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The OUTDOOR MAGAZINE *of* TEXAS

Timeless WESTTEXAS

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THE MEANING OF A MARSHMALLOW

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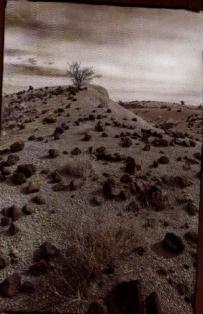
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For the latest and greatest parks and wildlife information, check out our Web site <www.tpwd.state.tx.us>

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BACK: Plants such as this rainbow cactus are remarkably adapted to a harsh life in the West Texas desert. Story begins on page 34. Photo © Earl Nottingham.

This page: Hummingbird on prickly pear © Grady Allen



FEBRUARY 2003, VOL. 61, NO. 2

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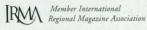
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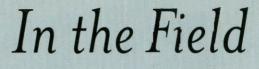
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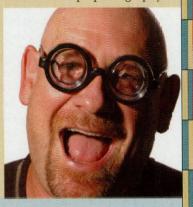
ABC AUDITED



RANDY ANDERSON of Dallas spends most of

his time working as a commercial and advertising photographer. Whenever possible, he and his wife Cheryl enjoy getting out of the city and into the countryside, where Randy turns his efforts to landscape photography.

About 15 years ago, he says, they started traveling to Big Bend National Park and decided they wanted to drive every paved and backcountry road in the park. That took several trips, and some of his photographs from those trips are showcased in this issue in "Window to the West."



lives on his family's ranch on

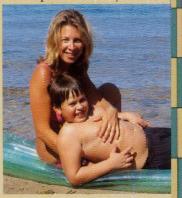
the rim of the Palo Duro Canyon. His favorite subjects, both for hunting and writing, are big game and upland birds. A 1994 graduate of Texas Tech University in Lubbock, he's had more than 250 articles published in newspapers and state and national hunting magazines.



Ray is a member of the Texas Outdoor Writers Association (TOWA) and the Outdoor Writers Association of America (OWAA). He is working on his first book, Texas Safari, about Texas' diverse hunting opportunities. In this issue he writes about the state's booming feral hog pcpulaticn.

A JOSEPH, whose byline appears in Texas Parks & Wildlife for the first time in this issue, moved to Texas almost 20 years ago. "The landscape spoke a new language to my soul," she says. "It was a language I wanted to learn." Joseph's 8-year-old son, Noah, joins her in this undertaking, and from their outdoor experiences they learn

about themselves, each other and their adopted state. When not writing about her travel adventures in the Lone Star State and beyond, she writes about art, plays music and heads a household that includes plenty of cats and dogs. In this issue she writes about a trip she and Noah took to Eisenhower State Park.





FROM THE PEN OF ROBERT L. COOK

Every day we hear and read more about water for Texas. Where will our water come from, how much will it cost, and who will pay for it? Some of the front-page stories feature photographs of anglers, boaters and swimmers enjoying our beautiful rivers and lakes, our lush wetlands and estuaries. But other stories tell of rivers that no longer flow, of lakes and agricultural wells gone dry, and of the complex problems we face in supplying water to our growing cities.

Questions regarding the conservation and management of our water resources abound. Should landowners sell their groundwater to the thirsty cities? How can we conserve water? How will Texas provide adequate fresh water to maintain the fish and wildlife resources in our streams, lakes, bays and estuaries? Who will make the decisions on water management? How will those decisions be made? What are the health, economic and environmental costs? How can we all participate in the benefits gained by desalination and water-reuse projects?

The Texas Legislature has directed three state agencies to work together to help address and resolve these issues. The Texas Water Development Board (TWDB) is responsible for state water planning. It collects and disseminates a variety of water data, and assists in the financing of future water development, research and conservation projects. In addition to being responsible for air quality and environmental protection, the Texas Commission on Environmental Quality (TCEQ) has the difficult assignment of regulating the state's surface waters. When granting and amending water rights permits, TCEQ is required by law to consider freshwater inflows to bays and estuaries as well as impacts on instream uses, water quality and wildlife habitat.

As the agency responsible for protecting the state's fish and wildlife resources, Texas Parks and Wildlife Department has been directed to provide data and recommendations to TWDB and TCEQ on instream flows and freshwater inflows for the conservation of fish and wildlife. Although these three agencies have different and sometimes conflicting responsibilities, we work closely with other agencies and stakeholders to study these essential issues. Using the best science available we strive to establish a baseline for sound ecological health, and to provide information for our state's decision-makers on water issues. Texan. We must understand the ramifications of our water needs and water usage.

To this end TPWD has completed a report titled Land and Water Resources Conservation and Recreation Plan. This plan will guide the agency's work on water issues for the next IO years. It describes how TPWD coordinates its work with federal, state, local and private agencies. It enumerates the threats to our freshwater systems, identifies priority bays and estuaries and specifies strategies for conservation and recreation needs on water. One of our most important strategies is to work with landowners and state agencies to improve watershed management. Our ultimate goal is to preserve wildlife habitat by assuring adequate freshwater inflows to Texas rivers and bays.

Water is vital to every Texan. We must understand the ramifications of our water needs and water usage. All Texas voices, including those for fish and wildlife, should be heard as decisions are made on how to allocate our water. The decisions we make today will shape the economic and environmental future of our grandchildren and their grandchildren. Please, get involved, be informed and participate in this process.

abertheliot

P.S. The Land Water Resources Conservation and Recreation Plan is available on our Web site at <www.tpwd.state.tx.us/plan>.

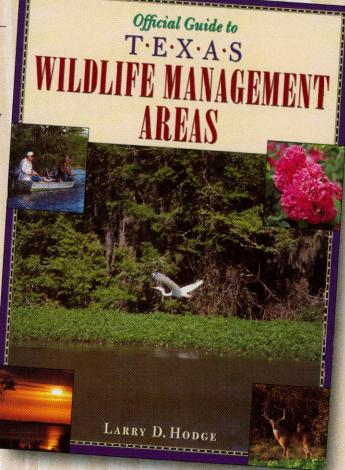
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To manage anc conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

© OFFICIAL GUIDE © TO TEXAS WILDLIFE MANAGEMENT AREAS

ere's an insider's look at Texas' undiscovered places to bird, hike, bike, camp, canoe, fish and hunt the 51 Texas wildlife management areas. Larry D. Hodge shares tips from guides, biologists and recreational users on how to enjoy the many activities offered by these unspoiled areas. Learn where to see a variety of wildlife near major cities, camp in magnificent isolation in the Big Bend or canoe amid towering trees. The profile on each WMA includes information on history, geography, nearby state parks, recreational facilities, outdoor activities available and wheelchair accessibility. Handy locator maps and easy-to-follow driving directions are included. Full-color photographs enhance the descriptions. Each chapter includes pointers from pros on the best places for each kind of activity and a feature on some interesting aspect of the area.

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PICKS, PANS AND PROBES FROM PREVIOUS ISSUES

FOREWORD

For the past few months, the editorial staff has been engaged in looking back over this magazine's past. Since the publication of our 60th anniversary issue in December 2002, we have begun afresh to look ahead.

This year portends to be an exciting one for *Texas Parks & Wildlife* magazine. Michael Berryhill has joined the magazine team as editorial director and is already fully engaged in shaping content for upcoming issues. Berryhill has been

a journalist in Texas for more than 20 years, serving on the staffs of the Houston Chronicle, the Houston Press, Houston City magazine and D magazine as well as freelancing for national publications such as the New York Times Sunday magazine. In 1996, the Houston Press Club named Berryhill "Print Journalist of the Year." In 1994, he won a Press Club of Dallas Katie Award for a cover story in the Houston Press, "The Fight to Save the Katy Prairie." Berryhill is a welcome addition to our team, and readers can look forward to feature stories from him as well as the behind-the-scenes editing that makes for an invigorating read.

Since we've been "bending wrenches" lately on our 2003 editorial lineup, I thought I'd share a bit of what's in store for you in upcoming issues:

- March: Texas son Rick Bass returns to the pages of *Texas Parks & Wildlife* magazine with an essay, *"My Texas Childhood."* Russell Graves shares how to plan and execute the perfect spring turkey hunt.
- April: Our annual salute to Texas birding includes an onthe-scene report from Dan Oko on the competitive birders of the Great Texas Birding Classic. Investigative reporter John MacCormack goes on the road with the TPWD Law Enforcement Division to examine environmental crimes and Marathon-based contributor E. Dan Klepper goes undercover at a Big Bend survival school.
- May: Get outdoors! We're devoting this entire issue to Texas state parks, and we promise to have adventures for all tastes and speeds. Looking for a day trip? Rob McCorkle will tell readers about state parks within 75-mile drives from Dallas, Houston and San Antonio; did you know there are 57 within easy drives from these three cities? Adrenaline-fueled Brandon Weaver shares his favorite state parks for extreme sports and Dana Joseph, whose byline first appears in this issue, takes readers time traveling through Texas historic sites.
- June: We'll rate the top IO state parks for freshwater fishing and writer/photographer Scott Sommerlatte will demystify the angler's tackle box with a detailed, illustrated guide to tackle terminology.
- July: No other issue in this century will be as important to all Texans as water quantity, quality and management. The overwhelmingly positive response to the July 2002 issue, "Texas: the State of Water," has encouraged us to bring you more information on this complex and evolving subject.

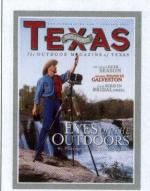
Thank you for your continued support of *Texas Parks & Wildlife* magazine. Our goal is to keep you looking forward, each month, to the day your new issue arrives in your mailbox.

Jusque Alton

LETTERS

WATER WOES

What is the Texas Parks and Wildlife Department's stance on creation of the massive holding reservoirs planned for Refugio and Victoria counties, as well as others? These



As we enter our 61st year of publication, make sure you don't miss a single issue: renew or subscribe now at <tpwmagazine.com>, and you'll receive your choice of one of three free gifts with your paid order. Plus — you can also receive a free gift for giving a gift subscription. Susan L. Ebert Publisher & Editor reservoirs would take water from the San Antonio and the Guadalupe rivers, plus groundwater from the area around Tivoli, and pipeline it to the San Antonio area.

Refugio, Victoria and the surrounding counties are mostly cropland and ranchland, and they depend on water. It seems that with the abundant rainfall in and around the Hill Country in the recent past, someone should take a look at storing water closer to the need instead of pumping it from afar via a massive pipeline project. This process of building reservoirs needs to be looked at from all angles before charging headlong into a decision. Thought needs to be given to our local estuaries, wetlands and

salinity impact, as well as the effect on wildlife, aviary and tidal ecosystems.

I have lived in the area all my life and have seen massive floods, which I consider to be the direct result of building dams along the San Antonio and Guadalupe watersheds. I have no recollection of floods such as those we have had recently (other than hurricanes) until the saltwater barrier was constructed above Highway 35 in the 1960s. From that point on, all dams along the San Antonio and Guadalupe



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watersheds have contributed to the flooding.

STEVEN C. LANDGRAF Tivoli

LARRY MCKINNEY, PH.D., SENIOR DIVISION DIRECTOR AND DIRECTOR OF RESOURCE PROTECTION: TPWD completed a study in 1998 of the freshwater needs to maintain the health and productivity of San Antonio Bay. That study showed that the bay needs 1.15 million acre-feet of water annually. We have made that information available and at least one organization, the San Marcos River Foundation, has acted directly upon it to try to secure that water. Others are making use of the studies as well. The Texas Commission on Environmental Quality (TCEQ) is the agency charged with making decisions about the management of Texas water. TPWD has provided a recommendation to that agency in support of our study findings.

SATISFIED CUSTOMERS

We have just returned from South Llano River State Park near Junction, and wanted to tell you how pleasant all the staff and volunteers are. Also, it is the cleanest park anywhere. It is always a great place to camp - and the wildlife is wonderful.

We're looking forward to our next trip.

✤ HELENE AND GERALD STECK

PEEKABOO BUCK

his buck was caught on film at Inks Lake State Park last year by Paul Kisel. The deer wore this "headdress" for several days around the park, flicking it over his head like a pony tail.

> RICK MEYERS Park Manager Inks Lake State Park





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BEN LILLY

I was surprised and excited to find the article about Ben Lilly by Herman W. Brune in the January 2003 issue.

While Lilly has been molded into a glorified figure in many texts, it must be remembered that he was not only possibly the greatest white hunter to walk the continent but the best (or worst depending on the point of view) exterminator of North America's large predators. Today, a black bear or mountain lion sighting in Big Bend is a cherished wildlife encounter to most people. But it takes years of patience, traveling and swapping the gun for good binoculars to put oneself in the position to have such luck. And while I doubt that the desire to keep the babies safe was what drove Lilly to hunt - at one time for 15 years straight without going to town and enjoying the comforts of civilization - he did help open up the West and remove the last bits of wildness that city folks from Houston and Dallas pay ridiculous sums of money to capture in a few weekends every year.

But I am inspired and hopeful for the last shreds of wilderness after reading some of the comments in letters to *Texas Parks & Wildlife* concerning poaching and the high fences spreading across the state.

I have to believe that a man like Ben Lilly would find our modern-day definition of hunting a joke. And, I must admit, despite trying to escape the norm, that sometimes as I gaze at a feeder or sit in a warm blind, I do, too. To escape to a time when the hunter was pulled to the game by a dog tied to his pants, slept on the ground each night and wrapped up in a freshly skinned Texas grizzly fur for warmth, read *The Ben Lilly Legend* by J. Frank Dobie. Then maybe you will be able to see over the fence.

TRISTAN WALKER Boerne

LONGTIME SUBSCRIBER

First let me tell you that many of the Old covers you showed in the December 2002 issue looked familiar, as I have been a reader and subscriber since the 1950s. As a matter of fact, I used the old *Texas Game and Fish* to write my 1955 senior term theme, and I aspired to become a wildlife biologist when I attended Texas A & M. Unfortunately, I did not get a major in that area, but became a banker, where I worked for 43 years. I can't believe it was as enjoyable as being a game biologist!

Thanks to everyone present and past for jobs well done, and the very best photography I have ever seen.

I have a question: Do you have the statistics for, let's say, a 100-pound, field-dressed, unskinned, white-tailed deer, as to how many pounds of venison you should get from a processor? Also, do you have any idea as to the average pounds of steaks and the average number of pounds of ground meat if you had as much cut into steaks as possible and ground the rest?

I have always had my deer processed and have received varying amounts of processed meat in return, and I know a lot of hunters talk about how they thought they would get more venison than they received. So the answer to this question would be appreciated by me and many of your other readers.

Keep up the good work, especially the birding pictures and articles.

≁ DAVID D. FARRELL

JERRY L. COOKE, PH.D., TPWD GAME BRANCH CHIEF: Dressed weight of a deer is about 50 percent of live weight, and boned weight is 45 percent of dressed weight. Of course, this will vary depending on the condition of the deer and the efficiency of the butcher.

RETURN OF THE WHITEWING

In the 60th Anniversary Issue (December 2002) you ran a letter from the March 1956 issue in which Charles G. Jones wrote: "Here in the [Rio Grande] Valley it is doubtful if such species as the red-billed pigeon or the chachalaca can ever be reinstated in the great numbers which once existed. Man has done away with the native trees and brush – the food and habitat – necessary. However, the whitewings might make a comeback if given aid."

If only Charles Jones could have seen the 50 to 60 white-winged doves on my driveway November 20, pecking away at sunflower seed, he would know that the whitewing has survived and then some. I do not know if Charlie lived long enough to hear about the hundreds of thousands of whitewings that live inside the 410 Loop in San Anto-

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nio, or that they are now found throughout the state year-round. Rest assured, Charlie, the whitewing has made a comeback that even the most optimistic person never could have visualized.

> JACK PRENTISS Corpus Christi

BLISTER PREVENTION

In The Complete Walker, Colin Fletcher made the same statements as Larry D. Hodge did in the November 2002 issue's Skill Builder: "Blisters are caused by heat."

Having hiked in the Colorado Rockies in very cold conditions, with snow that was up to my waist, as well as in warm, dry conditions, I discovered that friction, regardless of temperature, is what causes blisters.

I found the cure for my sons and me on our backpacking hikes was to wear thin, snug-fitting nylon or similar synthetic fiber socks against our feet, covered by a second pair of thick socks for the outer layer. The inside socks stick to the skin of the feet but have a low coefficient of friction at its contact areas with the thick outer socks. The resulting mechanism allows any motion of the footwear relative to the foot to occur between the two socks rather than between the outer skin of the foot and the tissue under it.

ROY CABLER, JR. Wimberley

Sound off for "Mail Call!"

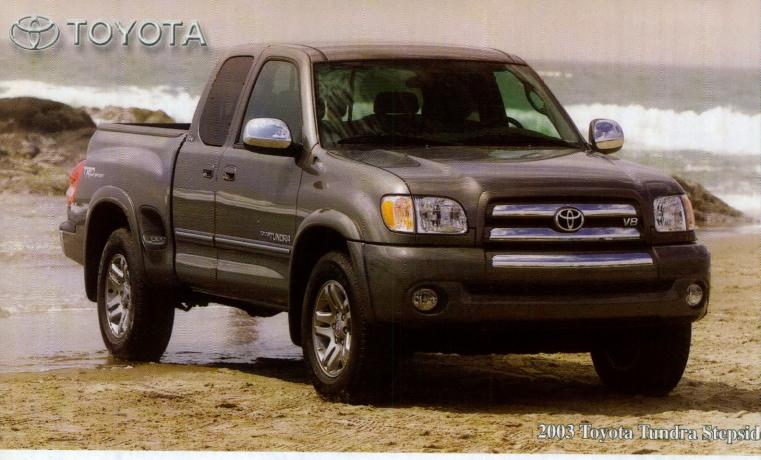
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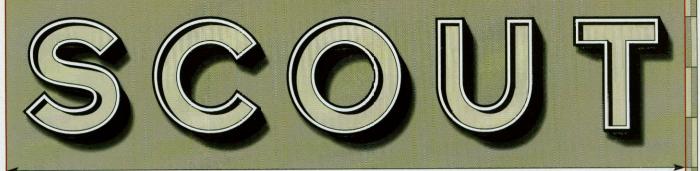
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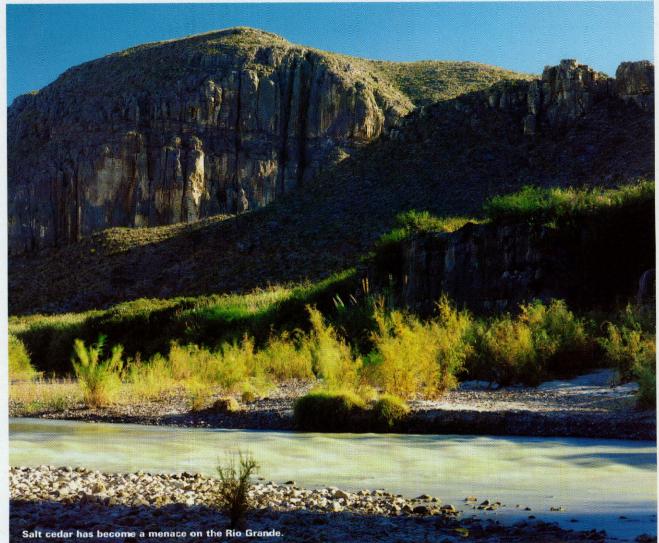
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NEWS AND VIEWS IN THE TEXAS OUTDOORS



Unwelcome Immigrant

Texans are fighting a scourge of western rivers.

