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37 Quest for the King

'Silver king' tarpon are hard to find and prone to fight. by Dan Oko

38 Mapping Texas

Explore Texas' history, geography and natural resources in 12 maps. by Louie Bond

#### ON THE COVER:

Landing a hard-fighting tarpon is an accomplishment and a thrill for any saltwater angler. Photo © Tosh Brown

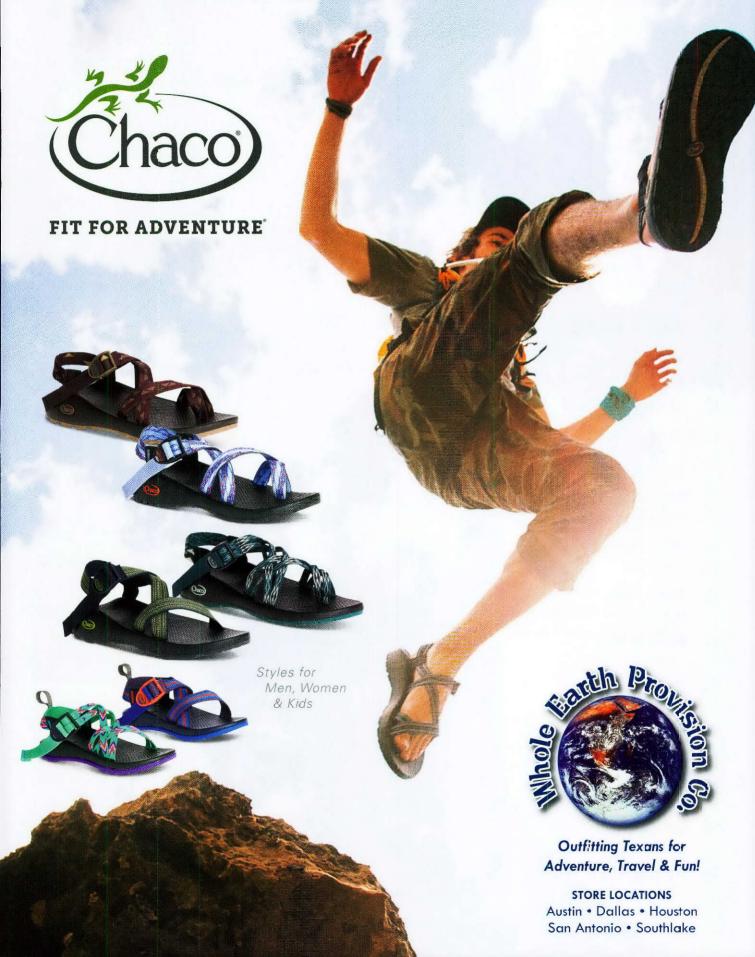
#### **BACK COVER:**

Clouds roll over the Davis Mountains in this photo taken with a special "trailer cam." Photo © Ian Kasnoff



# ALL TERRAIN SANDALS

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↑ "EACH PICTURE IS A SUM OF ALL THE HOURS, THE COOD IDEAS, THE BAD IDEAS AND THE HAPPY ACCIDENTS. YOU CONTINUALLY PRACTICE YOUR CRAFT WHETHER IT'S SONGWRITING, PAINTING OR PHOTOGRAPHY — AND SCMETIMES THE STARS ALIGN."

- IAN KASNOFF











#### JUNE 2017 • VOL. 75. NO.5

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#### FROM THE EDITOR

**CARTOPHILE.** Lover of maps. Someone who can while away an afternoon sprawled out atop an unfolded illustration, sliding across the papery expanse to dive deeper into the foreign names and contours. Raise your hand if you pulled the map out of *National Geographic* every month and buried your nose in it for hours on end, while your imagination transported you down the Amazon or across the Himalayas. My hand's up.

We're not alone. The minute we cracked open *The Texas Landscape Project*, an idea sparked: Here's a new way to tell a fascinating visual story about Texas to our readers. Authors Jonathan Ogren and David Todd are wonderfully open and collaborative, so it was easy to entice them and their generous editors at Texas A&M University Press to join in the fun of adapting some of the maps to our magazine.

Our copy of their recently published book is now dog-eared and overtagged, the spine stressed by countless presses of the copier cover. The magazine conference table has been littered with color-coded groupings of maps we culled from the book. Our intermittent meetups at the table always had to include a "what do you think of this grouping?" discussion. Narrowing the content to a dozen was as painful as choosing favorite children.

We took *Landscape*'s accompanying text and molded those concepts with the Texas Parks and Wildlife Department mission in hopes of presenting stories we tell often here in a different (and far more visual) way. True understanding of some maps takes time and examination, but the beauty of well-executed maps is that you can also glean valuable information at a glance.

The one map that really lured us all in to this obsession is the Lost Springs and Old Trails map that we feature on the opening splash on Page 38. Enhance your experience (and let your imagination run wild) with that map on our app, where you can also watch monarchs migrate month by month on a map with movement.

Catching big tarpon takes guide-level knowledge of Gulf migrations and geography. That expert knowledge and some luck helped writer Dan Oko and photographer Chase Fountain pursue those silver kings. Find out how it feels to catch a hundred-pound beauty on Page 32.

In this something-for-everyone issue, take a step back in time to primitive photo equipment played large to capture stark landscapes and portraits in Chief Photographer Earl Nottingham's elegant, expanded Picture This on camera obscura artist Ian Kasnoff on Page 18.

Enjoy this issue, then close your eyes, point to a spot on a map and follow it to your next outdoor adventure.

Louie Bond, Editor

# EXPLORING TEXAS THROUGH MAPS

It is a sometimes Herculean but everinspiring task, for sure. Some of the best of the best have tried their hand at it and plied their trade by it. Fehrenbach, King and Michener wrote about it. Onderdonk and Salinas painted it. Meinzer and Parent photograph it. Nelson, Tubbs and Wills sang their hearts out about it. And, each summer evening, deep in the bowels of Texas' grandest of canyons, a gaggle of actors stage a musical about it.

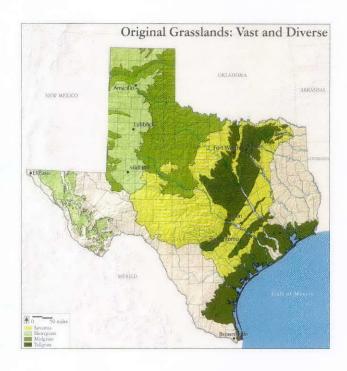
To a one, they have all been seduced with the creative challenge of sharing the rich life, history, heritage, vistas, people, nature and stories of the state we call home. With their words on a page, brushstrokes on a canvas, images through a lens and lyrics of a song, these writers, artists, scholars and musicians have added immeasurably to the lore and love we have of our home ground.

