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# TEXAS PARKS & WILDLIFE

SEPTEMBER 1992









# TEXAS PARKS & WILDLIFE

September 1992, Vol. 50, No. 9

*Dedicated to the conservation and enjoyment of Texas wildlife, parks, waters and all outdoors.*

**GOVERNOR OF TEXAS**  
**Ann W. Richards**

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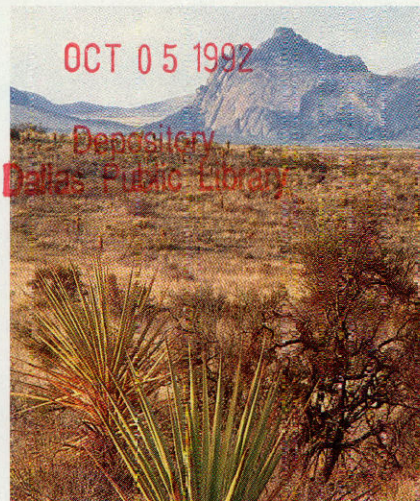


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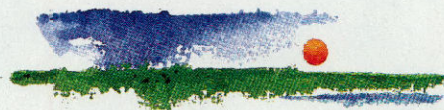


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**COVERS—Front:** September marks the beginning of the fall hunting seasons and an opportunity to pass the hunting tradition on to a new generation. Photo by Wyman Meinzer. Canon F1 camera, 30-200mm zoom lens, 1/125 second at f/5.6, Fujichrome 50 film. **Inside Front:** The purple gallinule is one of two gallinule species found in Texas. (See story on page 22.) Photo by Rob Curtis. Nikon 2020 camera, 600mm f/5.6 lens, 1/250 second at f/5.6, Kodachrome 25 film. **Back Cover:** Interest in bowhunting is on the rise in Texas. (See story on page 34.) Photo by Wyman Meinzer. Canon F1 camera, Canon 200mm f/2.8 lens, 1/250 second at f/4, Kodachrome 64 film.



# At Issue

**I**ronically, I first got to know Professor Barton Warnock, whom you will meet on page 20, not in the Chihuahuan Desert but in Houston. Dr. Warnock was in the Bayou City for several weeks for medical reasons and I never will forget that, although he very obviously yearned for the Trans-Pecos and was experiencing a great deal of pain at the time, he reacted to the thousands of new and different plants of the upper coast like a delighted child in a candy store.

In the years since our first encounter, my experience with Warnock has been mostly in the desert. It is among the grease-wood that he is the unchallenged authority on the rich botanical diversity of the Trans-Pecos and still, at his age, the most indefatigable proponent of its conservation. His reputation among biologists, conservationists and ranchers, a diverse group if ever there was one, is so renowned that a sericus conversation about the natural history of the region could not be held without mentioning his name.

And yet, despite the position Warnock has achieved among the pantheon of biological masters, this most remarkable gentleman finds time each week in his busy life to be a volunteer for the Texas Parks and Wildlife Department. It was he who led the first busload of visitors into Big Bend Ranch as a volunteer tour guide, who still fusses over the Lajitas desert garden that was established in his name and who initiated a volunteer project to establish a landscape of native plants at the department's Indian Lodge in Davis

Mountains State Park.

More and more, people such as Barton Warnock are the inspiration for a dramatically expanding volunteer conservation program throughout the state.

In these lean times, the department's partnership with volunteers has become increasingly important. Volunteer service not only is a high form of recreation and learning for dedicated Texans, it also provides the opportunity for citizens to make a major contribution to our conservation efforts. Many department volunteers are school teachers dedicated to the Project WILD program and instructors trained to conduct classes in hunter education and boating safety. Together they contributed more than 200,000 hours of service to the people of Texas last year. Also in 1991, volunteer service on our public lands more than doubled to nearly 83,000 hours valued at nearly a half million dollars. Every day, throughout the year, Parks and Wildlife volunteers are helping kids learn how to fish and hunt, interpreting the natural history of our state to its children, serving as campground hosts, archeological helpers and historians.

Together, their labor of love is a major source of operating capital for the department. On the other hand, it is a commodity that money can't buy; it is a growing tradition of service to Texas inspired by conservationists such as Barton Warnock. ★

—Andrew Sansom, Executive Director

## Straddling a Barbed Wire Fence

I am sick to death of the whining, petulant cries of the sportsmen declaring they are canceling their subscriptions because of a decrease in hunting and fishing articles. I'm equally sick of reading the same kind of letters from the nonhunting public criticizing the magazine for lack of emphasis favoring their interests. In the July issue alone there were three letters stating the same complaints.

TEXAS PARKS & WILDLIFE straddles a barbed wire fence to keep readers happy. On one side are the hunting and fishing bunch, on the other are nonhunting outdoor lovers. Both sides believe their interests are the most important and complain about a lack of articles in their favor. This magazine tries to cover all aspects of the Texas outdoors and I am impressed with their efforts.

To all you whiners and complainers: Grow up! You're all behaving like a bunch of spoiled brats who won't come out and play unless you get your way. TEXAS PARKS & WILDLIFE is trying to please as many interests as it can. The staff's work is always to the benefit of nature, conservation and recreation, and they do an excellent job.

Loosen up, subscribers. This magazine is meant for everyone who has a love for the outdoors.

Kathy S. Hargrove  
Houston

### In October...

Next month we'll have a special section focusing on Texas's premier game animal, the white-tailed deer: the Big Game Awards program, life in a deer camp, venison recipes and more. Also in October we'll feature Lake Brownwood State Park, canoeing the Brazos River and the colors of fall other than foliage.



Glen Mills





# LETTERS

zines available that target hunting and fishing in Texas.

Michael Joffrion  
Houston

I was appalled at the statement in David Bergeron's letter (July): "If I wanted to read about wildflowers, historic buildings or weather I would subscribe to magazines that focus on those subjects."

The word "Parks" is included in the magazine's title, as well. Some parks have historical buildings and landmarks that are educational to everyone who visits them. Maybe your reader should think about what TEXAS PARKS & WILDLIFE stands for: a wide spectrum of things.

Suzanne Parks  
LaPorte

Mr. Bergeron is correct, you cannot please everyone. But I feel your magazine tries its very best to be diverse in its articles so that all your subscribers find something in each issue that appeals to them.

Stacie Pierce  
Irving

I wholeheartedly agree with your letter writer, David Bergeron, regarding your magazine's anti-hunting attitude. I suggest that you conduct a poll on this question and publish the results.

Bob Buford  
Austin

■ A readership survey conducted in the spring of 1991 showed that TEXAS PARKS & WILDLIFE subscribers have a variety of interests. Here are some of the topics we asked them about; the percentage that follows each topic is a combination of the readers who say they are "very interested" or "somewhat interested" in each: hunting, 75.8 percent; freshwater fishing, 85.6 percent; saltwater fishing, 67 percent; camping, 75.8 percent; historical parks, 89 percent; nongame and endangered species, 86.3 percent; wildflowers, 90.4 percent; environmental

issues, 88.1 percent.

The activities in which our subscribers say they participate reflect these interests: 59 percent say they fish, 59 percent say they hunt, 53 percent say they go camping and 73 percent say they have visited a state park during the past year.

## Bias

I have been a subscriber to TEXAS PARKS & WILDLIFE for many years. Until recently I enjoyed the excellent photography and outstanding articles.

However, I am becoming increasingly disappointed and agitated over your trend toward anti-hunting, anti-landowner positions, and the lack of anything positive about landowners or hunters. I always have felt that a good working relationship between the Texas Parks and Wildlife Department and Texas landowners was essential for the agency to function properly. The pandering to so-called "environmentalists" makes it apparent that landowners no longer are important to the agency.

How unfortunate that you have allowed your bias to destroy your credibility.

Ben A. Wallis, Jr.  
San Antonio

## Fragile and Beautiful

With all the negative letters in the July issue, I just wanted to say that as a longtime reader of TEXAS PARKS & WILDLIFE I enjoy the magazine just as much as I ever did.

One thing I have noticed recently is my eyes filling with tears as I read the sensitive articles and realize how threatened, how fragile and how beautiful my home state of Texas is.

Annie Spade  
Hempstead

## Peerless

Your July issue was peerless in content and outstandingly beautiful in presentation, and my subscription to Audubon

has finally lapsed in favor of your publication. I cannot but think that anyone reading TEXAS PARKS & WILDLIFE must come away with a stronger appreciation of what Texas has to offer and a desire both to visit and preserve the places you take us in each issue.

As a Florida native I have witnessed a rapid, heart-rending destruction of habitat and wildlife, the extent of which few outsiders can appreciate. I think that maybe it would have been different if we'd had a magazine such as yours these last 30 years showing people what was there and what we stood to lose.

And while I defend a hunter's right to pursue his sport, I personally will never be able to comprehend deriving pleasure from squeezing a trigger or loosing an arrow at unsuspecting wildlife. Fewer hunting tales in no way diminishes your periodical and I believe enhances its appeal. So please keep doing what you're doing.

Tom Whiteway  
Killeen

## Clarification

In our August issue's Outdoor Roundup article about fishing regulations changes (page 55), we failed to state that all regulations, with one exception, go into effect September 1, 1992.

The exception is that gill, trammel or hoop nets will be prohibited in public fresh water effective September 1, 1993.

For a complete list of regulations see the 1992-93 "Texas Recreational Fresh and Saltwater Fishing Guide," which is available wherever licenses are sold.

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TEXAS PARKS & WILDLIFE magazine welcomes letters to the editor. Please include your name, address and daytime telephone number. Our address is 4200 Smith School Road, Austin, Texas 78744. We reserve the right to edit letters for length and clarity.



# Texas Parks & Wildlife

*Dedicated*

*to the conservation*

*and enjoyment*

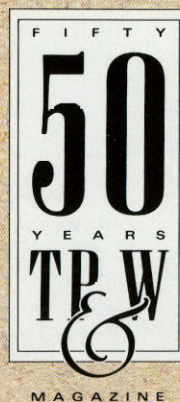
**Magazine**

*of Texas wildlife,*

*parks, waters and*

*all outdoors.*

## Celebrating Fifty Years



Hunters, fishermen, and naturalists have been studying wildlife as long as they have been going afield. In recent years various public conservation agencies have employed biologists to devote their full time to research and management of wildlife.

*"How Much Do We Really Know About Wildlife?"*

AUGUST 1944

To the outdoorsman who finds something of interest and value in all living things, birds of prey—the hawks—are a constant source of wonder and delight. The fellow, on the other hand, who believes "hawks is hawks" is just kidding himself—and is missing a lot of fun to boot.

*"Introducing Hawks of Texas"*

JULY 1958

Hidden in the rolling hills about midway between Austin and San Antonio is one of the State's best fishing spots for this summer—Canyon Reservoir. A relative newcomer, the lake is only three years old, and for this reason many anglers believe now is the time they are going to catch the best stringers of bass, bluegill, and catfish.

*"Canyon Lake"*

JUNE 1967

At present, the newly developed, non-toxic, soft steel shot appears to be one way of alleviating the problem (lead poisoning of waterfowl), and there is a distinct possibility hunters may be faced with mandatory use of this soft steel shot in the near future.

*"Death by Small Doses"*

SEPTEMBER 1974

Persons who violate hunting, fishing or pollution laws may be faced with extra costs resulting from a new set of resource recovery guidelines adopted in November by the Texas Parks and Wildlife Commission.

The commission established monetary values for hundreds of wildlife species, including both game and nongame animals and fish. The voluntary guidelines will be used by the courts to recover the value of resources lost to the state, and these charges will be assessed in addition to the usual fines and court costs.

*"Poachers May Pay Extra Under New Guidelines"*

JANUARY 1986











Jean Hardy



by Mary-Love Bigony

# HIGH AND DRY

*The Chihuahuan is North America's largest and least known desert.*

Fingers working deftly over the rough fibers of a lechuguilla plant, a young Indian woman put the finishing touches on a pair of sandals. A retreating summer rainstorm had left the pungent odor of creosote bush hanging in the air, but suddenly the desert sun broke through the clouds and light fell in a shower across her face. An abrupt breeze riffled the grass occasionally, then vanished as quickly as it had come. Silence enveloped her world as she gazed across the empty miles.

If that Native American woman could travel hundreds of years to the future, she would see a Chihuahuan Desert today that in places is not a great deal different from the world she knew. Lechuguilla plants still provide fiber for making ropes and nets. Some of the grasses are gone, but creosote bushes continue to tinge the air with their peculiar scent following a rainstorm. Above all, there are still miles and miles of emptiness and places where the silence is overwhelming.

*Bluebonnets and grasslands challenge common perceptions of the word desert (left). The Chisos Mountains loom in the distance. There was a time when grasslands dominated Chihuahuan desert basins such as the Marathon Basin (above). But brush and shrubs have invaded many of the grasslands that have become degraded and eroded.*





Stephan Myron

The Chihuahuan Desert—North America's largest and most remote—has seen soldiers, Indians, miners, treasure-seekers and bandits of all kinds traipse across its landscape. Yet much of it remains sparsely populated, as if this thorny desert has staved off civilization the way its plants fend off hungry animals.

Mapmakers of the early 19th century often labeled the entire western part of the continent "Great American Desert" and essentially disregarded it. "Those people culturally were from woodland areas in the eastern U.S.," said David Riskind, director of resource management for the Texas Parks and Wildlife Department's Public Lands Division. "They also referred to prairies as deserts. It was all a lot drier than where they came from." Closer inspection by subsequent explorers revealed that instead of a single "Great American Desert" there were separate, unique desert regions as well as non-desert areas.

Today scientists recognize four major desert regions in North America. The largest, at 196,000 square miles, is the Chihuahuan. It also is the highest in elevation and the only desert region that is not contiguous with the others.

The Chihuahuan Desert stretches from southern New Mexico through the large triangle of West Texas known as the Trans-Pecos. The majority of the desert is in Mexico in the states of Coahuila, Chihuahua, Durango, Zacatecas, San Luis Potosí and Nuevo León. The other three desert regions are: the Great Basin, the second largest, which covers Nevada and parts of Utah, Oregon and Idaho; the Sonoran in Arizona, California and the Mexican states of Sonora and Baja California; and the Mojave, which lies between the Great Basin and the Sonoran.

The Chihuahuan is the least known of the four, according to Dennie Miller, executive director of the Chihuahuan Desert Research Institute in Alpine. "The desert regions in the United States that have gotten the most attention are the Mojave and the Sonoran, mainly because there are population centers there," he said. "The Mojave has most of Southern California essentially surrounding it, and Tucson and Phoenix are in the Sonoran." By contrast, the only U. S. cities of any size in the huge Chihuahuan Desert are El Paso and Las Cruces. Major cities in Mexico are Chihuahua, Ciudad Juárez, Saltillo,

Torreón, Monclova and San Luis Potosí.

The thing that these four desert regions have in common with each other—as well as with other deserts of the world—is not heat, as many people believe, but a shortage of water. (Experts say that polar regions technically also are deserts.) This scarcity of water creates special needs for the life that exists there, and is responsible for the remarkably clear desert air. "Climatologists define a desert as getting 10 inches of rain or less annually," said Miller. "They clearly can define on a weather map where a desert region is by looking at the past 50 years of data." The Chihuahuan Desert lowlands receive an average of eight inches of rainfall annually. Rainfall increases with the altitude to an average of 15 inches at Alpine and 18 in the Davis Mountains.

While the other three North American deserts have two rainy seasons—one in winter and one in summer—the Chihuahuan has only one. But it's a long one, beginning in mid-summer, peaking in late August and early September and continuing into early fall. This creates what has come to be known as the "fifth season" in late summer, a time of blooming flowers, green grasses



and slightly cooler temperatures when the rest of the state is dry and shriveled. "Our best kept secret down here is August and September," said Miller. "We get all the summer rain, it greens up and it's cooler."

Worldwide, all deserts are not hot, but the North American deserts see the temperature top 100 degrees more than a few days each summer. The scant rainfall is to blame. In humid regions, clouds and atmospheric moisture deflect much of the sun's heat before it reaches the ground. But because the air in the desert is so dry, clouds rarely form and the sun beams directly to the ground. In forests, the leaves on the trees disperse much of the sun's heat, cooling the forest floor by as much as 20 degrees. Not so in the desert, where

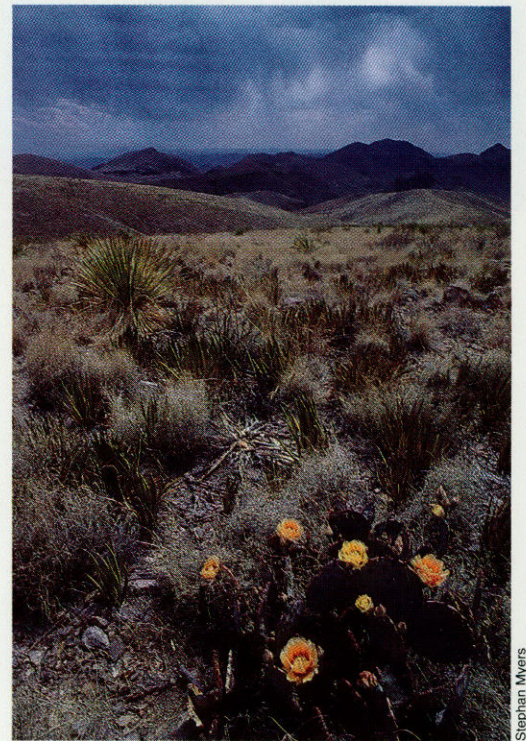
moisture-starved plants grow at widely spaced intervals and are neither tall enough nor leafy enough to shade the ground below.

The Chihuahuan is cooler than the Mojave and the Sonoran, thanks to its higher elevation. Compared to Death Valley in the Mojave Desert, which is more than 200 feet below sea level, the lowest point in the Chihuahuan Desert region is a lofty 1,800 feet above sea level along the Rio Grande. The highest elevations exceed 9,000 feet in Mexico. Although it's somewhat cooler than its two neighboring deserts, the Chihuahuan does get hot. The Bolson de Mapimi in Mexico has exceeded 120 degrees, and spots along the Rio Grande get as hot as 115 degrees. Presidio on the Texas side of the river is a regular for

"hot spot in the nation" honors during the summer. "The hottest month is June," said Miller. "It cools off the rest of the year because of the rain. You always hear that Presidio is the hottest place in the nation, but that's in May and June. After that it's Yuma or someplace out west."

As anyone knows who has watched the desert sun go down, a hot day melts into a cool night. With no clouds or moisture in the air, as much as 95 percent of the heat in the ground escapes into the atmosphere. Differences in daytime and nighttime temperatures are not so dramatic in more temperate regions: only half of the heat escapes, with the other half deflected back to the ground by clouds and vegetation.