In the 1820s the tamarisk, a shrubby tree native to Asia and the Middle East, arrived at East Coast nurseries, destined to make a name for itself. Short, with a stumpy trunk and peeling bark that resembled that of the cedar, the hardy tamarisk made a fine ornamental for the garden, especially when it exploded into bloom with thousands of tiny purple flowers. Because of its dense root structure, California landowners planted tamarisk along rivers, hoping to control ercsion. That's when the trouble began.

The dense roots held the soil, all right, but many little tamarisks sprouted from those roots and turned into dense thickets. The tamarisk had another less-than-charming quality. Through its long taproot, it guzzled water veraciously, as much as 200 gallons a day, and deposited salt into the ground, making it uninhabitable for other plants. By the 1920s, the tamarisk had become unpleasantly familiar and better known by its common American name, the salt cedar.

Salt cedar has become an invasive scourge, and has replaced more than I million acres of native vegetation. It kept moving east, sprouting thickets along the banks of endangered West Texas rivers, including the Rio Grande and the Pecos. Ten years ago salt cedar invaded a short stretch of the Colorado River near San Angelo and quickly claimed 5,000 acres. In West Texas, where plants typically store water rather than squander it, salt cedar is a menace.

"The humidity outside may be 15 percent, but in a salt cedar thicket it could be 100 percent," says Danny Allen, a Texas Parks and Wildlife Department wildlife habitat biologist. "On a dry summer day, you can walk through a stand of salt cedar and walk out the other side wet."

To make matters worse, salt cedars seem to have little value for native wildlife. The scaly leaves are not suitable for browsers, and the seeds, produced prolifically, contain little protein. Biologists studying a stretch of Nevada's Colorado River found that IOO acres of native plants can support more than 150 bird species, while IOO acres of salt cedar support only four.

Biologists and landowners have tried bulldozing, root cutting and simple hand-pulling to eliminate salt cedar, but such methods are expensive, time-consuming and not very practical. The best results have come by using herbicide.

For the last three years, biologists from Texas A&M University have suppressed salt cedar along a II8-mile stretch of the Peccs River by spraying it from a helicopter with a chemical whose trade name is Arsenal. By using a helicopter instead of an airplane, the biologists have made precise applications of the herbicide, which inhibits photosynthesis in trees but is deemed harmless to animals. They estimate they have killed enough salt cedar to save 6,380 acre-feet of water per year, encugh to meet the needs of roughly IO,000 households.

Jack DeLoach, Ph.D., from the USDA Agricultural Research Station in Temple, may have found biological solutions in the leaf beetle, *Diorhabda elongata*, found in Chira, and the mealybug, *Trabutina mannipara*, found in Israel. These bugs feed solely on salt cedar. After extensive testing in the laboratory, DeLoach recently released a few hundred beetles into an isolated thicket in Baylor County.

Eliminating salt cedars solves only part of the problem they create. The salty soil they leave behind can retard native plants such as willow and cottonwood for years. One observer says that salt cedar is only part of the problem in riparian corridors. If we had not dammed our rivers, naturally occurring floods might flush out salts and drown many of the salt cedars.

Destroying the salt cedar population has met with some opposition, though. Some biologists are concerned about the impact on the southwestern willow flycatcher. This federally endangered bird uses native willows for nesting, but has been forced to use salt cedars in infested areas.

Although the Texas Department of Agriculture has urged the legislature to ban the sale of salt cedar, this invasive plant is still for sale in some Texas nurseries. When a bill is proposed this legislative session to ban the sale of harmful species, the salt cedar is certain to be on the list. -E.J. Carwile



Landowners in the Fort Davis area are protecting property such as this with land trusts and conservation easements.

Conservation easements help prevent land fragmentation.

Land Irusts

Irusting I

Texans can be justly proud of their national standing in many areas, but one is troubling. In the 1990s, Texas led the nation in converting rural land into shopping centers, subdivisions and factory sites. Development gobbled up 283 square miles of rural land — an area nearly double the size of Rockwall County — each year.

Landowners wishing to maintain their property's natural features and economic productivity face rising property taxes, lower agricultural profits and economic pressure to sell. The result has been increasing fragmentation of wildlife habitat, loss of open space and watershed degradation.

Land trusts offer property owners an alternative. "Land trusts enable landowners to preserve their property as they wish and guarantee that their wishes will be legally adhered to in perpetuity," says TPWD's Carolyn Vogel, coordinator of the Texas Land Trust Council. "There are now 39 land trusts in Texas protecting nearly a million acres."

A land trust is a nonprofit conservation organization that protects land for its natural, recreational, scenic, historical or productive value. Land trusts may acquire land or development rights through purchase or donation, but many private landowners prefer to use a conservation easement instead. A conservation easement allows the owner and his or her heirs to own the land and use it for certain purposes while prohibiting others, such as development. (See "Investing in the Future" in the November 2001 issue of *Texas Parks & Wildlife*.) Conservation easements can reduce estate taxes or provide income tax benefits.

"Landowners inherently have a conservation ethic, a desire to see their family stay on the land, to see the current economic productivity of the land continue or to preserve wildlife habitat," says Vogel. "When a landowner is faced with some of those issues, perhaps through inheritance, and they start looking for options, land trusts can help them make decisions and achieve their goals."

While most land protected by land trusts is privately owned, the Montgomery County Preserve north of Houston may point the way to a new era, says Vogel. In the first such transaction in the state, the Legacy Land Trust in Houston received a conservation easement on 71 acres from Montgomery County, the owner of the property. "This preserve is a model for the future," Vogel says. "It allows public access, unlike most private conservation easements." Situated along two creeks, the preserve protects a forested wetland that is home to a number of animal and bird species and rare violets. A hiking trail allows access.

On private lands, conservation easements benefit the public by protecting water quality, preserving farmland or conserving historic or archeological sites, Vogel points out.

The Texas Land Trust Council serves as a support association for all the land trusts in Texas. While promoting the efforts of land trusts, the council also provides educational, organizational and technical support to land trusts and acts as a statewide clearinghouse for conservation information. Anyone interested in starting a land trust or landowners seeking information on how to protect their property can contact Vogel at (512) 389-4779 or visit the council's Web site at <www.tpwd.state.tx.us/conserve/tltc>. The site also provides contact information for the land trusts currently operating within the state.

"Texas Parks and Wildlife Department is unique in providing this service," Vogel says. "We want people to know FIELD NOTES

Where to Shoot

Looking for a place to try out that new rifle you got for Christmas? Or maybe you want to polish your shotgunning skills before spring turkey season starts. Go to <www.wheretoshoot.org>. You can search by state, area code or ZIP code, as well as by activity — everything from rifle, shotgun and archery to cowboy action shooting and small bore compatition. You also can find facilities with lodging and food service, wheelch air access and instruction or rentals. The Web site is from the National Association of Shooting Ranges and is sponsored by the National Shooting Sports Foundation.

Trekking Through Fort Boggy

Here's a firsthand report from a new state park.

An intrepid group of Piney Woods Wildlife Society members — all with family ties in Leon and surrounding counties congregated last fall at the area's newest natural jewel: Fort

Wooded, rolling hills and wetlands provide habitat for a variety of wildlife at Fort Boggy State Park, near Centerville in Leon County.

what land trust organizations are and what they can do for landowners, and we want landowners to know they do have choices about the long-term conservation and preservation of their property."

In a state in which 94 percent of the land is privately owned, land trusts offer perhaps the best way to preserve the special qualities that make Texas what it is. *—Larry D. Hodge*



Boggy State Park. Hurricane Faye was dominating the news and the skies, but for the duration of our visit we enjoyed one gentle shower during lunch and comfortable temperatures throughout the day.

Our purpose on this autumn day is to begin gathering baseline data for future nature checklists for the area. We are not disappointed. P-eliminary results show that we identify 39 species of plants in flower, 26 species in fruit, seven species of dragonflies, 10 species of butterflies, 22 species of birds, two reptiles and three mammals.

We are all amazed at the rich larder the area provides for its wild inhabitants. For instance, the abundant sparkleberry trees are laden with sugary-sweet fruit reminiscent of their close cultivated cousin, the blueberry. Normally, these berries are barely palatable! On the opposite end of the taste spectrum, dwarf sumac shrubs are seen throughout the park, being weighed down by beautiful red (and lemon-tart) clusters of red drupes.

The birding results consist of a typical end-of-summer mix of forest songbirds whose choruses resound through the natural amphitheaters of tall hardwoods and the tight catacombs of brush and bramble. A lone pine warbler is noted, along with numerous blue-gray gnatcatchers and both yellowthroated and white-eyed vireos. This perfectly represents the mix of trees here, where the westernmost ragged edge of the great East Texas Pineywoods — represented by a few straggler loblollies — merges into the numerous hardwoods of the Post Oak Belt.

Perhaps the most memorable sightings are not in the trees but at our feet, as we enjoy a close encounter with a beautiful and personable three-toed box turtle as well as both male and female eastern fence lizards. For those of us from the Houston suburbs, who only occasionally meet up with a green anole in our backyards, the sight of the checkered female fence lizard is indeed a special sighting.

Throughout the day, lovely little Boggy Lake, completely surrounded by forests, meadows and fed by fern-strewn natural seeps, is quiet except for the rain dappling its surface. It's as if the lake is in wait for the wintering waterfowl soon to come. I, for one, look forward to being here for their arrival, and to continuing to catalog the biotic wonders, both small and great, of one of our newest jewels in the state park system.

- David F. Henderson

TEXAS READER

Big Bend Lore

The American West meets Maxico in the excite area along the Rio Grande known as the Big Bend. Travelers through this fascinating land from Frederick Olmsted in 1857 to college students an spring break in 2003 — leave with a distinct and memorable impression of the mountain peaks,

desert flatlands and strange plants.

A new anthology compiles some 60 essays on Big Bend. God's Country or Devil's Playground (ecited by Barney Nelson, University of Texas Press, \$22.95 paperback, \$60 hardcover) brings together wellknown writers such as Aldo Leopold, Walter Prescott Webb, Edward Abbey and Roy Bedichek. In addition, there are numerous writers who are not so well-known: Robert T. Hill, head of the Texas geological survey team in 1901; Evelyn Mellard, a rancher's wife.

Texas Parks and Wildlife Department biologist David Riskind and former TPWD commissioner Bob

Burleson write about owner-built homes in rural Mexico and how they are suited for the area. Roland Wauer, former chief naturalist at Big Bend National Park, writes about the diverse wildlife in the Maderas del Carmen range. The late Barton Warnock, a leading authority on plants of the Trans-Pecos, writes of Capote Falls, the highest permanent falls in Texas.

The different points of view in this book make the Big Bend all the more intriguing. One of the most delightful quotes, from a 19th-century Mexican vaquero, is in desert survival expert David Alloway's essay: "You go south from Fort Davis until you come to the place where the rainbows wait for rain, and the big river is kept in a stone box, and the water flows uphill. And the mountains float in the air, except at night, when they run off to play with other mountains."

- Mary-Love Bigony

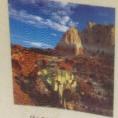


FIELD NOTES

Sawfish Sighting?

The Center for Shark Research at Mote Marine Laboratory in Sarasota, Florida, wants to hear from you if you happen to spot a sawfish as described in this issue's Legend, Lore & Legacy. Scientists hope to develop effective conservation strategies for the species, and building a database of sightings will further this effort. If you see a sawfish, record as much information as possible, including date and time, location, habitat, water quality, method of capture or encounter and size of the fish. Photos will be helpful, too. Call (941) 388-4441 or e-mail sawfish@mote org.

🏶 GOD'S COUNTRY 👄 Devil's playground



The Bost Wature Writing

SKILL BUILDER / BY RALPH WININGHAM

Shotgun Skills for Turkeys

Treat your shotgun like a short-range rifle for turkey hunting success.

When you bring your old turkey gun out of storage for spring hunting season, file the normal scattergun-swinging skills away with the dove and quail loads. For most turkey hunting situations, the best rule is to treat your shotgun like a short-range rifle. It should be aimed, not pointed.

Most shots at strutting toms or curious jakes are close encounters. Minimum movement, maintaining a proper sight picture and proper placement of a sufficient number of pellets to make a killing shot are the keys to hunting success.

Begin practicing well before your hunt. After making sure your shotgun is unloaded, practice bringing the shotgun into shooting position while you are sitting. This simulates the position you normally will be in while turkey hunting. Your movements should be steady and confident, and you should be able to aim at an imaginary turkey head and neck the same way every time. Put the front sight six inches below the top of the head.

A trip to a shooting range to fire a few rounds at turkey head/neck targets is always worth the time and effort. Be sure to wear the same type of clothes you will wear on your hunt (so the shotgun will feel the same as it does in the field), and use your hunting loads.

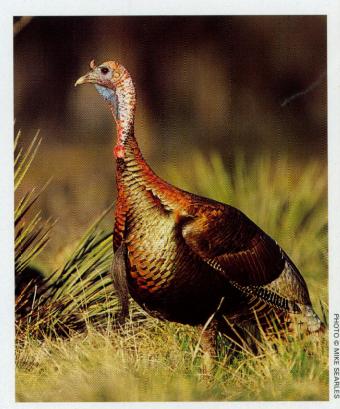
Aim at a specific point on the target and confirm that your gun shoots where you aim. Keeping your head down with your cheek pressed to the stock will help maintain a consistent sight picture. Pattern at 20, 30, 40 and 50 yards to determine your effective killing range, then never shoot at a bird beyond that range. Take the most efficient load hunting.

Ken Morgan, the author of *Turkey Hunting: A One Man Game* and creator of the popular Morgan turkey calls, offers some simple advice for both beginners and veterans. "Get yourself ready mentally and physically before it is time to shoot," he says in his book. "When the turkey is inside of 25 yards, you should kill it when you have the first clear shot at his head and neck. The gobbler should be standing straight up and standing still."

Morgan recommends that even if the turkey has surprised the hunter when his shotgun is out of position, the hunter should remain calm. "Raise your gun, put the bead halfway between the gobbler's head and body along the center of his neck and pull the trigger. Do this quickly, but not hurriedly." A soft whistle or smacking of your lips just before you shoot should cause the gobbler to stand tall and raise its head, offering the best chance for a killing shot.

If the turkey ducks its head and runs or simply does not present a good opportunity for a killing shot, let it go and wait for the next gobbler. Body shots, shots at running birds and other poor shooting practices mostly likely will result in lost and wounded birds.

Many lost birds or complete misses are the result of the hunter moving or giving away his presence to the gobbler before the bird comes within shooting range. A saying attributed to one of the original turkey hunters, an American Indian, is that "When deer sees new stump or bush, he thinks 'May be Indian' and stops for a closer look. When turkey sees



new stump or bush, he thinks 'Indian!' and runs away."

The message is that turkeys don't give a careless hunter a second chance. Keep your movements to a minimum and have your shotgun in shooting position before the gobbler gets within range. However, if a bird is on you before you shoulder your shotgun, wait until it is the appropriate distance away and snap your gun into position. That quick motion usually freezes the gobbler for three to five seconds, so take aim and make a good shot.

Morgan says he prefers to fire when gobblers are no more than 35 yards from his position; within 25 yards is even better. Waiting for the birds to get close has allowed him to use everything from a 12-gauge to a diminutive .410 to bring down toms. However, most hunters should stick with a full-choked 12-gauge for the best results.

Opinions vary on the shot size needed for the tough birds, but most hunters agree that a heavy load of No. 4 to Nc. 6 shot is best, depending on how your shotgun patterns. Duplex loads that feature two sizes of shot in the same shell have proven to be very popular. Small shot sends more pellets toward your target, but large shot retains more killing impact. The goal is to put enough shot into the gobbler's head and neck to cause sufficient killing damage to the bird's central nervous system.

Finally, but most importantly, a good turkey hunter must be a safe turkey hunter. Be sure of your target and what may be beyond it. Remember that your shotgun pellets will travel well beyond the 30 yards or so where your gobbler should be standing. If you have any doubts about anything, just don't pull that trigger. Wait for a better opportunity. 🛪

Traditional Hunting Bows

Simple, graceful and light in the hand, traditional bows are a pleasure to shoot.

The appeal of wooden longbows and recurves has not died with the technological advances and popularity of modern compound bows. In fact, they are now considered a completely separate aspect of archery with a growing number of competitive shooters and serious hunters.

Longbows

Most popular are the laminated bows constructed of thin, multi-layered hardwoods, carbon fiber or bamboo with fiberglass on the backs and bellies. This building method allows for more radical shapes, resulting in faster, smoothershooting reflex/deflex and recurve designs.

Production models are available from well-respected manufacturers like Fred Eear Archery. Their **Montana Longbow** (\$269.99, North American Archery Group, (352) 376-2327, <fulldraw.net/bear/>) is a slim design built to the same standards and specifications as the one used by Fred himself.

The longer bows in reflex/deflex have less finger-pinch, less stack at full draw, and less hand-shock than conventional Dshaped longbows. The hand-built, 66-inch **Vision** (\$579, Martin Archery, (509) 529-2554, <www.martinarchery. com>) is one model of this type with good performance, accuracy and increased arrow speed when using a FastFlight string. Most instinctive archers find this style bow is more forgiving to shoot than the shorter, direction-sensitive recurves.

Recurve Bows

Recurve bows are beautifully contoured and generally faster than longbows. The better designs have full-working limbs, thick risers and form-fitting grips for smooth, pleasurable shooting. Some are very short like the classic Fred Bear compact **SuperMag 48** (\$299.99, North American Archery Group) and ideal for maneuvering in brush country or shooting from tree stands.