Thanks to the tireless labors of a couple of the state's most thoughtful and committed conservationists, we have another compelling medium by which to learn a lot more about the Texas landscape. Maps.

Noted environmental historian, attorney, steward and storyteller David Todd, author of *The Texas Legacy Project*, has teamed up with expert cartographer, environmental scientist and conservation planner Jonathan Ogren to produce *The Texas Landscape Project*. Their contribution is a comprehensive conservation atlas of sorts, employing impeccably well-researched and masterfully crafted maps to help tell key parts of the environmental history and currency of our state.

Their subject matter is a rich and diverse one, with no shortage of salient and familiar issues and places to choose from. From pictorial representations of the aquifers, springs, rivers, and bay and Gulf waters that sustain us to the sometimes bewildering jumble of local, regional and state regulatory authorities that govern them, the authors combine a mix of informative maps and factual prose to illuminate topics that affect and interest us all.

As my colleague Louie Bond writes in her accompanying



piece about *The Texas Landscape Project*, the authors have managed to distil an exceedingly diverse and complex suite of conservation issues into a highly accessible and comprehensible book. For all who have an interest in understanding the conservation waterfront — or landscape, if you will — this book is well worth the read.

I dare say that it also serves as one more compelling reminder that the state's 150 million acres of terrestrial wildlife habitats, nearly 200,000 miles of rivers, creeks and streams, hundreds of public lakes and reservoirs, 367 miles of coastline and 4 million acres of bay and estuarine habitats are well worth stewarding and sharing, now and to come.

Thanks for caring about our wild things and wild places. They need you now more than ever.

EXECUTIVE DIRECTOR

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To manage and 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.

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#### **MISSION TEJAS: CHECK IT OUT**

The write-up on Mission Tejas State Park was excellent (April 2017). I stayed there about two years ago and believe it is the cest state park in Texas. (They are all good, but this one is my favorite so far.)

The hiking trails are historically enriching as I encountered the CCC "baths," and I ran across a cemetery neighboring the state park. (I'm a cemetery junkie as well as an outdoor enthusiast.) Cf course, the Rice family cabin and the reconstructed mission are great attractions to the park. To anyone looking for a great place to camp, please make this state park priority No. 1. You will not regret the excursion.

PHILLIP E. SCHWAE
First Worth

#### **RESERVING CAMPSITES**

Love the magazine. Love the state parks. Have owned a park pass for years and will continue to do so. Our family of four camps about an average of 25 nights a year. Most are in Texas but vacations have taken us to Colorado, Arkansas, New Mexico and Arizona.

I am both intrigued and annoyed by your recent edition highlighting the "best spots" in the state park system. My biggest complaint of the TPWD state park system has for years been the lack of site-specific reservations. Every other state we've camped does site-specific reservations, and many even have pictures and descriptions of each site.

Our arrivals into the park are often late at night Searching for an open spot

in the dark can be a pain. No amount of planning or advance notice gets you a good site — it is simply luck of the draw. Site-specific reservations would certainly make family and group campouts more attractive and likely.

MICHAEL A. SULLIVAN
Misscuri City

Texas Parks & Wildlife responds
Texas state parks are transitioning to
a site-specific booking system with the
aim of having it in place in December.
The new system will give campers the
apportunity to reserve their favorite
ampsites, screened shelters, cabins and
lodge rooms at most state parks. Checkin at a park should be easier and faster
Stay tuned for more information from the
department this fall.

#### **INCREDIBLE DRAGONFLIES**

Your April 2017 article "Devil's Darning Needles" is an interesting article. They are a fascinating creation, dragonflies. You state that "During this time, insects developed wings and the ability to fly. A fossil of a dragonfly from the period (300 million years ago) shows a wingspan of 2.5 feet."

That's incredible! But what is even more awesome is that fossils of huge dragonflies were just that, dragonflies, identical in core construction to modern ones, and no evidence of partially evolved features.

DALE ELIOT

Goliad

#### **REMEMBERING KEEP TEXAS WILD**

I love my magazine and look forward to its arrival in my mailbox. I read Louie Bond's column, From the Editor, in the April edition and noted a mention of a section, Keep Texas Wild, that appeared in the monthly issues up until several years ago (2008-2011). My grandson and I always enjoyed reading it and sharing the information.

Due to cutbacks, this section was eliminated, which I hated to see. Maybe there will be a time when it could again be included. Even though my grandson will graduate from high school in May, he would be interested.

JOYCE HISER

Tool

## Sea Turtles Get Help from Deepwater Horizon Settlement

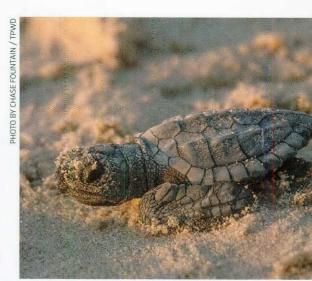
THE STRUGGLE IS REAL for sea turtles on the Texas coast. Eggs laid in beach nests are in danger from predators and weather, winter brings cold-stranding, and abandoned fishing lines tangle around appendages. But there's good news for the green sea turtles, loggerheads, hawksb lls, leatherbacks and Kemp's ridleys Millions of dollars are now earmarked for restoration and protection.

Thanks to \$15 million (\$45 million for the entire Gulf Coast) from the Deepwater Horizon oil spill settlement, there will be a new National Oceanic and Atmospheric Administration emergency response program and

enhancements to other existing operations over the next decade.

Sea Turtle Inc., TPWD's Coastal Fisheries Division and Animal Rehabilitation Keep will receive funding to patrol for injured or stranded turtles, though TPWD will focus only on those that are coldstunned. Both of the other groups have facilities to rehabilitate the injured turtles.

Other programs to be upgraded include bycatch reduction to protect turtles accidentally caught by fisheries and increased emphasis on compliance with turtle-excluder device regulations during shrimp fishery season.



Find out more at gulfspillrestoration.noaa.gov.

## Texans Value Nature but Struggle to Find Outdoor Time

**TEXANS LOVE NATURE** and the outdoors but encounter growing obstacles to spending time outside, according to a major new study on Americans' relationship to nature.

The study, conducted by the Nature of Americans initiative and supported in part by TPWD, involved 11,817 adults and children across the country. t shined a spotlight on Texas, with 2,948

Texas adults and children participating in focus groups, personal interviews and online surveys.