These conditions—temperature, altitude and rainfall—combine to create a scene that challenges common perceptions of the word desert. Most remarkable are the rolling grasslands that cover much of the Chihuahuan Desert Region—not as luxuriant as they once were



Green vegetation and the pungent odor of creosote bush linger after a Chihuahuan Desert rain (above and opposite page).

Stephan Myers





Laurence Parent

but nevertheless unexpected in a desert.

“One of the real critical differences between the Chihuahuan Desert and other North American deserts is that under normal conditions the Chihuahuan would have been dominated by grass,” said Riskind. “It essentially is, for all practical purposes, a grassland. It was dominated by grasses from the very lowest elevation almost to the highest elevations within the desert.” Experts have identified hundreds of different grass species.

Today, brush and shrubs have replaced many of those grasslands. These plants tend to invade an area when grasslands become degraded and then eroded. “The desert scrub formation in the Chihuahuan Desert is extensive and is increasing rapidly each year,” said botanist Dr. Barton Warnock, a specialist in Chihuahuan Desert flora. Desert

scrub—consisting of plants such as creosote bush, yucca, lechuguilla and agave—makes up about half of the Chihuahuan Desert region.

Cacti grow in abundance throughout the Chihuahuan Desert—but small cacti, nothing like the towering saguaros associated with the Sonoran Desert. With their shallow root systems, lack of leaves and spines that dissipate heat and protect them from predators, cacti are classic examples of an organism adapting to its environment. The Chihuahuan Desert has some 250 cactus species, more than any other North American desert. “People think of the Sonoran Desert as being the cactus desert because of the saguaros and the organ pipe cacti,” said Miller. “But they have half to three-quarters of the species we do.”

Numerous they are, but big they’re not. “Plants grow from March to Octo-

*Sunrise in Big Bend National Park casts a golden glow over grasses, shrubs and ocotillo beneath a sandstone bluff.*

ber down here,” said Miller, “whereas in Arizona and California you have a 12-month growing period. Even in our desert you can see differences in plant sizes from the northern edge to the southern edge—the same species will be much larger in the southern part.”

“The Chihuahuan, because of its elevation, is cool,” said Riskind. “It does get hot in the summer, but in the winter it gets cold and it does freeze. That’s why we don’t have saguaros in the Chihuahuan Desert. Most of those Sonoran Desert plants are not adapted to successive killing frosts.”

Blooming cacti aren’t the only plants





Laurence Parent

*A winter morning finds snow covering Guadalupe Mountains National Park. The Chihuahuan Desert Region gets colder than the Mojave or the Sonoran, so its plants have a shorter growing season and are smaller than plants of the other Southwestern deserts.*

that provide desert color. Wildflowers—incongruously to many minds—grow from the riverbanks to the tops of the mountains. Even the beloved bluebonnet has a home in the desert. The Big Bend bluebonnet, three feet tall and a different species from the more familiar Texas bluebonnet, is one of the first flowers to bloom in the spring. “Some of the wildflowers are to be enjoyed by the strong at heart who are willing to look for them in remote niches,” said botanist Warnock. “Many of the common ones occur along the roadways and will be seen easily from an automobile.” Spring is the traditional time for seeking out blossoms, but the Chihuahuan has cacti and flowers that bloom in the spring and fall, as well.

The tall, spiny ocotillo—not a cactus despite its thorns—sports brilliant red flowers in the spring. “The ocotillo is one of the remarkable shrubs of the Chihuahuan Desert, especially on gravelly hillsides,” said Warnock. “It sheds its leaves when drought begins, then they reappear with the next local shower.”

Two unusual plants are the hectia and the candelilla. The hectia, or false agave, is found nowhere but the Chihuahuan Desert. Not an agave at all, the

hectia is a member of the pineapple family. Another unusual plant, the cancelilla, is harvested and taken to processing plants in northern Mexico. It annually produces thousands of pounds of wax that is used virtually everywhere in the United States.

People who made their home in the desert learned to use these desert plants in a variety of ways. They used the juice of the hectia to treat cuts and the curved spines of the fishhook cactus to catch tiny fish. Sotol leaves were woven into mats and the fiber of the Spanish dagger made good string. The bark of huisache was used for tanning and dyeing and the beans were used to treat skin rashes. Boiled leaves of the retama were said to combat high fever and induce sweating, and leaves of the cenizo also were used to treat fever.

At its lowest elevations, four rivers slice through the Chihuahuan Desert—the Rio Grande, Rio Conchos, Rio Nazas and Pecos. “The bottomlands of the Rio Grande are choked with salt

cedar, mesquite, some willows and an occasional cottonwood,” said Warnock. “Most of the water of the Rio Grande below El Paso comes from the Rio Conchos that enters above Ojinaga, Mexico, across from Presidio. As a result of this great river, much of the Rio Grande supports two large grasses on its banks, the giant reed and the common reed.” Warnock said Indians used these grasses to thatch roofs, to strengthen walls and as food.

“The Pecos River became important for irrigation in Texas below Red Bluff Dam,” said Warnock, “but now it is salty and sluggish. Its banks are crowded with thickets of salt cedar the entire distance to its junction with the Rio Grande below Langtry.”

Rising high above the desert are the mountains—some of the highest of any desert region in North America with the massive Sierra Madre Oriental and Sierra Madre Occidental on either side of the Mexican portion of the desert. Numerous isolated ranges—among



Stephan Myers

*The ocotillo sheds its leaves during a drought. Immediately following a rainfall, it produces flowers and bright green leaves.*



them the Chisos, Santiago, Dead Horse, Chianti and Quitman—punctuate the entire region. “Mountain Islands and Desert Seas” is the poetic name of Frederick R. Gehlbach’s book about the U.S.-Mexican border.

Some of the mountains are covered with pines and oaks, quite a change from the short, scrubby vegetation below. But imagine driving through a woodland as you travel across what today is the desert. That’s how it was a relatively short 10,000 years ago, when the region was much wetter than it is today. Scientists discovered this by studying seeds and twigs gathered by rats that roamed the area.

“Pack rats of several thousand years ago, like their modern counterparts, gathered quantities of plant material from their immediate environs,” said Riskind. “Based on modern behavioral studies, we know that pack rats ordinarily do not venture more than 300 feet or so from the protection of their houses.” Riskind added that the rats not only collected excellent samples of the local vegetation of their time, some species also deposited the material in dry caves or rocky shelters where it has been well preserved. “Based on modern analytical techniques,” he said, “we know that some pack rat accumulations, or middens, have been preserved for more



Laurence Parent

*The Chihuahuan Desert lies on both sides of the Rio Grande (above), with most of this huge region in Mexico. Big Bend National Park’s Chisos Mountains are in the background.*

than 54,000 years.”

By carbon dating these middens, scientists can determine the plant species that were growing at a particular site during different periods in history. “They have dated parts of woodland plants like pine cone nuts and acorns

cut in the middle of the desert where those plants aren’t growing anymore,” said Rick LoBello, director of the Big Bend National History Association. “That’s how they were able to determine that vegetation in the lower elevations was similar to what you have today in the Chisos. The most dramatic thing about Big Bend National Park is to think of driving from Panther Junction up to Persimmon Gap, and instead of seeing the desert you see the same trees you find in the basin.”



Calvin King

*Javelinas find food and shelter in the Chihuahuan Desert’s prickly pear thickets.*

**W**hite-throated wood rats still scurry among the cacti of the Chihuahuan Desert, perhaps collecting materials that will assist archaeologists of the future. Like many small desert animals they have adapted to their environment by spending the hottest part of the day in their burrows and coming out only when cooler evening temperatures prevail.

Many reptiles also avoid the heat by going underground or into the shade during the day. The Mexican kingsnake,





Wyman Meinzer

Trans-Pecos ratsnake and the Chihuahuan Desert's six rattlesnake species are at least partially nocturnal. Lizards dart in and out of shade by running across open spaces without letting the hot ground touch their undersides. The Chihuahuan Desert is home to a number of lizard species, including whiptails, spiny lizards and the Texas horned lizard. The only poisonous lizard in the United States, the Gila monster, lives in the northernmost part of the Chihuahuan Desert in western New Mexico.

Turtles are found from the rivers up to the higher elevations. The ornate and desert box turtles make their home in the grasslands of the northern

*Desert mule deer (left) live in much of the region. They often are found on rocky hillsides covered with lechuguilla and junipers. Pronghorns (below) roam the Chihuahuan Desert grasslands.*

Chihuahuan Desert. Far to the south, the Bolson tortoise has adapted to Mexico's hot and dry Bolson de Mapimi. Softshell and mud turtles live near the region's river systems.

"As with most desert regions, fish species have evolved through ages of isolation," said Miller. "Spring systems such as those found in the Quatro Ciénegas Basin in Coahuila and those associated with the Pecos River and Rio Grande drainages have become home to a number of endemic, or unique, fish." Miller said that more species of pupfish occur in the Chihuahuan than in any other desert region.

Some of the large predators have not fared well. Grizzly bears are gone from the entire region. Black bears exist in only limited numbers in northern Mexico, although a few have been seen recently in Big Bend National Park. Three subspecies of gray wolf roamed the area prior to the mid-1800s. Two subspecies are extinct, and fewer than

Wyman Meinzer





50 of the Mexican wolf subspecies are believed to exist in remote areas of Mexico. Doing better, apparently, is the solitary mountain lion, which roams through much of the region.

**T**he Chihuahuan Desert's most abundant wildlife flies overhead. "The northern Chihuahuan Desert has one of the richest bat faunas found anywhere," said Miller. "Eighteen species have been recorded in Presidio County alone." Birds are abundant, too. Big Bend has more recorded bird species



Wyman Meinzer

than any other North American national park. Unique to the park is the Colima warbler, found nowhere else in the world. The current park record for the most bird species identified in one day is 100. "You have all these Mexican species coming up from the south that are just barely getting into the United States because of the mountains," said Miller. "You're getting Sierra Madre species that you find in the Rocky Mountains and down into Mexico to the west. You have all the desert birds and all the high mountain birds. It makes for a great combination."

Carmen Mountain white-tailed deer, a subspecies that looks like a miniature

*Birds are abundant in the Chihuahuan Desert. Red-tailed hawks (left) soar overhead and perch atop dry desert plants. Scaled quail (below) fare well in dry desert regions.*

## DESERT ADVENTURES

The Texas Parks and Wildlife Department will offer work and study programs this fall at one of the Chihuahuan Desert's most beautiful and fascinating areas.

Adventures at Big Bend Ranch State Natural Area will feature Parks and Wildlife Department experts and cooperating researchers leading programs on a variety of topics at the 265,000-acre natural area. Participants will camp out or live at the Saucedo Ranch bunkhouse. All meals will be prepared by a camp cook.

With a Texas Conservation Passport, the seven-day program is \$675. The 10- and 12-day programs are \$855 with a Texas Conservation Passport. A portion of the donation may qualify for a federal income tax deduction. Participants must be at least 18 years of age and in good health. Each program has limited space.

For more information write to TEXAS ADVENTURES, Attn: Carolyn Cribari, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744, or call 512-389-4604.





version of the Texas whitetail, are found only in the Chisos Mountains and other isolated mountain ranges in the Chihuahuan Desert region with habitat similar to the Chisos. Mule deer occupy much of the region, including rocky hillsides covered with lechuguilla, sotol and junipers, while pronghorns are found only on the grassy open ranges. Javelinas fare well in the brushy desert areas, where thickets of prickly pear cactus provide food and shelter from the heat.

“The Trans-Pecos subregion, as the Texas portion of the Chihuahuan Desert is known, has a high complement of species diversity, one of the highest in the state,” said Riskind. “Among them are plants and animals that are unique to the area, and many of

them are threatened or endangered.”

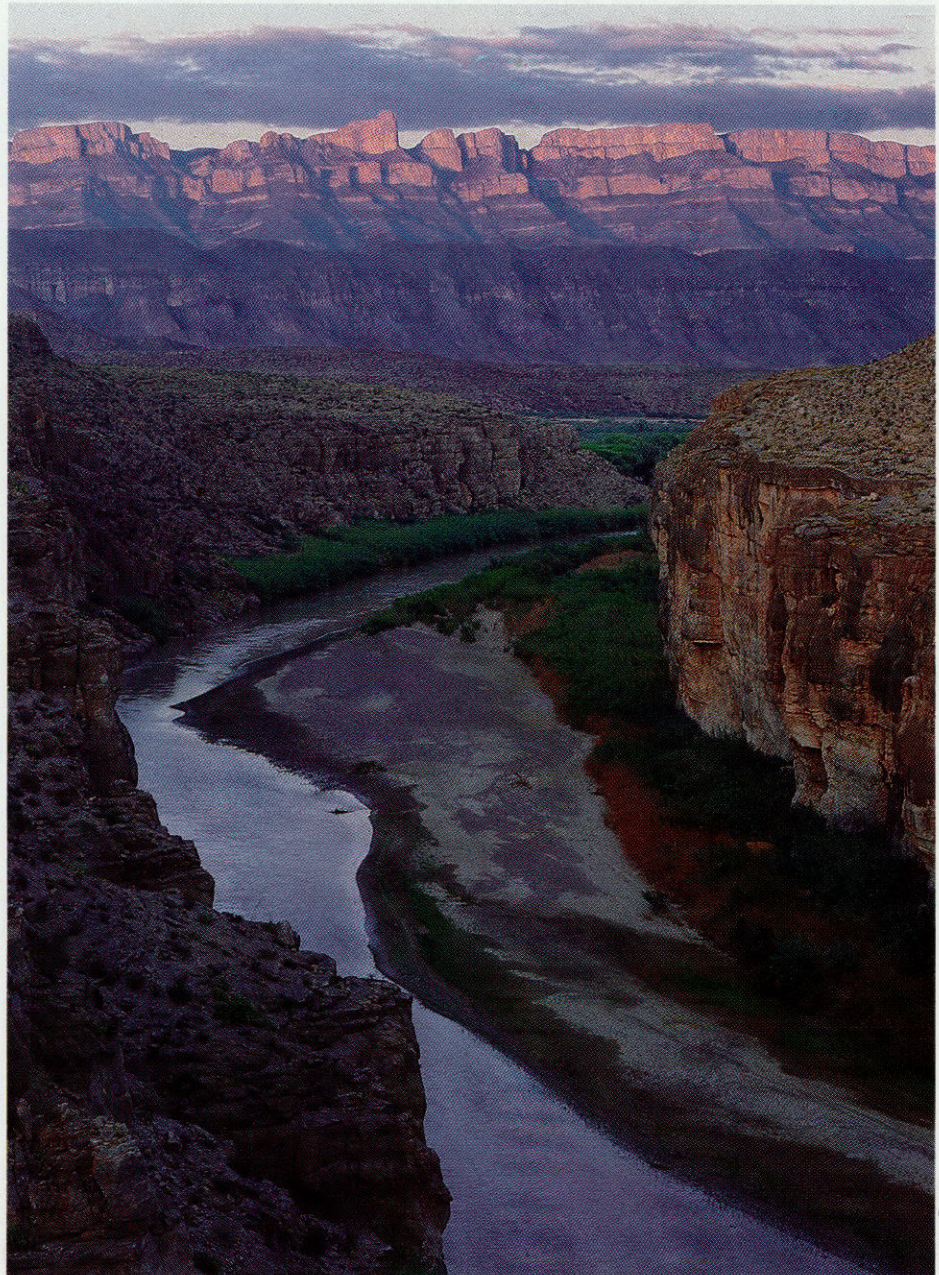
Life in any desert, including the Chihuahuan, is never easy. The plants and animals that survive—even flourish—have a certain tenacity that life in more comfortable climates seem to lack. But life of any kind depends on water, and water by definition is scarce in the desert. When the water demands of growing human populations must be

met, a limited resource is stretched to critical limits. “Water is extremely limited,” said Riskind. “It is a precious commodity and it’s being heavily used. There are similar issues all over the West.”

“Out in the deserts of the West they’ve been dealing with water shortages and real bad water problems for 50 years,” said Miller. “We have the same prob-



Wyman Meinzer



Laurence Parent

*The Rio Grande (above) is one of four rivers in the Chihuahuan Desert. Water, which by definition is scarce in the desert, is reaching a critical point in all the Southwestern desert regions.*



lems here, but since the population is so low nothing had been done. In El Paso and Las Cruces they're already in legal battles over water. El Paso is in the process of purchasing a farm in the Marfa Basin for the exclusive reason of pumping water to El Paso. It's estimated that they possibly could drain all the water in the area in 40 years."

To make matters worse, as water supplies are shrinking, the desert is becoming larger. "It's safe to say the desert is expanding," said Riskind. "That's a problem that's globally significant. We're having a lot of expansion of deserts all over the world." Riskind attributes the problem to human impact and poor agricultural practices.

"In desert regions you tend to have very thin soil, so overgrazing and other bad agricultural practices can lead to massive erosion," said Miller. "You can go out in desert basins where the grass was, and it's all gone."

Human impact is being felt even in the most remote corners of the earth. The Chihuahuan Desert, sitting astride the Rio Grande and belonging to two countries, illustrates that nature knows no political boundaries. Its protection is in the hands of all the world's citizens. ★

# Where to See the Chihuahuan Desert

Some of the best examples of the Chihuahuan Desert in the United States are preserved in areas managed by government and nonprofit agencies. For information about access to these areas, use the telephone numbers provided.

## TEXAS PARKS AND WILDLIFE DEPARTMENT

Texas Conservation Passport holders may take advantage of some special activities in many of these parks and wildlife management areas. Conservation Passports are available for \$25 at most state parks, Parks and Wildlife Department offices, Whole Earth Provision Company locations in Austin, Houston and Dallas and REI in Austin.

**Big Bend Ranch State Natural Area** These 265,000 acres on the Rio Grande northwest of Big Bend National Park are some of the most rugged and desolate in the state. Dramatic desert scenery is punctuated by

mountain peaks, canyons and unique geological formations. Hiking, primitive camping and limited vehicle access is available. A guided bus tour with a chuck wagon lunch is available for holders of the Texas Conservation Passport on the first and third Saturdays of each month. 915-358-4444.

**Black Gap Wildlife Management Area** The lowest part of the Chihuahuan Desert is along the Rio Grande in the Black Gap. Located downriver from Big Bend National Park, this 100,000-acre management area has been the site of research on desert species such as mule deer, desert bighorn sheep, javelina and scaled quail. Visitors may fish in the Rio Grande against a scenic mountain backdrop, and primitive camping is available at designated sites. A \$35 annual public hunting permit is required to fish if you approach the river through the management area. A guided tour and desert bird seminar are available to Texas Conservation Passport holders. 915-376-2216.

**Elephant Mountain Wildlife Management Area** Located 26 miles south of Alpine, this 26,000-acre management area was donated to the Texas Parks and Wildlife Department for game research and hunting. Bighorn sheep restoration has been one of the area's top priorities. Biologists also have performed some radio telemetry studies on mule deer survival and movement. Guided tours are available to Texas Conservation Passport holders. 915-364-2228.

