner, nodding back and forth as it walks. Flight is quick, jerky and close to the ground. An unusual *flutting* sound is made by the wings when the bird flushes. Its call, an often-repeated cooing of two notes on the same pitch with almost equal emphasis, is made almost continuously from dawn to dusk.

The **ground dove**, slightly smaller than the Inca, weighs little more than an ounce and is about the size of a sparrow. Its chunky body has a short, round tail which often is elevated as the bird walks around on the ground, nodding its head. Whereas the Inca dove is more common in urban areas, the ground dove prefers less-populated rural surroundings.

Flight of the ground dove is close to the ground. As the bird rises, its wings make a soft, whistling sound, similar to that of the mourning dove, but much less noticeable.

The protected **white-fronted dove**, similar in size and shape to the whitewing, may be mistaken for this game bird. However, the whitefront is slightly larger and has cinnamon-colored wing linings. Generally no more than one or two of these solitary birds are seen at a time.

A local name for this dove is "jug blower" because its call is similar to the sound made by blowing across the mouth of an empty bottle or jug.

Another characteristic that may help distinguish the whitefront from the whitewing is its tendency to fly less than 10 feet off the ground. It appears to dislike flying, and usually takes to the air only when startled. Despite its heavy body and ground-dwelling habits, its flight is swift as it heads for dense cover. Seldom is it seen above the treetops where the whitewings fly, but hunters should be sure of their targets when hunting around brush

Band-tailed pigeon

Red-billed pigeon

or citrus groves as both species are common to these habitats.

There are some indications that the white-fronted dove is expanding in number and range, but the Rio Grande Valley is considered to be the only place in the United States where this nonmigratory dove resides.

Another Valley resident is the **red-billed pigeon**. Similar in size to the domestic pigeon, this bird can be distinguished by its reddish bill. It is a high, swift flier and seeks the tallest timber and brush it can find. Except when standing on sand or gravel bars to drink, the red-billed pigeon seldom is seen on the ground.

The redbill will fly with whitewings and easily can be misidentified. During the breeding season this pigeon is more likely to be seen singly, in pairs or in small groups at feeding and watering places.

Since the Rio Grande Valley is the redbill's only nesting ground in the United States, its population is restricted to the remaining brush and timber of the area, including some urban areas.

Unlike the majority of its relatives which live at low altitudes, the **band-tailed pigeon** seeks the woodlands of the mountains, breeding between 5,000 and 9,000 feet. It is fairly common in the Guadalupe, Davis, Chinati and Chisos Mountains.

This bird is found singly, in pairs or small groups during the breeding season, but in fall and winter scattered flocks head for the foothills and open deserts in search of food.

The voice of the male has a hollow, owl-like sound. Sitting on a sunny perch atop a dead tree, he hoots his call at irregular intervals in in the early morning and late afternoons during the spring and summer.

The legal responsibility for properly identifying the Texas doves and pigeons rests with the hunter. Remember, only two of the eight species may be harvested. For information about dove seasons and bag limits, see "Around the State" on page 15.

The House Sam Bell Maxey Built

by Peter Flagg Maxson

Through demolition, alteration or neglect, many fine Victorian-era buildings in Texas have been lost. In recent years, however, there has been a growing appreciation of the state's rich and varied 19th century architectural legacy.

Cities and towns such as Galveston, San Antonio, Waxahachie and Calvert take great pride in their Victorian buildings, and numerous other communities are rediscovering their own monuments to the Victorian Age. The state also has recognized a responsibility for the preservation of this heritage.

In 1973, the Texas Parks and Wildlife Commission adopted a formal Historic Sites and Restoration policy "to recognize and protect the heritage of the State of Texas through the acquisition and development of historic sites of particular statewide significance." Since that time the department has acquired several properties of major architectural and historical importance. Among these is the Sam Bell Maxey House State Historic Structure in Paris, Texas, an excellent example of the High Victorian Italianate style. Not only is the house one of the best surviving examples of a large, post-Civil War residence in Texas, it was also the home of a notable Texan and his family for a century.

The Maxey house was built by former Confederate General Sam Bell Maxey. Born in Monroe County, Kentucky, in 1825, Maxey entered West Point in 1842. After serving in the Mexican War, he returned to Albany, Kentucky, and joined his father, Rice Maxey, in his law practice. Young Maxey married Marilda Cass Denton in 1853, and four years later the entire Maxey clan moved to Paris in Lamar County. In 1861 Maxey was elected to the Texas State Senate. Since that event coincided with the outbreak of the Civil War, Rice Maxey took his son's place in the Senate so the younger Maxey could participate in the war. Maxey's sympathies were unquestionably with the South, and he soon organized the Ninth Texas Regiment, later under the command of Albert Sidney Johnston.

Maxey served the Confederate Army in several capacities before being assigned command of the Indian Territory (now Oklahoma) in 1863. There he met with a degree of success in keeping out Union troops and in persuading the Indians to befriend the Confederate cause. As a result of capturing a 170-wagon Union supply train, he was promoted to the rank of Major General. Following the war, Maxey was forced to seek a presidential pardon along with other high-ranking Confederate officers. After much delay, Maxey's pardon was granted through the intervention of a West Point classmate, Ulysses S. Grant.

In spite of Maxey's legal problems and the uncertain Texas economy of the Reconstruction period, the Maxeys were able to build the imposing residence we see today three years after the war. According to tradition, Maxey assisted R. W. Jones, a Choctaw Indian cotton planter, in settling a lawsuit, and both were able to build splendid homes in Paris with the proceeds.

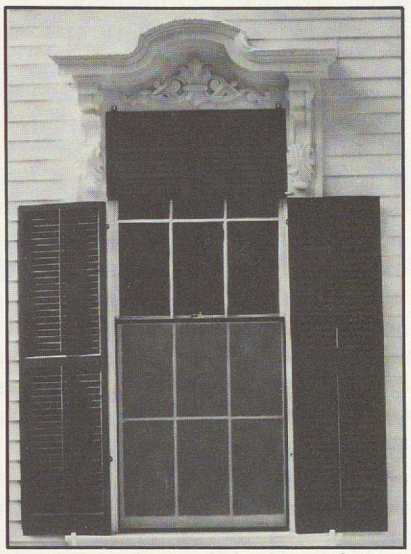
Marilda, Sam and their adopted daughter, Dora, moved into the Maxey house in 1868. The Maxeys, who had no children of their own, had assumed legal charge of six-year-old Dora Rowell in 1863 after the death of her father at Shiloh. Dora married Maxey's law partner, Henry William Lightfoot, in 1874. After her death 10 years later, at age 28, the Maxeys reared her two children, Sallie Lee and Thomas Chenoweth Lightfoot.