The study found that experiences with nature are deeply social. Meaningful moments in the outdoors typically don't occur in solitude but happen in the company of others, especially family and friends. Nature experiences were found to be more memorable when shared with other people.

The study also found that adults and children differ in where they find nature. For children, nature is right outside the door in nearby yards, gardens and parks. For adults, "authentic" nature is perceived to be in places requiring travel, such as state and national parks.

Texans value nature in remarkably broad, diverse ways and perceive tremendous benefit from experiences in nature, the study found. Valuing nature cuts across demographic differences of age, race, income level and gencer. The vast majority of Texans surveyec said nature is highly important for their physical and emotional well-seing.

Despite the relatively high levels of interest in nature, participants in the study perceived growing separation from the natural world in modern society, including barriers such as cities, competing priorities new technology and shifting expectations.

Find more information at natureofamericans.org.

#### RADIO

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#### MAY 28-JUNE 3:

Desert riders; goose hunting women; outdoor writer; game warden dive team; paddling Port O'Connor.

#### JUNE 4-10:

ADA hunt; responding to CWD; Lake Bob Sandlin; saving bison; turtles and roads; morning dew.

#### JUNE 11-17:

Colorado City H20; Old Rip; butterflies; ocean office; Winkler Ranch; career conservationist.

#### JUNE 18-24:

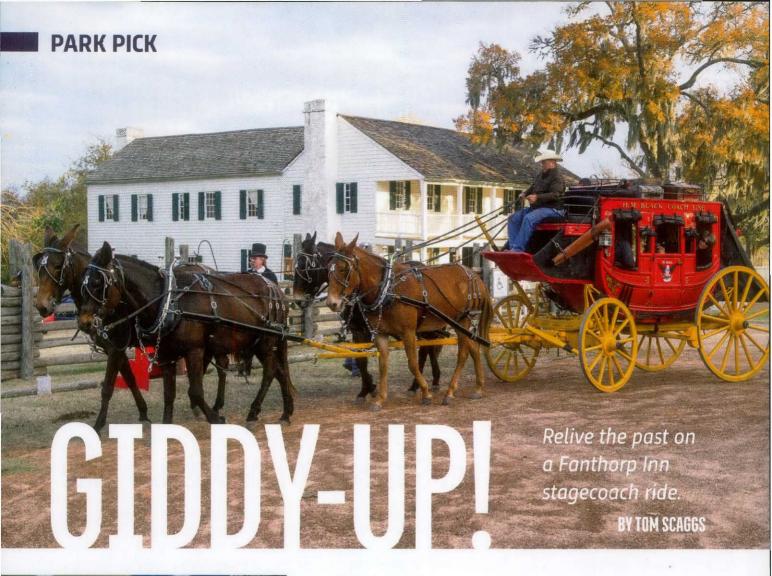
Carp crazy; urban pocket prairies; meet the greeter; consultant Steve Nelle.

#### JUNE 25-JULY 1:

Blanco flood recovery; blackcapped vireos; biking Tyler State Park; pronghorn puzzle.









WHAT A WONDERFUL RIDE! A young man of 20, I arrived at Henry Fanthorp's old place in Anderson. The sun sparkled off the shiny red paint of the mass ve Concord stagecoach with straw-yellow wheels and undercarriage. Six sleek chestrut bay horses were hitched to the coach. I stopped at the ticket window before finding a seat on the stage. There were five of us.

Atop the coach, the driver pulled the re ns gently until he felt the horse's mouth. Then he loosened the reins and re eased the brake shouting "giddy-up!" As the steeds urched against their collars and the metal fastenings clinked, the Concord coach leapt forward.

That was a long time ago -40 years, to be exact.

Little dic I realize back then that I was about to embark on a wonderful experiment: restoring an authentic historic nn, one of the most significant stagecoach stops in Texas.

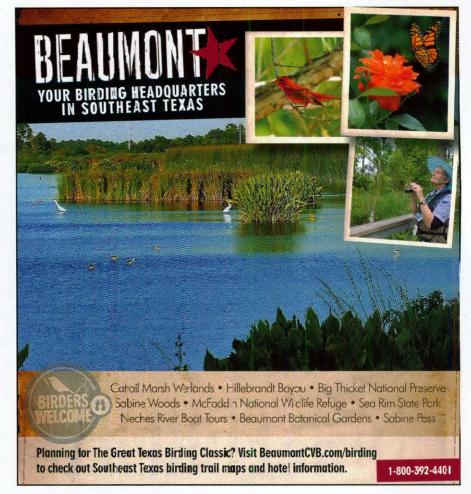
TPWD had just acqu red Fanthorp Inn State Historic Site in 1977, and over the next few years, I watched the agency's historians, architects, a cheologists and skilled craftspeople transform the neglected structure, built in 1834, into a magical setting, a place where visitors can experience Texas travel as it was in the middle of the 19th century.

Dressed in clothing of the era, volunteers have guided curious visitors who asked so many questions. "Why is the furniture so smal?" "Is there an escape tunnel to the woods out back?"









"Did any famous people stay here?"

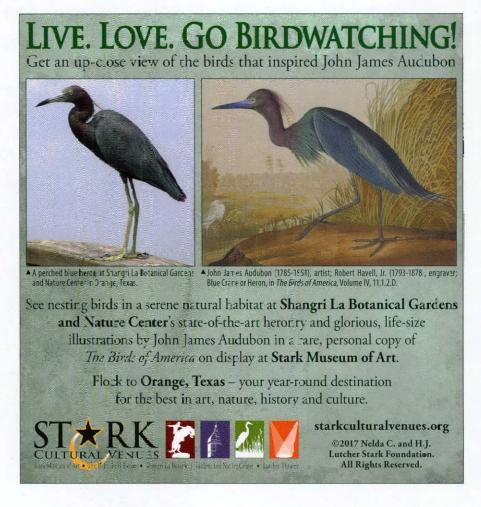
To provice entertaining answers, interpreters and partner groups created special historical and musical programs cowboy poetry readings, 19th century games for children and the Star of Texas Culcimers group with songs that Henry and Rachel Fanthorp might have enjoyed.

Stagecoach rides on an exact replica of a Concord stagecoach remain the biggest attraction. Is it any wonder?

As I retire, I am turning over the stagecoach reins to my colleagues. I take with me the memory of passengers' delight as invited them aboard and shouted 'giddy-up!"