**Hueco Tanks State Historical Park** This park, located 32 miles east of El Paso, is named for the shallow depressions in the rocks that collect rainfall and provide much-needed water for desert dwellers. Situated around three rock masses, the park provides stunning vistas of the northern Chihuahuan Desert. Pictographs tracing thousands of years of human



Stephen Myers

Desert scrub lies below a mountain covered with volcanic deposits in Big Bend National Park (left)



occupation can be found throughout the area. 915-857-1135.

**Monahans Sandhills State Park**

Part of a sand dune field that extends some 200 miles into New Mexico, this park has active dunes that are constantly shifting and changing. Some of the dunes are 90 feet tall. The stabilized dunes are anchored by vegetation such as the four-foot-tall shin oak and do not shift. Shallow ponds that come and go during the year attract wildlife. 915-943-2092.

**Ocotillo Unit Wildlife Management Area**

This 2,000-acre wildlife management area was established as a nesting and feeding area for white-winged doves. It is located along the Rio Grande, 36 miles upriver from Presidio. Dove hunting is available with a \$35 annual public hunting permit.

**Sierra Diablo Wildlife Management Area**

Established in the 1940s, this is one of the oldest wildlife management areas in the state. Located in a remote section of the Sierra Diablo Mountains north of Van Horn, it was established to serve as a bighorn sheep sanctuary. No public access.

**NATIONAL PARK SERVICE**

**Big Bend National Park**

Within this remote park's 800,000 acres is the Chihuahuan Desert at its most diverse and dramatic. Big Bend has it all—grasslands, desert scrub, canyons, mountains and the Rio Grande.



Jean Hardy

*Huzco Tanks State Park provides stunning vistas of the northern Chihuahuan Desert (above). Pine Springs Canyon (below) is one of many beautiful areas in Guadalupe Mountains National Park.*

Former chief park naturalist Roland Wauer said that astronauts have used Big Bend to simulate the moonscape. 915-477-2251.

**Guadalupe Mountains National Park**

Guadalupe Peak, the state's highest mountain at 8,749 feet, towers above the Chihuahuan Desert in this 76,000-acre national park. Deep canyons cut through an exposed fossil reef, and there are hidden springs

and lush pockets of vegetation. 915-828-3251.

**TEXAS NATURE CONSERVANCY**

Field trips are available to Texas Nature Conservancy areas in the Chihuahuan Desert. For information call the Nature Conservancy in San Antonio at 512-224-8774 or in Fort Stockton at 915-355-7615.

**Brushy Canyon** Located east of Big Bend National Park, this 9,700-acre preserve contains scenic canyons and high Chihuahuan Desert sandwiched between two mountain ranges.

**Diamond Y Springs** Pecos County once was well-known for its abundance of flowing desert springs. The Nature Conservancy's Diamond Y Springs Preserve, 1,500 acres near Fort Stockton, is one of the only springs in the Chihuahuan Desert still flowing.

**Gypsum Dunes** This is 226 acres of gleaming gypsum salt nestled beneath the western base of the Guadalupe Mountains.

**Independence Creek** The Texas Nature Conservancy owns a conservation easement over Independence Creek south of Sheffield, which is a tributary of the Pecos River that provides a refuge for endangered fish species.



Laurence Parent



# Research and education seek to change desert's image

by Jean Hardy

## “Chihuahuan what?”

newcomers to far West Texas often ask when they first hear the term Chihuahuan Desert. “I thought a Chihuahua was a dog.”

The Chihuahuan Desert does have an image problem in Texas. Most of us who live east of the Pecos River have no clear idea what it is or where it is. The Chihuahuan Desert Research Institute is seeking to correct that.

The CDRI is an organization created in 1974 by biologist A. Michael Powell and several other scientists. It is a huge biome, said Powell. “It’s in the center of the continent hidden away from any other desert—it’s a wonderful, wonderful thing.”

From his vantage point as chairman of the Biology Department at Sul Ross State University in Alpine, Powell sees the Chihuahuan Desert through a professional’s eyes. Two-thirds of this desert lies south of us, in Mexico, he explains, but it makes up a highly significant part of our state.

Not only has the public been largely unaware of the Chihuahuan Desert, the scientific community also has ignored it, Powell said. In the mid-1960s, as a young biology teacher at Sul Ross, Powell noted the lack of research into Chihuahuan Desert topics. “It was the least investigated desert in North America,” he said. “There was just nothing going on in research, except in little bits and pieces.”

While the CDRI’s primary goal was to form a serious organizational center for scientific research, they never intended an ivory-tower endeavor. From the first, they also planned to reach out to the public.

“The research in itself isn’t valuable unless people know about it,” said longtime CDRI Executive Director Dennie Miller. To that end, the group established an educational effort that includes publications, book sales, a visitor center and other activities.

The concept of the CDRI was met with immediate enthusiasm in the scientific community, Powell said. Every five years since 1978, the group has sponsored a symposium on Chihuahuan Desert resources. Researchers gather at these meetings to exchange ideas and present the results of their work. The collected papers, published following each symposium (in 1978, 1983 and 1988), have covered a wide range of subjects, such as desert air quality, renewable resources, prehistoric desert cultures, and the relationship of endemic flora and fauna to Pleistocene climates.

“We study all facets of the desert, even the historical, cultural and anthropological aspects,” said Powell, “because it is such a natural package. These are all part of the Chihuahuan Desert biome.”

The fourth CDRI symposium

convenes September 30, 1993 in El Paso. The first three were held on the Sul Ross State University campus in Alpine, home base for the CDRI; but the upcoming symposium will meet at the University of Texas at El Paso. CDRI directors moved the meeting in hopes of attracting a greater number of participants.

The CDRI responds to research needs of federal and state agencies and the

*“We study all facets of the desert, even the historical, cultural and anthropological.”*

private sector. Early on, its researchers helped locate historical aeries of the endangered peregrine falcon in the Trans-Pecos region, an important first step in falcon monitoring and recovery programs. More recently, they rescued the endangered Chisos hedgehog cactus from roadside mowers in Big Bend National Park, propagating the spiny plant for reintroduction into the park. And last year, the Atlantic Richfield Foundation gave them \$16,400 to study restoration of abandoned oilfield sites, which usually suffer from despoiled vegetation and damaged soils.

In addition to its ongoing research activities, the CDRI engages in a multi-faceted program of public outreach and education. It publishes a twice-yearly newsletter and the magazine *Chihuahuan Desert Discovery*, which also comes out twice a year. It owns and operates part-time the 500-acre visitor center and garden located four miles south of Fort Davis in the beautiful grassy foothills of



Jean Hardy

CDRI Executive Director Dennie Miller in the visitor center’s cactus greenhouse.



the Davis Mountains. The CDRI also teaches school children and seniors about Chihuahuan Desert ecology through programs of the Prude Guest Ranch near Fort Davis.

The CDRI's popular trio of video cassettes, "The Chihuahuan Desert Trilogy," produced by the late Harry Gordon and narrated by Burgess Meredith, has been viewed by more than 100 million people, said Miller. It has aired several times on the Discovery television channel and enjoys steady retail sales.

But when it comes to the cornerstone of its public relations effort—the visitor center—a major frustration plagues the CDRI. It wants to create a full-scale visitors' complex, complete with interpretive building and museum exhibits, a desert garden and arboretum, gift shop, informational seminars, and even a zoolike facility (a "non-zoo zoo," one founder called it) featuring native birds, reptiles and mammals. CDRI leaders envision something on the scale of the elaborate Arizona-Sonora Desert Museum near Tucson.

But the early optimism of CDRI founders has turned to disappointment as the cash needed for the center has failed to materialize. "We had lots of support and anticipated even more until the price of oil dropped in the mid-1980s," said CDRI president and Sul Ross biology professor James F. Scudday. Support comes from the CDRI's 500 members, several of whom have made substantial gifts. CDRI draws



Leroy Williamson

*Visitors can take home a Chihuahuan Desert souvenir when they buy a cactus from the CDRI visitor center*

its members from major metropolitan areas in the state as well as from the local academic and ranching communities.

At first, the group dreamed of a million-dollar facility. Then they set a more realistic goal of \$400,000 for an interpretive center. When it became clear that even that goal would not be met, the figure was scaled down in 1988 to a modest \$200,000. But the CDRI, which must get these funds from private sources, has been able to raise only \$56,000 for the project. Even if it gets the structure built, the group will need additional operating funds to maintain it and keep it open. And on its meager \$42,000 annual operating budget, the problem still boils down to dollars and cents. The kind of money the CDRI needs for its visitor center cannot come from small contributions of its mem-

bership list. It needs large corporate and private foundation contributions. "It's just hard to get that kind of money out here in the middle of nowhere," said Powell.

The net worth of the CDRI at the end of the last fiscal year, including the visitor center acreage, totaled \$389,855. The CDRI has survived for 18 years by employing a do-it-yourself and pay-as-you-go approach to fiscal management. "We cut to the bone early," said Scudday, "and we have survived."

Miller blames the failure to obtain funds for the visitor center on the overall economic downturn and a weak regional economy as well as a minuscule population base. (Brewster and Jeff Davis Counties combined have a population of under 11,000). Laid back and imperturbable, Miller accents the positive. Looking around the grassy, sun-drenched acreage near Fort Davis, he points out the open-air pavilion, the newly opened gift shop (in a temporary building), the labeled plant displays, the cactus greenhouse, and the Modesta Canyon Nature Trail highlighted by the scenic Clayton Overlook, named for benefactors Clayton and Modesta Williams.

"People come in here and they look around and say, 'There's not a lot here yet,'" said Miller.

"Well, we know that. If we had \$10 million given to us tomorrow, there would be a lot [more] here. We don't have that kind of money. But when you look around and you see the plants and you envision what we want to build here, and how we've never given up; how we've never had an inkling of giving up—it's going to go through to completion if it takes 10 years longer than we planned on. The potential is here for a really nice place. It doesn't cost anything to come in off the highway and look around. So tell the people to do that.

"We're in for the long haul." ★

*Jean Hardy is a freelance editor, writer and photographer based in Houston and Marathon. This is her first article for Texas Parks & Wildlife.*

The Chihuahuan Desert Research Institute's 65-member Board of Scientists, an advisory body that guides research activities, includes noted mammalogist and author David J. Schmidly of Texas A&M University; botanist James Henrickson of California State University, who is completing a comprehensive flora (an exhaustive listing and description of plants) of the region (coauthored with Marshall C. Johnston); ornithologist Jon C. Barlow of the Royal Ontario Museum in Toronto; Dr. Andrew Price of the Texas Parks and Wildlife Department; and zoologist Salvador Contreras-Balderas of Monterrey, Nueva Leon. A. Michael Powell, who also serves on the

Board of Scientists, has published the highly praised book "Trees and Shrubs of Trans-Pecos Texas," and is completing a book on the area's grasses.

For membership or information about the CDRI, write P. O. Box 1334, Alpine, Texas 79831, or call 915-837-8370.

The Chihuahuan Desert Visitor Center is open mid-April through Labor Day, 1 p.m. to 5 p.m. weekdays; 9 a.m. to 5 p.m. weekends. Admission is free. To get there, drive north on State Highway 118 from Alpine and look for the CDRI gate and sign on the right four miles south of Fort Davis. (Or, from Fort Davis, drive four miles south on Hwy. 118 and look for the sign on the left.)





by Jean Hardy

# Barton Warnock: Pied Piper of Trans-Pecos Botany

"Connie, come over here," calls Dr. Barton H. Warnock. He's teaching a class on desert plants to a group of city dwellers. "Tell us what this is," he says, pointing to a bush growing in the rocks.

The young woman named Connie wrinkles her brow in earnest regard of a scraggly little shrub with nondescript leaves.

"Gee, Dr. Warnock, without flowers or fruits, how'm I supposed to know what it is?"

Warnock laughs. "Think hard. It's something we haven't seen yet."

"Hmm, condalia, maybe?" Connie ventures.

"Naaaawwww. You know better than that! Guess again."

"Something in the rose family?" Connie says hopefully.

"Now you're getting warm!"

No further response from Connie.

"Doesn't anybody in this class recognize the Havard plum?" Warnock declares, a triumphant smile spreading across his weathered face.

"This is *Prunus havardii*. It grows all around here," he says, indicating the limestone hillside where the class is gathered. We are in the Big Bend Ranch State Natural Area attending a seminar sponsored by the Texas Parks and Wildlife Department and the Big Bend Natural History Association.

"They used to think this plant was rare," Warnock continues, "but I could show you places where it grows all over this ranch. Now take a good look," he says, adding a pet phrase: "And don't you forget it!"

And so it goes, seminar after seminar. The "retired" botany professor and

former head of the Biology Department at Sul Ross State University in Alpine is the Pied Piper of Trans-Pecos botany. He leads his flock through the desert, naming the plants and telling their history, explaining their uses, revealing many of the secrets they hold.

Using a homespun teaching style, Warnock cajoles, teases, jokes, entertains and thoroughly charms his pupils, who come from all walks of life to learn more about Chihuahuan Desert plants. He makes sure they get what they've paid for. For example, he uses a battery-powered speaker, so everyone can hear what he's saying. "My little megaphone works pretty good, doesn't it?" he asks.

Warnock tells us about the wildlife, the rock layers and the people who've lived in this rugged land, as well as about the plants. He knew the Sam Nail family who ranched in what is now Big Bend National Park. He is a living witness to the many seasons of drought, and he remembers which years had plentiful rainfall. He knows what much of the land looked like 60 or 70 years ago, before cattle and sheep ate away so much of the grass.

He was the first person to sleep in the first stone cottage in the Chisos Basin, when Lloyd Wade, the construction foreman, offered him the opportunity some 45 years ago. He once listened to the strains of piano music floating through the treetops in Pine Canyon where the Wade family lived in a little wooden house. The Wades would invite friends in on a Saturday night, and the piano provided their entertainment. When Wade's work was finished, the Park Service demolished the house, but

Warnock remembers many such homes and how the people felt who gave them up for our sake, for a national park.

It's no wonder his classes fill up so fast. "Dr. Warnock is without doubt our most popular seminar leader," says BBNHA director Rick LoBello. Warnock is leading eight seminars this year.

Warnock has lived and walked over the Trans-Pecos terrain for almost all his long life. Born in Christoval, Texas, and reared on a dairy farm, he graduated from Fort Stockton schools and earned a degree at Sul Ross University, then a small teachers' college. After a short stint with the highway department, he left for the University of Iowa, where he earned a master's degree, writing his thesis on the grasses of Brewster County.

He earned his doctorate from the University of Texas and headed home to the Trans-Pecos, taking a teaching job in the Sul Ross Biology Department and becoming its chairman in 1946. Dedicated to his students, Warnock believed that the best classroom was outdoors, and he took his students into every canyon and onto every desert scrub flat and grassland he could secure permission for.

Over the years, Warnock collected and carefully dried and mounted plant specimens for the Sul Ross Herbarium. During his 33-year tenure, he amassed a collection of some 25,000 plant specimens from every part of the region. Today, the Sul Ross Herbarium contains about 80,000 specimens and is the third largest in Texas—no small achievement for one of the state's smallest four-



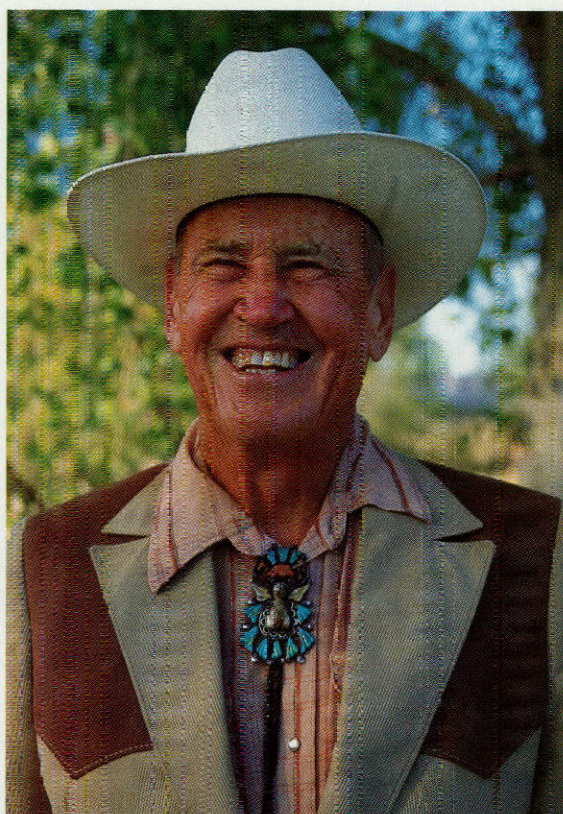
year colleges.

During his Sul Ross years, Warnock wrote three books: "Wildflowers of the Big Bend Country, Texas" (1970); "Wildflowers of the Guadalupe Mountains and the Sand Dune Country, Texas" (1974); and "Wildflowers of the Davis Mountains and the Marathon Basin, Texas" (1977). Collectively, these books present more than 1,400 color photographs and descriptions of native plants. "I put in my books that I was writing for the layman but that 'I will not exclude the botanists if they want to browse among the photographs...'"

Warnock wins the people around him with his dazzling smile and the laugh that often accompanies it. He won't reveal his exact age (when I asked him, he told me it was none of my business), but it is something more than 80 and something less than 90. Despite major heart surgery several years ago, arthritis and other ailments, he keeps a pace that youngsters can envy. He sees and hears extremely well with original-issue equipment. If his gait has slowed, it hasn't stopped, and if he limps slightly because the cartilage is gone in his left knee, he doesn't complain.

When he isn't leading a seminar, Warnock often is exploring canyons and pastures with a fellow plant enthusiast such as Lynn Lowrey of Houston, Benny Simpson of Richardson or John Mac Carpenter of Fort Stockton. Since his retirement from Sul Ross in 1979, Warnock has assembled plant collections for ranchers in the area. In winter, a poor time to be in the field, he labels and mounts the plants collected and pressed in the flowering seasons. One collection numbers more than 1,000 specimens from the Big Bend Ranch, gathered before the area was purchased by the state. The collection now belongs to the Texas Parks and Wildlife Department.

Warnock's former students recall him with great warmth. "In his prime, he was a lion in the field," says longtime friend Dr. Billie L. Turner. "He persuaded me to go into botany, when I had originally intended to practice law." Turner, chairman of the University of



Texas Department of Botany, named his second son after Warnock, "so he has more than plants named after him," Turner adds. The Parks and Wildlife facility at Lajitas and the science building at Sul Ross also bear Warnock's name.

Today, dismayed by the distrust between rancher and government regulator, rancher and scientist, Warnock tries to avoid politics, not because he doesn't have views—he has plenty of them—but because what he cares about most is the land. Talk of endangered and threatened species is likely to bring about a wry comment like:

"Humph! Endangered species! They need to study a plant for 50 years before they decide whether or not it's endangered," he says. "Then maybe they'd know enough to make decisions like that."