In 1874, Sam Bell Maxey was elected by the Texas Legislature to the United States Senate. That year marked the end of Reconstruction government in Texas, and Maxey was the first post-war Democratic senator from Texas. Competent in

Design of the Maxey House was innovative for Paris, Texas, in 1868. Now open to the public as the Sam Bell Maxey State Historic Structure, the exterior exhibits the opulence of High Victorian Italianate styling. The two-story front porch has four Corinthian columns on both levels, and the ornate window frames and large brackets under the roof are distinctively High Victorian.

Glen Mills

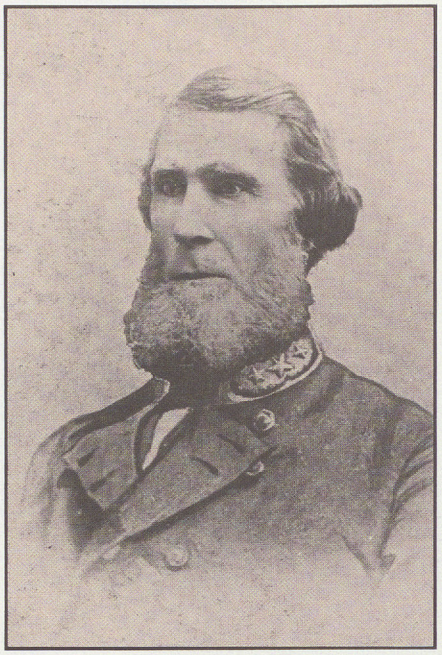
Glen Mills



Glen Mills

his new role, he supported legislation beneficial to his two chief interests—Texas and military affairs. He served on the Senate Committees on Indian Affairs, Military Affairs and Post Offices and Post Roads. He also was influential in promoting railroads and the postal system in Texas. After 13 years in the Senate, Maxey was succeeded in 1887 by John H. Reagan.

After his senate tenure ended, Maxey returned to Paris and his law practice. In spite of his prominence in politics and the military, Maxey retired to a quiet life surrounded by family and close friends. The general retired from his law practice in 1892, and died three years later in Eureka Springs, Arkansas, at age 70. His widow survived until 1908.



At Mrs. Maxey's death in 1908, Sam Bell Maxey Long, the general's great nephew and namesake, inherited the house. The Maxeys had assumed a large portion of the care and responsibility for Long after his father died in 1871, and as a child he often accompanied Maxey to Washington. An early University of Texas graduate, Long joined Maxey's law practice in 1892 and married Lala Williams two years later. The couple was well educated and well traveled. Long spoke several languages, and their early love letters were written in French. They took a very active role in the turn-of-the-century Paris social scene. Sallie Lee Lightfoot remained part of the household.

Sam Long died in 1948, but his widow and cousin Sallie Lee continued to live in the house for many years. While wealthy by many standards, they chose a conservative life-style, made few modifications to the house and were recognized throughout the county by their venerable Packard limousine. Lala died in her early nineties in 1965, and Miss Lightfoot a year later at age 88.

The Maxey House was willed to Mrs. Long's cousin, Alice Fairfax Stone. A strong local interest in the house and the Maxey-Long family prompted Mrs. Stone to give the house and many family furnishings to the Lamar County Historical Society. The Society operated it as a historic house museum for several years before donating it to the City of Paris. The property was given to the Texas Park and Wildlife Department in 1976.

The architecture of the Maxey house is as noteworthy as its history. Design of the house was quite innovative for Paris, Texas, in 1868. The exterior High Victorian Italianate styling reflected a fashionable move away from the simplicity of the Greek Revival style to the opulence of the High Victorian styles. Like the John Howland Wood House in Bayside and the House of the Seasons in Jefferson, the Maxey house represents a transitional form. It has a symmetrical Greek Revival floor plan, but the exterior architectural detailing is the more stylish Italianate. Although the two-story front porch has four Corinthian columns on both levels, these columns are used in a way that could not be mistaken for a Grecian temple. The ornate window frames and large brackets under the roof are also distinctly High Victorian and probably very different from any previously seen in Paris, Texas.

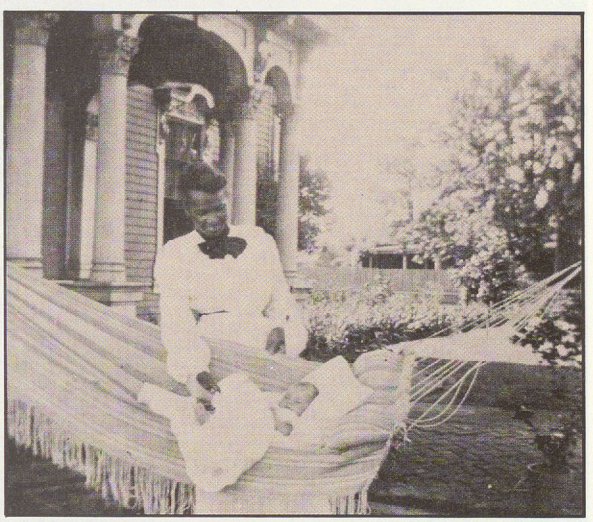
The plan of both floors of the main block consists of two rooms on either side of a large central hall. The rear ell originally was one story and housed the service areas. The house was large by Texas standards during the economically depressed days after the Civil War, and it took the Maxeys some time to furnish it. As late as 1882, Mrs. Maxey wrote her niece, Mary Susan Long:

> *I have used my money buying things for my house. I will, as I go through St. Louis, get me a carpet and furniture for my back parlor. I shall bring a few pretty things for my parlor. It takes so much money to furnish our house. When we get the back parlor furnished, we will have downstairs pretty well fitted up. Then I can get upstairs.*

Two months later, Senator Maxey wrote his wife, "I'm glad your furniture pleases you. I think it barely possible that sometime or another we will get through buying furniture. . . ."

A number of these Maxey pieces remain at the house, and the majority are in the Renaissance Revival or Eastlake styles popular in the 1880s.