Herry and Rachel Fanthorps place extends a hospitable welcome with tours every weekend in Anderson, about 30 miles southeast of Bryan/College Station. For more park information and stagecoach schedules, visit tpwd.texas. gov/fanthorpinn or call (336) 873-2633 \*

In keeping with this month's 1970s theme, our Park Pick features a park acquired in the '7Gs: Fanthorp Inn, in 1977.



#### WILD THING



# YOU WON'T SOON FORGET the pain caused by the puss caterpillar (Megalopyge opercularis), or asp, as it is often called in Texas. Indeed, the venom regularly sends Texans to the hospital with swelling, burning and blisters or more severe symptoms. Populations fluctuate dramatically from year to year, but reported stings increase in summer months.

# TRANSFORMED

Southern flannel moths start out as bad-boy puss caterpillars.

#### **COMMON NAME**

Southern flannel moth

#### SCIENTIFIC NAME

Megalopyge opercularis

#### HABITAT

Scrubby deciduous shade trees such as oaks, elms, maples and citrus, or on small oushes

#### DIET

Various shrubs and bushes, such as hollies

#### DID YOU KNOW?

Instead of the usual five prolegs of most caterpillars, those within the flannel moth fami!y (Megalopygidae) have seven.



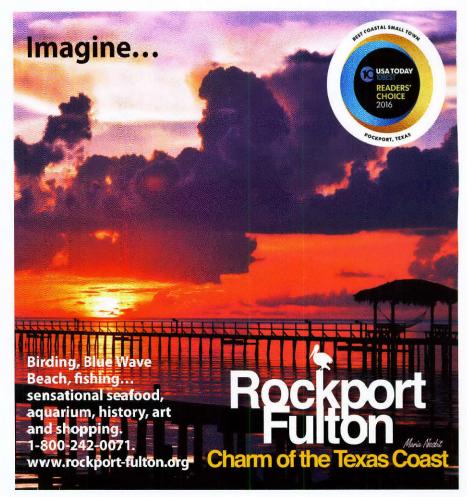
BY BEN HUTCHINS

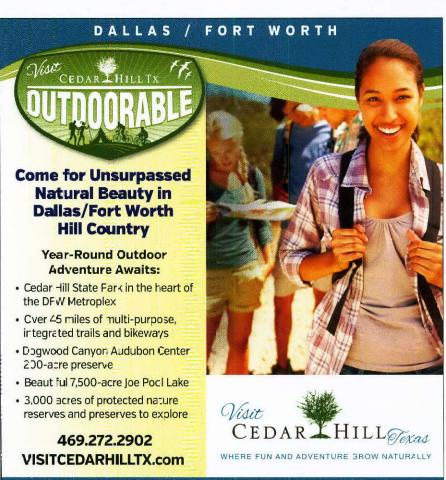
However, the much-maligned puss caterpillar, sporting a mohawk that seems to reinforce the troublemaker abel, is far from public enemy No. 1. At most, the puss caterpillar is unintent onally a juvenile delinquent. As a reformed adult, the puss caterpillar is transformed into the harmless and beautiful southern flannel moth.

After the puss caterpillar hatches, it grows qu ckly, feeding on a variety of trees and shrubs, especially favoring oaks and elms. As a larva, the buss caterpillar does not seek out unwary victims to sting. Rather, the sting is an involuntary defense that happens only when an unknowing person, raccoon, bird or other potential predator grabs the animal, causing the venom-filled hairs to penetrate and break off inside the skin. The caterpillar teaches a painful lesson to look carefully before touching.

Six or seven weeks after hatching, the puss caterpillar spins a cocoon and pupares. Depending on when the caterpillar hatched, pupation could take two weeks or several months. Coarse, venom-filled hairs are replaced by the thick covering of long, fine (and harmless) hairs that give the southern flannel moth its name. The wings can be variable among individuals but consistently display a gradient that runs from rich. almost black-brown in the front, through rust-red, orange, yellow and cream in the back. Fine, wavy white streaks add contrast. The southern flannel moth also sports black "boots" on the ends of its legs. Most noticeably, the entire body and upper legs are covered by that burntorange to nearly cream-colored, cottoncandy-textured hair.

As an adult, the southern flannel moth is short-lived. Within a couple of days of hatching, the female lays her eggs. Neither the male nor the female adults feed, so within about a week, they die. Although the sting of puss caterpillars warrants respect, remember they're just trying to thrive until their beautiful but brief adulthood. \*





16 ★ TEXAS PARKS & WILDLIFE

# TREAD SOFTLY



Bulinettle's a useful plant that packs a mean sting.

BY JASON SINGHURST

MOST PEOPLE raised in East Texas keep an eye out for Texas bullnettle. The sting is so memorable, you'll try hard to never touch it again.

The first time I encountered Cnidoscolus texanus was during a field trip to the Angelina National Forest with the late Elray Nixon's plant ecology class at Stephen F. Austin State University. We were walking through a majestic longleaf pine savanna near Boykin Springs with dense bracken fern in the understory to visit a pitcher plant bog. When I brushed my legs against a Texas bullnettle growing between some of the ferns, I

# **COMMON NAME** Texas bullnettle SCIENTIFIC NAME Cnidoscolus texanus SIZE Up to 31 inches tall and 3 feet across DID YOU KNOW? The plant is also colloquially known as mala mujer (Spanish for "wicked worr an"), which gives a hint of its nastiness.

found out quickly that this plant means business! The stinging sensation lasted for 30 to 45 minutes. (Some cases can take several days for the affected area to fully heal.)

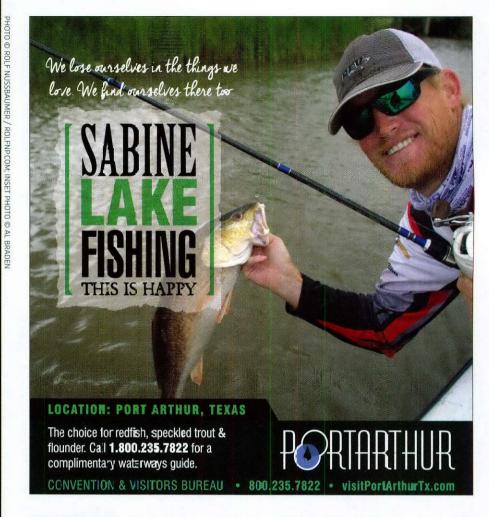
Texas bullnettle, or tread-softly, is a showy white-flowered perennial herb, native to the U.S. and most abundant in the sandy or sandy loam soils in savannas, old fields, dry pastures, floodplains, riverbanks and even dunes. Stiff, bristly hairs release an allergenic toxin upon contact. The fruits are prickly three-seeded capsules; Rio Grande wild turkeys, mourning doves and humans consume the seeds.