Or: "Threatened species! The only threatened plant I know is the one in front of me I'm about to step on."

For a scientist, he exhibits some decidedly unscientific attitudes: "They [scientists] keep changing these plant names," he says. "It's a good thing the plant doesn't care what its name is—it's still the same plant." And he'll tell his students: "Don't worry about these scientific names. If you can't remember them, just try to remember at least the common name."

In his personal life, Warnock adopts habits that reflect the rhythms of nature—early to bed, early to rise: "I like the time just before the sun comes up, when nature is beginning to wake up. I go all day long until the sun goes down. Then nature is going to sleep—I'm a nature-lover, and so do I."

His wife of many years, Ruel Warnock, is as reserved and private as Barton Warnock is outgoing and gregarious. "She is a lovely person," he says. "She is the smart one. When I first saw her, she was the prettiest little thing with the prettiest blue eyes, and she still is," he says. "If I've ever amounted to anything, it's because of her. We've had a wonderful life together."

Generations of Alpine children have learned to play the piano under Ruel Warnock's capable instruction. She was a concert pianist for many years, Barton Warnock is eager to tell. She has her own interests and enjoys her own activities, confident that Barton will be home by sundown. They have a son, Tony, and mention of him makes their eyes sparkle.

Big Bend-area rancher Hallie Stillwell, herself a West Texas legend, has known Warnock for nearly 50 years. "I don't know anybody who loves the land and the things that grow there any more than Dr. Warnock," she says. "He is truly a person of the land."

Reflecting on his long attachment to the land, Warnock says, "I never say goodbye to a place—I just say 'I'm not finished with that canyon yet.' It has been fun; I'm still having fun."

For as long as this man lives and breathes, one senses he will be looking over the next hill, expecting to find one more enchanting spot in his "dry Shangri-La," as Turner calls it. As long as he can will it, Barton Warnock will be enjoying and sharing with his friends and fledglings the beauty, the energy and the mystery of the Chihuahuan Desert. ★

*Jean Hardy edits books for Shearer Publishing and contributes articles and photos to several publications. She lives in Houston and Marathon.*



# MARSH RUNNERS

## Rails and gallinules are birds of mystery to most Texans.

Even along the Gulf Coast where these birds are plentiful, few people could identify one if it landed in their yard.

For that matter, relatively few of the state's nearly one million hunters could identify one either, although there is a long open season and liberal daily bag limit each year on four species of rails and two species of gallinules.

The unfamiliar status of these birds lies in their behavior. Few people see them because, unlike many other bird species, they shun civilization and don't move into towns where they could be observed easily. Nor do they make daily flights where they might be seen. In fact, they seldom fly at all except during migration.

Many hunters never see rails and gallinules because these birds usually live where only duck hunters tread—in marshes, flooded rice fields and around shallow reservoirs. Even duck hunters seldom see rails, since rails prefer to escape danger by running through heavy vegetation instead of flying above it.

The group consists of six rails: the king, clapper, Virginia, sora, yellow and black rail; and two species of gallinules, the purple gallinule and the common moorhen (formerly known as the common gallinule).

The tiny yellow and black rails, which are uncommon to rare in Texas, are not classified as game birds. All other rails have open hunting seasons.

The king and clapper (often called "marsh hens") are the largest of the rails and very similar in appearance. Both stand about 12 inches high on spindly legs, and have short necks and long bills that curve downward slightly. The long bills allow them to probe the mud for worms and crustaceans.

Adults are mottled rusty brown and tan with dark brown barring. Both species sometimes inhabit the same areas or brackish marshes, although the king rail prefers freshwater marshes and the clapper rail prefers saltwater marshes.

Both king and clapper rails are heard more often than seen. Their loud, raucous, laughter-like calls are like the clash of symbols in the symphony of marsh

sounds heard early in the morning and late in the afternoon.

Virginia rails and soras are smaller birds, about half the size of the king and clapper rails. The Virginia rail is similar in coloration to the larger rails and has a long bill.

The sora is even smaller than the Virginia rail, is lighter in color, and has a short chicken-like beak. The bird's beak indicates that it has a different diet from that of the larger rails. It feeds mostly on small animals and vegetation, including duckweed.





Yellow and black rails are the smallest of the rails. They are less than five inches in length. They also have chicken-like beaks similar to those of the sora, and winter along the upper Texas coast eastward along the Gulf Coast.

The yellow and black rails are rare, and probably the most difficult of all the rails to see. Not only do they seldom fly, they also are very shy. The yellow rail frequents both fresh and salt marshes. The black rail prefers to live in salt cordgrass marshes.

All rails have one thing in common. Except during migration, they are weak, clumsy fliers and much prefer to escape danger by running through dense vegetation. They are exceptionally well-equipped to negotiate the narrow openings because they have narrow bodies that can be compressed laterally. It is this preference for running that makes them so difficult to observe and hunt. A lone hunter walking the marsh has little chance of forcing rails into flight. Even three or four hunters walking abreast seldom flush them.

Some hunters have learned to flush rails by walking in a



Grady Allen



Rob Curtis

*Often called "marsh hens," the clapper rail (left) and king rail (above) are two of six rail species found in Texas. Their long, curved bills allow them to probe the mud for worms and crustaceans. Both are heard more often than they are seen.*

line with a rope tied between them. The rope is whipped up and down to thrash the grass between the hunters and flush the birds. Tin cans with marbles inside to create a rattling noise sometimes are tied to the ropes to make them more effective.

A few hunters use dogs to help flush the birds, and a trained retriever is especially helpful in finding downed birds. But hunters introducing their dogs to rail hunting should be prepared for a few surprises. Rails can make a fool of the average dog. They can run through heavy grass much faster than most dogs can trail them.

Any embarrassment suffered by the dogs and their owners can pay long-range dividends, however, because hunting



rails with a retriever is considered by some handlers to be the best way to teach a dog how to trail and find birds of any kind.

An effective way to hunt both rails and gallinules in coastal areas is to wait for a high (storm) tide. When the water is high, there is less cover for the birds and they congregate on and near high ground. Since they are even more reluctant to escape danger by swimming than by flying, they are much easier to flush during periods of high water. Hunters walking the high ground, or poling a small flatbottom boat beside such areas, sometimes can find fast shooting.

Once the rails flush, they fly low and slowly with legs dangling, and rarely fly far. They would be easy targets if it weren't for the fact the hunter usually is mired in knee-deep mud or sitting in a boat, swatting mosquitoes, wiping sweat from his eyes, and seldom facing the direction the rail chooses to fly. In addition, flying rails often seem to fold their wings and drop into the marsh at the exact moment the hunter squeezes the trigger. Even under those conditions, however, the average shooter can expect to hit a fairly good percentage of the rails he flushes since the birds are not swift fliers.

The purple gallinule and common moorhen won't be found in brackish

marshes. They prefer freshwater marshes, and many live around rice fields and freshwater reservoirs.

Both these birds resemble coots, with their chicken-like beaks and short necks. And like coots, gallinules are good swimmers and usually take wing by running

*The sora (above) is a small bird with a chicken-like beak, which indicates a diet different from that of the larger rail. The common moorhen (below) lives around rice fields and freshwater reservoirs. Like rails, gallinules are adept at racing through dense cover.*

across the water's surface.

The adult common moorhen is blue-gray in appearance with a bright red frontal plate and a white streak along each side of the body. The purple gallinule is identified easily by its bright purple breast and head, green back, and white patch in front of its head.

Purple gallinule feeding habits may be the most unusual among these marsh dwellers. Their long toes enable them to walk on lily pads. Balancing on one foot, the gallinule deftly uses the toes of the other foot to lift the edge of a pad so it can peer beneath it for worms and small crustaceans.

Both gallinule species are almost as adept as rails at racing through dense cover, and as reluctant to fly once they reach cover. They can be flushed by several hunters walking in line along the edge of rice fields or beside irrigation and roadside ditches. In reservoirs and freshwater marshes with cover, they can be hunted from small flatbottom boats poled through the vegetation.

Although many rails and gallinules nest in Texas, they are capable of long-distance migration, usually at night, and are among the migratory species governed by federal regulation frameworks. But those regulations rarely change. For many years now, the Texas hunting season on rails and gallinules has opened September 1 and ended November 9. Daily bag limits on king and clapper rails are 15 in the aggregate, with a possession limit of 30. Daily bag limits



Rob Curtis



Tom C. Winn



on sora and Virginia rails are 25 in the aggregate, with a possession limit of 25. Daily bag limits on common moorhens and purple gallinules are 15 in the aggregate with a possession limit of 30. Due to their inaccessible habitat, secretive ways, and low hunting pressure, rail and gallinule breeding populations never have been adversely affected by these comparatively liberal hunting seasons and bag limits.

All four species of rails that are classified as game birds, and both species of gallinules, have dark meat and can be prepared in tasty dishes. They make excellent gumbo. They also can be prepared by covering them with flour, browning, then simmering in a pot with onions, carrots, tomatoes, your favorite cooking wine and seasoning. ★

*Ed Holder lives in Groves, Texas, and is an outdoor writer whose syndicated column appears in numerous Texas newspapers.*



Grady Allen

*An immature common moorhen (left) lacks the red bill of the adult. Long toes allow the purple gallinule (below) to walk on lily pads. Balancing on one foot, the bird uses the toes of its other foot to lift the edge of a pad and look under it for worms and small crustaceans.*



Rob Curtis



PICTURE THIS

# Telephoto Scenics

Article and Photos by Leroy Williamson

**T**elephoto lenses for scenics? If you aren't using your long lenses to create spectacular scenic photographs, you are missing some wonderful opportunities.

Many photographers may think it unusual to mount a big telephoto lens on their SLR and go off in search of general scenery, but you will be amazed at the results.

When I say telephoto lenses for scenics, I'm not talking about 100mm or 200mm lenses, although these work fine for many subjects. For this particular adventure, I'm talking big telephoto, 300mm or longer. If you have only a 200mm lens, you can get into the big

telephoto range by using a two-power (2X) telextender.

Using a long lens for scenic photographs requires an attitude adjustment. The subject no longer will be close to you. You'll be scanning the horizon for picture opportunities and it may help to view these horizons through the camera's viewfinder. Subjects that escape normal vision become obvious with the viewfinder's high magnification.

When you use a long lens on your camera, it is advisable to use a tripod. If you must hand-hold the camera, use a shutter speed at least equal to the focal length of the lens. For example, when using a 500mm lens, the safest hand-

held shutter speed would be 1/500 second. Of course, there are exceptions to every rule, but why take a chance? Use a tripod when photographing scenery to get sharp pictures.

Telephoto lenses appear to compress distance, making objects appear closer than they really are. The longer the lens, the more compression. This effect is most apparent when photographing a row of anything: fences, telephone poles, cars in a line, etc.

With your camera on a tripod, you may want to stop your aperture down to f/22 or f/32 to obtain maximum depth of field so everything in your photograph will be as sharp as possible. Or,







*A 600mm focal length brings a distant scene up close. A combination of a 300mm lens with a 2X converter provided the super telephoto for this farm scene in the Texas Panhandle. A small aperture provided adequate depth of field for the entire scene.*

with your aperture full open, you can make a subject pop out from the background by using selective focus.

If you have a fixed-aperture mirror lens, you have no control over the depth of field. You are limited to the fixed aperture of that lens, whatever it may be. Most mirror lenses have a fixed aperture in the neighborhood of  $f/8$  for 500mm,  $f/11$  for 1000mm. More expensive mirror lenses may be slightly faster, but basically mirror lenses are considered to be slow aperture-wise. A disadvantage? Yes, to some extent. The only way left to control exposure is through shutter speed and/or filters.

The ability to control the depth of

field will be sorely missed at times and not missed at all at other times. When all of your subject is at infinity, everything will be in focus. When both the foreground and the background are in a photo, careful selection of focus will create some outstanding pictures.

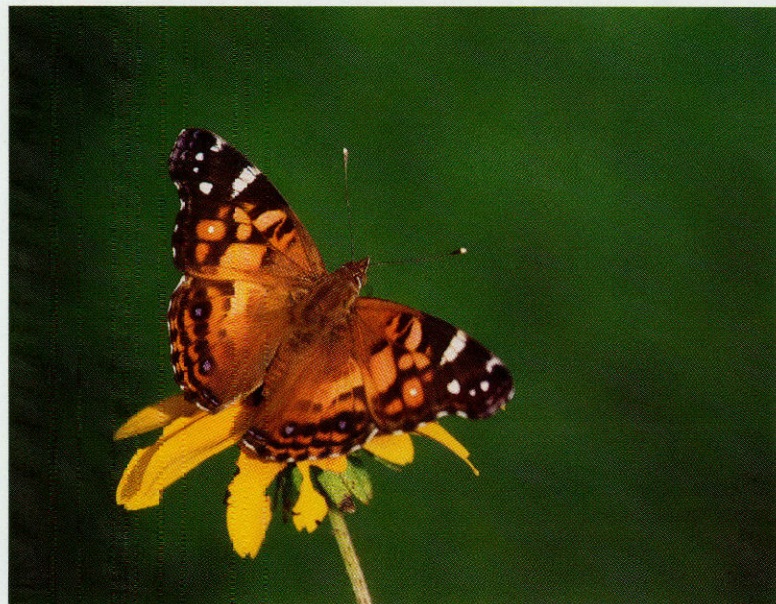
Mirror lenses have a big advantage because they are compact, light and much easier to hand-hold than a conventional lens. Due to the construction of mirror lenses, out-of-focus highlights

make little round doughnuts that some photographers find objectionable while others find pleasing.

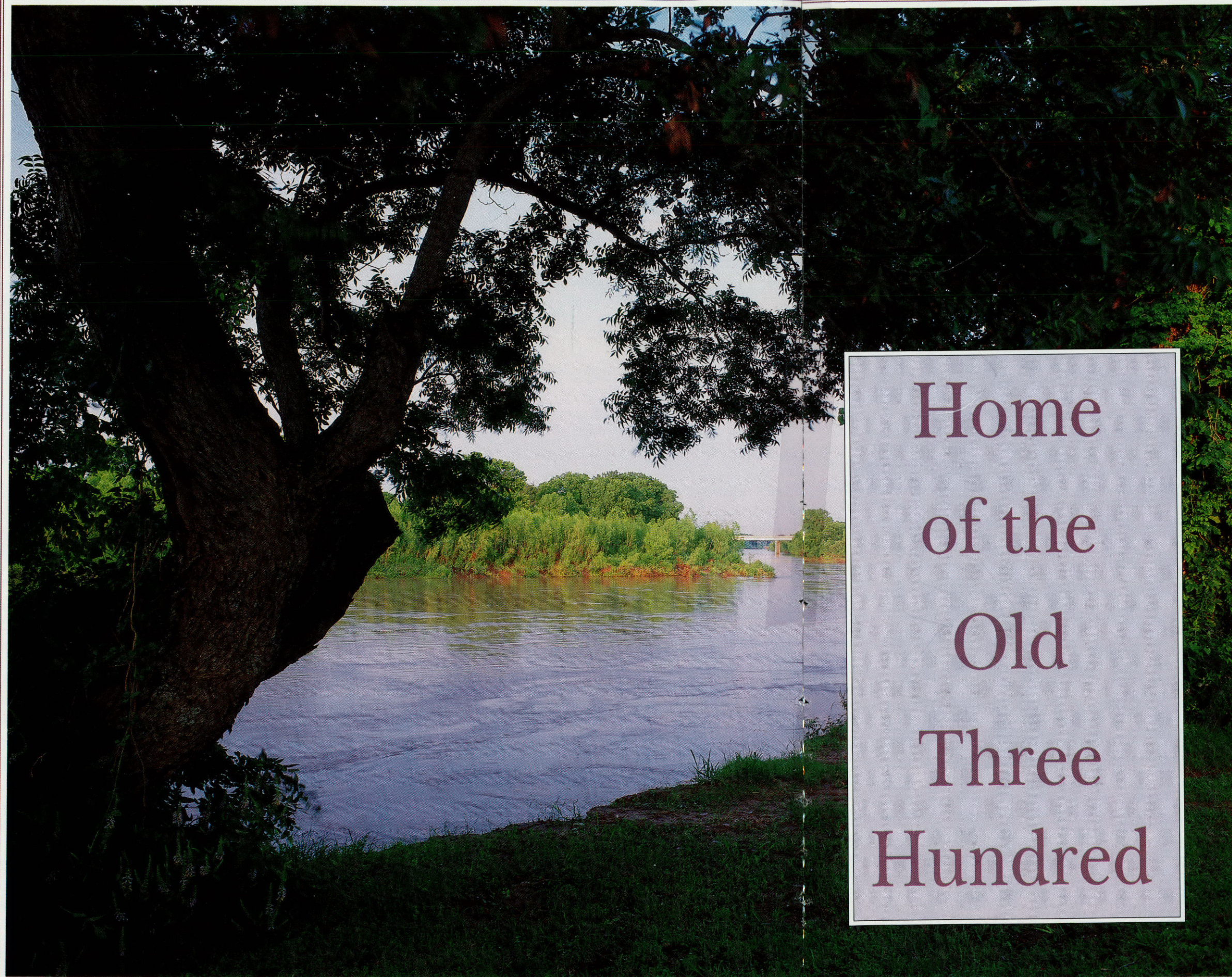
Search the horizon for photo opportunities. Then, if you happen to have a long lens with macro focusing capability, you may want to go to the opposite extreme and look close for photo opportunities. A 500mm lens with the ability to focus to five feet or so is a wonderful tool for macro photography that allows the photographer to stay a respectful distance from the subject. When photographing insects, butterflies and other small living things, it's a big advantage to be unobtrusive.

Of course, when we focus to minimum distances, we no longer are looking at general scenic photographs, but are concentrating on smaller objects. Between closest and infinity lie a million pictures waiting to be created with a telephoto lens. While your telephoto lens is great for wildlife and sports photography, it also is an outstanding lens for landscapes. ★

*A 500mm mirror lens, used for the Caddo Lake photo at left, provides an image 10 times larger than the 35mm camera's normal 50mm lens. Mirror lenses with fixed apertures prevent depth of field control, but they can be hand-held with fast film because of their compact size and light weight. Many of the newer super telephoto lenses also focus as close as five to six feet, allowing macro shots at distances great enough not to disturb the subject. The fixed aperture of the 500mm mirror lens used for the photo at right did not have enough depth of field to capture all the butterfly in sharp detail.*







# Home of the Old Three Hundred

## *Stephen F. Austin State Park combines recreation and history.*

Article by Elaine Acker Albright

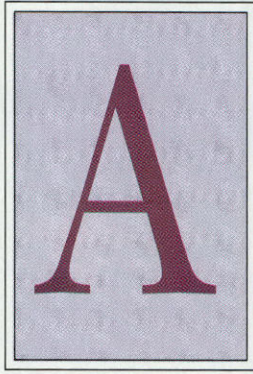
Photos by Stephan Myers

**R**ays of sunshine paint dappled patterns of light along the otherwise shaded hiking trail leading to the Brazos River. A breeze blows through the trees and cottonwood leaves applaud the hopeful fisherman standing beside its muddy banks.