Former Confederate General Sam Bell Maxey (opposite page) moved his family into their Paris, Texas, home in 1868. The earliest known photograph of the house (left) was taken around 1880. A 1900 photograph of General Maxey's library (below) shows a horned chair supposedly given to him by Captain Richard King of the King Ranch. In 1908, the general's great nephew, Sam Bell Maxey Long, inherited the house, and for a time it was painted a darker color, as shown in a 1909 photograph of Mrs. Long's cousin, Alice Fairfax, with a maid remembered as Jonnie (below). Sallie Lee Lightfoot, daughter of General Maxey's adopted daughter Dora, lived in the house from 1884 until her death in 1966. The photo on the opposite page shows Mrs. Long, Alice Fairfax and Miss Lightfoot at the house around 1915.



When the Longs inherited the Maxey home in 1908, they sought to modernize it and adapt it to their less formal 20th century life-style. The downstairs double parlors were combined to create a large living room, a second story was added to the rear kitchen wing, at least two more bathrooms were added and steam heat was installed. These modifications, while reflecting the changing tastes of the times, did not alter the basic architectural qualities of the house.

The Maxeys were enthusiastic gardeners, and the Senator sent many exotic plant varieties to Paris from Washington's national botanical gardens. Mrs. Maxey had a small formal garden on the north side of the house, and rose and vegetable gardens on the south and west sides. Mrs. Long also enjoyed the gardens and devoted much time to their maintenance and improvement. Carrying on the Maxeys' strong interest in horticulture, she increased the variety of exotic flowers and plants, as well as the large assortment of fruit trees and vegetables.

At one time the grounds encompassed five acres and included a tennis court with a lattice pavilion, a gazebo, a chicken coop, cellar and flower-covered pergolas. Only a barn and Maxey's book house (office) remain.

After an extensive planning and development project, the Sam Bell Maxey House State Historic Structure has been reopened recently by the Texas Parks and Wildlife Department. The house and its furnishings demonstrate the long history of its occupancy. Located one-half mile south of the courthouse square in Paris at 812 South Church Street, it is open for public visitation five days a week, Thursday through Monday, from 10 a.m. to 5 p.m. The standard visitor fee is 50 cents for adults and 25 cents for children, 6–12. **

WHEN IN DOUBT, SET THE HOOK

Forget the myths, plastic worms are easy to use.

Article by Jim Cox Photos by Bill Reaves

In all its multifarious hues and shapes, the plastic worm has been a mainstay in Texas bass anglers' tackle boxes since the 1950s. These soft-bodied wigglers have to be ranked along with the electric trolling motor, the sonar depth finder and the modern backlash-resistant casting reel as a forward step in the art of bass fishing.

Anglers who have largemouth bass fishing in their blood generally agree that more Texas bass are tricked year around by plastic worms than by any other lure type. Nevertheless, plastic-worm fishing continues to be maddening and frustrating to some fishermen. This could be due in part to long-standing myths about techniques and tackle needed for successful worming.

Largemouth bass may not be nearly as particular about the size, shape and color of plastic worms as is the average bass fisherman. Worm manufacturers have created enough choices to give even the knowledgable angler pause, but a few basic selections seem to be favored. Red or light-colored worms in natural-appearing hues usually are selected for daytime and clear water conditions, while the darker colors are the choice for night or murky water.

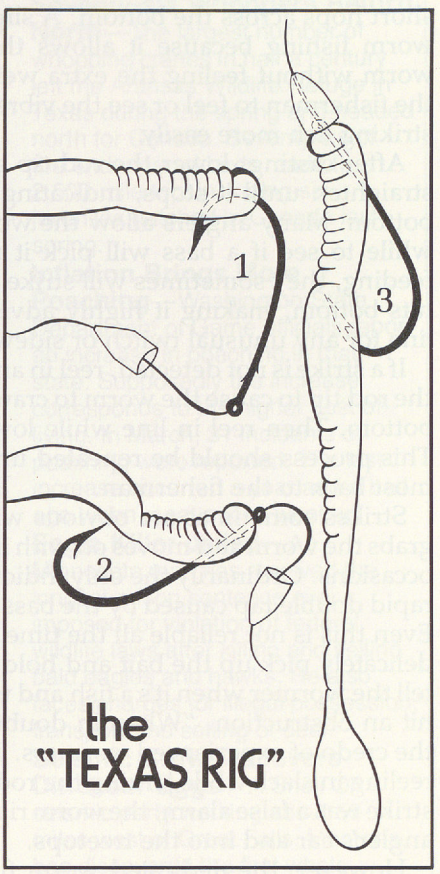
Although rubber worm baits existed as early as the 1930s, it was not until plastic technology improved in the 1950s that worms gained widespread acceptance. In 1957, thousands of bass anglers were experimenting with them, and many theories—and myths—began circulating.

One of the early myths, which probably caused many a lost fish and disgusted angler, recommended allowing the bass to run some distance with the lure before setting the hook. Fishermen believed bass needed time to grab the worm, run to a hiding place and then leisurely swallow it. This method occasionally worked, but in many cases the fish had too much time to discover something unnatural about the bait or the drag effect of the line.

Underwater observation of bass taking worms subsequently proved this theory incorrect. Instead of delicately picking up the worm, largemouths almost invariably sucked the entire lure into their mouths with a rapid flaring of their gill plates. Thus, the correct time to set the hook is when the first tap or vibration is felt or seen on the line or rod tip.

This brings us to the second myth. There is a lingering belief that a worm rod as stiff as a pool cue and line as heavy as well rope are needed to set the hook effectively. While 17- to 20-pound-test line and a stiff rod are advisable when fishing in heavy brush or at extreme depths, most bass habitat can be fished just as productively with lighter equipment. A medium-action rod with a reasonable amount of stiffness in its lower half is usually more than adequate for worming, and 10- to 12-pound-test line will handle bass in all but the thickest habitat. In fact, the backbone and sensitive feel of the new graphite or boron (or various combinations of graphite/boron/fiberglass) rods have made worming with even ultralight equipment feasible. One of the keys to landing bass on lighter equipment is using shorter casts, which result in less line slack and a more positive setting of the hook. Some worm fishermen have switched back to a braided nylon line instead of the more prevalent monofilament to avoid the stretching effect seen in monofilament.