Another unique production recurve is the takedown Hawkeye (\$399.95, A.I.M. Archery, (888) 246-8044, <www.aimarchery.com>) with a thick, multi-layered riser and rear-mounted limbs of exotic hardwoods. This bow is a good choice for bowfishing and comes fitted with brass bushings for mounting a bow reel. The unit disassembles into three parts to a 25-inch length for easy packing and travel.

Custom Bows

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The best custom bows are superior in most respects to production models. Bowyers, working all across the country, are building quality hand-shaped and laminated designs for a waiting list of clients. Often these are built on classic American flat-bow patterns with exotic woods, improved glues and laminate materials. Some master builders, like Jeff Massie of Shiner, have been building and refining their designs for many years. The **Longhorn** (\$495, Massie Archery, (361) 594-2120, <www.stickbow.com/ massie>) is an outstar.ding reflex/deflex made with up to eight thin layers of bamboo, carbon, select hardwoods and clear fiberglass. It would be difficult to find a more graceful, lighter or well-constructed longbow than this model.

Two other talented makers, Bob Sarrels and Richard Hanner, live and work in the same Austin neighborhood. Sarrels builds excellent longbows like the **Sierra** (\$375, basic model, Mountain Longbows, (512) 940-3098). This and his two other models are high-performance reflex/deflex designs built to exacting standards with the finest materials. Hanner specializes in high-speed recurves. The **Colorado** (\$395, basic takedown model, Hill Country Archery, (512) 695-3513, <home.austin.rr.com/hillcntryarchery>) can exceed speeds of 200 fps. Each bow from these craftsmen is individually constructed in a multi-step process with beautifully sculptured risers, comfortable grips and finely tuned working limbs based on proven patterns.

The "selfbows" are the oldest style still being made from a single material, usually select woods like Osage orange, yew or hickory staves, that have been slowly air-cured (IO-2O years) and chosen for strength, grain pattern, and springiness. Most all are custom-built and vary greatly in quality and performance, due to the patience, skill and labor-intensive efforts required in tilling a fine non-laminated bow with a drawknife.

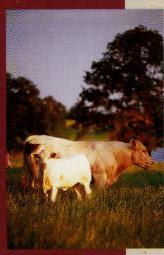
The best traditional bows are well-balanced, stable, smooth and accurate shooters. No wonder there is a resurgence of interest in these simple, graceful works of art that are free of any mechanical gizmos. *

From left: SuperMag 48 Recurve; Hawkeye Recurve; Colorado Recurve; Longhorn Reflex/Deflex; Montana Longbow; Sierra Reflex/Deflex.



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Where Texas Was Born

Settlers passed this way, I think, as I travel along the hills and curves of FM 390 in Washington County.

Maybe even Stephen F. Austin. Maybe Sam Houston, on his way to the Convention of 1836, which declared Texas' independence from Mexico. This scenic rural highway follows the path of La Bahía Road, a route known as early as 1690. The first Anglo settlers came to this area in 1821.

I know Washington County to be one of the most historically significant places in Texas, and that the county seat — Brenham — is the home of Blue Bell ice cream. I also know that in the spring the rolling hills are drenched in blue, compliments of the state flower. What other Texas treasures does Washington County hold, I wonder?

FM 390 leads me to Washington-on-the-Brazos State Historic Site. On a frigid March day 167 years ago, with the Alamo under siege in San Antonio, 59 men gathered at this spot on the Brazos River in an unfinished building to declare Texas' independence from Mexico. The park's new visitor services complex is an excellent place to begin a visit. The spa-

cious limestone building presents interactive exhibits and a timeline of the Texas Revolution, providing an orientation to the park and putting this site in context.

After an hour or so in the visitor services complex, I stroll toward Independence Hall. The building where delegates signed the declaration is gone now, as are all the buildings of the once-thriving townsite of Washington-on-the-Brazos. This replica, built at what would be the corner of Main and Ferry streets, gives visitors a sense of what the original building must have been like. I sit at a long wooden table and remember the words Sam Houston spoke here on March 2, 1836: "Let the citizens of the East march to the combat. The enemy must be driven from our soil or ruin and desolation will accompany their march upon us."

ASLEY/KAC

Leaving Independence Hall I fol-

low the Washington Townsite Trail down Ferry Street. Displays along the trail recreate 19th century life in Washington-on-the-Brazos, which was a major political and commercial center. In 1856 the town's population reached 750, but population began to decline in the 1860s and the last historic structures burned in 1912. I reach a bluff overlooking the Brazos River, and remember the Runaway Scrape, when settlers fled eastward across the river in March 1836 following the fall of the Alamo.

My next stop is Barrington Living History Farm, which was added to the park complex in 2000. This was the home of Anson Jones, the last president of the Republic of Texas, and he named his farm after his birthplace of Great Barrington, Mass. Park employees, dressed in 19th-century clothing, operate a Republic-era cotton farm complete with livestock and crops. Buildings on the farm include Jones' dogtrot cabin, built in 1844, and replicas of a log kitchen, barn and



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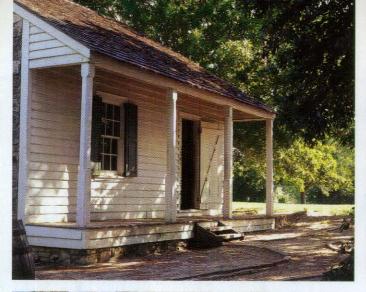
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slave quarters. I wander the rolling grounds, stopping occasionally to talk to one of the costumed interpreters and getting a feel for what life might have been like in the waning days of the Republic of Texas.

My last stop of the day is the Star of the Republic Museum, down the road from the visitor center. The newly renovated museum features a delightful array of exhibits, including life-size animals early Texans would have encountered bears, deer turkeys — as well as some structures from the days of the Republic and a model of a riverboat that would have traveled down the Brazos.

I spend the night in Brenham, 19 miles down SH 105 from Washington-on-the-Brazos. The folks in Brenham are fond of saying the town is like a hub, with spokes pointing out to various attractions in the county. So the next morning I head out another one of those spokes, FM 50, toward Independence and the Antique Rose Emporium.

Texas history lives on here in the roses that are direct descendants of roses planted during the days of the Republic of Texas and earlier. The eight-acre site contains hundreds of rose bushes mixed with perennials and native plants. Blooms are scarce on this early spring morning; in another month the landscape will explode into color.

Owner Mike Shoup became interested in old roses when he was working as a landscaper with native plants. In his travels across Texas, he spotted roses growing alongside native plants at abandoned homes cemeteries and fencerows. He discovered that many of these roses were introduced IOO to 200 years ago and, because they have gone through natural selection, are hardy and drought-resistant. These roses would be perfect for a xeriscape garden he says.

I spend a pleasant morning strolling the scenic paths and



Barrington Living History Farm, above, part of Washington-on-the-Brazos State Historic Site, recreates a 19th-century cotton farm that belonged to Anson Jones, last president of the Republic of Texas. Mike Shoup, left, owner of the Antique Rose Emporium, preserves Texas history through roses that were introduced 100 to 200 years ago.

admiring the various structures that add to the charm. A 19th-century stone kitchen and a corncrib were built on this site and have been restored. A Victorian home with a wide, wrap-around porch was brought here from Brenham. A diminutive salt box house contains the gift shop.

In the afternoon I drive out to the Monastery of Saint Clare miniature horse farm, covering 98 rolling and wooded acres northeast of Brenham. Sister Angela, a cherubicfaced nun wearing a brown habit and sandals, shows me around. She tells me that the order of Franciscan Poor Clare nuns here in Washington County started out in Cuba. They fled that country in IG60 and stayed at a New Orleans convent for a while, then moved to Corpus Christi to build their monastery. To generate income they raised birds, then cats, for sale to pet stores nationwide. When a pet store in Florida bough: every last cat, the sisters needed a new source of income. With the donation of two miniature horses in 1982, the monastery got into the horse-raising business. In 1986, the nuns, the monastery - and the miniature horses moved to Washington County. They sell the little horses to private breeders as well as families.

The nuns got into the tourism business quite by accident. The miniature horses are so appealing that people flocked to the pasture, trying to get a look. Finally the sisters decided to open to the public from 2 p.m. to 4 p.m. every day except Christmas and in Holy Week.

The horses are indeed tiny, looking as if they stepped right out cf a cartoon. To be classified as a miniature, a horse must be shorter than 34 inches; the monastery has some as short as 26 inches. I see a variety of colors, and Sister Angela says it's because they evolved from many different breeds. Most seem to be playful. I reach out toward an adorable brown-and-white horse, and it readily submits to having its head and ears scratched. Sister Angela goes inside a barn and, to the delight of the visitors, emerges cradling a newborn foal.

Back in Brenham for the night I discover that, unlike in many small towns, there is indeed something to do after dark. Located amidst the antique shops and historic buildings downtown is a building with a sign that says Unity Theater. It was founded in 1995 to bring professional theater several times a year to this town of 13,000 people. This new theater, opened in February 2002 in a renovated, 23,000square-foot warehouse, is of a caliber more often seen in much larger cities. Although there is not a play on the evening I'm there, I get to watch a few minutes of rehearsal for "You're a Good Man, Charlie Brown."

On my last day in Washington County, I head toward Chappell Hill to Lonesome Pine Ranch, one of three ranches that make up a nature tourism operation called Texas Ranch Life. I turn off the highway onto a bumpy gravel road, and soon a red barn and green pasture come into view.

Taunia Elick greets me warmly and introduces me to her husband, John. Owners and operators of the ranch, both are also practicing attorneys. John goes back to work cattle in the corral with a ranch hand while Taunia shows me around. The Elicks have five restored and elegantly furnished homes scattered across the ranch and available for guests.

The Elicks' three ranches – Lonesome Pine, Eagle Roost and Prairie Place – comprise Texas Ranch Life, and John and Tauna offer packages that include fishing, dove and quail hunting, horseback riding and cattle work. Bald eagles spend the winter at Eagle Roost Ranch, and from November through May visitors may take a guided horseback tour to see the majestic birds.

The rolling ranchland is a combination of grassland prairies, woodlands and pecan bottoms. As she drives, Taunia tells me that some of Stephen F. Austin's Old Three Hundred settled near the springs on this property. We visit the Lake House, a German-style farmhouse built in the 1880s; the Confederate House, built in the 1850s; the 1869 House; the Lodge and a bungalow-style cabin. All except the cabin were moved to the ranch from nearby Austin County, and each is decorated and furnished to represent the era in which it was built. Many feature original paint and stenciling; furnishings include antiques, oriental rugs and traditional Texas pieces of furniture.

Back at the corral, John Elick tells me about their efforts on behalf of the Attwater's prairie chicken. The Elicks and seven other ranchers in the area are restoring the native prairie habitat the endangered birds require. The rancher would love to see the Attwater's back on his land someday.

John and Taunia Elick personify the best of Texas: they're friendly, sincere and hospitable. They care deeply about Texas, its history, wildlife and ranching, and they enjoy sharing these things with their guests. Were Stephen F. Austin or Sam Houston to visit the area today they would be astonished at the changes to the landscape since frontier times but also heartened, no doubt, that the soul and spirit of Texas survive.

For More Information Washington-on-the-Brazos State Historic Site hosts a Texas

Washington-on-the-Brazos State Historic Site hosts a Texas Independence Day celebration every year on March 2, as well as events throughout the year. Call (936) 878-2214 or go to <www.tpwd.state.tx.us/park/washingt/>.

Antique Rose Emporium: (800) 441-0002,

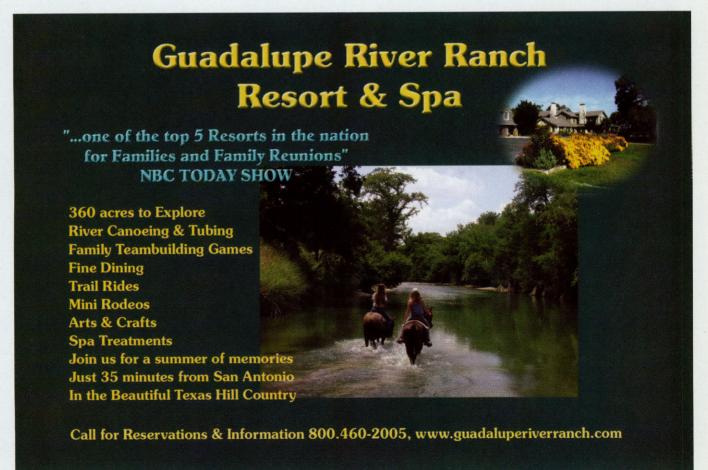
<www.weareroses.com>

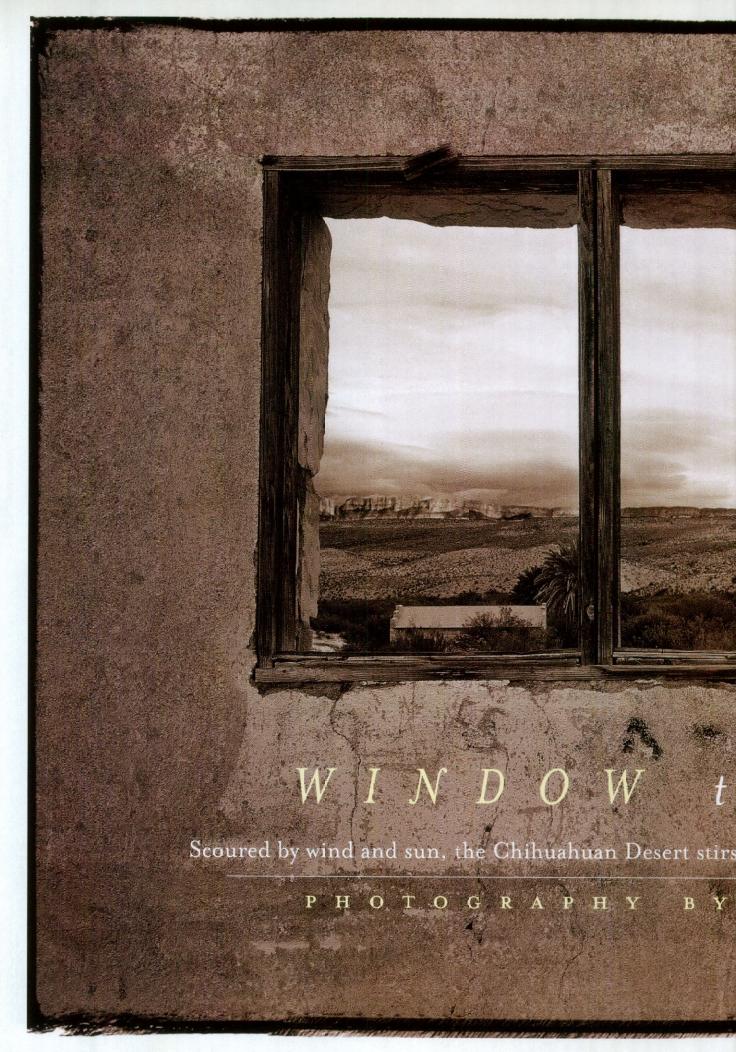
Monastery Miniature Horses: (979) 836-9652, <www.monasteryminiaturehorses.com>

<www.monasterymmaturenorses.com>

Texas Ranch Life: (866) TEXASRL, <www.texasranchlife.com> Unity Theatre: (979) 830-8358, <www.unitybrenham.org> Lodging, dining and wildflower information: (888) BRENHAM,

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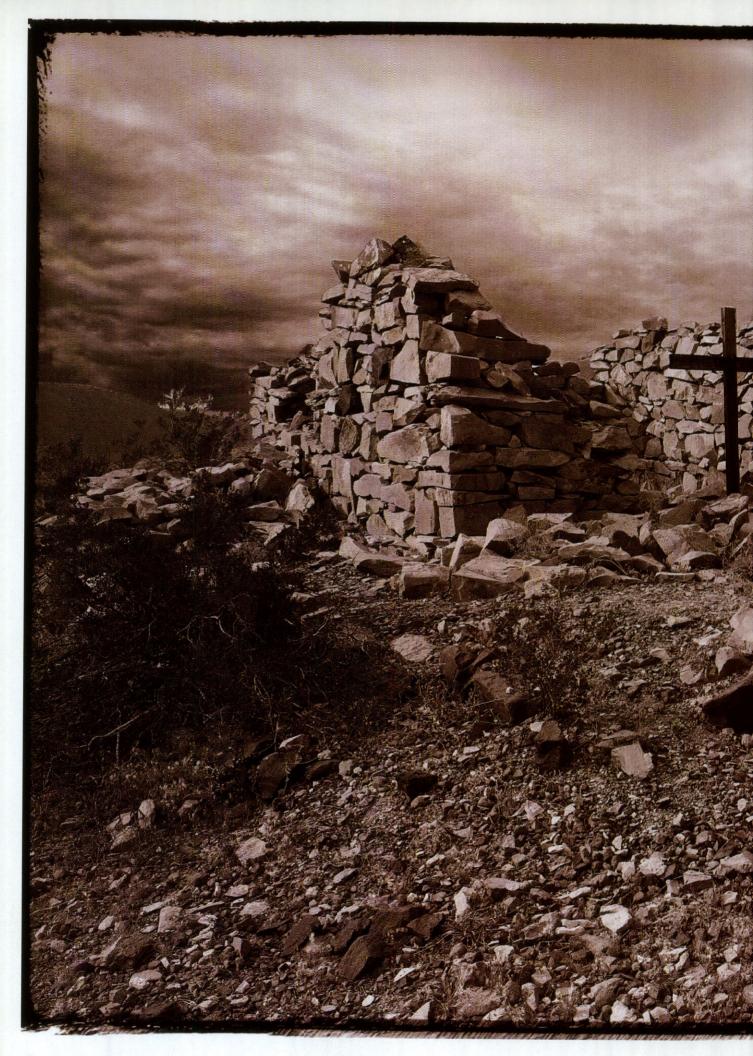
RANDY ANDERSON