This peaceful scene is a sharp contrast to another scene from March 29, 1836. On that night, after settlers quickly gathered what possessions they could carry, they crossed the Brazos by ferry and stood on the opposite bank. Behind them, the first Anglo capital of Texas, San Felipe de Austin, burned a bright red against the dark night sky. Three weeks before, Texas had suffered the fall of the Alamo, and only two days before, the settlers received the terrible news of a massacre at Goliad. Now, General Antonio Lopez de Santa Anna's Mexican army was advancing through Texas, looting and burning everything in its path. The settlers were determined to leave Santa Anna nothing but chimneys and ashes.

Stephen F. Austin brought the "Old Three Hundred," the first families to colonize Texas, here from the United States to settle the region under a contract with the Mexican government. With a land grant from Mexico, he established San Felipe de Austin along the banks of the Brazos in 1828. Austin lived there, as did William Barrett Travis, Sam Houston and David G. Burnet.





Austin worked closely with the Mexican government, attempting to mediate the differences between the Mexican philosophies and laws and the beliefs of the new American immigrants. By early 1835, however, Santa Anna had won the Mexican presidency and soon emerged as a dictator, inspiring the troubled Texans to organize their defense against the Mexican armies. On March 2, 1836, during the

siege of the Alamo, the Texans signed their Declaration of Independence at Washington-on-the-Brazos.

After the colonists burned the town, Captain Mosley Baker's battalion dug in and waited for Santa Anna on the north side of the Brazos. When Santa Anna arrived, the company forced the Mexican General toward San Jacinto. Baker sent word to General Sam Houston, who moved his troops to the marshes of San Jacinto Bay. On April 21, 1836, the battle cry, "Remember the Alamo! Remember Goliad!" echoed throughout the 18-minute fight, and the Texans finally won their independence on the San Jacinto Battlefield.

More than 100 years later, in 1940, the modern town of San Felipe deeded 664 acres of Austin's original land grant to the State of Texas, creating Stephen F. Austin State Historical Park. The park is located 48 miles west of Houston, just north of Interstate 10. Out of its uncertain beginnings, the area has developed into an important historical site and a lively recreational area.

The Stephen F. Austin golf course is near the entrance to the park, and play is open to the public. Eighteen holes of well-manicured greens offer a challenging round of golf where deer often browse the picturesque fairways in the cooler hours of the day.

Cycling enthusiasts are drawn to the surrounding countryside. Ann Baird and her son Andy often participate in weekend rides with the Houston Bike Club. "This is a great park for starting rides," she said. "From here you can ride to Bellville, through Sealy, or south to Fulshear." The surrounding small towns offer a friendly, country atmosphere and a quiet retreat from city life.

The swimming pool is a hubbub of family fun during the summer. Dads engage in water war games with children armed with high-tech, neon-colored water pistols. Younger children

*Play is open to the public at the park's scenic 18-hole golf course on the Brazos River (left). Golfers often spot deer during the cooler hours of the day.*

*Shady picnic sites provide the perfect setting for relaxing with friends and family (right).*







*A granite monument (left) honors Stephen F. Austin, who in 1828 brought the first families to colonize Texas to this spot on the Brazos.*

*Cycling enthusiasts enjoy riding in the park and touring the surrounding countryside and small towns.*





## Stephen F. Austin

### State Historical Park

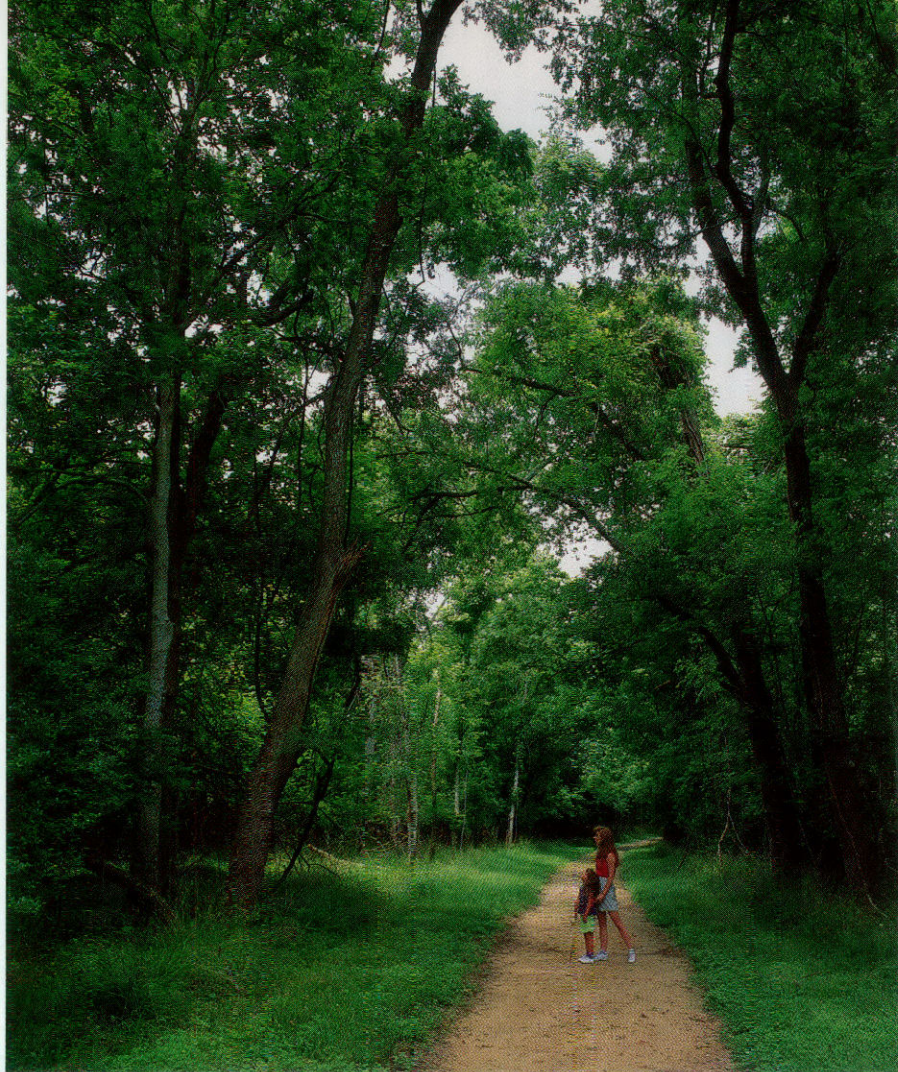
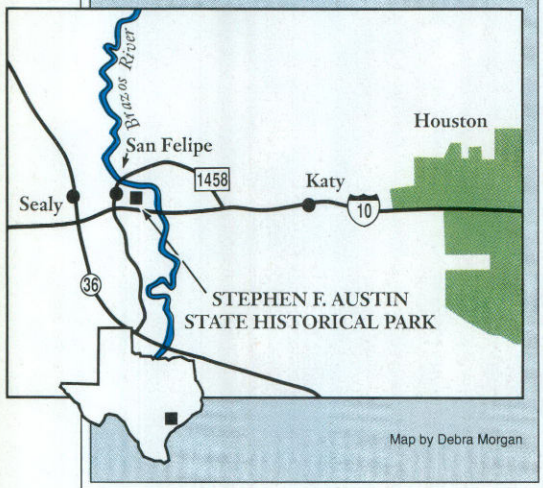
Stephen F. Austin State Historical Park is located in Austin County, 48 miles west of Houston. From Houston, travel west on IH-10 to FM 1458. Turn north, and proceed to Park Road 38, leading west to the park entrance. Facilities include 65 picnic sites, 40 campsites, and 40 trailer sites with water and electrical connections. Twenty screened shelters have electricity, water, tables and cooking grills. Two restrooms with hot showers are located near the camping areas. Playground equipment, a swimming pool (seasonal operation) and an 18-hole golf course also are available.

A park store located near the pool provides a snack bar and convenience store items.

For reservations and information, write to: Stephen F. Austin State Historical Park, P.O. Box 125, San Felipe, Texas 77473; or call 409-885-3613.

Daily entrance fee is \$3 on weekdays, \$5 on weekends; regular campsites are \$7 on weekdays, \$9 on weekends; campsites with utilities are \$11 on weekdays and \$14 on weekends; screened shelters are \$15 on weekdays, \$18 on weekends.

Texas Conservation Passport holders are entitled to free entry and a discount on camping fees. Texas Conservation Passports are available for \$25 each at most state parks, Parks and Wildlife Department offices, Whole Earth Provision Co. locations in Austin, Houston and Dallas and REI in Austin.



can play in the safety of a separate shallow pool, while adventurous divers plunge from springboards at the deep end of the main pool. The pool is open Wednesday through Sunday from Memorial Day until Labor Day.

Screened shelters and campsites are nestled among cedar elms draped with Spanish moss, and towering pecan trees; mustang grape vines decorate the sycamore's smooth white bark. The mixed hardwood forest entices a diverse community of cardinals, bluebirds and crows, but it is especially appealing to the many varieties of woodpeckers residing in the natural arbor.

Just east of the state park, near the Brazos River bridge, the San Felipe Memorial Park commemorates the dedication of Texas's original settlers and the man whose dream earned him the title "Father of Texas." Situated on FM 1458 on the south side of the Brazos, a bronze statue of Stephen F. Austin watches over memories of his life's work.

A replica of an early dogtro-style cabin has been erected at the back of the

historical site. These log cabins typically consisted of two rooms separated by a center breezeway that frequently was oriented north-south to catch prevailing winds. The crude cabins often were made from native pine, red cedar, cottonwood or oak. A mixture of lime and sand, or occasionally mud and straw, filled the crevices between the logs. The chimneys were built from stone, brick or even sticks and mud. Another replica depicting a rectangular log style has been erected near the swimming pool inside the state park's boundaries.

The white-painted, wood-frame J.J. Josey General Store has been converted to a museum that houses treasures from Texas's early beginnings. Enola Phillips worked with the Stephen F. Austin Park Association when W.E. Hill, J.J. Josey's grandson, established the museum 28 years ago. "The community donated items from here, there and yonder," says Enola. "I was a girl in the early 20th century, and a lot of this was in use when I was a child."

The museum is reminiscent of other



*A nature trail winds through the forest to the Brazos River (left). Hikers might see deer, squirrels or foxes as well as a variety of birds.*

*A replica of an early dogtrot-style cabin (right) has two rooms separated by a center breezeway that takes advantage of the prevailing winds.*

*Watch for colorful butterflies such as this red-spotted purple (far right).*



*The J.F. Josey General Store, built in 1847, has been converted to a museum (left), and contains items from Texas's early days.*

*Bill Hill, president of the Stephen F. Austin Park Association, greets visitors to the museum (below)*

early general stores, filled with shelves of medicines, tobacco, cheese boards, washboards, irons, churns and whisky barrels. Museum pieces such as Austin's desk, musketballs, and legal documents offer an intimate look into the lives of Texas's early pioneers.

Near the entrance to the historical area is a water well dug by the members of the colony when they first arrived, and restored by the Sealy Chamber of Commerce in 1928. Moss covers the red bricks that line the sides of the well, and its soft, muddy bottom sparkles with copper and silver wishes of today's Texans who live Stephen F. Austin's dream. ☆

*Elaine Acker Albright is a freelance writer based in Houston. Photographer Stephan Myers also lives in Houston.*









# Hunting the Hard Way

by Morris Gresham

While general hunting license sales are down about three percent, interest in one segment of the sport—bowhunting—continues to rise. Sales of archery stamps, which are required to bowhunt in the October archery season, have escalated from 15,000 in 1975 to more than 75,000 in 1990, and this growth is expected to continue.

Some hunters begin bowhunting merely to take advantage of the extra month of hunting extended to archers each October. Other hunters, losing some of their motivation after years of rifle hunting, look for added challenges related to bowhunting's higher degree of difficulty. Still others become fond of the sport's quiet nature, putting them within yards—or sometimes feet—of game and nongame animals alike. They may experience their first close-up look at animals and learn the value of patience and steady nerves. Archery is to hunting as flyfishing is to angling: both tend to limit sportsmen in their approaches to taking game. Waiting until a deer steps a few feet closer is like enticing a largemouth bass to within striking distance of an artificial popper.

Some Texas hunters may decide to get into archery in mid-September and expect to be ready for the October opening. Such timing seldom works. Ideally, beginning bowhunters should buy their equipment in time to practice daily for at least several months prior to using archery equipment for hunting purposes. It takes that long to become familiar with the equipment and tone both the mind and muscles to be a successful bowhunter.

Before buying a bow, beginners should attend a bowhunter education course and then visit their local archery shop to get proper advice about selecting a bow. Generally, bowhunters choose bows short enough to handle

easily in the field, but avoid extremely short models that cause excessive finger pinch, which will affect release. Draw length of a bow—the distance from the grip to the string at full draw—is critical. If draw length is too long, the string will hit a shooter's arm and possibly cause an unsafe situation. If it is too short, a shooter cannot maintain the proper posture and won't be able to

*Bowhunting's  
rewards  
don't come easy.*

anchor the arrow correctly.

Draw weight of the bow also is important. It should be as heavy as a shooter can handle comfortably—both in practice and in the field. More than one bowhunter has faced an unpleasant surprise when trying to coax cold, tired muscles into drawing a 60- to 80-pound bow on a deer at sunrise. A draw that seems easy while standing at the practice field in warm weather can be quite another matter when you're perched atop a windblown tripod or sitting in a ground blind during a cool morning.

Most veteran bowhunters suggest that a novice begin with a compound bow because beginners can gain better accuracy quicker with compounds than with the more demanding traditional bows. For example, to hold and shoot a recurve bow, especially one without a sighting device, a bowhunter must increase practice time accordingly in order to hit a small target area as consistently as with

a sighted compound bow holding less weight.

Most new compound bows have improved wheel or cam designs that boast 65 percent breakover. In layman's terms, a 65 percent breakover means that an archer is holding 26 pounds at full draw with a 75-pound bow. At some point during the draw, the archer will pull 75 pounds, but the full poundage occurs over a relatively short distance. Most hunters who have practiced regularly can hold 26 pounds for several minutes if an animal hesitates before stepping into range.

Bows must be properly tuned and matched with arrows of the proper spine or stiffness. Spine, a factor of the wall thickness and diameter of the arrow, determines the amount of deflection that occurs when the arrow leaves the bow. If an archer follows the arrow manufacturer's spine recommendations for the specific bow's draw weight and still gets erratic arrow flight, a simple adjustment of the arrow rest, plunger or nocking point sometimes stops side-to-side or up-and-down arrow kick. Improper installation of broadheads on the arrow shaft also can affect arrow flight. The easiest arrow combination to tune is a three-blade broadhead on a three-fletched arrow. Simply place the three blades in line with the three feathers, and make sure all arrows have the same alignment. For a four-blade broadhead, use a four-fletched arrow and align fletch and blades in the same fashion. If a practice tip is the same weight as a broadhead and the feathers are aligned with the blades, chances are better that both arrows will fly the same.

In addition to decisions on bows and arrows, hunters also must choose from a wide assortment of accessories. An archer may choose to keep it simple, or may turn a bow into an expensive heavyweight by adding a variety of gadgets.



Each hunter must decide which accessories are suitable for the bowhunting experience desired.

**T**he four main accessory items every bowhunter should have include: 1) finger protection—gloves, tabs or mechanical releases, 2) arm protection—half or full-length arm guards, 3) quivers—back, belt or bow, and 4) tree/tower stand safety items—belts and haul lines. A bow stringer, broadhead wrench and bow tuning equipment also are necessary items.

Optional accessories include bow sights—front sight with fixed pins and an accompanying rear or “peep sight” in the string, preferably a self-aligning type. This allows a new bowhunter to match practice skills with known firearm procedures rather than to try shooting instinctively, a method requiring much more skill and practice.

Arrow rests come in many different models. One popular type uses a spring-loaded plunger button that exerts side pressure against the arrow. Adjusting the pressure of the plunger allows the hunter to tune the arrow flight. The spring rest, my personal favorite, is a coiled spring with the end of the wire flared outward to hold the arrow. I wrap the easy-to-tune and almost-indestructible spring rest with moleskin to reduce noise.

There are several simple ways to combat bow noise. One is to add moleskin to the arrow shelf in case the arrow falls off the rest. Most archers also dampen string sound with some type of bowstring si-

lencer such as cat whiskers, or rubber strands that resemble spinnerbait skirts attached to the bowstring. The wheel axles should be lightly oiled and the cable slide kept free of dust to avoid unwanted squeaks.

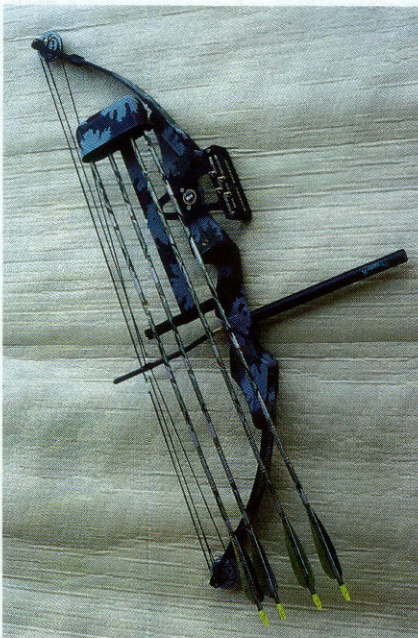
Most hunters use a stabilizer, a weighted rod screwed into the front of the bow handle, which improves accuracy by reducing recoil. The longer ones add balance and usually work better than the shorter models. Many new styles boast hydraulic or spring-loaded plungers to reduce vibration.



Once a hunter has assembled and tuned the equipment, it's time to practice. Grip the bow lightly, just tightly enough to avoid dropping it upon release. Hold the bow perfectly vertical and draw the arrow to the same anchor point on your face each time. Improper releases cause more erratic shots than any other factor. Finger movement is simple, but it should be the same every time to ensure shot consistency. Just relax the fingers and allow the string to pull free. As in golf and baseball, follow-through is important. Keep your body perfectly still throughout the release and hold it until you see the arrow hit the target.

Before beginning the hunt, scout the hunting area thoroughly and, if possible, set up an elevated blind. Elevation gives you a better chance of making a full draw without being detected by your quarry. Place the blind in the heaviest cover available, preferably on the east side of a trail or feeder to avoid problems with the predominantly south or north winds of October.