The third-largest bass ever caught in Texas, a 13-pounder caught by John Godfrey of Austin at Calaveras Lake near San Antonio, succumbed to a four-inch black worm and was handled with 14-pound-test line. Clear water conditions and bright sunlit days often prompt worm fishermen to switch to lighter, less visible lines.



The third, and perhaps most damaging, myth of worm fishing is that the angler must possess a sixth sense to know when to set the hook. Although strikes may be subtle at times, with practice the alert fisherman can determine the precise instant when a bass attacks the worm. Even night fishing with worms is possible, because the angler can feel vibrations telegraphed up the line to the rod tip by a striking fish.

For effective worm fishing, the angler should start with an understanding of how best to rig the device to a hook. Although there are a number of variations, the predominant method is called, appropriately, the "Texas rig." This setup offers the advantage of being virtually snag-proof, since the point of the hook is imbedded in the worm's body.

Selection of the correct size and slip weight are important, but subject to personal preference of the user. In general, a bullet-shaped slip weight is threaded onto the line with the pointed end aimed away from the hook (toward the reel). These weights usually are employed when fishing with heavier tackle, in high winds or deep waters. Very small weights sometimes are preferred with light tackle and in shallow water. Texas-rigged worms also can be fished effectively with no weight added, particularly around shallow, vegetated areas where a slow-falling or drifting worm might be enticing.

Hook sizes depend somewhat on the size worm to be used. The slim-bodied, four-inch worms that have gained a following in recent years are better fished with a 1/0 hook, which gives the worm more action. Hooks in the 2/0 size or larger may be better with longer or thicker-bodied worms, or when going after trophy-sized bass with heavier tackle.

Whatever hook size is selected, the angler should purchase hooks made expressly for worm fishing, since they usually have barbed shanks that serve to keep the worm in position. Hook manufactures have marketed a number of innovative designs in recent years, including bent or weighted shanks and tiny barbed devices dangling from the hook eye to facilitate threading the worm. However, a standard worm hook will suffice in most cases.

To make a Texas rig, grasp the worm between the thumb and forefinger and insert the point of the hook straight into the worm's head for a distance of about one-half inch. Now, push the point of the hook out of the worm's body. Slide the impaled worm up the shank of the hook to the eye, where the shank barbs hold it secure. Grasp the worm's midsection and imbed the point of the hook so the point and barb are hidden inside the worm. The worm's body should form a relatively straight line from the hook eye to the point. If the worm appears bent, reposition the bar or slide the head section higher until it slips over the hook eye.

As with most fishing methods, reams of advice have been published on how to fish with plastic worms. However, most Texas worm fishing follows a pattern wherein the weighted worm is cast into a likely spot, allowed to sink to the bottom and retrieved in a series of

short hops across the bottom. A slip weight is used in worm fishing because it allows the fish to take the worm without feeling the extra weight. It also allows the fisherman to feel or see the vibration caused by the striking fish more easily.

After casting, lower the rod tip and watch the line straighten until it stops, indicating the worm has hit bottom. Many anglers allow the worm to lie still for a while to see if a bass will pick it up. If the fish are feeding, they sometimes will strike the worm before it hits bottom, making it highly advisable to watch the line for any unusual twitch or sideways motion.

If a strike is not detected, reel in any slack line and lift the rod tip to cause the worm to crawl or hop across the bottom. Then reel in line while lowering the rod tip. This process should be repeated until the worm is almost back to the fisherman.

Strikes sometimes are obvious when a hungry bass grabs the worm and moves off with it. But these are rare occasions. Ordinarily the only indication of a strike is a rapid double tap caused by the bass engulfing the bait. Even this is not reliable all the time, as fish sometimes delicately pick up the bait and hold it. Experience will tell the wormer when it's a fish and when the worm has hit an obstruction. "When in doubt, set the hook," is the credo of experienced wormers. This means quickly reeling in slack while jerking the rod tip upward. If the strike was a false alarm, the worm rig may whiz past the angler's ear and into the treetops.

However, the dedicated worm fisherman learns to shake off any derisive comments by his companions and continues to concentrate on suspicious line movements. The problems of strike detection can be made worse by submerged trees or thick brush. But the angler can modify his technique to suit the situation. In fact, worm fishermen catch many lunker bass without making a cast. They simply maneuver their boat quietly to the edge of the brush and lower a worm down through the branches. After the worm drops into the bass' lair, the angler jigs it up and down by twitching the rod tip. When a bass hits, a tightly set drag and strong line may be needed to muscle the fish out of the tangled brush. While this strong-arm tactic—known as doodlesocking—may be esthetically less pleasing than playing a fish in open water, it sometimes is the only way to land any bass when they are holed up in the thickest habitat.

An open or closed-face spinning outfit is effective for this type of worming, as the lure can be flipped with an underhand motion into holes in the brush. With the bail open, the worm can sink rapidly without the angler's having to hand-strip the line. A fairly new innovation among bass fishermen is the "flipping rod," a longer than normal rod with a lively tip but ample backbone. The extra length allows a longer reach for doodlesocking a worm in tight quarters and the backbone strength gives leverage for handling large bass.

The selection of colors and shapes of worms available in tackle shops nowadays is almost overwhelming. They range from simple earthworm look-alikes to rather fearsome creations sporting wiggly legs, twister tails and two-tone bodies. In truth, largemouth bass may be less particular about worm sizes and colors than are many fishermen. Veteran worm users have found that a slight color variation indeed can make a difference on some days, but under most conditions a few basic colors work consistently well. The general rule of thumb for worm colors appears to be use of darker colors at night, in murky water or on cloudy days. Lighter colors seem to produce best results in clear water and bright sunshine.

The purple or grape-colored worm has been a popular color through the years. Black or purple worms with white, red or chartreuse tails always seem to have a following. In the lighter colors, solid reds or reds with white tails also are popular. Recently, worms in subdued natural tones have grown in acceptance, such as the "motor oil" color which combines brown and green hues. Some bass fishermen theorize that the natural hues work better than the more garish colors in vegetated areas. Even decidedly unnatural appearing blue and bright green worms have dedicated advocates.

Worm color selection revolves around the question of what the bait represents to a bass. This also is subject to debate. Some claim a worm resembles an eel, salamander or baby water snake. The smaller worms in certain colors may remind a bass of a crawfish or large hellgrammite. Another prevailing theory is that a worm is not necessarily considered a food item by the bass, but rather a disgusting intruder into the fish's territory. Instances are well documented of bass striking worms when their stomachs already are crammed with food. This is particularly true during the spring spawning period, when bass aggressively guard their nests.