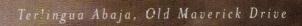
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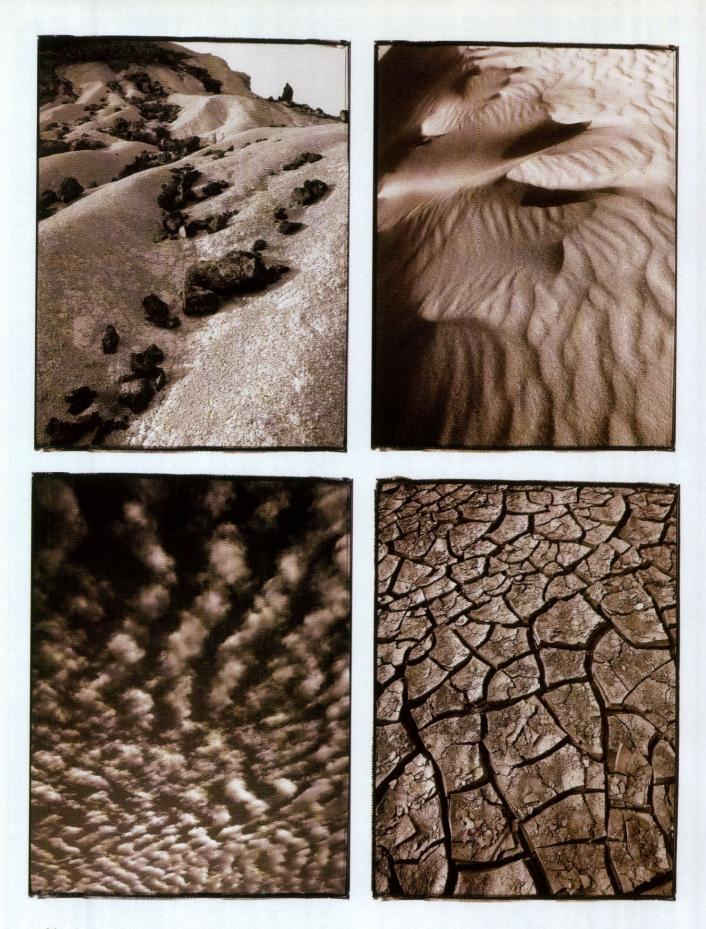




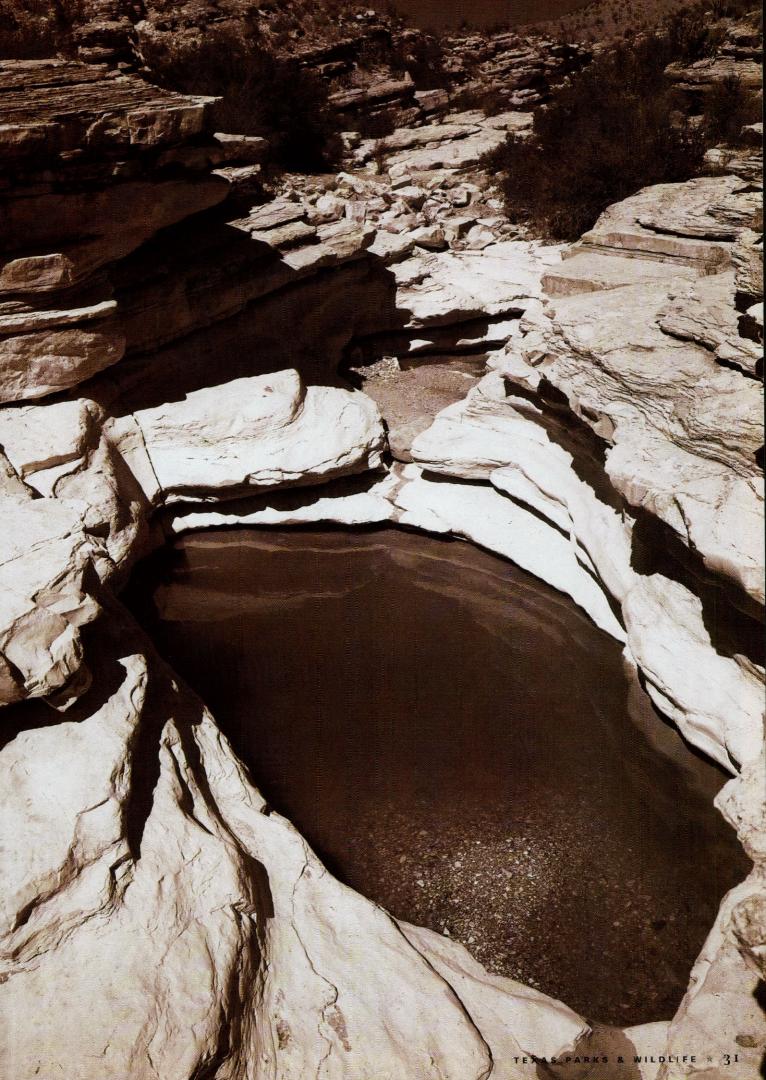
Ruins on the Paint Gap Hills Road

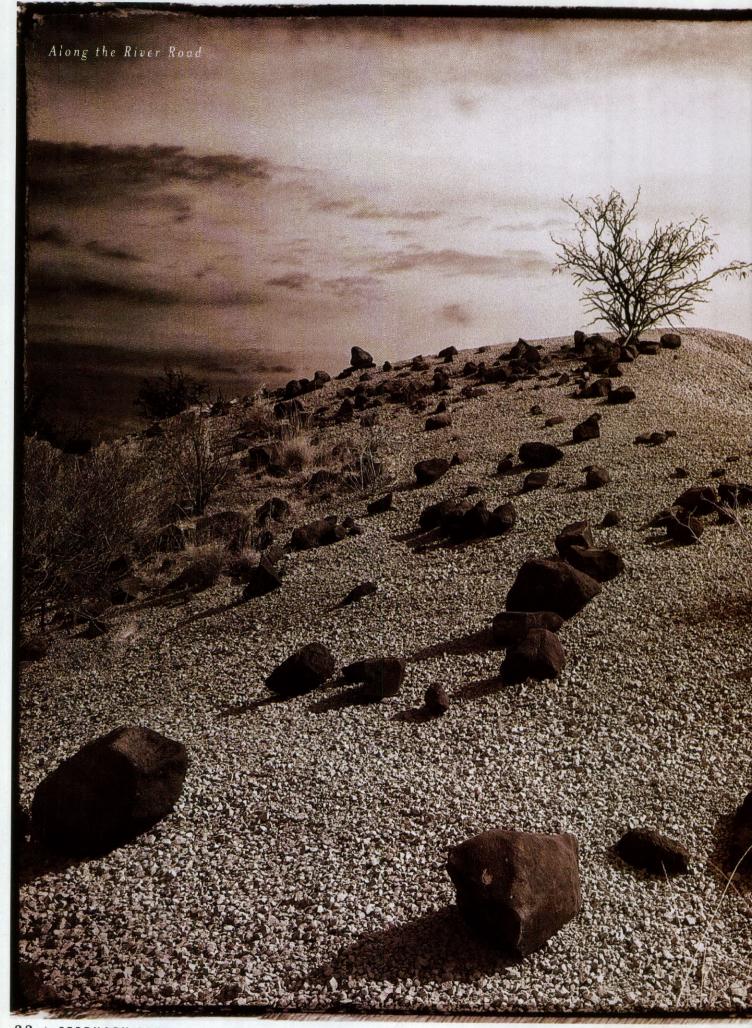


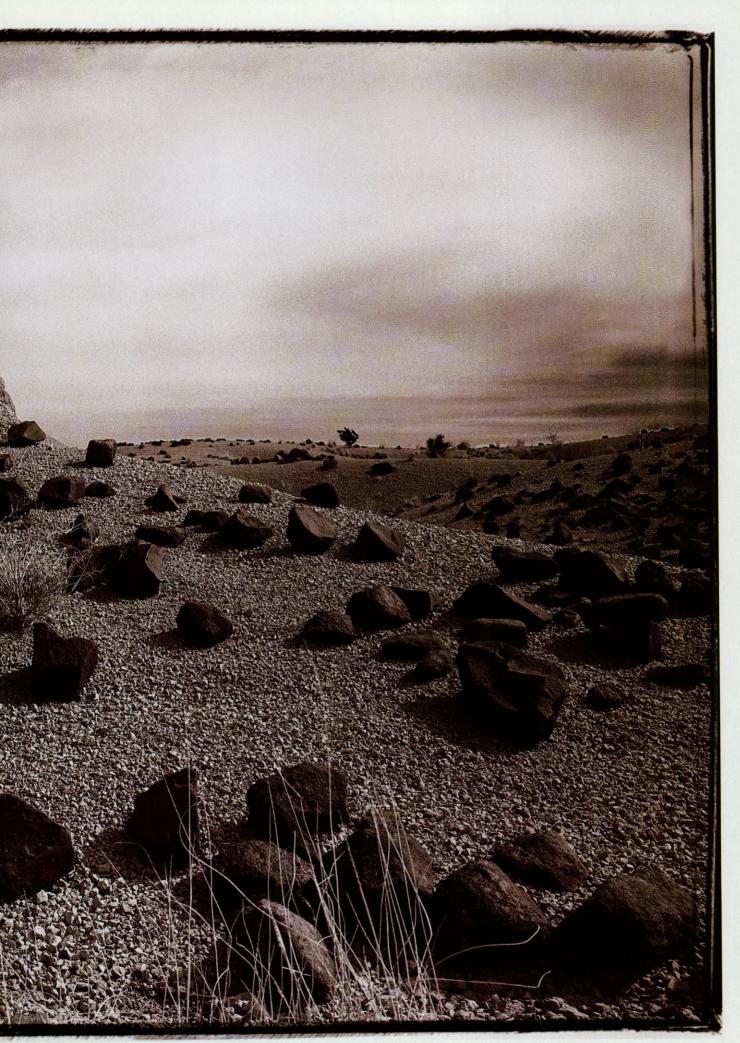




Clockwise from top left: Badlands area, Big Bend National Park; Monahans Sandaills State Park; Rio Grande -iverbed; clouds above Ross Maxweil Scenic Drive. Opposite: Ernst Tinaja.









GULENTES

Succulents — the denizens of Texas aridlands — beguile the imagination with their shapes, colors, patterns and textures

By Noreen Damude

The Texas Chihuahuan Desert is remote, mysterious, wild and forbidding.

For all its rigor, loneliness and tenacity, it is, nonetheless, a magical place. Arid mountains, all rock and angles, float under scudding cloud shadows. Slopes, flats, buttes and canyons of hammered copper, flecked with greens and umber, are dappled with shimmering sunlight. Rains come when they will, and things live or die because of it.

No matter. Life sustains itself here, as in all dry lands, by imposing severe measures on its plants. Form follows function less is more — is a key to survival in a hostile, unforgiving land. Hence, deserts play host to a bewildering variety of bizarre plants, many gnome-like in appearance, from Lilliputian button cactus and squat barrels to the flailing arms of ocotillo and stately agaves silhouetted against the desert sky. Despite the harsh regime, frugal cacti and lavish succulents survive and flourish, paragons of fine-tuned adaptation to a perennial dearth of water.

Of the nearly 10,000 species of succulents worldwide, most are members of seven large families: cactus, agave, stonecrop, spurge, dogbane, milkweed and ice-plant. The cactus family is one of the largest, with nearly 2,500 members. Cacti are native to many corners of the Americas, from Canada to Patagonia. The terms cactus and succulent often cause confusion; all cacti are succulents, but not all succulents are cacti.

Succulents are xerophytes, or plants adapted to arid conditions. Most have developed storage structures that hoard water, enabling them to survive extended periods of drought. The degree of succulence varies greatly, as do the organs used to store the moisture. Leaves, stems and roots each may play significant roles.

Cacti are stem succulents. While the origins of the cactus family remain unknown, they make up about one quarter of the succulent plant species on earth. A fusion of strength and grace, the frugal cacti have almost entirely dispensed with leaves. Instead, expandable, water-storing stems supported by a woody framework and covered by a pleated skin do the work of photosynthesis. Complex structures called areoles, possessed by cacti only, produce clusters of spines and flowers.

Cacti have evolved many other ingenious features that help them conserve water by retarding evaporation. Surface area has been minimized, often to an extreme. A simple spherical body has the lowest possible surface area to volume ratio. Many literally become barrels of water-suffused soft tissue. When it rains, stems fill up, becoming bloated. In times of drought, plants shrink as water is lost. Stomata, the small "breathing pores" that allow all plants to breathe, are reduced in number in cacti.

Cacti and succulents have evolved other epidermal modifications to inhibit water loss and prevent solar burning. The outer skin of many species is covered with a thick, waxy cuticle. Many cacti sport fierce spines for protection against grazers, browsers and would-be water thieves. White spines, while not universal, show up disproportionately. They best reflect sunlight away from plants, thus reducing heat build-up. Other species also may be covered with hairs of various density, length and color. A thick coat of hair provides sunburn protection and reduces air movement at the plant's surface.

Finally, cacti and succulents have evolved a specialized metabolism called CAM (Crassulacean Acid Metabolism), which allows them to thrive in arid environments where other plants would perish. Succulents, in effect, hold their breath during the hottest part of the day by sealing stomata, greatly reducing water loss. Stomata then open wide at night when it's cool and "gulp in" the next day's supply of carbon dioxide needed to carry out photosynthesis — a kind of metabolic foresight. The carbon dioxide is converted to organic acids and released for photosynthesis. Incredibly, cacti may survive five years or more without rainfall.

Cacti are well-known for their large and beautiful rose-like flowers. Their purpose is to attract flying insects, bats or birds from afar to carry out pollination. A few night-blooming cacti have huge, wonderfully fragrant white flowers that attract pollinating nocturnal moths or bats. Cacti and succulents overcome rigors that offer only a slender margin for life. For the sheer variety of their forms and strategies for survival, the wily, hardy cacti and succulents are unsurpassed.

Where water is life and none, sure death, succulents employ incomparable artistry and ingenuity to hoard water, foil wouldbe predators, protect cuticles from sunburn and dehydration and exploit ambient mists and dew. They are tough and artful masters. And rather than looking shriveled for all that, they stun us with their fiery flowers, well-fed lusty shapes and coy manipulations of those creatures — birds, bats, bees or moths — that would help them reproduce their kind. Many cacti and succulents are horticultural favorites, especially in the Southwest, where water is so precious a commodity.

Asked what it is about them that wields such seductive powers, hobbyists will say "their symmetry." A vast array of symmetries beguiles the imagination — designs by Escher, a geometric wizardry in every plant. Such a multiplicity of shapes, colors, patterns and textures, all are variations on a theme — "for want of water." For afficionados, the harmony of the spheres resounds in each exquisite form. Plant lovers cannot help but be enthralled with their various tricks and stratagems.

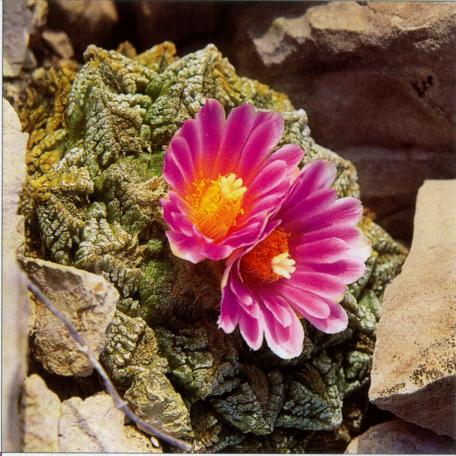
I. Claret Cup, Echinocereus triglochidiatus — A desert favorite, claret cup belongs to one of the largest genera of cacti known broadly as hedgehog cacti. Like its close relatives, claret cup grows in clumps, sometimes forming large, cushionlike mounds from 3 to 4 feet across. The bright red-orange flowers may virtually blanket the tops of the clumped cylindrically shaped stems. The fiery petals are rigid, waxy and remarkably persistent for cactus flowers. In contrast to other members of the genus, the hardy blossoms do not close at night and may last up to three days. Interestingly, the flowers may vary slightly in color from orangy-red to scarlet as a result of soil type or minor genetic differences. Clumped colonies of claret cup often are found in the wild, hugging up against some larger plant such as sotol or lechuguilla. Young plants seek protective shade from these "nurse plants" to get a start on life. Just off the South Rim Trail in Big Bend National Park is a great place to see claret cup in Texas. A springtime bloomer, claret cup flowers from March to May. Also known as red-flowered hedgehog cactus, it produces a fruit eagerly sought by wildlife.





- 2. Star Cactus, Astrophytum asterias A small, spineless cactus resembling a sand dollar, star cactus is highly coveted by cactophiles. Perhaps over-loved, or even loved to death, this South Texas specialty has been greedily collected from the wild, greatly reducing its numbers. What is the secret to the star cactus' irresistible appeal? Is it its just-so geometrical form, its redcentered yellow flowers, its natty rib patterning or its ever-variable flurry of white flecks bespeckling the surface? It's hard to know for sure. Petite, globular, succulent, primly patterned, yet sassy, the star cactus captivates the beholder with a crippling arsenal of "cuteness releasers" few can resist. Curiously, these plants can be extremely difficult to see in habitat. When not in bloom, they seem to dissolve into the landscape as they blend in with their smooth, stony surroundings. Also called sand dollar cactus or sea urchin cactus, star cacti bloom during the summer over a period of several weeks, from late spring to early fall.
- 3. Living Rock, Ariocarpus fissuratus — A very strange cactus, this small, very slow-growing species looks more like a petrified rock than a plant. The low-slung plant body consists of a highly fissured rosette of triangular, spineless tubercles that barely rise above the ground. Densely wooly crowns give rise tc soft pink flowers. As its name suggests, living rock is a geophytic species, growing preferentially in stony, pebbly desert habitat. Texas boasts a single species of this peculiar genus. Living rocks are highly prized by cactus collectors, who swoon over their curious manimate guise. One of the most extreme of desert-adapted plants, living rocks do not tolerate shade or much moisture. Highly prized by connoisseurs, these singularly weird plants are vulnerable to plant poachers. Other names include false peyote, star rock, Sunami or peyote cimarron. Unlike most other Texas cacti, living rocks flower in the fall from September to TOP December.





4. Lace Cactus, Echinocereus reichenbachii — Characterized by spectacular flowers, lace cactus is one of the best-known of all the small, lowgrowing cacti. A Hill Country spring triggers a profusion of flashy, hotmagenta flowers that splotch the limestone hills and granite slopes of Central Texas. Indeed, Enchanted Rock owes much of its allure in April and May to these breathtaking blooms. Beautiful solitary or clumped, cylindrical stems wear a fetching mantle of fine lacy spines. Rarely growing taller than 8 inches, these cacti are unpredictable in their development. One plant may form a single stem, while its neighbor branches out and forms a dozen or more. When not in bloom, the plants are unobtrusive, appearing suddenly from the background in phalanxes of melting, inverted cones grouped around large slabs of rock. Black lace cactus also is called hedgehog cactus, brown lace cactus, merry-widow cactus or purple candle cactus.