Choose cover that retains its leaves or



Jim Goin



Jim Goin

*A compound bow with a sighting device (far left) is the best choice for a new bowhunter. The traditional longbow and recurve bow (left) are more demanding and require more practice to hit a small target area as consistently as with a sighted compound bow.*





Jim Goin

*Without camouflage, a hunter perched in a tree stand would stand out like a neon sign. Wear soft, noiseless clothing in a camouflage pattern matched to the predominant terrain. Don't forget the hands and face.*

during daylight hours.

Mike Walker of Mesquite, a bowhunter who taught me most of my modern archery tactics, used this philosophy successfully during the 1991 archery season. During his preseason scouting, he watched a number of deer move through a wooded section within sight of a feeder. Does and yearlings readily approached the feeder, but many of the bucks became spooky about 75 yards away. He moved his blind closer to the buck activity, but found the wind direction to be wrong.

"I moved the tripod a second time and sat in it the first Friday afternoon of the season," Walker remembered. "I hadn't been in the blind long before a little five-pointer came meandering by within ten yards. About an hour later, a larger buck came through like he was looking for something. I don't know whether it was the scent I had out or not, but he was acting strange.

"He stopped about ten yards from my tripod," Walker continued, "and stood there for about five minutes looking around cautiously. I could see the

top of the heavy eight-point rack, but I didn't take a shot at him because there was some brush between us. He finally looked in the direction of the feeder and started to circle toward it. When he stepped into the clear about 15 yards away, I shot him."

Walker's feat, using bow and arrow to take the biggest buck off our private lease this year, made believers of his fellow lease members. He had told them frequently not to get hung up on one blind location. "Don't watch a deer at 50 yards for a whole season," he'd say. "Move your stand toward them!"

A group of veteran bowhunters from Mineral Wells regularly uses a more active method of hunting than sitting on a tripod. Longbow shooter Crockett Grimes, his son and several friends organize deer drives where two or three hunters walk through an area to drive deer toward the other hunters. Drive hunting can be more productive than stand hunting, Grimes says, if you have a good team of hunters.

"Good drivers don't take the easy path down a hillside," Grimes said. "They move through the brush and move the deer out of bedding areas. They don't run in there and scare them out. Their aim is to allow the deer to get up and walk away slowly. Hunters take turns driving and standing, so if some hunters do a good job of driving, the

add man-made camouflage to conceal as much of your body as possible. Use wire wherever possible to pull smaller limbs out of the way. Any cutting of limbs to clear shooting lanes should be minimal and only after discussions with the landowner. If possible a blind should be located behind trees that will shade the eyes and upper body from the late afternoon sun.

Once the blind is set, step off the yardage to any locations where a deer might appear. Then take practice shots from the blind at a portable target set up at various points. Make sure bow sight settings match the ranges you have marked from your blind.

Many bowhunters use corn feeders to attract deer. Although opinions vary about the personal ethics of hunting near a feeder, the practice offers the best chance for a shot at calm deer within easy bow range. Responsible bowhunters' main goal is to take shots within practiced distances (known ranges) and to deliver accurate shots into the prey's vital organs. Feeders offer beginning bowhunters an opportunity to reach this goal.

Some bowhunters who use feeders to attract deer don't set up a blind within shooting range of the feeder. Instead, they hunt trails leading to it, hoping for shots at mature bucks and does that might be reluctant to approach a feeder

## HUNTER EDUCATION REQUIREMENTS

Every Texas hunter born on or after September 2, 1971, must successfully complete a hunter education training course.

If you were born on or after September 2, 1971, and:

You Are:	Then:
Age 17 and over	You must successfully complete a hunter education course.
Age 12 through 16	You must successfully complete a hunter education course or be accompanied by a licensed hunter 17 years of age or older.
Under 12 years of age	You must be accompanied by a licensed hunter 17 years of age or older.

Minimum age of certification: 12 years

Course cost: \$5

Proof of certification is not required to purchase a license; it is required to be on your person while hunting.

For course information or exemptions, contact your local TPWD law enforcement office; call Austin at 512-389-4999 or call toll-free 1-800-253-4536 (course information only).





Morris Grasham

*Bowhunters enjoy the sport's quiet nature. They get a close-up look at animals and learn the value of patience and steady nerves.*

animals' vital areas. A shot at a nervous deer may result in a miss. Any deer that jumps about or repeatedly raises its head may duck or jump when it hears or sees movement. Don't draw the bow when you're in the animal's line of vision, even if you're fully camouflaged. Wait until the deer looks away or lowers its head to eat. If the deer raises its head at the draw, hold at full draw until its attention is diverted. It is possible for a deer to dodge an arrow if it sees movement by the hunter.

At the shot, watch the arrow all the way to its target. Seeing the location of the hit helps you know how long you should wait before trailing. With a good hit through both lungs, a deer usually falls as quickly as a rifle-shot deer—often within sight or hearing distance. Unless you see or hear the deer fall, wait for 20 to 30 minutes before beginning the search. Left alone, an arrow-hit deer usually lies down after traveling a short distance.

A primary responsibility of any hunter is to recover game after it has been hit. Careful attention to trailing techniques makes one a more ethical bowhunter.

## Learn More About Bowhunting Basics

The National Bowhunter Education Foundation in cooperation with the Texas Parks and Wildlife Department offers bowhunter education courses as a supplement to the mandatory hunter education program.

Call Texas Parks and Wildlife toll-free at 1-800-253-4536 or direct at 512-389-4999 for bowhunter education courses or instructors in your location.

The goal of bowhunter education is to promote safe, legal, ethical and responsible practices by those who choose to hunt using bows and arrows.

other hunters will do a good job for them when it's their turn."

Whether stand hunting or driving, camouflage is another accessory recommended for close ranges. The hunter should wear soft, noiseless clothing in a camouflage pattern matched to the predominant terrain. Bowhunters must go beyond mere camouflage pants and shirts. Hands and faces shine like neon signs in the woods, so hunters should wear cotton camouflage gloves and headnets. Other hunters prefer brown, green and black grease paints or camouflage powder. However, hunters going into town for lunch or supper will have to wash their faces so it might be easier just to wear headnets.

Although commercial scents to mask human odors are available, and are used successfully by many hunters, the best policy for a bowhunter is to be odor-free. Wash hunting apparel with baking soda or one of the non-scent soaps and store them in plastic bags away from normal household odors. Hunters pick up unnatural odors while sitting around a campfire or frying breakfast. To offset such accidental contamination, many hunters cover their odors with natural cover scents. For example, a small piece of aromatic vegetation such as juniper (cedar) rubbed onto clothing might mask human odor while hunting in juniper country.

Remember the moral obligation of a hunter is to take only shots from which to expect consistent, accurate hits into

Learn to analyze signs such as blood, hoof prints and other signs left by arrow-hit deer. Follow the trail until it ends, use markers of highly visible material such as toilet tissue or red ribbon to mark the last sign, and then search meticulously for the next sign. Make sure you pack strong flashlights in your day pack in case you begin to lose daylight. After finding the animal, be sure to immediately and properly tag and field dress it before heading back to camp. Retrace your steps, removing all markers left along the trail.

Ethical hunters, of course, regret wounding and losing an animal. Given enough opportunities in the field, even the most careful and capable of hunters eventually may wound a deer and be unable to retrieve it. Remember never to give up trailing. Hunters don't have to quit hunting because of such an incident, but they must redouble their efforts to hunt carefully, ethically and responsibly. No matter what the hunting method, hunters should learn more about their sport by increasing their knowledge, by practicing skills and by displaying the proper attitude, especially in the public's eye.

Texas Parks and Wildlife Department investigations indicate that bowhunting is well-established in Texas. Of the 75,435 purchasers of archery stamps in 1990, a total of 66,760 of them bowhunted 461,979 days for deer. The survey data indicated a total harvest of 15,622 deer for a success rate of 18.8 percent. These estimates are based on data from hunters who average 6.7 years of bowhunting experience with an average lifetime bow kill of 3.3 deer.

Bowhunting isn't a sport for everyone. But for those hunters searching for a sport that offers challenges and rewards beyond score keeping, bowhunting just might be for them. Bowhunters work hard to place themselves within close range of their targets, enjoying a close-up view of nature not normally enjoyed by firearm hunters. As with all forms of hunting, a kill is not essential for a good day of bowhunting. The experiences alone make years of learning and practice worthwhile. ★

*The author, a native Texan who has hunted deer in a variety of ways during the past 32 years, now prefers the challenge of bowhunting over firearm hunting.*



*A slice of the Post Oak Savannah down in Freestone County*



## Fairfield Lake State Park

Glen Mills

by Jim Cox

If everyone were required by law to visit a Lake Fairfield kind of place every week or so, suicide and divorce rates would plummet, psychiatrists would be out of work and the ozone layer would probably heal itself. The only potential hazard would be

that susceptible individuals might redline their fun meters past the danger point.

At least that's the way Superintendent Dennis Walsh feels about his 1,400-acre slice of the Post Oak Savannah down in Freestone County.

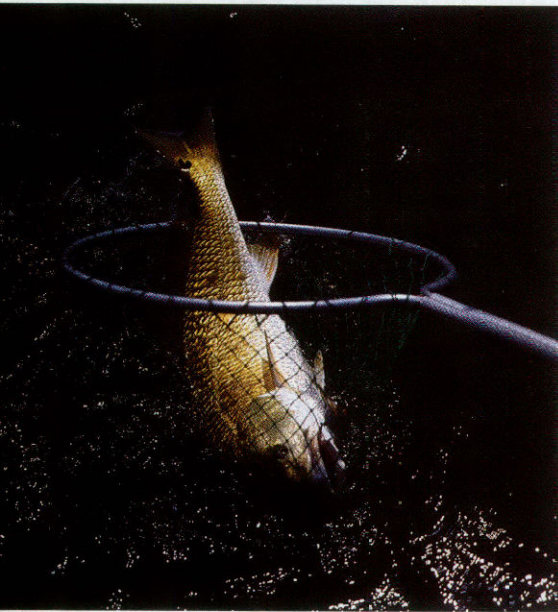


*The swimming area at Fairfield, right, looks like those at many other state parks, but the lake's heated water extends the usual swimming season.*

*The warm water swimmers enjoy also is beneficial for saltwater redfish, below, stocked in the power plant reservoir to create a sport fishery.*



Kevin Palmer



Chen Mills

Walsh says if you think you'd get a kick out of battling a 15-pound redfish, swimming in a "heated" lake and camping in a place where the only heavy traffic is a herd of white-tailed deer schmoozing for corn, then Fairfield Lake State Park might be for you.

About 90 miles south of Dallas, the park is situated in a region of Texas that's almost New Englandesque to the eye, with rolling woodlands interspersed with tidy farms and wildflowered lanes. Perhaps unappreciated by many Texans, the Post Oak Belt is a sort of buffer zone between the blackland prairie's fields and fencerows to the west and thick pine forests to the east.

"I almost feel guilty publicizing this park, because I know a lot of our regular visitors would be happy to keep it a secret as much as possible," smiled Walsh. The turnstile count indicates the park is not altogether a secret, with some 350,000 entries annually. "We fill up during some busy summer weekends, but with 135 lakeside campsites there's usually plenty of room, espe-

cially in the off-season."

Many state parks can offer the relaxation of camping in beautiful surroundings, but few can offer as many outlets for the Type A personality, the person who's wound too tight to spend much hammock time.

"The lake is a tremendous recreation resource, with something to do or catch all year long," said Walsh. The 2,400-acre reservoir provides cooling water for the Texas Utilities Generating Co. power plant, which keeps the lake water warmer than normal all year. This makes it nice for swimmers, who can enjoy a dip in the park's sandy-bottomed swimming area during the spring and fall when other lakes would be too chilly.

The warm waters have another delightful side effect. Red drum (better known as redfish in Texas) is a saltwater species, but the popular game fish are stocked regularly in a half-dozen Texas lakes, Fairfield being one. "Redfish can't survive in non-heated lakes, but they thrive in Fairfield," Walsh said. "In a way, catching redfish here is better than



# Fairfield Lake State Park

at the coast, because if you happen to catch one longer than 28 inches you can keep it." Coastal anglers can retain three redfish between 20 and 28 inches in length per day, but at Fairfield you can keep three per day if they are longer than 20 inches, and there is no maximum length limit.

Redfish are not the only nonnative fish swimming Fairfield Lake's tepid waters. Blue tilapia, known as "African perch" in the fish markets and restaurants, also are there in great abundance. The tilapia family of fishes is generally unwelcome in Texas waters, and is in fact on the list of prohibited species. They became established in Fairfield by accident, possibly by anglers using them for bait. Tilapia similarly have invaded a number of other power plant reservoirs and waters protected from cold temperatures by spring flows. Negative effects of tilapia include a tendency to overpopulate and dominate a reservoir. During their spring spawning ritual they dig hundreds of three-foot-wide craters in shallow areas, rendering the area unfit for use by game fish such as largemouth bass.

The African fish do have a couple of redeeming qualities from a Fairfield park visitor's viewpoint. Their offspring provide chow for game fish, including redfish, and they are easy targets for bowfishermen who take them in large numbers from the reed-lined shallows. Because they are plankton feeders, tilapia usually are not caught on normal hook and line fishing gear. There is no bag or length limit on tilapia, and they can be taken by any means that is legal for the taking of other species in the "rough fish" category, such as carp, buffalo and gar. This includes gear such as spears and seines, but the most effective method is bow and fishing arrow.

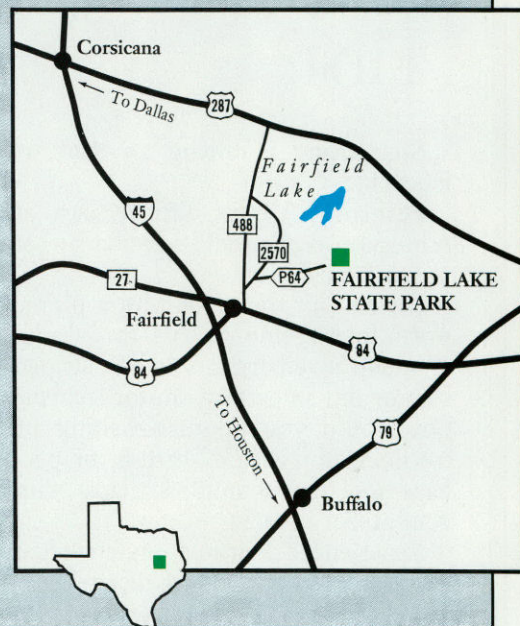
The presence of tilapia apparently has not harmed the largemouth bass population at Fairfield. TPWD fishery biologist Richard Ott of Tyler said the lake has become a favorite with bass anglers, although the new Richland-Chambers Reservoir a few miles north has gotten more publicity of late. "In our electroshocking surveys Fairfield has turned up some of the best results in the region, in terms of both numbers and average size of bass," Ott said. "I

Fairfield Lake State Park has 99 campsites with water and electricity and 36 with water only. Campsites with water and electricity are \$9 on weekdays and \$11 on weekends. Those with water only are \$6 on weekdays and \$8 on weekends. There also are group facilities, a dining hall for day use, an amphitheater and six miles of hiking trails. Entry fee is \$3 on weekdays, \$4 on weekends.

Texas Conservation Passport holders are entitled to free entry and a discount on camping fees. Texas Conservation Passports are available for \$25 each at most state parks, Parks and Wildlife Department offices, Whole Earth Provision Co. locations in Austin, Houston and Dallas and REI in Austin.

To reach the park from Interstate Highway 45 at Fairfield, take U.S.

Highway 84 east to FM 488 and go north, turning right at FM 2570 to the park entrance. For reservations or other information call the park superintendent at 903-389-4514.

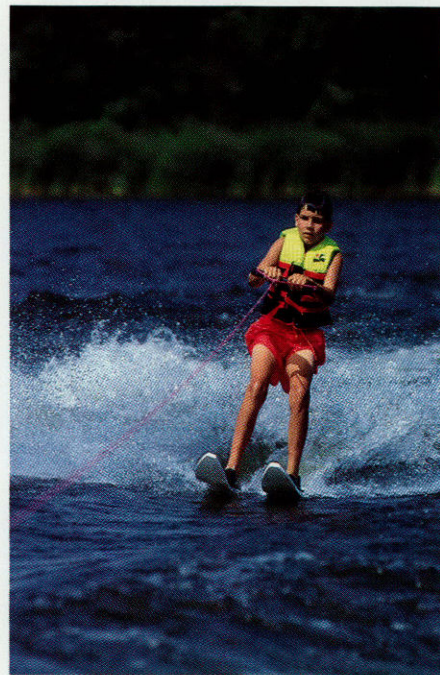


think a lot of bass fishermen would be surprised if they could have seen how many good bass we saw in the surveys."

The lake was stocked with Florida largemouths in 1975, 1976, 1977 and 1979. The Floridas have done for Fairfield what they have done in other Texas waters, providing a faster-growing bass with more potential for large sizes. The current lake record bass, caught in 1987, weighed 13.01 pounds, but Walsh said another largemouth weighing 14 pounds, four ounces, was caught but not submitted for lake record certification.

As if redfish, tilapia and bass didn't provide enough fishing action, the lake is stocked with hybrid striped bass. Hybrids, a cross between striped and white bass, are caught in open-water areas along with redfish, often on the same types of lures or live baits. There currently is no lake record listing for hybrids at Fairfield, but Walsh said fish in excess of 10 pounds frequently are boated.

Ott said that Fairfield's predator fish populations are thriving in large part because of the forage base in the lake.



Kevin Painter

*While fishing is a mainstay at Fairfield, the lake's 2,400 acres also offer plenty of elbow room for other sports such as water skiing.*



# Fairfield Fishing: What's on First?

Something is biting anytime at Fairfield.

Perhaps the most difficult part of fishing at Lake Fairfield is deciding what to fish for.

Do you hit the reeds with a plastic worm for largemouth bass, throw a jig or spoon at red drum or hybrid striped bass or dip an earthworm for sunfish? Or, would you go drift-fishing or trotlining for channel catfish, or perhaps seek the ubiquitous tilapia with your archery gear?

Experienced Fairfield anglers often let the season of the year dictate their agenda, as peak fishing times vary for the lake's popular sport fishes. "Fairfield is a wonderful fishery, because there's something to catch any time of year," said Texas Parks and Wildlife Department fishery biologist Richard Ott of Tyler. "By late spring when largemouth bass fishing activity is slowing down, the redfish, hybrid stripers and catfish are becoming more active, and the action continues well into fall."

Largemouth bass fishing follows a pattern seen on other power plant reservoirs. The spawning urge sends bass into the shallows in late winter and early spring, making them easier for anglers to locate and catch. Fairfield anglers should keep in mind that the best catches of quality bass at that time of year are made by those who probe the inner areas of shoreline reed beds. "They use heavy line and work the pockets right in the middle of the cattails with plastic worms or other weedless lures," he said. "I'm sure they lose a few fish and break some lines, but they also catch lots of big bass."