To take advantage of these aggressive tendencies, worm fishermen often switch from worms to a Texas-rigged plastic spring lizard or salamander imitation. Experts say a nesting bass may pick up a worm and move it away from the nest, but it will attack and try to kill a salamander. Spring lizard type baits can be fished with the same hook and weight combinations as worms, although it may be advisable to use a larger hook on the thick-bodied lizards.

There are those who claim worm fishing is dull; however, any method which catches bass can't be all dull. The satisfaction of detecting a strike and setting the hook somehow exceeds the emotional level of catching bass on crankbaits and related hardware. The worm is known as a skill bait, since the angler is responsible for imparting most of the lure's action. But the overall difficulty of worming may have been exaggerated through the years. With practice, anyone with more than token fishing skills and reasonably good tackle should be able to increase his catch by using worms.

One crusty bass tournament veteran offered this piece of advice: "If you want to learn to catch fish on a worm, you should go fishing and leave all the rest of your lures at home." He reasoned that casual worm-dabbling when other methods are faltering is not the way to learn. "If all you have to fish with is worms, you'll learn how in a hurry, and you'll be glad in the long run." **

LONG SHOTS SHORT CASTS

compiled by David Baxter

Minnesota Passes Nongame Bill—The Minnesota Legislature has passed a state tax bill which provides for a nongame wildlife checkoff on state income tax returns. The provision will allow Minnesota residents to designate a portion of their state income tax return for nongame wildlife conservation. Up to now, funding for the Minnesota nongame program has come from hunting, fishing and trapping license revenues. Colorado was the first state to enact such a law and now receives more than $500,000 annually for its nongame programs.

Five of Top-Ten Birds Considered Pests—According to the National Wildlife Federation, of the 10 bird species most frequently sighted in the United States, five of them are considered by many to be pests. The National Wildlife's top-ten includes starlings, mourning doves, western meadowlarks, horned larks, robins, crows, red-winged blackbirds, house sparrows, barn swallows and common grackles. Of that list, starlings, crows, redwings, sparrows and grackles have a reputation as pests. There may be more redwings in the United States than any other bird, at least it was the most often sighted species in a recent survey.

Seventy-six Whoopers Return North—The largest number of whooping cranes in half a century left the Aransas Wildlife Refuge in Texas during the spring and headed north for Canada. Seventy-six of the endangered birds made the 2,500-mile trip, including six juveniles hatched in Canada last spring.

Inflation Brings More Poaching—Washington State Department of Game officials report an increase in poaching in that state. Supposedly the increase corresponds to the higher cost of living. In March, 31 incidents of poaching were reported. The last increase occurred a year and a half ago when meat prices went up.

Eagle Killer Jailed—A Minnesota man has received the longest prison sentence ever imposed for violation of federal wildlife laws after killing and selling bald eagles and hawks. He also faces charges for illegal possession, transport and selling of deer.

Seismic Crew Discovers Dinosaur Eggs—A Shell Oil seismic party working about 55 miles west of Great Falls, Montana, has discovered the first whole dinosaur eggs ever found in North America. The eggs were found in a geological formation that is a mixture of mudstone and limestone laid down more than 80 million years ago.

Eastern Peregrine Falcon Recovery Plan—A five-year program to restore peregrine falcons to the eastern United States has been prepared by the U.S. Fish and Wildlife Service in cooperation with state wildlife agencies. The eastern plan area extends to the western borders of Minnesota, Iowa, Missouri, Arkansas, Louisiana and the Gulf Coast of Texas. Historically, there were about 350 pairs of falcons in that area. Recent surveys have found nesting pairs in the region and the species is considered extirpated as a breeding bird. The plan emphasizes preservation and management of essential nesting, wintering and migration habitat; captive propagation and release of birds to the wild; and increased protection through law enforcement, elimination of environmental pollutants and promotion of public support. Estimated cost of the program is $2.4 million.

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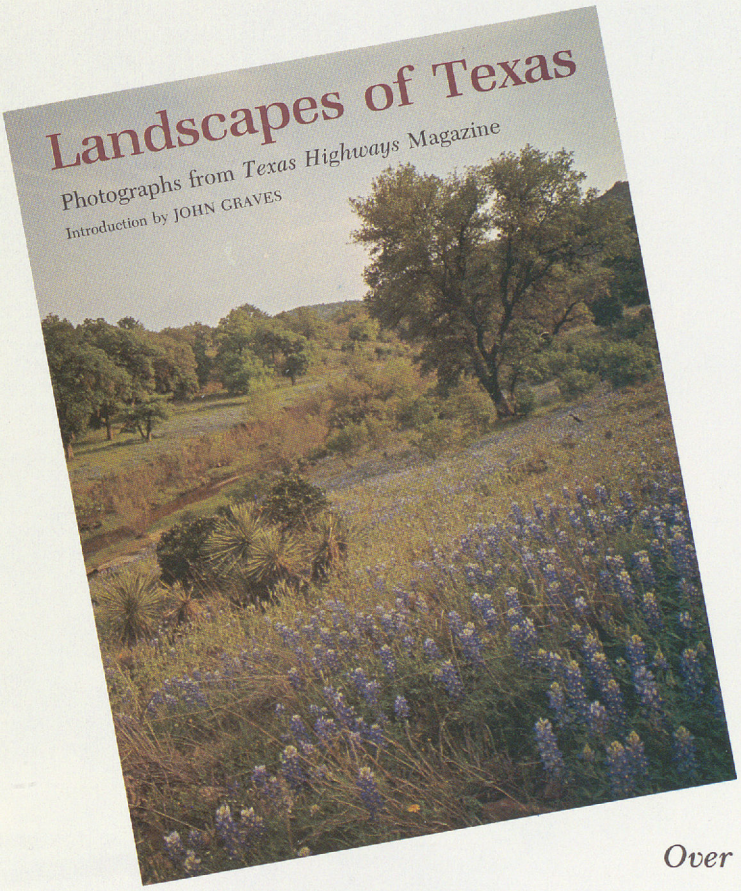