5. Spanish Dagger, Yucca torreyi — Often a tortuous tree-yucca, rough-barked and gnarled and crowned with a hefty cluster of spine-tipped succulent leaves. Spanish daggers grace the gravelly slopes of West Texas. Squadrons of Texas bayonets silhouetted against the sky at sunset can create a landscape at once implausible and serene. Growing sometimes in patches, sometimes in whole forests, the tall, spiky plants give the landscape a surreal almost dreamlike appearance. In Central Texas, plants usually are shorter and thicker at the base than in the West. Plants are coarse, with one to several crowns of narrow, elongate leaves, sometimes in a basal cluster or perched atop short trunklike stems. As leaf succulents, they're magnificently adapted to withstand the heat and drought, which is their lot. Radiating leaves are curved in cross-section to funnel scant rainwater to the center of the plant. Flowers emerge profusely in showy terminal panicles of waxy, white, bell-shaped petals that emit an intoxicating fragrance, mostly at night. About 50 to 75 percent of the flower panicle extends beyond the leaves, better to lure night-flying moths. Unlike agaves' once-in-a-lifetime show, these artd-land denizens bloom every year. Animals relish the fleshy fruit, which is high in sugar. Also dubbed Torrey yucca, Spanish-bayonet, Don Quixote's lance or Texas-bayonet, these plants flower from February to May.

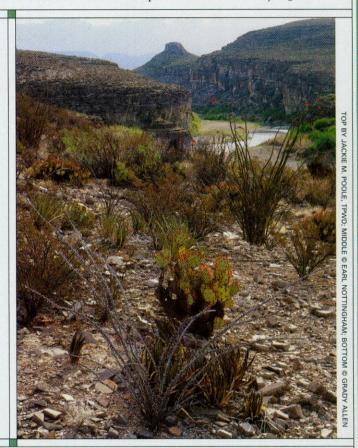
6. Horse Crippler, Echinocactus horizontalonius — A formidable cactus with a devilish suit of armor, this cactus, also called Turk'shead, is strong enough to cripple a horse, as its common name forewarns. Del Weniger author of Cacti of Texas, calls these well-defended plants "the true desert rats." They are highly specialized for the extremes of heat and drought the Chihuahuan Desert has to offer. At once aesthetically pleasing and physically menacing. horse cripplers are well-equipped for survival. Usually solitary, but occasionally found in clumps, horse crippler is a blue-green barrel from 4 to 2C inches high and 4 to 6 inches wide. Stems are cepressed, globular to short cylindrical, with a hard surface and an impenetrable array of hefty spines. Both rigid and spreading, spines look to some like eagle claws. Thick recurved spines protect plant tissues from deadly solar glare and heat while close spine spacing wards off uninvited kites from hungry, thirsty herbivores Showy, bright-pink flowers soften its fierce cemeanor in the spring. Fruits are juicy at first, but soon become dry and covered with soft white wool. Also called blue barrel, devil's-head and eagle-claws, these menacingly beautiful plants bloom from April to May.

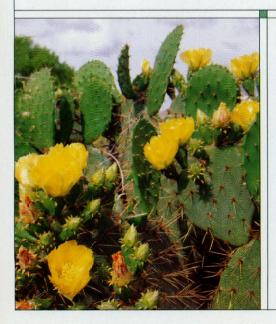


7. Century Plant, Agave havardiana — The Havard agave is a slow-growing succulent that blooms but once in its lifetime. Belying its name, the plant doesn't really live to be 100 — though it might seem that way if you were to sit a ound and wait for it. With a normal 'ife span of 15 to 20 years, the century plant dies soon after a single prodigious flowering. The energy for this spectacular, fatal flowering comes from nutrients stored during the extended growth of the encircling rosette of overlapping leaves. Also known as Mexican aloe, mescal or maguey, this stately sentinel of the Chihuahuan Desert blooms between April and June.



- 8. Pincushion cactus, Escobaria vivipara The diminutive pincushion cactus is a favorite with botanists and cactus growers alike. Known also as spiny star, it's a small, low-growing cactus, rarely more than 2 to 3 inches tall in the field. The solitary or clustered stems appear as flattened globes or squat cylinders devoid of ribs. Prominent tubercules soon become corky and slough off with age. Spines are present in abundance and constitute the irresistible allure of this species. Short, fine and straight, they provide a densely elegant coat of mail. Often hairy, translucent and shiny, they do not totally obscure the stem, but let the greenish body show through, enticingly. The three to seven stout, orange-tobrown central spines diverge outward while the 16 delicate white radial spines hug the body prettily. Bright pink-to-violet flowers emerge from the upper edge of the areolar groove but do not always open fully. Petals and sepals are fringed delicately at the tips, giving flowers that devil-may-care appearance. The one-inch oblong fruits are green in color and often appear scaly on top. Also called ball cactus, beehive cactus, biscuit cactus and foxtail cactus, plants bloom from May to June.
- 9. Ocotillo, Fouquieria splendens A flamboyant denizen of desert landscapes ocotillo probably is Texas' most dramatic succulent plant. Sp:ky, skinny and sinuous, it's the banner plant of the Trans-Pecos. Resembling a coach whip tipped in red tubular flowers, plants are cloaked in small green spatulate leaves, which drop during periods of drought Yellowish-green photosynthetic stems are studded with feisty thorns that thwart the most aggressive wouldbe foragers. Ocotillo is a spectacular hummingbird plant and a special favorite of Lucifer hummingbirds. Several kinds of insects, particularly carpenter bees, covet its copious nectar, while a host of seed-eating birds and mammals relish the seeds. Excellent examples of convergent evolut:on, these distinctive shrubs recall strange, totally unrelated plant species found in the spiny deserts of Madagascar. After rains the ocotillo takes on a sheath of green leaves and does some hasty growing while the moisture lasts. When drought returns, leaves drop cff and all growth ceases until the next rain. Also called coach-whip, candlewood and devil's walking stick, plants will leaf out and bloom on and cff, well into fall.





10. Prickly pear, Opuntia engelmannii — The state plant of Texas, prickly pear perhaps is the best-known, and at times least-loved, of all Texas cacti. Tough, homely and widespread, prickly pears are champions of hardiness and adaptability. Capable of thriving in the poorest soil, prickly pears' vigor is based on an efficient root system. A tapering taproot anchors the plant, while a network of shallow roots soaks up rainwater during brief summer storms. Prickly pears are the chameleons of the cactus world, varying in size, form, color and spination (not to mention taxonomy). Looking like spine-dotted, fingerless mittens facing every which way, jointed stems assume unpredictable poses as plants mature. Prickly pears exploit a wide variety of habitats, from grasslands to open woods, desert sand hills to rocky mountain slopes. Enlivening Texas landscapes in spring, flowers vary from yellow to mango to red, and a single plant can sport the whole range of colors. Flowers are pollinated by bees and beetles, while birds and mammals disperse the seeds. The small, young, flattened pads, called "nopales," are eminently edible sautéed in butter or olive oil and garlic. Also called nopal, tuna and Lindheimer's cactus, the plant's flowers bloom from April to June. *

The Marsh

mallow Moment

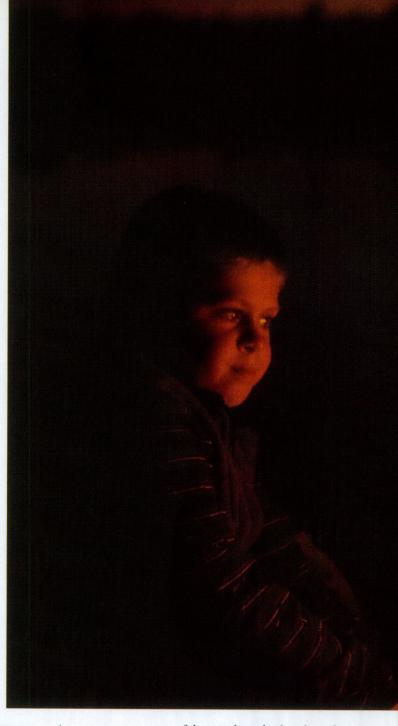
If I'd known that a simple camping trip with a bag of marshmallows could reacquaint me with my own inner child and introduce me to an aspect of my son I'd never met before, I'd have done it long ago.

BY DANA JOSEPH

Lake Texoma is glittering like obsidian in the starlight.

A cool breeze rustles through the oak trees surrounding our screened shelter. Around the glowing fire pit, we sit with stick-impaled marshmallows held over orange-blue embers. Three kids under IO, one mom and one aunt over 40, one overnight at Eisenhower State Park. At home we'd be parked in front of the TV, one more forgettable night in a blur of childhood that's going by too fast. But at IO p.m. on this Friday night, we're slowing down, recharging our spirits in nature and making a memory that will last a lifetime.

I had almost forgotten the art of roasting a marshmallow. Somewhere in all the commuting, working and single parenting, I'd lost the wonder of really being in the moment. Making time for the simple things like being outdoors with my son had somehow become such a complicated undertaking. My little boy was on the cusp of his 8th birthday and still had never roasted a marshmallow with his mom.



Letting Go

It's an easy drive from Dallas to Sherman, then to Denison, where we are far enough north to start seeing Oklahoma plates mixing in with Texas ones. When highway signs proclaim the birthplace of Dwight D. Eisenhower in Denison, we know we are just a few miles away from the south end of Lake Texoma, where Eisenhower State Park perches on the rocky bluffs of the reservoir.

My friend Gael and I have loaded her niece and nephew and my son in her Isuzu, which is packed to the gills with food and gear. But what the heck; SUVs double as vehicular suitcases and backpacks, right? With the kids' legs propped on folded air mattresses and ice chests on the rear floorboards and fishing poles dangling above their heads, our camping entourage vaguely resembles the Joads. We keep the complaining and when-will-we-be-theres to a minimum by plying the kids with animal crackers. A half-bag down, the terrain changes, becoming greener and slightly rolling. Soon we spy the signs directing us to Eisenhower State Park. "Hurray, we're here!" choruses from the back. The sentiment echoes through the grownups, too, as we each slough off city stress and luxuriate in trees, water, fresh air and verdant expanses.

We pull up to the park entrance, pay a reasonable \$22 for our screened shelter, hit the bathrooms and buy some firewood. Following the park map to shelter 29 in the Deer Haven section of the park, we enlist our charges to help carry the odd array of sleeping bags, backpacks and groceries into what will be our lake home for the next 24 hours.

Chores done, the transformation is immediate. Who needs Game Boys and CD players when woods beckon to be explored? Within minutes, an impromptu game dubbed "Adventure, Inc." is underway. It involves fantasy characters, sticks for swords and a lot of running and laughing. Gael and I busy ourselves with dinner preparation while the kids become superheroes spurred on by the setting sun, fresh air and plenty of space for their spirits and imaginations to roam free.

A V of birds winging south for the winter arcs through the twilight sky. They are too far away for my untrained eye to determine their species, but whatever they For the moment, we're around the perfect fire sharing a perfect moment with my son and Gael's niece and nephew.

are, they send a shiver of reverence through me — and the kids.

'Hey, look at the birds!" Noah yells. A G-year-old, 7-year-old, 5-year-old and two adults stand at rapt attention, eyes on the sky. How little we look up, it occurs to me, when we live in a city.

The birds pass over the lake and then beyond the trees and out of view, leaving the kids to their play and Gael and me to fix the victuals. A corner built-in shelf holds cur foodstuffs. The picnic table in our screened shelter serves as both preparation surface and dining table. The fried chicken we brought means no cooking, except to fire up the little camp stove to heat a can of baked beans. Bottled water and lemonade, potato salad, tortilla chips and a thawing strawberry cheesecake round out the feast. And, of course, a bag of marshmallows for later....

Soaking Up the Scenery

We are sitting around what we all agree is a perfect campfire. We've killed the lights in our shelter, all the better to see the stars and the campfire. Gael is a master firestarter, having learned as a child spending summers outdoors around Lake Michigan. She needs lakes and oceans like some people need sunshine. So our spot here above the water is perfect, picturesque, restorative.

Wood smoke fills the air. It follows us everywhere when we try to reposition ourselves to avoid its pungent, burning attack on our eyes. Finally, we figure out a configuration around the fire that keeps the smoke at bay. We are waiting for the fire to burn down to marshmallow-readiness. Alternately mesmerized by the flame and the stars, we walk back and forth between our campfire and a dark place in the road where we can look up at the dark sky and the millions of pinpoints of light. The smell of the night is heady. Lake water, trees. clean country air, soil, fallen leaves, wood smoke. Even the young ones reach a state of profound appreciation — or fresh-air exhauston.

We gaze at the sky. It is so full of stars we have difficulty finding the usual constellations. Even the dippers have slipped into a crowd of stars so thick that we almost give up. But then Gael spots the Seven Sisters. I try for Cassiopeia and Orion, but find myself mesmerized by the Milky Way, which Sunrise finds anglers lined up along the Red River below Denison Dam. Eisenhower State Park provides a fish-cleaning facility near the Bois D'Arc Ridge camping area.

I so rarely get to see because of city light pollution. Now it spills unmistakably across the middle of the sky above me like a gauzy silk scarf. We point it out to the kids, who crane their necks in what seems like genuine amazement. It is a universe so much more magical than that of their suburban existence, and the effect of watching them become enthralled is equally magical. Connection with nature brings connection with self — the outdoors is the most effective guru to guide you to this fundamental truth. Eisenhower State Park is doing a very nice job of it, so far.

We are halfway between our starlight post and our campfire seats when we hear a frightening noise. It scunds like an animal in the camp — 'possum, skunk, raccoon? Before we can think what to co, I feel a wet nose that belongs to — thank God — a big dog. Not far behind what turns out to be a beautiful retriever comes the sound of its owner helloing our camp. Some college boys from down around Dallas introduce themselves and Zoë. Zoë makes the rounds, lapping up the petting and our slobbering attention.

Our new acquaintances head back to their shelter for a late dinner after a day of powerboating. Across the way, a father and son ready themselves for some night fishing by the light of a big citronel a candle. Another neighbor on our country road of screened shelters is softly playing Cajun music. Out of the dark and the accordion melodies comes a lanky Louisianan who introduces himself as

Dickey. Alaconicguy, he just hangs out quietly checking out our fire. Finally, I break the comfortable silence: "The kids are mesmerized by the fire " I say.

"Who isn't?" Dickey says. "I could watch it all night. You've got your choice: Look down at the fire or up at the stars. Pretty nice choice." That's what I love about everyone who's out here tonight. We have narrowed our choices down to this, and we are loving every minute of the simplicity.

Later tonight, after the kids are tucked under blankets on air mattresses, Gael and I will become one with the fire. We'll talk into the night about her recovery from breast cancer, my recovery from a bad marriage. The decayed fabric of my old camp chair will split in two, sending me to the ground with a dramatic thud and some serious laugh-

Chores done, the transformation is immediate. Who needs Game Boys and CD players when woods beckon to be explored? ter. In the morning, Gael will start another fire and Dickey will bring over more wood when he sees our effort sputtering.

> We will get it roaring and boil water for coffee and tea. Once the breakfast tacos and hash browns have been cooked and eaten, the kids will tend the fire compulsively and make it the centerpiece of a game

LAURENCE PARENT

that has something to do with a plot to save the world by finding diamonds.

The kids next door - delivered by Primera Asamblea de Dios church vanswill be up early walking in the woods and fishing. We will take the kids and the fishing poles down to the pier and come back not much later, having found choppy water and fire ants. We'll talk with a couple who just moved back to the Texoma area from San Diego. He's here to fish bass, stripers, bream, crappie - and celebrate his fortysomething birthday. It won't matter to him that the water is choppy and the fish aren't biting. He's just happy to be back in Texas on a lake at a park that his wife declares "has everything."

The kids will be amazed by an impressive yellow-and-black spider in a web backlit by the sun and a walking stick on the window frame of our shelter. We will fold up camp and pack up the cars by the 2 p.m. checkout and head for the nature trail with its great views of the lake and then to the protected swimming cove. There, we'll snack on cheddar-cheese popcorn and soak up the scenery, watching sailboats glide by the backdrop of treelined bluffs. We will wade out in the clean water with the kids and swim. On the beach, we'll follow migrating monarch butterflies that have alighted on the sand in numbers that make us all giddy. The sky will be slightly overcast; our moods will be sunny.

But that is tomorrow, and a full day it will be.

For the moment, we're around the perfect fire sharing a perfect moment with my son and Gael's niece and nephew. It's the moment we've been waiting for: We survey our fire and pronounce it ready. Now we can get down to the business of roasting marshmallows.

Passing the Torch

We have whittled our sticks on the ends. sterilized them in the fire and studded them with marshmallows. My son seems

Seeds of Greatness

The Eisenhower Birthplace in the old railroad town of Denison includes a simple white house, green grounds a picnic pavilion, a statue, a visitors' center. There's nothing showy about it not unlike the man the historical site honors.

Gazing out from the front porch of the house, I see only some of what the Eisenhowers would

have seen. Neighboring houses from the days when this was a busy railroad community were carted off decades ago. The old lines of the Missouri, Kansas and Texas Railroad (Katy, MK&T) no longer run. No showy manicured gardens welcome the visitor. Park manager Kurt Kemp pulled out the former landscaping to prepare for a planting of vintage tulips and irises, part of a restoration aimed at returning the house to its look when David Eisenhower and his wife, Ida, rented it for \$8 a month from 1888 to 1891

David had come to Denison in 1888 to work for the railroad. He was an engine wiper in the Katy roundhouse, just a few blocks from the birthplace home, making \$40 a month. He and Ida lived in the plain whiteframe, two-story house with their sons, Arthur and Edgar. Dwight was born in the first-story bedroom on October 14, 1890.

On that day, Ida went into labor while David was at work. Their boarder. James Redmon - a fireman for the Katy railroad who paid \$4 a month for room and board - ran down Main Street to get Dr. D.H. Bailey. Then he ran to the roundhouse and took David's place at work so he could go home to be with Ida. Dr. Bailey delivered David Dwight Eisenhower in this bedroom, Ida soon changed his name to Dwight David to prevent confusion between the two Davids.

Eisenhower himself did not know for years that he had been born in Denison. On his West Point application he put Tyler, Texas, as his birthplace, an error he corrected years later. Eisenhower couldn't have had any real memories of the place: he was, in fact, only 18 months old when his family left to return to Abilene, Kansas, which he --- and history considered his home. It was there that he went to high school and worked in the Belle Springs Creamery before going to West Point.

Eisenhower's West Point pedigree prepared him for military greatness. During World War II, he rose from near-obscurity as a lieutenant colonel



so grown-up working the logs on the fire so that the oxygen keeps the embers glowing. He shepherds his 5-year-old friend, making sure he doesn't get too close, and plays the young gentleman with Gael's slightly older niece, making sure she is out of the wood smoke as she begins the roasting ritual.