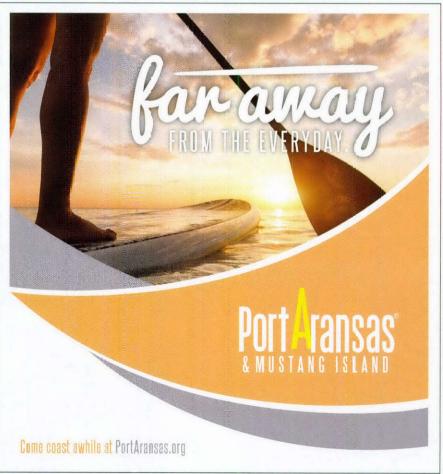
If you're brawe enough to harvest those edible seeds, gather the capsules when they're turning brown. Pluck them off the top of the plant with a pair of tongs and drop them into a large paper bag. Put them in a dry spot. As the fruit ripens, the capsules explode, releasing the seeds. Pick out the seeds and throw away the stinging capsules. A thin shell covers the seed, so crack the shell before you eat the tasty nuts within.

Texas bullnettle is a drought-tolerant plant and therefore is utilized in xeriscaping. This plant is also attractive to bees, butterflies and many other insects and birds.

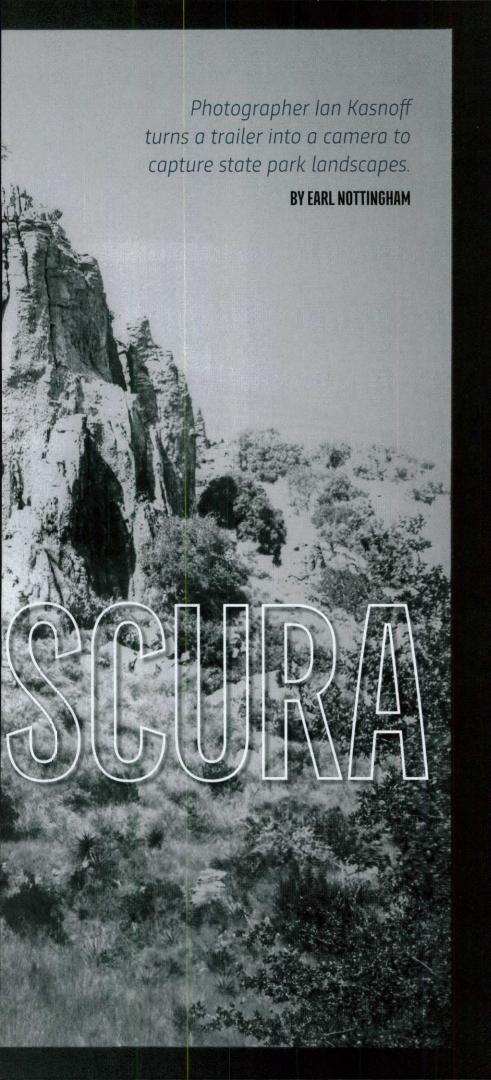
Exposure to the plant by contact can result in intense pain, burning and itching. If not treated promptly, problems can range from skin infection to allergic reactions. The milky sap can also be an allergen to some people.

Even though Texas bullnettle should have a big, yellow, blinking caution sign to warn you, this Texas wildflower warrants respect, as it's quite useful.









#### **ARTISTS OF THE 17TH**

century referred to it as camera obscura (Latin for "dark rcom") — a giant pinhole camera. In a completely darkened room, a small hole in one wall allowed outside light to project a clear (but upside-down) image of the outside scene to the opposite wall.



The images could then be traced and used as references for artwork. In time, the cameras became smaller and more portable, heralding the first designs of modern photographic cameras. Lenses gradually replaced pinholes to produce brighter and sharper images.

Present-day artist, photographer and movie production designer lan Kasnoff is an anachronism, shunning modern digital equipment and embracing the simplicity of camera obscura with his traveling "trailer cam." The 16-foot enclosed trailer provides a darkened room; a lens can be attached to a small opening at one end. Insice, there's a movable frame for holding and exposing photographic paper (up to 20 by 24 inches) and a traditional "wet" darkroom for developing the images.

Unlike using a typical camera that hangs around the neck or fits in a pocket, shooting a scene with the trailer cam involves extensive planning to find locations that are accessible for a rig of its size and a lot of fine-tuning the composition by turning and tilting the trailer by hand. No snapshots here.

Through his large-format blackand-white prints, Kasnoff captures the essence of both people and places. Resembling early tintype photography, his portraits of people are detailed and intimate, inviting the viewer to see past the eyes and into the essence of the individual. His landscape images take on an ethereal, often otherworldly look that allows us to see an often-familiar location in a unique and visually poetic manner. Texas state parks are some of his favorite subjects because of their distinct landscapes and ease of access.

What drives a man to convert a trailer into a camera? Kasnoff says it all came to him during dinner one night when he was trying to decide whether to use an old 8-foot-long trailer in his yard as a camper or for storage. In an "Aha!" moment, he hit upon the idea of a traveling camera obscura. From that first trailer cam, he has now graduated to his third trailer, one that gives him the space and tools to create larger prints.

The time, effort and cost to shoot and process just one 20-by-24 image add up quickly, so every effort is made to get it right the first time. Kasnoff is a true craftsman at work. With concentration and attention to detail, he painstakingly rereads the light meter and composes, exposes and processes these unique images with an ethic instilled in him by his father and grandfather, both professional photographers.

"Each picture is a sum of all the hours, the good ideas, the bad ideas and the happy accidents," Kasnoff says. "You continually practice your craft, whether it's songwriting, painting or photography - and sometimes the stars align."

See more of Kasnoff's photography at: www.iankasnoff.com. \*







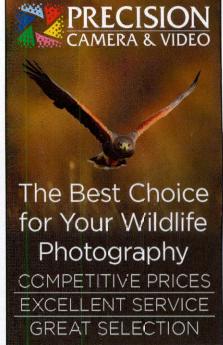




Please send questions and comments to Earl at earl.nettingham@tpwd.texas.gov. For more tips on outdoor photography, visit the magazine's photography page at www.tpwmagazine.com/photography.