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Foreword by FRANKLIN T. LIVELY,
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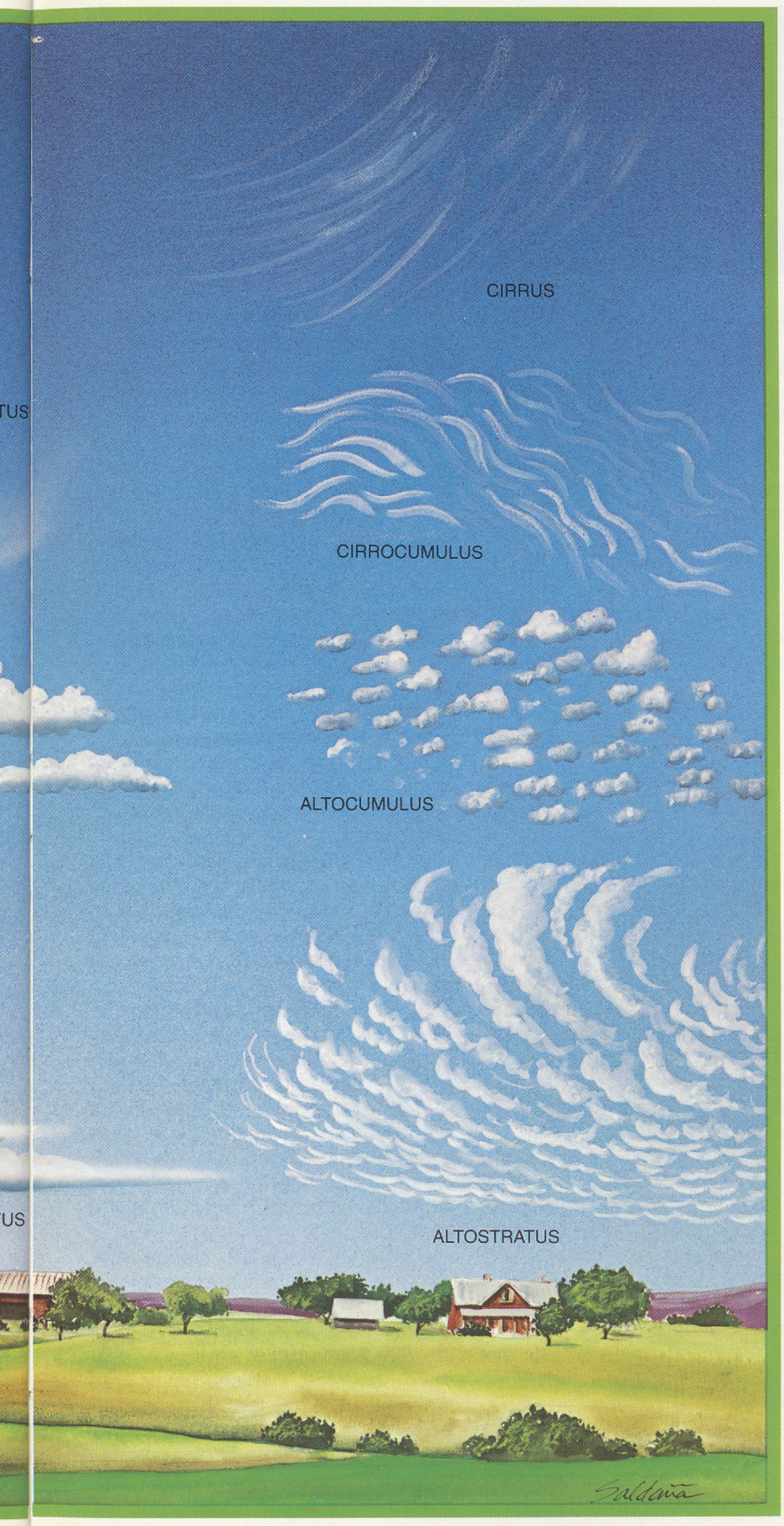


Young Naturalist
CLOUDS

Article by Ilo Hiller
Illustrations by Andrew Saldaña

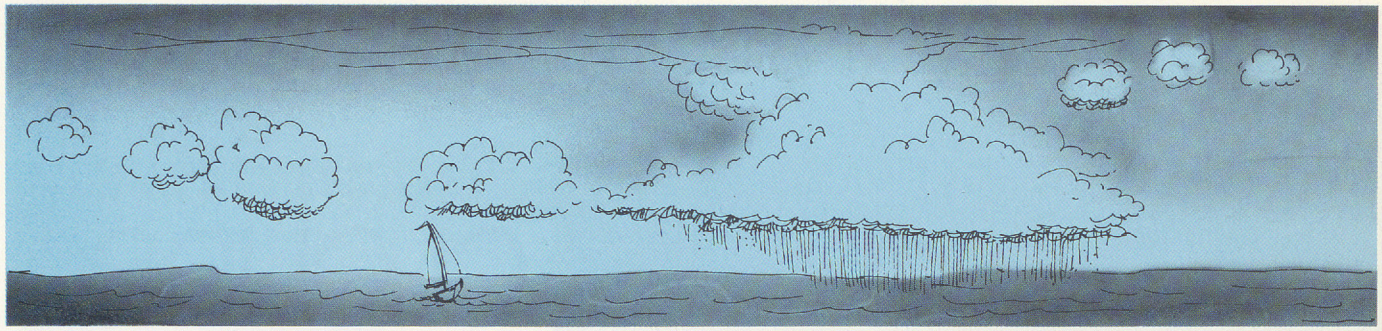
Clouds, nature's weather forecasters, have been forming in the same recognizable shapes and patterns since before man first lifted his eyes and gazed at the sky.

Some people may think clouds are just beautiful blobs of some kind of white, fleecy substance that appear for no particular reason. Nothing could be farther from the truth. There are several distinct types of clouds, and each has its own reason for being. However, before taking a closer look at these different kinds of clouds, let's discover what clouds are made of and how they form.

Clouds are a collection of tiny droplets of water that have formed on microscopic air particles. They cannot form in perfectly clean air, but such a condition does not exist naturally anywhere on the earth. No matter how clean and clear the air around us may look, tiny particles are suspended in and moving with it. Occasionally we get a glimpse of some of the larger ones, called motes, as they dance around in the rays of sunlight shining through a window in a partially darkened room.

It is easy to understand that the air above many of our cities contains dust, smoke and other less-desirable particles, but it may be more difficult to believe that country air, which appears to be so clean, also contains these particles. Dust, pollen grains, powdery soil and rock dust are some of the things suspended in country air. Air over the oceans has its share, too. It contains wind-blown particles from the land as well as tiny salt crystals from the water.