But when he puts his marshmallow what will be the first roasted marshmallow of his young life — into the fire ring, he is such a little boy. In the firelight, I see his little face so full of wonder and delight it brings tears to my eyes. He is 4foot-4 tonight. Much too soon, he will tower over me. But at this moment, he is still my little boy, browning a marshmallow. "Turn it so that it gets light brown all over," I tell him. "Don't let it catch on fire. It will turn black and you won't be able to eat it. And don't let it get too melty and droopy or it will fall off your stick.' He takes it all in as if I am giving him important life training.

in 1941 to five-star general in 1945, becoming supreme commander of the Allied Forces, keeping regular company and counsel with Winston Churchill and helping to orchestrate the invasion at Normandy. He came home to be elected the 34th president of the United States in 1952.

Even more than in the house and the stories, even more than in his paintings in the visitors' center (Churchill convinced Eisenhower to paint

to relieve stress during the war), I find Dwight's presence to be somehow most palpable in a green ash tree that stands about 10 yards east of the back door of the house. The tree isn't old enough to have been growing here when Dwight was born; even so, it's called the Eisenhower green ash, and something about its towering stature, its roots in the Denison soil, speaks his name and conveys his greatness.

The American Forests' Famous and Historic Tree Project took seeds from this tree to grow Eisenhower green ashes and plant the first-generation offspring as memorials. A 20-foot-tall Eisenhower green ash was planted on the grounds of the French Embassy in Washington, D.C., to honor WWII veterans, especially those who fought in the June 6, 1944, invasion of Normandy, More were planted at Arlington National Cemetery as part of "Operation Silent Witness, A Pearl Harbor Remembrance" ceremony. The Eisenhower green ash is the official tree of the WWII Memorial.

I stand beneath the ash tree's canopy and contemplate some of the words that Dwight D. Eisenhower left the world, seeds of wisdom that deserve to grow like Eisenhower ash trees grow around the country:

"I hate war as only a soldier who has lived it can, only as one who has seen its brutality, its stupidity."

"A people that values its privileges above its principles soon loses both.

'Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed."

"The only way to win World War III is to prevent it."

"The final battle against intolerance is to be fought not in the chambers of any legislature but in the hearts of men."

Words of wisdom, roots of strength, seeds of greatness. I found these at the Eisenhower Birthplace in Denison, Texas.





Some of the park's screened shelters have a lakeside view, above. Campers and day visitors can enjoy the scenic designated swimming area at the Elm Point camping area, below. Maps showing the park's hiking trails, right, are available at the headquarters office.





He gets his marshmallow just right and then points the stick at me. At first I think he's offering it to me to eat, but then I realize he's asking me to pull it off for him. He'll do the next one himself, without help. This one, though, is a mother-and-son moment. I pull his marshmallow off his stick, and he peps open his mouth like a little bird—Neah, mylittle boy, who wen't be needing Mom for stuff like this much longer.

My mother always said that if she had known that the last time my brother crawled up on her lap would be the final

Getting There

Eisenhower State Park is located in Grayson County, northwest of Denison, on the shores of Lake Texoma. From Dallas, take U.S. Highway 75 north to exit 72, SH 91 North. Take Highway 91 to FM 1310 West and go 1.8 miles to the Park Road 20 entrance.

Facilities at the park include restrooms, showers and campsites with water, electricity and sewer service. There are picnic sites, three playground areas, a pavilion and a recreation hall that can be reserved. Campers also have access to a lighted fishing pier, fish-cleaning facilities, a launching ramp and a courtesy boat dock. The park also has a 10-acre mini-bike area and 4.5 miles of hiking and biking trails for beginner and intermediate riders.

Entrance fee is \$1 per person; children 12 and under get in free. Campsites range from \$10 to \$22 per night. The park is open daily and the office is open from 8 a m. to 5 p.m. daily. For infor-

KLAHOMA

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Denison

mation about the park, call (903) 465-1956 or visit <www.tpwd.state.tx.us/park/eisenhow>.

To reserve a campsite call (512) 389-8900 or go to <www.tpwd.state.tk.us/park>and click on "Make Park Reservations."

Eisenhower Eirthplace State Historic Site is locatec at 609 S. Lamarin Denison. It is open Tuesday through Friday, 3 a.m. to 5 p.m.; Saturcay 10 a.m. to 4 p.m., Sunday and Monday, 1 p.m. to 5 p.m. Call (903) 465-8908 for information about tours Connection with nature brings connection with self the outdoors is the most effective guru to guide you to this fundamental truth.

time, she would have paid close attention and savored it. In my heart, I know what this marshmallow moment is. On the other side of this, my son will be less of a little boy and more of a young man. As rites of passage go, it's pretty subtle, but the emotion and meaning of this moment are, to me as deep as that lake out there. As much as I want to see him grow up and roast marshmallows around a campfire with his own children someday, I am not ready to lose this little boy. Still, I tell myself, if I really pay attention now, I will always have this memory.

Dut the marshmallow in his mouth and he closes his lips around the goo. His face shines with delight in the firelight. I etch everything into my mind and my heart the breeze blowing, the water shining, the stars twinkling, the embers glowing, the trees embracing. And my baby boy smiling at me with utter love. *

BOWHUNTING THE

Feral hogs are challenging to hunt, great to eat, and they are rooting around in every region of the state, including the Panhandle.

Late on an April morning I am hidden on a hill, scraping yelp after yelp from my box call, expecting a reply from the big turkeys that live in the creek bottom below me. Nothing but a hot Panhandle wind answers my calls. These birds seem to have developed laryngitis. Usually the bottom resounds with gobbles this time of year.

SPACE INVADERS

By Brandon Ray

canning the creek bottom and the prairie below me, I find a reason for the silence: a cluster of black dots in the distance. Too big for turkeys. I check them out through my binoculars and find a clan of five feral hogs 300 yards out. My turkey hunt has turned into a hog hunt.

I scramble down the hillside with bow in hand, knowing the hogs soon will retreat from the hot, open grass for the thick cover and shade along the muddy creek. Once in the brush they will be nearly impossible to find. Putting the wind in my face, I trot toward them as quietly as I can. Hogs have poor eyesight, but their senses of smell and hearing are excellent.

Bent at the waist, I scurry from mesquite to mesquite, trying to stay hidden as I close in. It's easy to tell where they are. They sound like five noisy vacuum cleaners as they grunt and snort, rooting up whatever food they can find. Their noise also covers the sound of my footsteps in the dry grass.

At 80 yards away, I slow down and try to anticipate which way the herd will move. Putting myself between the hogs and the creek, I nock an arrow on my bow, lean against a slight depression in the ground surrounded by tall broomweed and wait. Time ticks by. From my hideout I see the backs of the hogs moving closer. An average-sized pig is the first to pass within bow range. It sports a wide white stripe around its black bulk. When the pig's head goes behind a patch of cactus, I pull my bow to full power. With the bent bowstring ready at my ear, I wait. At

sequently increased. They provided an important source of cured meat and lard for settlers. During the fight for Texas independence, as people fled to the United States or Mexico, many hogs escaped or were released. It was not until the mid-1800s, when hostilities between the United

States and Mexico ended, that settlers once again began bringing livestock back into Texas. The livestock included hogs that ranged freely. Many escaped, contributing to the feral population.'

Today, feral hogs have adapted to every region of the state. Wild hogs have invaded the brush country of South Texas, the oaks and cedars of Central Texas, the pines of East Texas and even the broad canyons and open plains of West Texas, North Texas and the Panhandle. Hogs can adapt to habitat that varies from forests and swamps to chaparral brush, although they prefer bottomlands where water is usually available for drinking and wallowing in hot weather. The densest populations thrive in East, Southeast and South Texas. Smaller populations have reached West Texas and the Panhandle.

The hog's reproductive capabilities are astounding. Feral hogs

A fellow hunter deer away from feeders and food plots.

can reproduce at six months of age, provided they find good forage. says hogs routinely run Sows may have two litters per year, which may be born in any season, but production peaks in the spring.

An average litter size is four

to six, but under good con-

ditions a sow might produce

After the state's huge

white-tailed deer population (about 4 million ani-

mals in good years), wild

hogs are the most plentiful

large wild animal in Texas.

Current estimates put Texas'

hog population at between

I million and 2 million ani-

mals. Why does the estimate

vary by as much as I million

animals? Given feral hogs'

reproductive capabilities

and secretive, nocturnal

IO to I2 young.

12 short paces it turns broadside. At the pop of the string the herd bolts for the shade at the water's edge, but only four make it there.

Texas' Wild Bacon

Two things are obvious about that hunt last spring. No. I: I probably would be a more successful turkey hunter if I could stay focused on turkeys. And No. 2: feral hogs are everywhere. Whether I'm hunting turkeys, mule deer or white-tailed deer, these days I often find feral hogs



where there used to be none. Recently my sister spotted a big, black boar in a Conservation Reserve Program field on our Panhandle ranch. The property has been in my family for 55 years, and until this year we never had seen a wild hog. Hogs long have been a problem in East Texas, where they tear up habitat in wildlife management areas, and even have become a nuisance in some suburban areas, tearing up lawns. If your neighbors have feral hogs, usually it is just a matter of time before their growing herd spreads to adjoining properties.

Even in the extreme conditions of the Texas Panhandle, where summer heat can top 100 degrees and a winter day can be 10 degrees with snow and hard north winds, the feral hog seems right at home. Like the coyote, the feral hog can adapt to almost any environment. Unlike the much smaller javelina, feral hogs are not native to Texas.

"Early Spanish explorers probably were the first to introduce hogs into Texas more than 300 years ago," says TPWD biologist Rick Taylor. "As colonization increased, hog numbers sub-

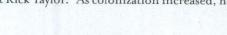
Hints for Hogs

After shooting more than 30 Texas porkers with archery gear, I can identify one constant among them: Hogs are tough! Shot placement is important on tough-as-a-tank, oversized feral hogs. Be patient and wait for a broadside or slightly quartering-away shot angle. Aim behind the shoulder approximately halfway up from the brisket. This provides the best angle to put an arrow through both lungs for a quick, humane kill and avoids the thick hide armoring the chest.

My personal gear list for chasing hogs with archery tackle includes a compound bow pulling between 60 and 65 pounds. My arrows are aluminum/carbon composite shafts fletched with 4-inch feathers and tipped with 85-grain titanium broadheads. High-quality 10 x 40 binoculars go everywhere with me to locate hogs, and I use a laser rangefinder to gauge the exact distance of the shot.

The feral hog is not a game animal in Texas and is unprotected. Hogs may be taken by any means at any time of year, day or night. There are no seasons or bag limits, but a hunting license and landowner permission are required to hunt them.

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nature, it is difficult to get an accurate count of just how many hogs Texas has.

Wild hogs are not just plentiful, they can be destructive. Texas Wildlife Damage Management Service, part of the Texas Agricultural Extension Service, deals specifically with problem wildlife. Joe Zotter, a biologist in the Canyon office, comments on the damage wild hogs can cause.

"Ranchers often call us because hogs are eating their round hay bales intended for cattle or rooting up crops such as wheat and milo," he says. "In the central region of the state, hogs can prey on newborn lambs and goats. One rancher in the eastern Texas Panhandle contacted us after a herd of hogs destroyed 210 acres of peanuts. Within five days, the hogs rooted up and consumed the entire crop. The hogs destroyed approximately \$11,000 worth of the farmer's peanut crop in less than a week! A wildlife damage management specialist trapped approximately 40 hogs in the brush surrounding what was left of the peanut field."

If you ever have the misfortune to run into a herd of hogs on the highway at night, you will appreciate a different sort of destruction. A couple of years ago I hit a black hog with my pickup late one night in Central Texas. The 200-pounder hit the left fender, inflicting serious damage. A big hog that makes a direct hit food plots he had planted with wheat and fenced for the property's deer. On the first morning I found a hungry mob of at least 30 space invaders snacking on the wheat. Most were black, but at the center was a boar six inches taller than the others. Its hide was mottled black and white. It lorded over the herd, the king of the mob.

I crouched and circled the corner of the field, then eased down the fenceline, the wind in my face. Several of the hogs slipped under the barbed wire and vanished in the cedars and mesquites. I sat motionless in knee-deep broomweed and waited. Three bigger hogs as black as the bottom of a deep well stopped and milled around in the broomweed straight in front of me. Each hog wore a white blaze across its forehead.

Then the big boar I wanted slipped under the fence and stared in my direction. Its mostly white head and long snout looked huge through my binoculars. Its long body tapered down to a narrow back end. Its spotted hide blended surprisingly well with the short brush. As I drew my bow, it turned slightly. With a low, guttural growl it nosed one of the pigs in front of it. My sight pin hovered for a moment on the boar's chest; then the arrow was gone.

A short time later I knelt over the lifeless hog. One of the

boar's thick lower tusks was broken

clean in half, probably from a fight

with another boar. Its other lower

tusk was knife-sharp. I touched it

with my fingertip and compared it

to the sharpened steel of one of the

broadheads in my quiver. It amazes

me how one well-placed arrow with

a razor's edge can kill such an enor-

mous beast just as cleanly as the

Ihad a good hunt, but I had scarce-

ly dented the hog population. Some

other boar would take up the king's

position and the sows will keep pro-

ducing. That's why the state has no

limit on how many wild hogs a

hunter can take, nor is there a closed

season on them. It's legal to take wild

hogs any time of year, but with win-

ter here, now is the perfect time for hunters anywhere in the state to fill

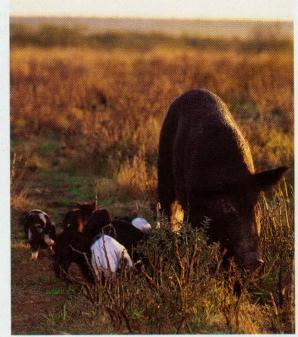
their freezers with some of Texas'

biggest, hardest-kicking rifle.

on a small car could do much more than bend a fender. The accident could be deadly for both pig and motorist. My new truck is equipped with a stout front bumper for such encounters.

A fellow hunter says hogs routinely run deer away from feeders and food plots on his Panhandle lease. Instead of the deer benefiting from expensive protein feed and lush, green food plots, hogs reap the rewards. I have witnessed deer running away from big, hungry hogs around feed areas in South and Central Texas.

Manyranchers would like to eliminate hogs completely because of the damage they cause, but other landowners with good numbers of wild hogs often lease hunting rights or sell guided hunts. Guided hunts in North Texas and the Panhandle fetch between \$100 and \$400 per day. An old boar with long ivory tusks is a coveted trophy among hunters. However, the meat from an older boar has a stronger taste. For the best eating, pigs weighing less than 150 pounds are ideal. Feral hogs are leaner than pen-raised pork, and



Sows may have two litters per year, which may be born in any season.

the meat from average-sized pigs is quite tasty.

January, February and March are ideal months to hunt Texas' wild pork. Leaves have fallen from trees and other vegetation, making the pigs easier to spot. Hogs travel more in daylight in the cooler temperatures. Winter also makes food harder to find, so hunters can do well with spot-and-stalk tactics near bright green wheat fields, or stand-hunting near corn feeders.

Bowhunting the Mob

One of the bigger, uglier hogs I've pursued with bow and arrow appeared on a cool, drizzly day at the top of Texas. The ranch owner complained of hogs raiding one of the secluded, 10-acre Hog Hunting Operations in North Texas and the Panhandle

wild bacon. *

The Nail Ranch Craig Winters 5546 North U.S. 283 Albany, TX 76430 (915) 762-2974 <www.nail-ranch.com>

Silver Cloud Ranch Bill Carthel P.O. Box 456 Silverton, TX 79257 (806) 847-2522 Plaska Lodge Oren Don Molloy Route 1, Box 61 Memphis, TX 79245 (806) 259-2199 <www.plaskalodge.com>

Mesquite Country Outfitters James Stephens P.O. Box 204 Roaring Springs, TX 79256 (806) 689-2302 <www.mcohunts.com>

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TEXAS PARKS & WILDLIFE *

HOT BASS & COOLCATS

Dress for the weather and discover a "winter wonderland" of freshwater action at Martin Creek Lake. BY PAUL A. CAÑADA Y FRIEND DANIEL SUG-GESTS I start with a soft-plastic twitch bait while he throws a Suspending Rogue. I feel silly throwing the weightless bait up in the shallows on a cold January morning. Conventional wisdom says that bass move to deep water when it's cold. Still, Daniel is an accomplished tournament angler and very familiar with Martin Creek Lake, so I comply.

Slowed by my bulky jumpsuit, I struggle to work the rod tip and maintain a convincing cadence. The slack in my line slaps at the water's surface. My numb fingers fail to detect the first nudge at the lure. However, the subtle bite quickly turns into a tug-of-war, and my finned oppo-

nent shakes off the hook. While I fumble with my lure, Daniel sweeps his rod back and the normally unyielding, medium-heavy outfit bows up. Moments later, a chunky four-pound bass swims alongside the boat, relentlessly trying to throw the lure back at my partner.

While the fishing is hot, the weather is not. I estimate the air temperature to be in the mid-30s. Yet we are fishing in shallow water - and the fish are biting. For many East Texas bass anglers, Martin Creek Lake - located just southeast of Longview-is the equivalent of a "winter wonderland." The 5,000-acre impoundment's water is warmed by the discharge released from TXU Energy's lignite-fired electric power generating plant. This influx of hot water creates a warmwater fishery in the middle of winter and provides anglers

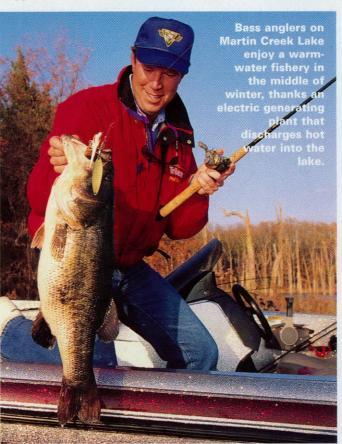
with an excellent opportunity to pursue their favorite sportfish in relatively shallow water.

Winter Bass Fishing Opportunities

Like bass populations on many of Texas' power-plant impoundments, Martin Creek Lake's bass begin moving to spawning grounds in December. Because of this, the East Texas impoundment is popular in January and February. While other bass anglers are probing Lake Fork's deeper water, hoping for a few bites a day, the shallow water bite is on at Martin Creek Lake. Still, Martin Creek Lake is different from most power-plant reservoirs. Unlike most warm-water reservoirs, Martin Creek's dam is on the northern end of the lake, and the hot-water discharge is located at mid-lake. However, a retaining wall or diversion dam — designed to allow for the greatest circulation and cooling before the hot water enters the main lake body — channels the discharge up Dry Creek.