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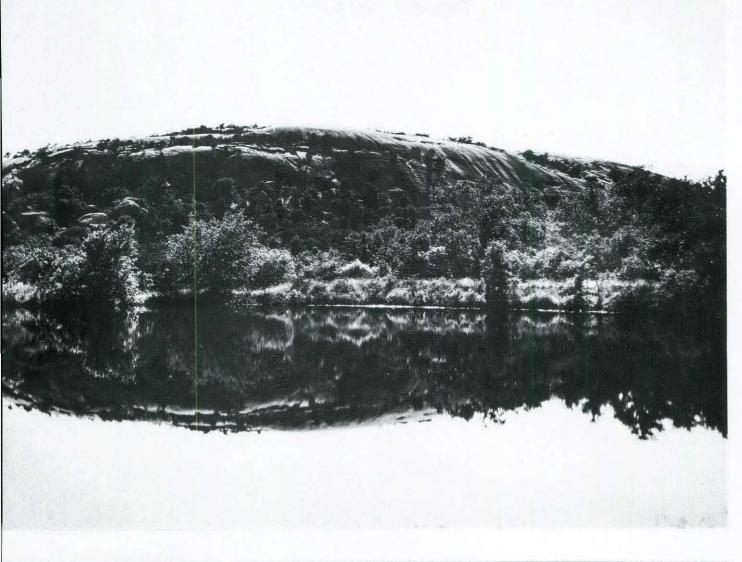
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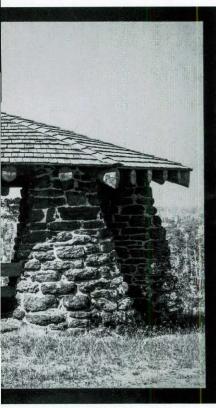




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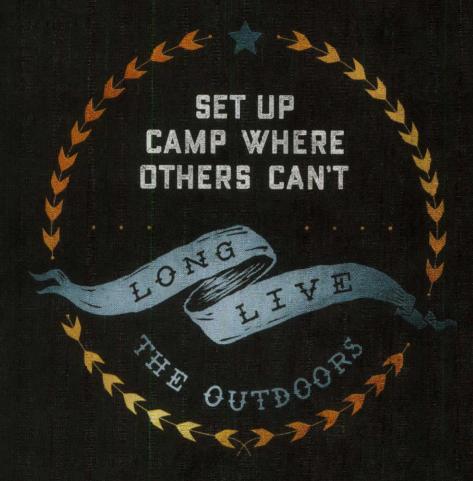








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### GOLDEN TRIANGLE

BY SHERYL SMITH-RODGERS PHOTOS BY EARL NOTTINGHAM

A homegrown biologist guides a natural tour of Beaumont, Orange and Port Arthur.



AUSTIN 4.25 hours

#### **DALLAS**

5 nours

#### **EL PASO**

12 hours

#### **SAN ANTONIO**

4.5 hcurs

#### **BROWNSVILLE**

7 hours

#### LUBBOCK

10 hours

At first glance, petrochemical plants and urban sprawl seem to dominate the far southeastern corner of Texas known as the Golden Triangle. But don't be fooled.

"Ycu wouldn't know it from the highways, but there's actually a lot to do here outdoors," says native resident Alison Tarter. "Within two miles, you can go from upland pine forests to sharks and redfish."

Tarter, who grew up in Orangefield, works as cutreach coordinator with the Big Thicket Association, a nonprofit organization tasked with preserving nearly 110,000 acres of diverse habitats collectively called the Big Thicket National Preserve. Who better than a homegrown biologist to show my husband, James, and me what lies beyond the refineries? Association members Dale Parish and Gerald Langham, retirees who live north of Orange, join us for part of our daylong tour in late February.

"The Golden Triangle is the area that's within Beaumont, Orange and Port Arthur," Tarter explains. "It's called that because so much money was made here, like a gold rush, after oil was discovered at Spindletop in Beaumont in 1901."

Our morning starts on a heavily wooded trail at Village Creek State Park, located 10 miles north of Beaumont on the Big Thicket's southern side.

"The Big Thicket is ecologically important because of the many ecosystems that converge here," Tarter says. "Our high rainfalls and different soil types, which vary from clay to sandy loam, account for the different plant types."

Moist leaf litter tops the Village Slough Trail,

named for the seasonal water channel that we glimpse through the hardwoods. Save for a distant train horn, I hear only birds calling and treetops rustling. Langham shows me the delicate bell-shaped blossoms of a huckleberry. Parish points out the whiskery pink flowers of a hoary azalea He pauses to pat a skyhigh loblolly pine.

"See how the bark is loose?" he asks.
"That means the tree is growing If the bark's slick, it's not growing."

Parish gazes upward.

"This is all regrowth forest," he says. "Before 1900, the big sawmill towns clear-cut the native longleaf pines. In their place, the lumber

"This is rich lighter pine," he says.
"It's the heartwood of a pine tree.
Smell the turpentine? You need just a little to start a fire."

"But don't use it to roast marshmallows!" Tarter quips.

"When I was a kid," Parish says, "the stumps of virgin longleaf pines still existed. Some heartwoods were 4 feet wide. Imagine how big the trees were!"

After our hike, we head to Beaumont, where we board the Ivory Bill, a covered pontoon boat operated by the Big Thicket Association. Tarter and other members teach schoolkids and visitors about the Port of Beaumont, wildlife conservation and water quality the head of a baby alligator poking up from the water. It's gone by the time Langham has revved the boat back up. Before we leave the bayou, Parish digs up some mud with a pole net so we can examine benthos (bottom organisms). Three scoops produce a quarter-sized crab.

At the dock, we bid Parish and Langham farewell and head southeast to Bridge City to pick up a cast net and Tarter's father, Bobby. Soon we're cruising through a marsh along Old Ferry Road (also called Bailey's Road), a local hangout for fishing and crabbing.

"This is all part of the Old River Unit of the Lower Neches Wildlife Management Area," Alison Tarter







### FEATURED ATTRACTIONS (LEFT - RIGHT):

- ★ Biologist Alison Tarter throwing a net near Sabine Lake
- Shangri La Botanical Gardens and Nature Center in Orange
- Museum of the Gulf Coast in Port Arthur
- \* Neches River in the Big Thicket

companies planted faster-growing loblollies. Longleaf pines require frequent fires in order to survive. But modern fire suppression has put them at a disadvantage."

Occasional boardwalks take us across muddy bogs, brewed teabrown by the tannins of fallen leaves. Langham picks up a small log, riddled with insects and decay, and breaks off a piece.

via boat trips called Neches River Adventures, which depart from Riverfront Park near downtown.