At other times of the year Fairfield bass anglers move away from the reeds, working the margins of aquatic weeds. The lake has plenty of weed cover for bass, including hydrilla, pondweed and

lotus (popularly called lily pads). Bass at Fairfield strike the same kinds of lures used on other lakes, but local anglers should keep in mind that the presence of large numbers of threadfin shad and immature tilapia make crankbaits and other "swimming lures" in colors replicating those baitfish generally effective, Ott said.

Ott said Fairfield's reputation as a fine bass lake is backed up by an electrofishing survey he conducted in fall 1991. "We collected the largest number of three- to five-pound bass per hour that we have ever seen in our district," Ott said. He noted that this is significant since his eight-county district contains 40 reservoirs, many of which are considered excellent bass fisheries. Ott attributes the presence of so many quality-sized bass largely to the special limit of three per day and 18-inch minimum length. As on other lakes, the catch-and-release ethic probably has prompted anglers to release more legal-sized largemouths, fish that probably would have been retained in the past, Ott believes.

Perhaps the most unusual and fascinating fishery at Fairfield is for red drum, the popular saltwater species that the department stocks in six inland lakes. Redfish were stocked from 1984 through 1987, and again in 1991. "Fishermen are still catching good numbers of reds that were stocked in 1986 and 1987, and those fish range from eight to 15 pounds," said Ott. With resumption of the stocking program in 1991, anglers can expect to see considerable numbers of fish longer than the 20-inch minimum length limit by early 1993, he said. The bag limit is three redfish per day.

Redfish fishing gets better in the summer and fall, which makes it nice for vacationers visiting the state park. Ott said the reason for this is threadfin shad, which spawn twice yearly. "They spawn in late spring, and again in September, so that's when the smaller baitfish are the most abundant," he noted. The reds, often accompanied by hybrid stripers, follow and feed heavily on the huge schools of shad. This makes them easy for boat fishermen to locate with depthfinders. Also, the bait fish often are herded in shallow areas close to the bank, giving bank and pier fishermen access to the action. Redfish often school close to the dam and on a large "flat" area on the power plant side of the lake.



Once located, the reds can be caught by trolling deep-diving crankbaits, or even more effectively on downriggers adjusted to the depth at which the fish are feeding. They also are known to strike shad on the surface at dawn or dusk during summer and fall, Ott said. "If you find where the shad are, and use a lure that looks like a shad, it's not difficult to catch reds."

Hybrid stripers also are being stocked again after a three-year hiatus, and some of the 1991 stockers may exceed the 18-inch minimum length for retention by this fall. The bag limit on hybrids is the standard five per day. While summertime may be the hottest time for Fairfield redfish, hybrid stripers also provide a great winter fishery. They aggregate close to the power plant's hot-water discharge area, along with herds of shad. "Those who don't mind getting out in the cold car get some fantastic action," Ott promises.

Catfishing is popular at Fairfield, especially in warm weather months. Anglers should be aware that a new special regulation on channel catfish went into effect September 1. The new bag limit is five channel cats per day, with a 14-inch minimum length limit. "Our surveys were showing that for a number of reasons those fish have been having recruitment (sufficient numbers surviving long enough to enter the fishery) problems in the past. The new limits should help fishermen catch more quality-sized catfish in the future," Ott said.





Glen Mills

“Because the water is fertile and warm all year it supports a tremendous population of threadfin shad,” he said, explaining that threadfins are considered excellent forage because they never grow large enough to become unusable by game fish as sometimes is the case with gizzard shad. “With threadfins, juvenile tilapia, sunfish and a variety of minnows in the lake, the game fish never have to go hungry,” he said.

Fairfield also is happy hunting grounds for catfishermen, who catch good strings of channel and flathead catfish on a variety of gear, including drift-fishing and on trotlines. While fishing probably accounts for most of the year-round activity on Fairfield Lake’s waters, the lake has plenty of

elbow room to accommodate pursuits such as wind surfing, jet skiing and water skiing. The state park has two excellent boat launch facilities with docks, and also fish-cleaning shelters.

The park’s 1,400 acres are almost entirely wooded, and the site stretches alongside the lake. This puts most of the area close to the shoreline. Hikers can expect many interesting sights, depending on the season. Dogwoods, redbuds and other blooming plants give color in the spring and summer. Wildlife watchers are likely to see raccoons, squirrels, a variety of waterfowl, and during winter they sometimes see bald eagles soaring over the lake or perched in treetops along the shoreline. ★



Kevin Painter

*Blue tilapia, upper left, are Asian imports that have found their way into many of Texas’ lakes and streams.*

*While tilapia are unwelcome invaders, they do provide sport and good eating for Fairfield Lake archers who stalk them with bowfishing gear.*





# OUTDOOR DATEBOOK

\* The activities marked with this symbol are available to people who have a Texas Conservation Passport, which may be purchased for \$25 at most state parks, Parks and Wildlife offices, Whole Earth Provision Co. locations in Austin, Houston and Dallas and REI in Austin.

## SEPTEMBER

- Sept. 1:** Hunting and fishing licenses for 1992-93 go into effect
- Sept. 1:** Mourning dove season opens, North and Central Zones
- Sept. 2, 5, 9, 12, 19, 23 & 30:** \* Bird-banding observation, Davis Mountains State Park, 915-426-3337
- Sept. 5-6:** First weekend of white-winged dove season in Rio Grande Valley
- Sept. 5 & 19:** \* Bus tour and chuck wagon lunch, Big Bend Ranch State Natural Area, 915-229-3613
- Sept. 5:** \* Hill Country spring tour and fisheries research station tour, Heart of the Hills Research Station near Ingram, 512-866-3356
- Sept. 5, 12, 19, 26:** \* Lower Edwards Plateau ecosystem tour, Honey Creek State Natural Area in Comal County, 512-438-2656
- Sept. 5, 12, 19, 26:** \* Twin Falls nature trail walk, Pedernales Falls State Park in Blanco County, 512-868-7304



*Horseback riding tours will be offered this fall at Hill Country State Natural Area for Texas Conservation Passport holders.*

- Sept. 6 & 20:** \* Visitor center tour, Chihuahuan Desert Research Institute, 915-426-3337
- Sept. 10-30:** Alligator season
- Sept. 12-20:** Statewide teal season
- Sept. 12-13:** Second weekend of white-winged dove season in Rio Grande Valley
- Sept. 12:** \* Birding and nature tour, A.E. Wood State Fish Hatchery at San Marcos, 512-353-0572
- Sept. 12 & 26:** \* Birds of prey watch, Candy Cain Abshier WMA in Chambers County, 409-736-2551
- Sept. 12-13:** \* Brush communities tour, Chaparral WMA near Artesia Wells, 512-676-3413
- Sept. 12:** \* Birding and nature tour, Dundee State Fish Hatchery at Electra, 817-586-1576
- Sept. 12:** \* Birding and nature tour, GCCA-CPL Marine Development Center at Corpus Christi, 512-939-8745
- Sept. 12:** \* Slide show and tour of fishes and aquatic ecology, Huntsville State Park near Huntsville, 409-295-5644
- Sept. 12:** \* Birding and nature tour, Jasper State Fish Hatchery at Jasper, 409-384-2221
- Sept. 12:** \* Habitat restoration, Pedernales Falls State Park, 512-868-7304
- Sept. 12:** \* Birding and nature tour, Possum Kingdom State Fish Hatchery, 817-779-2301
- Sept. 12:** \* Birding and nature tour, San Angelo State Fish Hatchery, 915-653-2977
- Sept. 12:** \* Birding and nature tour, Tyler State Fish Hatchery at Tyler, 903-592-7570
- Sept. 13:** \* Interpretive horseback riding tour, Hill Country State Natural Area and Running R Ranch in Bandera County, 512-796-4413
- Sept. 15:** Application deadline for firearm public deer hunts on Type I wildlife management areas
- Sept. 19:** \* Cavern tour and bat flight observation, Kickapoo Cavern State Natural Area near Uvalde, 512-563-2342
- Sept. 19:** \* Bat emergence tour, Old Tunnel WMA near Fredericksburg, 512-896-2500
- Sept. 20:** Opening of South Zone mourning dove season
- Sept. 25:** \* Tour and slide show, Seabrook Marine Laboratory at Seabrook, 713-474-2811
- Sept. 25-27:** \* Self-guided mountain bike trail ride, Walter Buck WMA in Kimble County, 915-446-3994
- Sept. 26:** \* Plant workshop, Barton Warnock Environmental Education Center at Lajitas, 915-424-3327
- Sept. 26:** \* Penn Farm walking tour, Cedar Hill State Park at Joe Pool Reservoir, 214-291-3900
- Sept. 26:** \* Habitat restoration, Guadalupe River State Park in Comal County, 512-438-2656
- Sept. 26:** \* Aquatic ecology, Lake Corpus Christi State Park, 512-547-2635

## OCTOBER

- Oct. 1:** White-tailed deer, mule deer and Rio Grande turkey archery seasons open; general seasons for javelina and squirrel open
- Oct. 2-3:** Texas Wildlife Expo, Texas Parks and Wildlife Department headquarters, Austin
- Oct. 3-11:** Pronghorn antelope season in Trans-Pecos
- Oct. 3, 17:** \* Bus tour with chuck wagon lunch, Big Bend Ranch State Natural Area, 915-229-3613
- Oct. 3, 7, 10, 14, 17, 21, 24, 28 & 31:** \* Bird-banding observation, Davis Mountains State Park, 915-426-3337



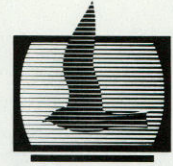


Leroy Williamson

Populations of American alligators have increased enough to allow hunting by permit in several Southeast Texas counties. The 1992 season dates are September 10-30.

- Oct. 3:** \* Hill Country spring tour and fisheries research station tour, Heart of the Hills Research Station near Ingram, 512-866-3356
- Oct. 3, 10, 17, 24 & 31:** \* Lower Edwards Plateau ecosystem tour, Honey Creek State Natural Area in Comal County, 512-438-2656
- Oct. 3:** \* Cavern tour and bat flight observation tour, Kickapoo Cavern State Natural Area near Uvalde, 512-563-2342
- Oct. 3, 10, 17, 24 & 31:** \* Twin Falls nature trail walk, Pedernales Falls State Park in Blanco County, 512-868-7304
- Oct. 7:** \* Wildlife corridor slide show and tour, Las Palomas WMA and Lower Rio Grande National Wildlife Refuge, 512-383-8982
- Oct. 10:** \* Fishes and aquatic biology tour, Lake Somerville State Park/Nails Creek Unit, 409-289-2392
- Oct. 11:** \* Interpretive horseback riding tour, Hill Country State Natural Area and Running R Ranch in Bandera County, 512-796-4413
- Oct. 11:** \* Aquatic ecology tour, Lake Texana State Park near Edna, 512-732-5718
- Oct. 14:** \* Bird-watching and nature study tour, Bentsen-Rio Grande Valley State Park near Mission, 512-585-1107
- Oct. 17-18:** Lesser prairie chicken season, Panhandle
- Oct. 17:** \* Fall migration birding tour, Guadalupe Delta WMA in Calhoun County, 512-729-2315
- Oct. 17:** \* Forest wildlife of the autumn night, Gus Engeling WMA in Anderson County, 903-928-2251
- Oct. 17:** \* Interpretive horseback riding tour with your own horse, Hill Country State Natural Area in Bandera County, 512-796-4413
- Oct. 17:** \* Oiled bird cleaning workshop, J.D. Murphree WMA at Port Arthur, 409-736-2551
- Oct. 17:** \* Bat emergence tour, Old Tunnel WMA near Fredericksburg, 512-896-2500

# TEXAS PARKS & WILDLIFE



## TELEVISION SCHEDULE

Watch for our companion television series, "Texas Parks & Wildlife," on your local PBS affiliate. The following is a partial listing for September. All times p.m. unless otherwise noted.

CITY/STATION	DAY	TIME
<b>Amarillo</b>		
KACV, Ch. 2	Sunday	6:30
<b>Austin</b>		
KLRU, Ch. 18	Saturday	8:30
<b>College Station</b>		
KAMU, Ch. 15	Wednesday	7:00
<b>Corpus Christi</b>		
KEDT, Ch. 16	Saturday	5:30
<b>Dallas/Fort Worth</b>		
KERA, Ch. 13	Mon., Tue., Wed., Fri.	6:30
<b>El Paso</b>		
KCOS, Ch. 13	Saturday	7:30
<b>Harlingen</b>		
KMBH, Ch. 60	Saturday	6:30
<b>Killeen</b>		
KNCT, Ch. 46	Friday	8:00
<b>Odessa</b>		
KOCV, Ch. 36	Saturday	8:30
<b>Waco</b>		
KCTF, Ch. 34	Saturday	4:30

Programming schedules are subject to change, so check your local listings.

*In stereo where available*

- Oct. 17-18:** Fall Festival, Jourdan-Bachman Pioneer Farm near Austin, 512-328-5830
- Oct. 21:** \* Birding tour of Lower Rio Grande, Las Palomas WMA and other sites, 512-383-8982
- Oct. 24:** \* Penn Farm walking tour, Cedar Hill State Park at Joe Pool Reservoir, 214-291-3900
- Oct. 24:** \* Bird-banding observation and birding tour, Kickapoo Cavern State Natural Area near Uvalde, 512-563-2342
- Oct. 24:** \* "Walk on the Wild Side" slide show and tour, M.O. Neasloney WMA near Luling, 512-437-5103
- Oct. 24:** \* Fall migration birding tour, Mad Island WMA in Matagorda County, 512-729-2315
- Oct. 24-25:** Houston Orienteering Club Fall Meet, Bastrop State Park, 713-484-1391
- Oct. 31:** \* Walking tour, Atkinson Island WMA in Galveston Bay, 409-736-2551
- Oct. 31:** \* Gulf/bay bag seine ecological survey, Galveston Island State Park, 713-474-2811
- Oct. 31:** \* Fall migration birding tour, Peach Point WMA in Brazoria County, 512-729-2315



*Ill-fated ants drop in for dinner.*

# LIFE IN THE PITS

Article and Photos by Jim Goin

You've probably seen them, those cone-shaped depressions in the soft dirt around the back porch, in the barn or under the big shade tree. They look like miniature sinkholes or a moonscape of meteorite craters. In fact, they're traps constructed by relatively obscure but interesting insects known as ant lions.



*During its larval stage (top), the ant lion digs steep, cone-shaped pits (above) by crawling backward in a circle and tossing the soft soil away with its mandibles.*





*After it digs a trap, the ant lion buries itself (left) and waits for a victim. When an ant drops in, the ant lion uses its jaws to shake the ant violently and inject a paralyzing venom.*

**A**nt lions, commonly called “doodlebugs,” are found in many parts of the world, but certainly Texas has its share of these tiny creatures. Most people, however, know very little about ant lions and their curious habits.

In its larval stage, the ant lion builds a steep, cone-shaped pit by crawling backward in a circle and tossing the soft sand or soil away with its head and mandibles. This pit can be more than an inch across the top and an inch deep. Generally, the larger the ant lion, the larger the pit and the insects it can trap.

After it digs the trap, the ant lion buries itself at the bottom and waits for something to “drop in” for dinner. It may take several days before an ant or other insect wanders into the trap. When something does fall in, the ant lion detects the vibrations the prey creates and

tosses sand on the slopes of the pit. This, in addition to the struggling of the insect, causes a small landslide that prevents the prey from escaping.

Usually the victim slides to the bottom of the pit where the ant lion is waiting. Sometimes, when it can grab only a leg of the insect, the powerful ant lion shakes its prey violently. This apparently disorients the victim and allows the ant lion time to get a better grip with its sickle-like jaws. These jaws are like hollow needles, penetrating the victim’s body and injecting a paralyzing venom into it. The venom digests and dissolves the internal parts of the prey and the ant lion sucks this out through its hollow mandibles.

All of this takes time, so the ant lion usually pulls its victim beneath the soil to dine on it at leisure. When siphoned dry, the body, now nothing more than a

shell, is tossed out of the pit. The ant lion hides again at the bottom of its trap and awaits the next course.

Because of the uncertainty of a regular food supply, the ant lion’s life cycle from egg to adult may take from two to three years. The young ant lion larva, which first emerges from an egg laid in the soft soil, concentrates on tiny prey. But as it grows, so do the size of its pits and the game it traps. During this larval period the ant lion excavates many pits and even may move to more productive hunting grounds. Eventually, it grows to a mature length of about 10 millimeters and prepares to transform into the pupal stage of its life cycle.

At this time, the ant lion builds a spherical cocoon about the size of a pencil eraser. This cocoon is made from grains of sand or soil cemented together with silk the ant lion secretes. Amaz-





An ant lion larva builds a cocoon from grains of sand or soil cemented together with silk it secretes (below left). Adult ant lions (left) resemble dragonflies, but they are poor fliers and probably do not feed.



ingly, the ant lion is able to construct this cell while buried under the sand without getting any sand inside it. Within this cocoon the larva transforms into the pupa, the intermediate stage of its metamorphosis. In about two months, the pupa breaks through the wall of the sand cocoon and makes its way to the surface. Once there, the pupa's skin splits open and the adult ant lion emerges. After expanding and drying its wings, the ant lion flies away to mate and lay eggs.

Although adult ant lions are similar to dragonflies in appearance, they are poor fliers and probably do not feed. They usually rest during the day and become more active at night.