According to Jimmy Bartley, a former guide on Martin Creek Lake, the diversion of the hot water causes water temperatures to vary throughout the lake.

"In January," he says, "the water temperatures in Panther and Rocky Ford creeks typically will be in the mid-50s. But the water temperature in those areas close to the hot-water discharge may be in the high 80s. Water temperatures at



mid-lake, in the Martin Creek arm, will vary between the high 60s on the leeward, west bank and in the low 60s on the lessprotected east bank. This disparity in water temperature literally creates three different fisheries out of the one.

'When the bass around the hot-water discharge have spawned out, the fish around the dam and Panther Creek are just beginning to stage on the points adjacent to the creek channels," Bartley continues. "The bass at midlake will be somewhere in between the two extremes. Beginning in January and continuing through mid-February, you can choose which group of fish - prespawn, spawn or post-spawn - you want to target."

Understandably, anglers will find the earliest spawners in Dry Creek and around the hot-water discharge. Most of the spawning bass can be

Martin Creek Lake State Park — Serving Anglers and Families

Martin Creek Lake State Park is located on the northeast end of the reservoir. Its four-lane concrete boat ramp is the only one on this East Texas impoundment. The park's many facilities easily accommodate a variety of outdoor activities including hiking, camping, birding, nature study, swimming and biking.

Park visitors interested in activities other than fishing can test the recently improved, 8.5 miles of hiking/mountain biking trails. Park manager Victor Perez explains: "We had a timber harvest and so have rerouted our trails. Logs and trees that were blocking portions of the trail were removed, and areas that looked potentially bad for beetle infestation were thinned out. Fortunately, we didn't experience any loss of trail mileage."

Facilities include screened shelters, a group picnic pavilion, a playground and an unsupervised swimming area. Overnight accommodations include hike-in primitive campsites (no drinking water available) and campsites with water, electricity, fire rings and picnic tables. The park also has two cottages (capacity of five) with air conditioning and heat, water, electricity and bunk beds. Visitors seeking more luxurious accommodations might try one of the two cabins (capacity of four) with central air and heat, kitchen with stove and oven, refrigerator, coffee maker, screened back porch and outdoor smoker/cooker.

Like Martin Creek Lake's fishery itself, Martin Creek Lake State Park is evolving to meet the changing interests and various activities of outdoor enthusiasts. "This park is under a major transition right now," says Perez. "There are a lot of repairs going on, and many improvements are being made. In the end, the park will better serve the entire outdoor community — anglers and all others as well."

For information about the park call (903) 836-4336 or visit <www.tpwd.state.tx.us/park/martincr/>. For reservations call (512) 389-8900 or go to <www.tpwd.state.tx.us> and click on Make a Reservation.

Staying Safe on Martin Creek Lake in Winter

Safety cannot be overlooked when fishing in air temperatures near treezing. Prior to arriving at the reservoir, anglers should secure and study an accurate map of Martin Creek Lake. The impoundment is full of pole timber, stump fields and high spats. Fog, which forms whenever air temperatures drop low enough to promote condensation, combines with the water hazards to make an early morning departure risky. Anglers must exercise extreme caution and use common sense when navigating the lake under foggy conditions.

Hypothermia is a real danger when fishing Martin Creek Lake in winter. Always keep towels, blankets and a spare set of clothes on board. Layer clothing, beginning with extreme-weather underwear and finishing with an insulated bib and jacket suit. Use neoprene gloves to keep fingers warm and safe from frostbite.

Even the best swimmers find it difficult to keep their heads above water when heavy winter clothing gets soaked. Keep life jackets on, especially when fishing alone. Flottation cushions should be kept out and within reach.

In freezing conditions, hoat ramps ice up quickly. It's important to use caution when launching and trailering. Move slowly down and back up the ramp to avoid spinning tires. Once traction is lost, it's difficult to regain control of a trailer and tow vehicle.

Finally, heavy early morning fog, common on Martin Creek Lake in winter, impedes a boater's vision of the shoreline and oncoming watercraft. Anglers should keep navigation lights on and an air horn near the driver's seat. When fog is extremely dhick, anglers should stay close to shore and avoid running at high speeds. Also, a compass and detailed map of the lake should be kept on board at all times. caught from surprisingly shallow water near stumps, laydowns and flooded brush. Locals use a number of shallow presentations — spinnerbaits, soft-plastic trick worms and twitch baits, tube baits and suspending jerk baits — when targeting these fish.

The most probable locations for finding pre-spawn fish in January will be in the northernmost and southernmost ends of the lake. The hungry predators will congregate along the edges of creek channels in about eight feet of water. On unusually warm days, prespawn bass will move up onto the shallower flats to feed. Bartley recommends anglers use diving crankbaits and spinnerbaits to locate fish and switch to a jig or worm once contact is made.

An Emerging Fishery

A decade ago, Martin Creek Lake was considered strictly a trophy bass fishery. The reservoir had an abundance of shallow cover (hydrilla, lily pads and timber), clear water, an excellent forage base and a healthy bass population. However, a combination of low water conditions in 1996 and the stocking of more than 12,500 grass carp resulted in the complete eradication of hydrilla. Today, the bass population at Martin Creek Lake is significantly less than it was in the early 1990s.

"The bass population has been on a steady decline ever since the aquatic vegetation disappeared from the reservoir," says Victor Perez, manager of Martin Creek Lake State Park.

Making a Case for Aquatic Vegetation

In the early 1990s, the vegetative coverage—specifically hydrilla—on Martin Creek Lake was deemed excessive. The controlling authority on Martin Creek Lake (TXU Energy) feared the excessive hydrilla would block the power generating plant's water intake structures and believed the

coverage was inhibiting recreational use of the lake. Equally important, Texas Parks and Wildlife Department biologists believed the approximately 40 percent coverage was too high to provide good biological benefits to the fishery.

In order to remedy the troubling situation, TXU Energy and TPWD planned to stock just enough grass carp into the system to reduce and control the growth of aquatic vegetation. The carp were introduced in 1993 and stocked annually between 1996 and 1999. It was planned the 12,566 carp stocked in the lake would reduce the vegetation level and maintain it at approximately 15 percent coverage.

Historically low water levels in 1996 killed much of the shallowest hydrilla, and the grass carp were able to overtake the remaining grass and quickly eliminate any new growth. The sudden reduction of shallow vegetation resulted in poor spawns and low recruitment numbers of bass and the eventual

"I have been told the bass population is about a quarter of what it was before the complete loss of hydrilla."

Although the bass fishing continues to be good between December and March, when the bass have moved relatively shallow to spawn, it has become increasingly difficult to locate and catch largemouths between April and November. The decline of one species has led to the growth of another.

Texas Parks and Wildlife Department fishery biologist Todd Driscoll explains. "The channel catfish population at Martin Creek Lake is unbelievable," he says. "We're really uncertain of the actual mechanisms that stimulated this growth in the

The growth of Martin Creek's catfish population has changed fishing patterns on the lake.



Fisheries biologists aren't sure why the lake's catfish population has increased, but a creel survey last spring showed catfish to be the most targeted species.

same. That was obviously an invalid assumption at Martin Creek Lake. The number of carp introduced into the lake wasn't enough to eliminate the grass totally. The main compounding factor in what happened at Martin Creek Lake was the low water levels of 1996."

The terrestrial vegetation that grew on the dry lake bottom during lowwater years has been inundated by recent rises in water levels. The flooded brush and small trees are excellent nursery habitat for young bass, and the bass are coming back, Driscoll says. "Our survey caught a lot of young bass in fall 2001, which means the survival of bass spawned in spring of 2001 was fairly promising. Once the bass reach 10 inches or larger, predation isn't as big a player as it is when the bass are only three to four inches long. As the loss of hydrilla and the flooding of brush on Martin Creek Lake have shown, shallow cover plays a significant role in the numbers of bass."

catfish population. Some of the growth might be due to the reduction of bass numbers and a corresponding reduction in direct predation by bass. However, it's more likely the disappearance of shallow vegetation made more nutrients available to those food items the catfish prefer."

The growth of Martin Creek's catfish population has changed fishing patterns on the lake. "Following the disappearance of the aquatic vegetation," says Driscoll, "we have conducted creel surveys every spring. The last creel survey showed catfish was the most popular species targeted. Believe it or not, more than half of the angling pressure we observed during that survey was being done from the bank. We have a unique fishery in Martin Creek Lake."

Bank fishing within the park could hardlybe easier. The many secondary points located just east of the state park's boat

> ramp often give up nice numbers of bass and panfish. Catfish anglers may want to test the flats east of the park headquarters, and between the launch facilities and spillway. Nighttime anglers will find the lighted pier and seasonal fish feeder ideal for primetime catfish angling.

> Whether you target bass or catfish, the fishing in Martin Creek Lake just gets hotter as the weather gets colder. *

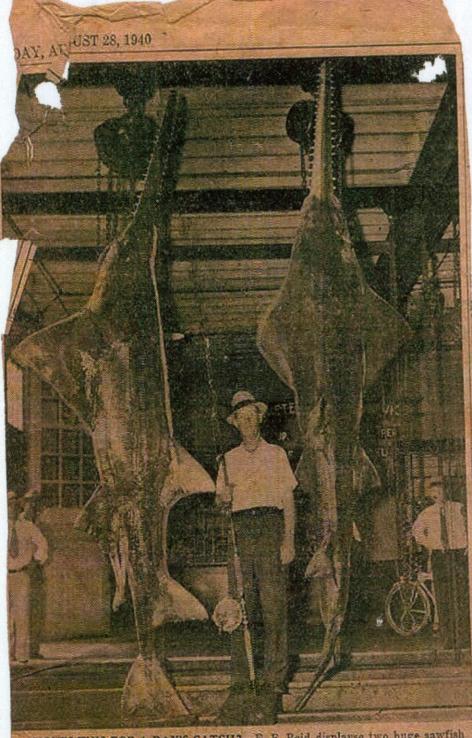
> PAUL CAÑADA is a freelance writer and photographer from Laredo.

> reduction of Martin Creek Lake's bass population. Also, without the good shoreline habitat to hold and concentrate the bass, not only have the numbers of fish been reduced but so has the catchability of the remaining bass.

> "When dealing with a biological control like grass carp," explains TPWD biologist Todd Driscoll, "you're assuming the current level of vegetation coverage is going to remain the

LEGEND, Lore, & LEGACY

The Sawfish Scenario



HOW'S THIS FOR A DAY'S CATCH?-E. F. Reid displayse two huge sawfish he caught Sunday from Galveston north jetty. The fish on Reid's right measured 14 feet and nine inches. The one on the left was a baby and only measured 14 feet. Reid hoped to break the world's record, held by Gus Pangarakis of Houston, with his largest fish. However, it weighed only 620 pounds after being cleans. The record on sawfish is determined by pounds and the one landed by Pangarakis off Galveston north jetty in 1938 tipped the beam at 736 pounds. It measured only 14 feet and sever inches. The sawfish which has survived 56 million years is fast disappearing from Texas waters. BY LARRY BOZKA

Although I've been fishing the Texas Coast for more than 30 years, I had never seen a sawfish until I went to Costa Rica in 1984. Local fishermen at the mouth of the Rio Colorado had caught one on a massive, wide-gapped hook tied to a heavy cotton hand-line and dragged it to shore, where it thrashed its scythe-like tail and grunted in protest. Its paddle-like rostrum, studded with enormous teeth, was five feet long.

A half-dozen Costa Rican Army volunteers gathered around the huge beast, jubilant. Only one, the officer in charge, was older than 20. One of the excited lads told another that the villagers would eat well that night. Another lowered a brand-new Uzi and spit a stream of bullets into the leviathan's head. The birds that had been squawking in the jungle were suddenly still. The soldiers posed for photos. One of them fetched a machete and chopped off the bill.

The villagers would feast, and the bill would be a rare souvenir. Such celebrations are not likely to happen often. Though once numerous all along the Gulf Coast, the sawfish is disappearing, a victim of fishing nets and its peculiarly attractive size and ugliness.

Sawfish populations have dwindled so drastically that I don't expect to ever see one along the Texas Coast. In April 2002, the National Marine Fisheries Service proposed the smalltooth sawfish be listed as an endangered species.

"However," says Edith Erling, a biologist with the U.S. Fish and Wildlife Service Houston office, "the proposal has never been finalized. We're still in the information-gathering process."

Since 1984, field information regarding the species has been scarce as sawfish teeth. According to Billy Fuls, resource monitoring program specialist with the Texas Parks and Wildlife Department field station in Corpus Christi, the Texas Coast once was home to both the smalltooth sawfish, Pristis pectinata, and the largetooth sawfish, Pristis pristis. "We have caught two smalltooth sawfish in bay samples," Fuls says, "a 51/2-footer taken in a trammel net in Matagorda Bay during August 1979 and a 5-footer in a gill net in Aransas Bay in April 1984."

Legendary Texas saltwater angler Gus Pangarakis landed a 739-pound sawfish off Galveston Island on January I, 1939. The fish was a state record. It still is, and likely will remain, a record ad infinitum. Biologists estimate that the species — actually two separate species — no longer exists in 90 percent of its former territory.

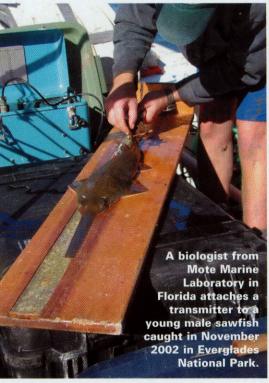
"The smalltooth sawfish is a shallow-water species that has about 24 teeth on each side of the saw," Fuls explains. "The tropical largetooth sawfish has larger but fewer teeth, and is endemic to Gulf shores. Though they now are very rare, both species used to be fairly common along the Texas Coast."

Perhaps the most solid evidence of the Texas sawfish legacy can be seen on the outside wall of a Rockport barbershop on Austin Street. When the southern exterior was being prepped for a paint job, the painting of a 17-foot-long sawfish was revealed. Local legend has it that the gargantuan beast was caught in a shrimp trawl by two Palacios fishermen working on Matagorda Bay during the summer of 1927 or 1928. Local lore has it that the fish sported a girth of $6\frac{1}{2}$ feet and weighed close to 2,000 pounds.

In Texas and worldwide, amazingly little information is available on the estimated seven species of sawfish that have survived since the creatures first began to evolve in Eocene oceans and estuaries some 56 million years ago. Roughly 40 species have been identified, many through fossil remains.

Smalltooth sawfish commonly reach 18 feet in length; rare specimens have reportedly grown to an incredible 25 feet. Like largetooth sawfish, which grow as long as 23 feet, they have a lifespan of 25 to 30 years. Females of both species do not become sexually mature until age 10.

Therein lies the sawfish chain's weakest link. A mature female sawfish, even in the best of environments, can produce only 15 to 20 "pups" a year. Born into shallow



waters, the pups make easy meals for predators, particularly sharks.

Meager reproduction and predation have hurt the species. Ironically, though, the same "teeth" that sawfish use for feeding and defense are the features that hastened their decline.

Though they resemble sharks, sawfish actually are ancestors of rays known as "batoids." Like sharks, and due to a protective layer of enameled scales called "dermal denticles," their skin is as rough as sandpaper.

While sharks indeed sport real teeth, the "teeth" of sawfish actually are modified scales. As they enlarge with the passage of time, they become more and more embedded in the fish's paddle-like rostrum. Those teeth have been a major source of trouble for the species. While coastal development has exacted a toll, commercial fishing has proved to be the fishes' downfall.

With paddle-mounted teeth seemingly custom-grown for snagging nets, sawfish have been extremely vulnerable to commercial fishing. Though such catches are deemed "incidental" by NMFS biologists, post-World War II shrimp trawls, gill nets, trammel nets and seines have devastated sawfish. By the 1960s the decline was apparent. By the '70s the NMFS estimated the species had dwindled to I percent of what existed less than 100 years ago.

Though bizarre and even fearsome, the physical appearance of sawfish is deceiving. They feed exclusively on bottom-dwelling invertebrates and small forage fish, sweeping their rostrums on the seabed to both sense and stun unwitting prey. That's not to say, however, that the unsuspecting wader wouldn't be seriously injured were he or she to unwittingly stray into the path of a mature, bottom-sweeping sawfish. Quite the contrary. Anything that has large, protruding teeth and weighs 1,000 pounds can hurt you, intentionally or otherwise. If there is anything to worry about, however, it's the sad state of the species in the new millennium. Your likelihood of encountering a sawfish today is probably — just like the creatures themselves - nigh

non-existent. Somewhere, there is a lesson to be learned by this. Unfortunately, in the case of the sawfish, it may well be a class taken far too late in the course of our education. \bigstar

Freelance writer LARRY BOZKA is currently working on a book about coastal fishing in Texas.

Editor's Note: For information on Gulf of Mexico sawfish stocks and updates on pending measures to protect the species, log on to the National Marine Fisheries Service Web site: <www.nmfs.noaa.gov/ prot_res/species/fish/Smalltooth_ sawfish.html>.

SIGHTS &

DENTON/DALLAS/FT. WORTH: KNTU-FM 88.1 / 10:30 a.m. & 2:30, 5:50 p.m. DIMMITT: KDHN-AM 1470 / 12:31 p.m. DUMAS: KDDD-FM 95.3 / 10:30 a.m. KDDD-AM 800 / 10:30 a.m. EAGLE PASS: KINL-FM 92.7 / 7:15 a.m.

Continued from page 61

EAGLE PASS: KINL-FM 92.7 / 7:15 a.m. EASTLAND: KEAS-AM 1590 / 5:51 a.m. & 5:51 p.m., KATX-FM 97.7 / 5:51 a.m. & 5:51 p.m.

EDNA: KGUL-FM 96.1 / 6:50 a.m. EL CAMPO: KULP-AM 1390 / 2 p.m. FAIRFIELD: KNES-FM 99.1 / 6:47 a.m. FLORESVILLE: KWCB-FM 89.7 / 1:30

p.m. FORT STOCKTON: KFST-AM 860 / 7:56 a.m. & 12:50 p.m., KFTS-FM 94.3 / 7:56

a.m. & 12:50 p.m. FORT WORTH: KTCU-FM 88.7 / 8:50 a.m. & 5:50 p.m.

GAINESVILLE: KGAF-AM 1580 / 7 a.m. GATESVILLE: KASZ-FM 98.3 / 7:24 a.m. GRANBURY: KPIR-AM 1420 / 10 a.m. -11 a.m.

GREENVILLE: KGVL-AM 1400 / 8:15 a.m.

HALLETTSVILLE: KHLT-AM 1520 / 6:50 a.m., KTXM-FM 99.9 / 6:50 a.m.