Langham pilots the wheel as we cruise the murky Neches River past oil freighters, a grain elevator, a sulphur plant, tugboats and barges.

"Normally, rivers wind back and forth, but the Neches was dredged to create a straight channel for ships," Parish says. In the distance, an osprey dives down and skims the water.

I hear a red-winged blackbird trilling as Langham turns the Ivory Bill into a wide tributary lined with river cane, palmettos and thick brush. Bald cypress skeletons, poisoned by saltwater surges from past hurricanes, stand cerelict along the shore.

"We call this Meyer Bayou," Langham says. "People fish for redfish in here."

Before noon, Langham cuts the motor so we can break for lunch. While we're munching, James spots says. "I love to fish from my kayak out there."

The boat slows as we pass Sabine Lake, fed by the Neches and Sabine rivers. Until the Rainbow Bridge opened in 1938, the Dryden Ferry crossed the Neches River and connected Prairie View (now Bridge City) to Port Arthur. In 1991, the parallel Veterans Memorial Bridge opened.

"You can still see what's left of the wharf," Tarter says, pointing to broken timbers in the water. "Back then, while you waited for the ferry, you could order a burger and soda at a big two-story house that stood nearby. Hurricanes eventually took out the house."

Circling back, we pull into a caliche parking area. Tarter grabs her net, and we follow her across a narrow boardwalk into the marsh.

"I could do this for hours," she says, twirling the net across the brackish water. "Sometimes you can catch a bass







#### MORE INFO:

BIG THICKET NATIONAL PRESERVE www.nps.gov/bith

VILLAGE CREEK STATE PARK !pwd.texas.gov/villacecreek

**SHANGRI LA BOTANICAL GARDENS** starkculturalvenues.crg/ shangrilagardens

MUSEUM OF THE GULF COAST
www.museumofthegulfcoast.org

**NECHES RIVER ADVENTURES**www.nechesriveradventures.org

or a bull shark. That's the fun part; you never know what you'll pull up."

This afternoon, Tarter traps and releases a largemouth bass, two tiny shads and a hefty blue crab.

We drive south over the bridge to downtown Port Arthur. Our last stop is the Museum of the Gulf Coast, which focuses on Southeast Texas and Southwest Louisiana. Right away, we're drawn to a dramatic mural that covers a 125-foot-long wall. Kerrville artist Travis Keese painted the two-story-high masterpiece that traces the region's history from dinosaurs to the discovery of oil.

"We cover a broad stretch of history and culture within one museum," says curator Sarah Bellian.

Upstairs, halls of fame honor the Golden Triangle's well-known musicians, athletes and notable people. One popular display features a replica of the psychedelic Porsche once owned by the late rocker Janis Joplin.

On our own, Tarter advises that

we check out two cool outdoorsy attractions in the Golden Triangle. In Orange, the Shangri La Botanical Gardens and Nature Center began as a private oasis created in the 1940s by philanthropist H.J. Lutcher Stark, who was inspired by a mystical paradise described in the 1933 novel *Lost Horizon*.

We've come in time to see red and pink azaleas in bloom along gravel paths that wind through themed gardens. One main trail loops around the Pond of the Blue Moon, where a boardwalk leads to a giant shade structure called the Cypress Gate. Several red-eared sliders paddle lazily in the water.

Another gravel trail leads through woods to the Heronry Blind, which overlooks a manmade lake named for Stark's second wife, Ruby. We peek through wocden slats at great egrets and double-crested cormorants nesting in nearby cypress branches.

On an Outpost Tour, we glide along Adams Bayou aboard a pontoon boat while guide Susan Montagne talks about the area's natural history.

"We have our own Texas grand champion," she says, pointing to a towering tree draped with Spanish moss. "That's a pond cypress, and biologists don't know how it got here It's 1,242 years old and has an 18-foot circumference."

Back on land, we stroll through the center's trio of greenhouses, filled with thriving bromeliads, orchids, ferns and other greenery. Cobaltblue bottle tree sculptures grace the Children's Garden, where kids can observe a beehive behind glass, learn



about butterfly host plants and enjoy other fun activities. I'm intrigu≥d by the center's Wetland Demonstration Garden, a series of three ponds lushly vegetated with aquatic plants that cleanse water from Ruby Lake.

A similar but much larger filtration system functions at Cattail Marsh, a manmade wetlands that lie within Beaumont's Tyrrell Park. Eight diked cells — divided by levees and rooted with marsh plants —

scrub treated effluent from the city's wastewater treatment plant. On our last morning, we've come to see the birds galore that inhabit the marsh's muddy flats and shallow waters.

The new Cattail Marsh Scenic Wetlands Boardwalk takes us over the marsh for a closer look at wildlife. Two built-in gazebos provide cover and benches Laughing gulls and vultures soar overhead while black-necked stilts yap

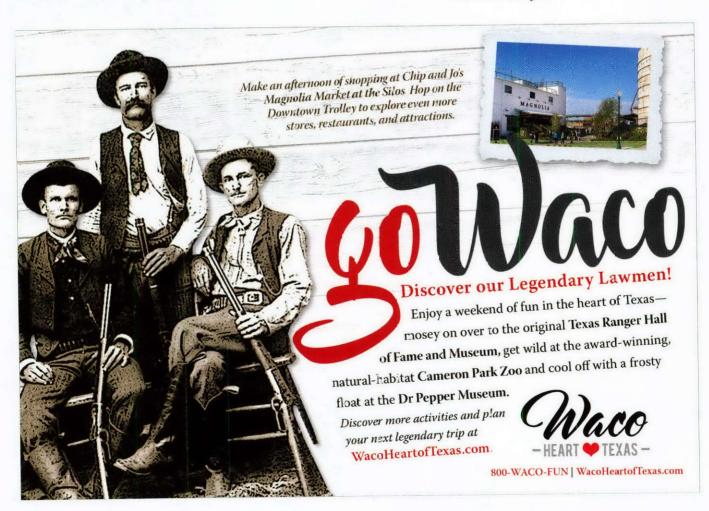
Opposite: A father and daughter enjoy some evening fishing at Village Creek State Park. With Louisiana just a few miles away, Cajun culture is evident in mounds of crawfish at Judice's Cajun Cafe in Bridge City. The Victorian architecture of the W.H. Stark house, built in 1894, draws visitors to one of Orange's most significant landmarks.

This page: The bottle trees at Shangri La Botanical Gardens and Nature Center form a colorful display.