Ant lions may be kept as pets in a shallow container filled with sand or other fine, loose soil. A food source must be provided and, as you might expect, ants would be a good choice. Once the two essential requirements of food and shelter have been met, you'll witness the fascinating survival ritual these tiny predators have performed for millions of years. ★

*Jim Goin, photography instructor at Trimble Tech High School in Fort Worth, enjoys focusing on some of our smaller Texas wildlife.*



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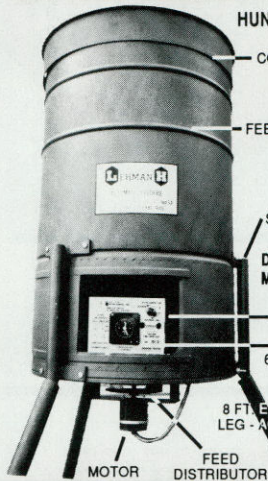
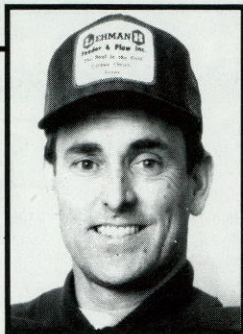
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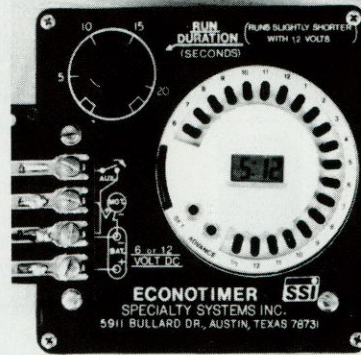
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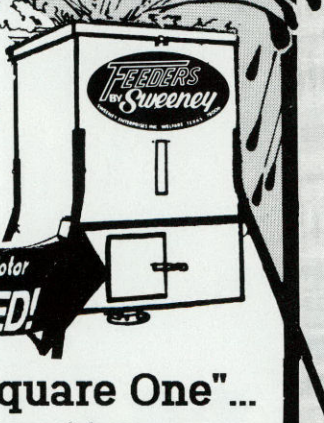
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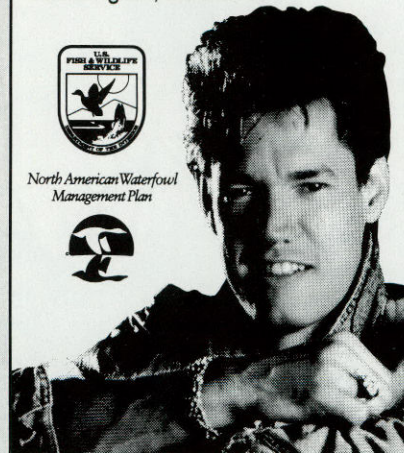
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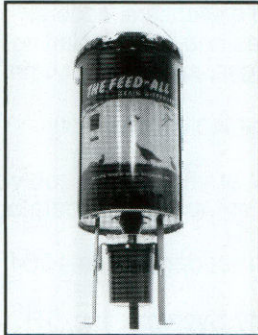
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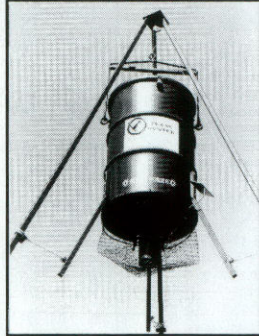
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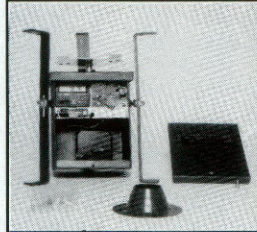
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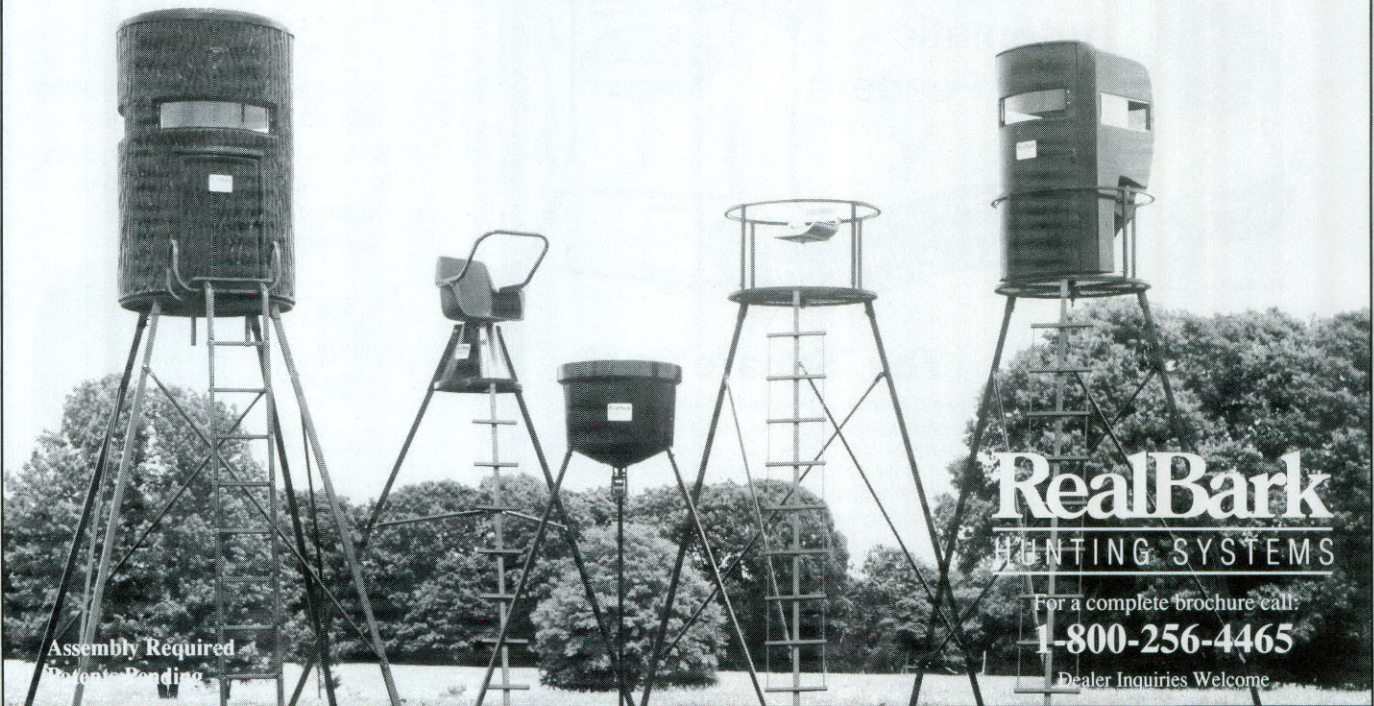
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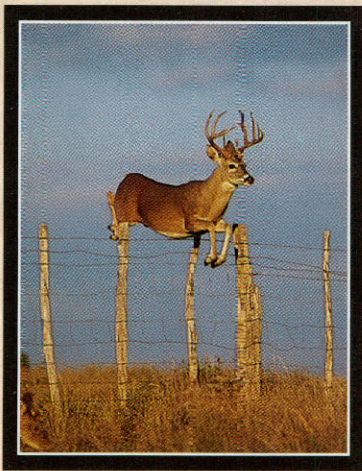
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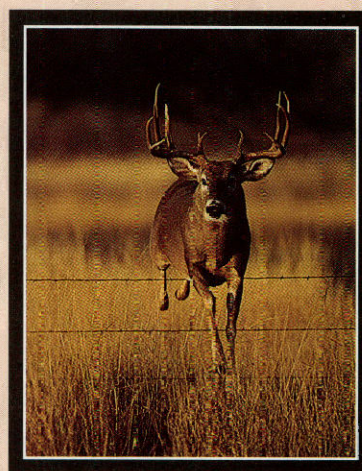




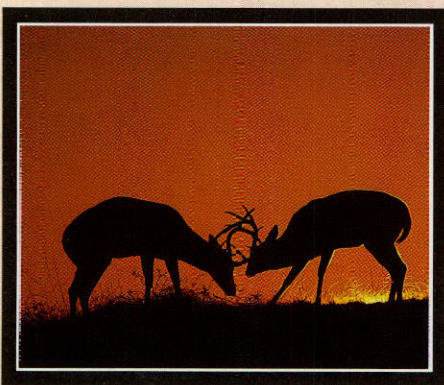
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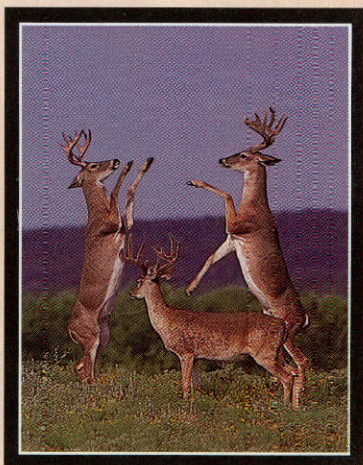
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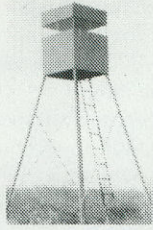
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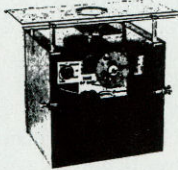
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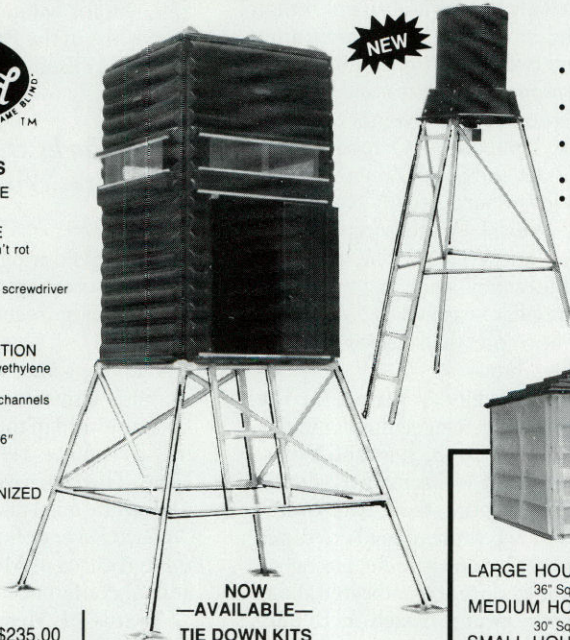
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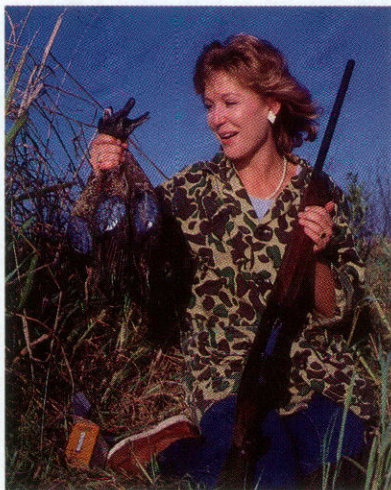
## Hunters Get Teal Season, Longer Whitewing Season

Texas hunters will have an early teal hunting season for the first time since 1987, as well as a four-day special white-winged dove season after approval by state and federal officials.

The U.S. Fish and Wildlife Service recently agreed with Texas waterfowl biologists to allow a nine-day statewide teal season (September 12-20) and a four-day white-winged dove season (September 5, 6, 12 and 13) in the Special White-winged Dove Area of the Rio Grande Valley. The Texas Parks and Wildlife Commission approved the measures during a public hearing in July.

State and federal officials also approved a TPWD recommendation to transfer a portion of the Special White-winged Dove Area between Del Rio and Fort Hancock to the Central Zone. The USFWS did not approve a request to increase the whitewing daily bag limit from two whitewings to six whitewings during the regular mourning dove season in Cameron, Hidalgo, Starr and Willacy Counties.

Ron George, deputy wildlife branch chief at TPWD, said the whitewing bag limit was not increased in those four counties because, although the Valley whitewing population is up eight per-



Grady Allen

*For the first time since 1987, Texas hunters will be able to hunt teal during a special early season.*

cent from 1991, it still is 18 percent below the long-term average.

The USFWS will allow Texas teal hunters to hunt from 30 minutes before sunrise to sunset if the department is willing to conduct field evaluations of this change. George said that teal shooting hours traditionally have been from sunrise to sunset. Hunters may take four blue-winged, green-winged and cinnamon teal per day in the aggregate. The possession limit is eight in the aggregate.

The September teal season was closed by the USFWS after the 1987 season because of concerns about poor production caused by drought conditions on the northern breeding grounds. The 1992 estimated teal population is 4.2 million, up from 3.8 million in 1991, and now about equal to the average population from 1955 to 1992. Officials said the early season is designed to create additional hunting opportunity and utilize teal, especially bluewings, that normally migrate through Texas before the opening of regular waterfowl seasons.

The four-day white-winged dove season has a daily bag limit of 10 doves that can include no more than five mourning doves and two white-tipped doves.

Mourning dove dates are: North Zone, September 1-November 9; Central Zone, September 1-October 31 and January 2-10; and South Zone, September 20-November 12 (ends November 8 in the Special White-winged Dove Area) and January 2-17. The statewide (except the Valley) daily bag limit during the regular season is 12 doves, to include no more than six whitewings and two whitetips.

During the regular season, in the traditional white-winged dove counties of Cameron, Hidalgo, Starr and Willacy, the bag limit will remain 12 doves, including no more than two white-winged and two white-tipped doves per day. Surveys by department biologists in that four-county area indicated about 366,000 whitewings nested there during 1992. This represents an eight percent increase over 1991.

The commission also approved dates and bag limits for rails and gallinules. (See story on page 22.)

Rails may be hunted September 1-November 9. Daily bag limit is 15 (30 in possession) for king and clapper rails and 25 daily (25 in possession) for sora and Virginia rails.

The season for all species of gallinules (common moorhen and purple gallinule) is September 1-November 9. Daily bag limit is 15; possession is 30.

Shooting hours for all early-season migratory game birds is one-half hour before sunrise to sunset.

## Organizations Help TPWD Wildlife Projects

Officials of the Texas Parks and Wildlife Department's Wildlife Branch wish to thank several organizations for recent gifts and donations benefiting wildlife programs.

The Texas Chapter of the National Wild Turkey Federation, the Dallas Ecological Foundation/Dallas Safari Club and the Houston Chapter of Quail Unlimited each donated \$5,000 toward the purchase of a tractor for habitat work at the new Lake Ray Roberts Wildlife Management Area near Denton.

The South Texas Chapter of Quail Unlimited donated a radar gun valued at \$1,300 to the department for use in studying flight speeds of wild and pen-reared game birds. Quail Unlimited's state organization also provided 40 days' worth of bulldozer work, valued at \$24,000, for habitat work at the Mator WMA in the Panhandle, according to Don Wilson, small game program leader.

## Texas Parks & Wildlife Magazine Wins Awards

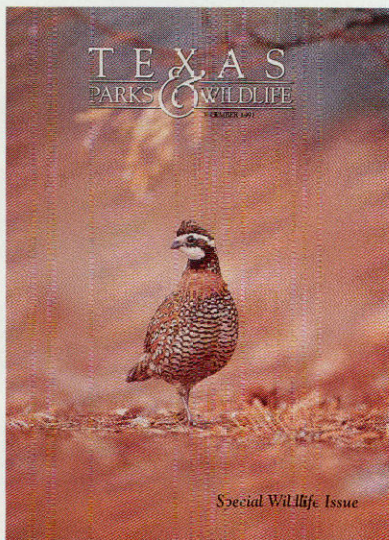
*Texas Parks & Wildlife* magazine won four awards during the Regional Publishers Association's 12th Annual Awards Competition recently in Columbus, Ohio.

The magazine, which is celebrating its 50th anniversary in 1992, won a Bronze award in the Cover category for the December 1991 Special Wildlife Issue. The cover was a close-up shot of a bobwhite quail taken by David J. Sams.

*Texas Parks & Wildlife* was presented three Awards of Merit during the 33rd annual conference.

Awards of Merit were won in the Overall Design (with advertising) category and the Special Issue category for the Special Wildlife Issue. Bill Collier, environmental writer at the Austin *American-Statesman*, won an Award of





Our December 1991 cover won a bronze award at a recent R.P.A. conference.

Merit in the Natural History or Natural Resources Feature category for his story, "Balcones Canyonlands Conservation Plan," in the August 1991 issue.

The Regional Publishers Association, whose membership includes 45 magazines from the U.S., Canada and Ireland, is a nonprofit organization dedicated to the promotion, encouragement and representation of regional publishing.

## Big Bend Ranch Plan Draws Public Comment

Initial public comments on the Big Bend Ranch State Natural Area draft management plan show a majority of those who took the time to mail in comments prefer a less developed, low-impact approach to managing the 265,000-acre property, which makes up about half of the total state park acreage in Texas.

The huge former ranch, acquired by the department in July 1988, has been the subject of intense public interest due to its tremendous potential for recreation and conservation. The property has captured the imagination of diverse special interest groups, including hunters, anglers, hikers, mountain bikers, canoeists and kayakers, bird-watchers, photographers and many more.

In spring the Texas Parks and Wildlife Department distributed 1,800 draft planning documents, and responses from 371 people are now in. These comments address issues such as level of development, grazing, predator control, hunting, demonstration ranching,

academic research, public education and more.

"There were some very thoughtful comments," said Jim Carrico, project manager for BBRANA. "I was glad to see strong support for academic research and public education programs, areas we had not singled out for special consideration. We also were encouraged by the fact that many people commented on the openness of the planning process, on how they felt there was a genuine interest on the part of TPWD to involve the public."

## 1991 Coast Cleanup Crews Collect Almost 200 Tons Of Beach Trash

Volunteers participating in Texas's part of the 1991 International Coastal Cleanup last summer collected 399,140 pounds, or almost 200 tons, of trash from Texas beaches.

The 12,716 Beach Buddy volunteers combed 169 miles of shoreline during the sixth annual cleanup sponsored by the Texas Adopt-a-Beach Program and the Center for Marine Conservation. This year's cleanup campaign will be held on Saturday, September 19, from 9 a.m. to noon. For further information call Linda Maraniss of the CMC at 512-477-6424.

Maraniss said data from the cleanups in Texas and other coastal states show the marine debris problem is not improving despite 1988 federal legislation prohibiting the dumping of plastic trash

at sea. Texas and states bordering the Gulf of Mexico continue to lead the nation in several categories of trash washing up on the beaches. "Galley waste indicator items like milk jugs, water jugs, meat trays, egg cartons and vegetable sacks were quite high in the Gulf region," said Maraniss. "Texas, Louisiana, Alabama, Mississippi and Florida all ranked higher than the national percentage for this kind of trash."

Maraniss said states bordering the Gulf are a barometer for the effectiveness of anti-dumping legislation. "There is no place in the United States where this legislation can have a bigger impact than in the Gulf of Mexico," she said. "Texas beaches are showing that Annex V legislation is sorely inadequate."

## TPWD Asks For Reports Of Lion Sightings, Kills

Officials of the Texas Parks and Wildlife Department are asking the public to report sightings of mountain lions in Texas, and any information on lions killed during the past five years.

The data will be part of an effort to gain more knowledge about the big cats' populations, which appear to be expanding in parts of their West and South Texas range. The department plans to develop a management plan for the species when there is sufficient data.

Reports may be made to the department's Fisheries and Wildlife Division in Austin or to biologist Bill Russ, P.O. Box 112, Sanderson, Texas 79848.



Volunteers will converge on Texas beaches on September 19 for the annual Coastal Cleanup campaign. Last year workers collected almost 200 tons of trash and debris.

Glenn Mills





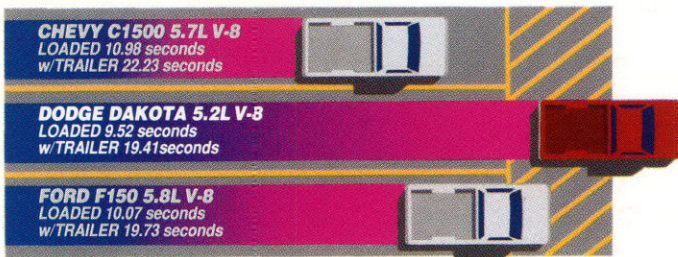
*Two young Texans  
bid good-bye to summer.  
Photo by Barbara P. Grove*



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