HASKELL: KVRP-FM 97.1 / 9:30 a.m. M-F; KVRP-AM 1400 / 9:30 a.m. M-F

HARLINGEN: KMBH-FM 88.9 / 4:58 p.m.

HEREFORD: KPAN-AM 860 / 2:50 p.m., KPAN-FM 106.3 / 2:50 p.m.

HILLSBORD: KHBR-AM 1560 / 9:30 a.m. HOUSTON: KCOH-AM 1430 / Sat. 4:30 -6:30 a.m.

HUNTSVILLE: KSHU-FM 90.5 / 11:55 a.m., 5:55 p.m.

JACKSONVILLE: KEBE-AM 1400 / 7:15 a.m.

JOURDANTON: KBUC-FM 95.7 / Sat. noon

JUNCTION: KMBL-AM 1450 / 6:46 a.m. & 12:46, 5:46 p.m., KOOK-FM 93.5 / 6:46 a.m. & 12:46, 5:46 p.m.

KERRVILLE: KITE-FM 92.3 / 11:51 a.m. & 12:51, 5:40, 8:40 p.m., KERV-AM 1230 / 6:50 a.m. & 12:50, 5:50 p.m., KRVL-FM 94.3 / 6:10 a.m. & 12:50, 5:50 p.m., KRNH-FM 92.3 / 5:31 a.m. & 12:57, 7:35 p.m.

LAMPASAS: KCYL-AM 1450 / 7:10 a.m., KACQ-FM 101.9 / 7:10 a.m. LAREDO: KHOY-FM 88.1 / 2 p.m. M-F LEVELLAND: KLVT-AM 1230 / 12:05 p.m. LUBBOCK: KJTV-AM 950 / 6:50 a.m. MADISONVILLE: KMVL-AM 1220 / 7:45 a.m., KMVL-FM100.5 / 7:45 a.m. MARBLE FALLS: KHLB-AM 1340 / 7:20 a.m., KHLB-FM 106.9 / 7:20 a.m.

MARSHALL: KCUL-AM 1410 / 6:39 a.m., KCUL-FM 92.3 / 6:39 a.m. MCALLEN: KHID-FM 88.1 / 4:58 p.m.

MESQUITE: KEOM-FM 88.5 / 5:30 a.m. & 2:30, 8:30 p.m. M-Th. (5:30 a.m. & 4:45 p.m. F)

MEXIA: KYCX-AM 1580 / 3 p.m. M–F, KYCX-FM 104.9 / 3:20 p.m. M–F MIDLAND/ODESSA: KCRS-AM 550 / 6:15 a.m. & 5:50 p.m., KOCV-FM 91.3 / 7:37 a.m. M–F

MINEOLA: KMOO-FM 99.9 / 5:15 p.m. MONAHANS: KLBO-AM 1330 / 8:50 a.m. NACOGDOCHES: KSAU-FM 90.1 / 3 p.m. NEW BRAUNFELS: KGNB-AM 1420 / 6:52 a.m. **OZONA:** KYXX-FM 94.3 / 6:46 a.m., noon & 3:46 p.m. **PECOS:** KIUN-AM 1400 / 10:30 a.m. &

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SOUN

5:20 p.m.

PLAINVIEW: KKYN-AM 1090 / TBA ROCKDALE: KRXT-FM 98.5 / 5:04 a.m. & 6:35 p.m.

SAN ANGELO: KUTX-FM 90.1 / 1:04 p.m. SAN ANTONIO: KSTX-FM 89.1 / 9:04 p.m. Th., KENS-AM 1160 / 7:40 a.m., 12:26 & 5:45 p.m.

SAN AUGUSTINE: KCOT-FM 92.5 / 12:25 p.m.

SCHULENBERG: KTXM-FM 99.9 / 6:50 a.m.

SEGUIN: KWED-AM 1580 / 7:55 a.m. **SONORA:** KHOS-FM 92.1 / 6:22 p.m.

STEPHENVILLE: KSTV-FM 93.1/5 a.m. - 7 a.m.

SULPHUR SPRINGS: KSST-AM 1230 / 2:50, 3:50 & 11:22 a.m.

TEMPLE: KTEM-AM 1400 / 6:50 a.m. TEXARKANA: KTXK-FM 91.5 / noon hour

UVALDE: KVOU-AM 1400 / 8:30 a.m., KVOU-FM 104.9 / 8:30 a.m.

VICTORIA: KVRT-FM 90.7 / 11:30 p.m., KTXN-FM 98.7 / 6:50 a.m.

VICTORIA-GANADO: KZAM-FM 104.7 / 6:50 a.m.

waco: KWTX-AM 1230 / 7:30 a.m. & 7:30 p.m. Sat.-Sun.

WICHITA FALLS: KWFS-AM 1290 / 6:15a.m.

YOAKUM: KYKM-FM 92.5 / 6:50 a.m.

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Jan. 26 - Feb. 2: The endangered Attwater's prairie

chicken; GPS; the Sharelunker program; historical reenactors; coyotes.

Feb. 2 - 9:

Endangered ocelots in South Texas; phoebes and peewees; Texas State Railroad; the birding business; paddling Armand Bayou; Panhandle snow.

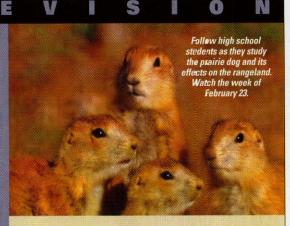
Feb. 9 - 16:

The Caribbean connection; picking a PFD; Washington-onthe-Brazos; preserving the paintings of ancient <u>civilizations.</u>

Feb. 16 - 23:

Following the Guadalupe River; peeper sounds; Dutch oven cooking; from puppy to champion; Earl Nottingham photos.

Feb. 23 - March 2: High school prairie dog project; tents; dermestid beetles; the disappearing bayous near Houston; the Colorado River.



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BEAUMONT: KLVI-AM 560 / 5:20 a.m. **BIG SPRING:** KBST-AM 1490 / 10:55 a.m., cable ch. 23 / 10:55 a.m., KBST-FM 95.7 / 10:55 a.m.

BRADY: KNEL-AM 1490 / 7:20 a.m. & 8:50 p.m. (7:50 a.m. Sat.), KNEL-FM 95.3 / 7:20 a.m. & 8:50 p.m. (7:50 a.m. Sat.) BRIDGEPORT: KBOC-FM 98.3 / 8:10 a.m. & 5:15 p.m.

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CARTHAGE: KGAS-AM 1590 / 6:46 a.m., KGAS-FM 104.3 / 6:46 a.m.

CENTER: KDET-AM 930 / 12:25 p.m., KDET-FM 100.2 / 12:25 p.m.

COLEMAN: KSTA-AM 1000 / 5:05 p.m. COLUMBUS: KULM-FM 98.3 / 7:20 a.m. COMANCHE: KCOM-AM 1550 / 6:30 a.m.

COMMERCE: KETR-FM 88.9 / 10:15 a.m. **CORPUS CHRISTI:** KEDT-FM 90.3 / 5:34 p.m., KFTX-FM 97.5 / 5:40 a.m., KBSO-FM 94.7 / 6:50 a.m.

CROCKETT: KIVY-AM 1290 / 8:15 a.m., KIVY-FM 92.7 / 8:15 a.m.

CUERO: KVCQ-FM 97.7 / 6:50 a.m. DEL RIO: KWMC-AM 1490 / 5:50 p.m. DENISON/SHERMAN: KJIM-AM 1500 / 8:55 a.m.

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FROM BIG BEND TO THE BIG THICKET AND THE RED TO THE RIO GRANDE



BIG BEND COUNTRY

FEB.: Nature Hikes and Bird Walks, Davis Mountains SP, Fort Davis, call for dates, (915) 426-3337

FEB.: Living History Tours, Fort Leaton SHS, Presidio, every Saturday and Sunday, (915) 229-3613

FEB.: Bouldering Tours, Hueco Tanks SHS, El Paso, every Wednesday through Sunday, by prior arrangement, (915) 849-6684

FEB.: Hiking Tours, Hueco Tanks SHS, El Paso, every Wednesday through Sunday, by prior arrangement, (915) 849-6684

FEB.: Pictograph Tours, Hueco Tanks SHS, El Paso, every Wednesday through Sunday, by prior arrangement, (915) 849-6684

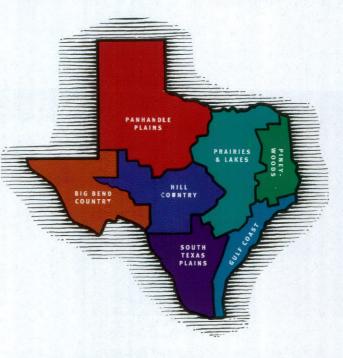
FEB.: Fate Bell Cave Dwelling Tour, Seminole Canyon SP & HS, Comstock, every Wednesday through Sunday, (915) 292-4464

FEB.: White Shaman Tour, Seminole Canyon SP & HS, Comstock, every Saturday, (888) 525-9907

FEB. 1: Trip to Madrid Falls, Big Bend Ranch SP, Presidio, reservations required, (915) 229-3416

FEB. 1, 15: Presa Canyon Tour, Seminole Canyon SP & HS, Comstock, reservations required, (915) 292-4464

FEB. 1-23: Quail Hunts, Black Gap WMA, Alpine, (915) 376-2216



FEB. 1-28: Fishing on the Fio Grande, Black Gap WMA, Alpine, (915) 376-2216

FEB. 2, 16: Upper Canyon Tour, Seminole Canyon SP & HS, Comstock, reservations required, (915) 292-4464

FEB. 8: Blacksmith Workshop, Fort Leaton SHS, Presidio, (915) 229-3613

FEB. 8: Stories of Spirits, Magoffin Home S-S, El Paso, (915) 533-5147

FEB. 8: VV 75 Tour, Semincle Canyon SP & HS, Comstock, (915) 292-4464

FEB. 9, 23: Sunday Afternoon Lecture Series, Barton Warnock Environmental Ecucation Center, Terlingua, (915) 424-3327

FEB. 14-16: Romantic Ranch-Style Weekend, Big Bend Ranch SP, Presidio, reservations required, (915) 229-3416

FEB. 14-16, FEB. 28 – MARCH 2: Desert Survival Programs, Big Bend Ranch SP, Presidio, reservations required, (877) 371-2634 **FEB. 16:** Bird Identification Tours, Hueco Tanks SHS, EI Paso, (915) 849-6684

FEB. 22: Guale Mesa Tour, Big Bend Ranch SP, Presidio, reservations required, (915) 229-3416



GULF COAST

FEB.: Weekend Nature Programs, Brazos Bend SP, Needville, every Saturday and Sunday, (979) 553-5101

FEB.: Hatchery Tours, Coastal Conservation Association/ American Electric Power Marine Development Center SFH, Corpus Christi, every Monday through Saturday except holidays, reservations required, (361) 939-7784

FEB.: Nature Programs, Galveston Island SP, Galveston, every Saturday and Sunday, (409) 737-1222 FEB.: Aquarium and Hatchery Tours, Sea Center Texas, Lake Jackson, every Tuesday through Sunday, reservations required for hatchery tours, (979) 292-0100

FEB.: Plantation House, Barn and Grounds Tours, Varner-Hogg Plantation SHS, West Columbia, (979) 345-4656

FEB. 1: Basket Weaving with Natural Materials, Galveston Island SP, Galveston, (409) 737-1222

FEB. 1: Annual Kids' Fishing Clinic, Lake Corpus Christi SP, Mathis, reservations required, (361) 547-2635

FEB. 1, 8, 15, 21, 22: Story Time, Sea Center Texas, Lake Jackson, (979) 292-0100

FEB. 7, 21: Intracoastal Whooping Crane Tour, Matagorda Island SP and WMA, Port O'Connor, reservations required, (361) 983-2215

FEB. 9, 23: Beachcombing and Shelling Tour, Matagorda Island SP and WMA, Port O'Connor, reservations required, (361) 983-2215

FEB. 14: Whooping Crane Bus Tour, Matagorda Island SP and WMA, Port O'Connor, reservations required, (361) 983-2215

FEB. 15: Nighttime Wildlife Tour, Matagorda Island SP and WMA, Port O'Connor, reservations required, (361) 983-2215

FEB. 15-16: Remember the *Maine*, Battleship *Texas* SHS, LaPorte, (281) 479-2431

FEB. 21-23: Celebration of Whooping Cranes and Other Birds, Port Aransas, (800) 45-COAST

FEB. 22: Nature Celebration, Sea Center Texas, Lake Jackson, (979) 292-0100

FEB. 22-23: Texas Archeology Academy, Houston, reservations required, (361) 727-1766



HILL COUNTRY

FEB.: Walking Wild Cave Tour, Colorado Bend SP, Bend, every Saturday and Sunday, weather permitting, (915) 628-3240

FEB.: Bird Watching, Pedernales Falls SP, Johnson City, daily, (830) 868-7304

FEB.: Pollination Partnerships Exhibit, Lady Bird Johnson Wildflower Center, Austin, (512) 292-4200

FEB.: Gorman Falls Tour, Colorado Bend SP, Bend, every Saturday and Sunday, weather permitting, (915) 628-3240

FEB.: Texas Hill Country Wildflower Trail, Fredericksburg, (888) 997-3600

FEB. 1: Scenic Overlook Trail Workday, Bright Leaf SNA, Austin, (512) 459-7269 or (512) 323-0544

FEB. 1: Basic Flintknapping, Wild Basin Wilderness Preserve, Austin, (512) 327-7622

FEB. 1: Crawling Wild Cave Tour, Colorado Bend SP, Bend, (915) 628-3240

FEB. 1, 8, 15: Guided Walk, Wild Basin Wilderness Preserve, Austin, (512) 327-7622

FEB. 4: Stargazing, Wild Basin Wilderness Preserve, Austin, (512) 327-7622

FEB. 8: Kid Fish Festival, Landmark Inn SHS, Castroville, (830) 931-2133

FEB. 8, 16: Guided Hikes, Bright Leaf SNA, Austin, (512) 459-7269 or (512) 323-0554

FEB. 15: Summit Trail Project, Enchanted Rock SNA, Fredericksburg. (210) 682-4480

FEB. 17: Moonlighting, Wild Basin Wilderness Preserve, Austin, (512) 327-7622

FEB. 22: Early American Gardens, a Mays Seminar, Lady Bird Johnson Wildflower Center, Austin, (512) 292-4200



PANHANDLE PLAINS

FEB. 1: Prehistoric Permian Track Tour, San Angelo SP, San Angelo, (915) 949-4757

FEB. 22: Nature Challenge, Palo Duro Canyon SP, Canyon, (806) 488-2227 Ext. 49.



PINEYWOODS

FEB. 1, 15: Guided Nature Trail Hike, Village Creek SP, Lumberton, (409) 755-7322

FEB. 7, 21: Nature Slide Show, Village Creek SP, Lumberton, (409) 755-7322

FEB. 8-9: Eagle Fest 2003, Rains County Fairgrounds, Emory, (800) 561-1182

FEB. 15: Floating the Forks, Martin Dies, Jr. SP, Jasper, reservations required, (409) 384-5231

FEB. 22: Adventure Challenge, Martin Dies, Jr. SP, Jasper, (903) 871-8466



PRAIRIES & LAKES

FEB.: Group Historic and Scenic Tour, Monument Hill and Kreische Brewery SHS, La Grange, reservations required, (979) 968-5658 FEB.: Kreische Brewery Tours, Monument Hill and Kreische Brewery SHS, La Grange, every Saturday and Sunday weather permitting, (979) 968-5658

FEB.: Feat of Clay: Texas Pottery and Potters, 1850-1890, Sebastopol House SHS, Seguin, daily, (830) 379-4833

FEB.: Guided Nature Hikes, Saturdays, Fort Worth Nature Center, Fort Worth, (817) 237-1111

FEB.: Amphitheater Program, Stephen F. Austin SP, San Felipe, every Saturday, (979) 885-3613

FEB.: Texas Sky Tonight, Noble Planetarium, Fort Worth Museum of Science and History, Fort Worth, (888) 255-9300

FEB.: Natural Guard, Saturdays, Fort Worth Nature Center, Fort Worth, (817) 237-1111

FEB. 1-2, 9, 15-16, 22-23: Tours, Fanthorp Inn SHS, Anderson, (936) 873-2633

FEB. 1-28: Trout Harvest, Texas Freshwater Fisheries Center, Athens, (903) 676-BASS

FEB. 2, 9: Kreische House Tours, Monument Hill and Kreische Brewery SHS, La Grange,(979) 968-5658

FEB. 8: Traveling the Trails, Cedar Hill SP, Cedar Hill, (972) 291-5940

FEB. 8: Stagecoach Days, Fanthorp Inn SHS, Anderson, (936) 873-2633

FEB. 8: Bass Fishing Basics and More, Texas Freshwater Fisheries Center, Athens, (903) 676-BASS

FEB. 15: Silent Birds of the Night: Owls, Cedar Hill SP, Cedar Hill, (972) 291-5940

FEB. 15: Skeletons of Winter: Tree Identification, Cedar Hill SP, Cedar Hill, (972) 291-5940

FEB. 15: Garden Walk, Texas Discovery Garden, Fair Park, Dallas, (214) 428-7476

FEB. 15-16: The Road to Freedom: Slavery and Emancipation in Texas, Washington-on-the-Brazos SHS and Barrington Living History Farm, Washington, (936) 878-2213

FEB. 22: Texoma Chapter of Ducks Unlimited Cajun Casino Couples Night, (800) 334-3648

FEB. 22: Campfire Sing-Along, Cedar Hill SP, Cedar Hill, (972) 291-5940 FEB. 22: Penn Farm Tour, Cedar Hill SP, Cedar Hill, (972) 291-5940



SOUTH TEXAS PLAINS

FEB.: Kiskadee Birding Tours, Bentsen-Rio Grande Valley SP, Mission, every Tuesday and Friday, reservations recommended, (956) 585-1107

FEB.: Kiskadee Birding Tours for Beginners, Bentsen-Rio Grande Valley SP, Mission, dates to be announced, (956) 585-1107

FEB.: Corridos Sin Fronteras Exhibit, Witte Museum, San Antonio, (210) 357-1900

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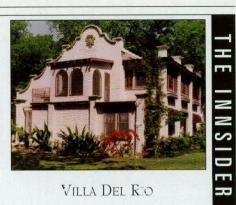
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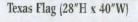
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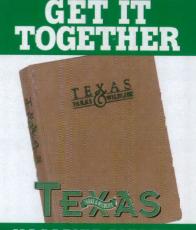








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