Water vapor (moisture in its gaseous state) also is suspended in air. We cannot see it or feel its wetness, but it is there all the same. When this



water vapor condenses (turns to liquid), it becomes visible. Prove this scientific fact by breathing into a glass jar until tiny droplets of water from the moisture in your breath form on the inside. Screw on the lid and set the jar in a warm place. As the air in the jar warms, the moisture turns to vapor (evaporates) and disappears. You can't see it, but it is still there. Set the jar in a cool place, and the water vapor will condense into droplets once again.

Clouds appear and disappear in a very similar way. When warm air rises from the earth's surface, it begins to cool. When the air becomes cooler than the dew point temperature, the invisible water vapor it contains condenses on the suspended microscopic particles. Each particle acquires a cluster of water droplets. When enough of these clusters have formed, they become visible and a cloud appears.

As these clusters whirl and dart about within the cloud, they occasionally bump into each other and stick together, forming larger, heavier clusters. When enough clusters combine, they become too heavy to stay up in the air and fall as rain. If the cloud is high enough, the raindrops may evaporate before they reach the ground.

Some clouds, usually those at the highest altitudes, are made entirely of ice crystals. When the water vapor in them comes in contact with special particles, it sublimates (changes directly into an ice crystal without first condensing into liquid).

A cloud's appearance changes constantly. Most of us have searched for animals, people and other familiar shapes in those big, puffy summer clouds, and have watched as their shapes alter and disappear. Wind and air currents are partially responsible as they push the cloud about, rearranging its droplets, or joining it with other nearby clouds. Parts of the cloud may disappear (evaporate) as warmer air touches it. Other parts still may be forming as warm air cools to the proper temperature and more clusters of water droplets condense and become visible.

Now that you know how clouds form, let's learn the different kinds.

Latin terms, which describe the cloud's basic appearance, have been used since 1803 to identify the formations. This cloud classification system, developed by an Englishman, has been expanded by modern weathermen to include every exotic cloud type that might occur. However, for simplicity, we will discuss only the most familiar ones.

Learning the definition of their Latin names should help you identify them. *Stratus* means layerlike or sheetlike; *cumulus* means piles or a heap; *alto* means high; *cirrus* means a lock of hair or curl; and *nimbus* means rain. As a further help in identification, clouds often are divided into four groups according to the altitude in which they form—high, middle, low and low with vertical development.

LOW CLOUDS

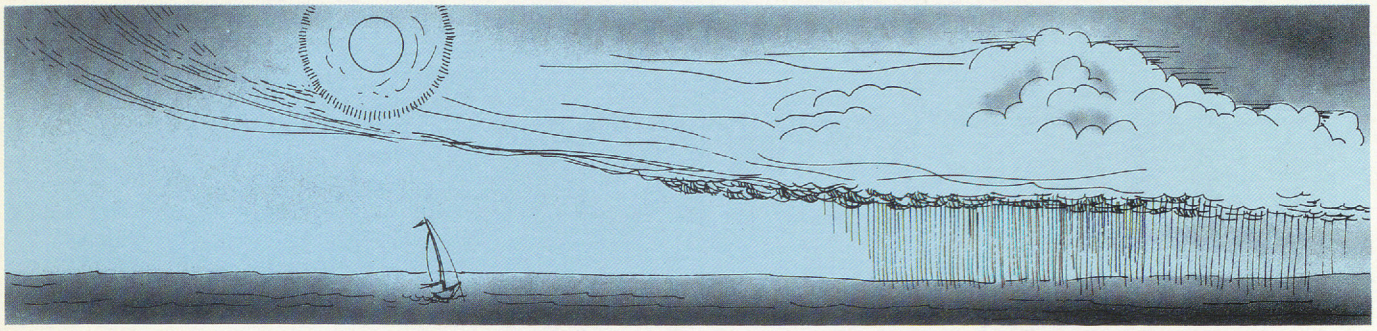
The lowest group of clouds, which forms below 8,000 feet, includes stratus, cumulus, stratocumulus and nimbostratus. Fog also is being included in this group although it usually is not considered a cloud.

FOG occurs on or very near the ground and has droplets a little larger than those normally found in a cloud. It forms by condensation, and is quite common around bodies of water because daytime evaporation causes the air above the water to be supersaturated with water vapor. Fog seldom forms on cloudy nights since the rising warm air is reflected back to the ground before its water vapor has a chance to condense. In absolutely calm air, the fog droplets fall as fast as they form, creating a condition known as dew. Dense fog also forms when warm, moist air drifts over a cold surface. For example, when the warm Gulf Stream air drifts over the cold Labrador Current, dense sea fogs develop.

STRATUS clouds form as a continuous, horizontal layer a few hundred to 3,000 feet above the ground. These grayish clouds, sometimes ragged, sometimes smooth, usually result from the mingling of different layers of air at different temperatures. They occasionally produce light drizzle.

CUMULUS clouds usually have flat bottoms and puffy, bulging, cauliflowerlike tops. Their flat bottoms indicate the dew point level because all moisture below that point is invisible water vapor. Although they occur year around, these beautiful clouds, with their constantly changing, fanciful shapes, are known as the fair-weather clouds of summer. As long as they stay separated, they do not produce rain; however, when they start to combine and build, they can create huge, towering thunderheads. Cumulus clouds form between 3,000 and 7,000 feet.

STRATOCUMULUS clouds are, as their name indicates, cumulus clouds that are packed together in layers. They form slightly higher in the sky than regular stratus clouds. Their bottoms, which never are higher than 6,500 feet, have an uneven, rolling structure and display light and dark areas. They resemble dirty cotton balls and seldom produce moisture.



Storms seldom occur within warm and cold air masses; however, wind shifts and rainfalls occur along the fronts of these moving walls of air. Advance of the average cold front (left) is rapid, its rainfall hard and its storm band usually less than 10 miles deep. Its clouds are the cumulus types. The average warm front (above), with its stratus-type clouds, is slow moving, its rainfall prolonged and its storm band may be 100 miles deep.

NIMBOSTRATUS clouds are darker than stratus clouds and produce steady rain. They form in a thick, gray layer below 8,000 feet. Because of the amount of rain falling from it, the cloud usually is not visible from directly below.

MIDDLE CLOUDS

The middle group of clouds forms between 6,000 and 20,000 feet and includes the altocumulus and altostratus clouds. These two cloud formations indicate countercurrents of moist air and their appearance usually means that lower, more active clouds are nearby. Rain or snow may follow these formations.

ALTOCUMULUS clouds are small, puffy ones that form high in the sky. They assume many different shapes, as is characteristic of all cumulus clouds. Often a formation of altocumulus clouds looks like a lot of unconnected little clouds piled together in a group. They also may form in ribbed rows as wave-washed sand does on a beach.

ALTOSTRATUS clouds form in grayish fibrous sheets, or may present a smoother appearance. Occasionally they are so thin you can see a dim outline of the sun or moon through them; however, the sun does not shine through enough to cast a shadow.

HIGH CLOUDS

The high clouds, which form between 20,000 and 40,000 feet, belong to the cirrus family and are all made of ice crystals. They include the cirrus, cirrostratus and cirrocumulus clouds.

CIRRUS clouds usually form in the highest portions of our atmosphere. They are thin, wispy, white plumes of ice crystals that have no shading and cast no shadows. One end, which curls or appears tufted, indicates the direction of the wind at that high altitude. This characteristic curl gives the cloud its Latin name and also gives it the common name "mare's tail." Because of their height, they appear to move quite slowly; however, they actually are racing along at speeds between 100 and 200 miles per hour. Their appearance in the sky may indicate an approaching storm.

CIRROSTRATUS clouds form as a transparent, whitish veil and may cover large portions of the sky. As light shines through this formation, its ice crystals create a halo or hazy ring around the sun or moon. Cirrostratus clouds usually indicate rain or snow will follow within 24 hours.

CIRROCUMULUS clouds form between 20,000 and 40,000 feet. They are small, fluffy balls that arrange themselves in rippled rows of clouds. They are in a constant state of change, obviously being disturbed by high-level turbulence, and they seldom last for very long. Some people call this formation a "mackerel sky," and it usually means a warm front is on the way.

LOW WITH VERTICAL DEVELOPMENT

This special group contains only one cloud, the cumulonimbus. It begins near the ground in the low cloud area and extends upward through the middle area and into the high regions. It may extend as high as 70,000 feet.

CUMULONIMBUS clouds are the massive, towering thunderheads so common in the summer. When the puffy, fair-weather cumulus clouds come together, they combine and begin to build upward. Violent up and down wind currents within the clouds develop causing the top to boil higher and higher. When the cloud moves into the higher atmosphere an anvil-shaped top of ice crystals develops. This icy cirrus top stretches out flat and points the wind direction. Lightning, heavy rains and often hail are created as the water clusters within the cloud are tossed up and down. This cloud may cover many square miles.

Weather forecasters study clouds because they know that certain types form before a storm. When you hear a weather forecaster say a warm front is on its way, watch the sky and you will see it develop. First, wispy cirrus clouds will appear in the west, perhaps accompanied by a few cirrocumulus. They will then merge into the cirrostratus clouds that create a halo around the sun or moon. They, in turn, will be hidden by a developing altostratus layer that blocks out the sun. The stage is now set for the appearance of the lower nimbostratus clouds with their steady rain. If cumulus and cumulonimbus develop within the nimbostratus, the steady rain will change to a heavy shower. As the storm moves on, it will leave stratocumulus clouds that soon disappear as fair weather returns.

Although you may never become an accurate weather forecaster, watching the clouds as they come and go in the sky should prove to be an interesting pastime. **

LETTERS TO THE EDITOR

Early Ripeners

Where in Texas do dewberries ripen in June and July? I am 67 years old and have lived in four Texas counties. Dewberries always ripened in April. The "May" berry—or blackberry—ripens about mid-May.

Emma G. McMillan
Angleton

■ Since there are so many different species of dewberries, blackberries and their hybrids growing in Texas, and since the climatic conditions across the state are so diverse, it is not surprising to hear that you have found ripe fruit in April. However, according to the book *Trees, Shrubs, and Woody Vines of the Southwest* by Robert A. Vines, there are several species of dewberries that mature and ripen later than April.

The southern dewberry, pictured in our May issue, reaches the peak of its maturity during June and July. The flower photo was taken in April and the berries were photographed in Bastrop County in May. As you can see on page 24, many of the berries are still quite green and undeveloped.

Other Texas species listed in Vines' book that have later maturing dates indicated are: Rio Grande dewberry, May–June; rapid-growing dewberry, May–June; whiplash dewberry, June–August; aboriginal dewberry, June; and falling dewberry, July.

Fines Are Insufficient

I have wondered many times where our society is headed. One reason for this is exemplified by the item that appeared in the May "Around the State" concerning the illegal fish marketers nabbed by game wardens.

As is the case in practically all convictions for crimes committed, the penalty is extremely insufficient to deter future repeats of the crime by the same person or to discourage others from committing the same crime. I don't know what the 15,000 pounds of white bass were worth, but I suspect their value was at least greater than, if not significantly greater than, the fine quoted as being "in excess of $3,500." Paid by the three people involved, the fine cost each one only a little over $1,000. A minimum fine of $1 per pound for illegally caught fish seems more appropriate to me.

I commend the game wardens for their efforts even though I consider these efforts nearly wasted by the low fine assessed. I think the courts and our laws are a joke when it comes to following up after the arrests are made.

Rocky I. Stevens
Austin

Looking for ex-CCC Boys

The Marines are looking for a few good men, but I am looking for three million. Many of us wondered what happened to the three million men who served in the Civilian Conservation Corps from 1933 to 1942, so last summer some 500 former CCC members from 39 states met at the VFW Hall in West Sacramento, California, and organized the National Association of Civilian Conservation Corps Alumni (NACCCA). Anyone who served in the CCC in any capacity is eligible to jon NACCCA. For details, please write me at 1709 Michigan, West Sacramento, California 95691.

Jack Vincent
West Sacramento, California

BACK COVERS

Inside: One of the most numerous exotics stocked on Texas ranches is the Indian blackbuck antelope. Its white eye rings and spiral horns make the blackbuck a beautiful and distinctive-looking animal, but it has been found that exotics may compete with native species for preferred food, often to the detriment of species such as white-tailed deer. Photo by Glen Mills.

Outside: Sunrise on the Texas coast is peaceful, but this tranquility is fleeting. Soon the beach will be bustling with the sounds and activities of the thousands of people who throng to the seashore during the warmer months. Photo by Glen Mills.