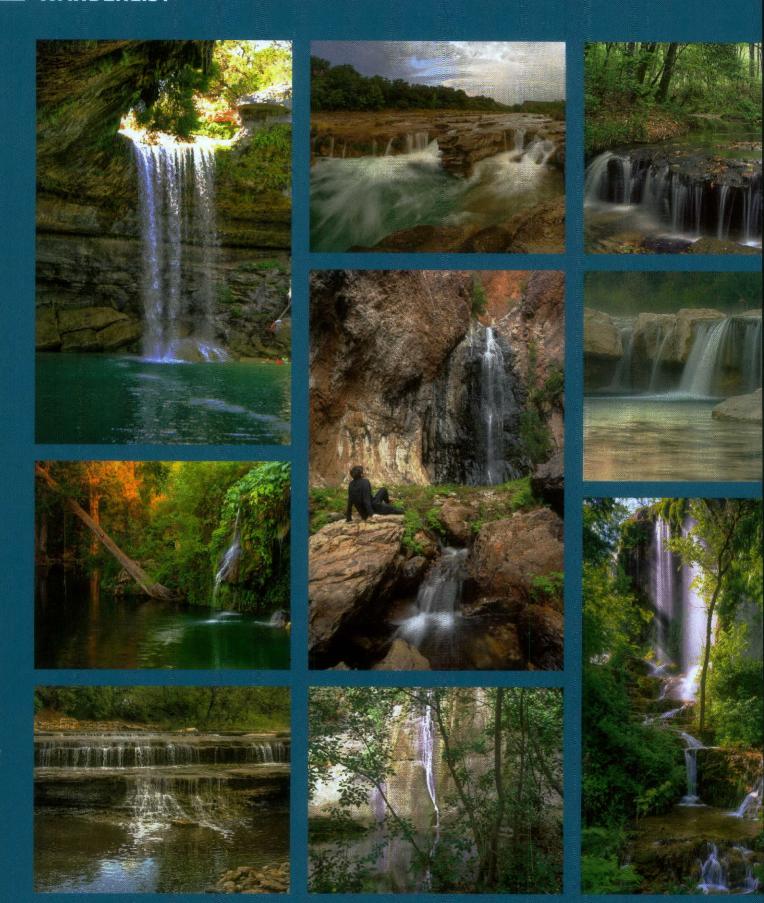
insistently as they forage below us. Northern pintails, blue-winged teals, American coots and ibises float and feed in the water, too.

In the distance, a large hawk appears and sweeps over the cattails and bulrushes, triggering a ruckus of flapping wings and screaming birds. In a flash, the hawk dives and lands on a duck, trapping it beneath the water. Soon, though, everything calms, and the drama ends at Cattail Marsh. For now, that is.

From birds to boardwalks and boat rides, we've experienced just a smattering of the Golden Triangle's countless outdoor wonders. Big lesson learned: Don't let those refineries fool you! \*



#### **WANDERLIST**







PHOTOS © DJ CALKINS PHOTOGREPHY (HAMLTON PCOL); WYMAN MEINZER (DOLAN FALLS); LAURENCE PARENT (BOYKIN SPRINGS FALLS); LAURENCE PARENT (MCKINNEY FALLS), ARON BATES PHOTOGRAPHY (CATTAIL FALLS), JIM DLIVE (KRAUSE SPRINGS); DENNIS STEWART/NATURESREALN NET (AIRFIELE FALLS); WYMAN MEINZER (MADRID FALLS); BOB SMITH/BOB SMITH IMAGES (CORMAN FALLS)

Cascading falls



**HAMILTON POOL AT HAMILTON POOL PRESERVE** A 50-foot waterfall spills into a jade-green pool in an open-dome limestone grotto about a mile from Hamilton Creek's confluence with the Pedernales River. Activities include swimming, hiking and picnicking. After the preserve reaches maximum capacity, expect a wait to get in the park During summer months, entrance is by reservation only.

**DOLAN FALLS AT DEVILS RIVER** Remote and rugged, the 10-foot falls are accessible by paddling 1 mile downstream from San Pecro Point Paddler Camp at Devils River State Natural Area—Del Norte Unit, or 16.4 miles downstream from Baker's Crossing on one of the most pristine, ecologically intact rivers in Texas. Both sides of the falls are on private property or Nature Conservancy land; do not loiter. A permit is required for overnight trips on the Devils River.

BOYKIN SPRINGS FALLS AT ANGELINA NATIONAL FOREST This refreshing waterfall on Boykin Creek greets travelers about a mile down the Sawmill Hiking Trail of Boykin Springs Recreation Area. In addition to the waterfall and the earie ruins of the Aldridge Sawmill, the area includes a lake for swimming and fishing campsites and CCC-constructed group picnic shelters in Angelina National Forest.

MCKINNEY FALLS AT MCKINNEY FALLS STATE PARK Near the confluence of Orion and Williamson creeks, carving sculpted ridges into the riverbed, are the upper and lower McKinney Falls. The 10-foot drop at the upper falls is a popular spot to jump (with caution) into the peaceful swimming hele below. The state park also features bouldering, mountain biking and the popular Rock Shelter Interpretive Trail.

BIG BEND NATIONAL PARK When it rains, it pours. After a good rain, creeks swell and pummel the desert backcountry of Big Bend National Park. The Pine Carryon waterfall and Cattail Falls are scenic and remote. During flash floods, the Window, normally a dry water pour-off, turns into a 220-foot-high torrent, the tallest waterfall series in the state, best viewed from below on the Oak Spring Trail.

**KRAUSE SPRINGS, SPICEWOOD** Owned by the Krause family since 1955, Krause Springs features 32 springs on the 115-acre property; the main one fills the famed swimming hole. Sit on the rock at the cave entrance surrounded by lush maidenhair ferns and towering bald cypress trees. Swim in the manmade swimming pool, explore the butterfly gardens or camp at tent and RV campsites.

**AIRFIELD FALLS IN FORT WORTH** Fort Worth's only natural waterfall cascades down terraces on Farmers Branch Creek, a tributary of the Trinity River. The falls are newly accessible to the public thanks to the opening of the Airfield Falls Trailhead and Conservation Park near the Naval Air Station Fort Worth.

**BIG BEND RANCH STATE PARK** At 100 feet. Madrid Falls is the tallest publicly accessible — and the second-tallest overall — waterfall in Texas. Mexicano Falls is the third tallest at 80 feet. Hikes lead to overlooks for Madrid Falls and Mexicano Falls, but a four-wheel-drive vehicle is needed to get to the trailheads.

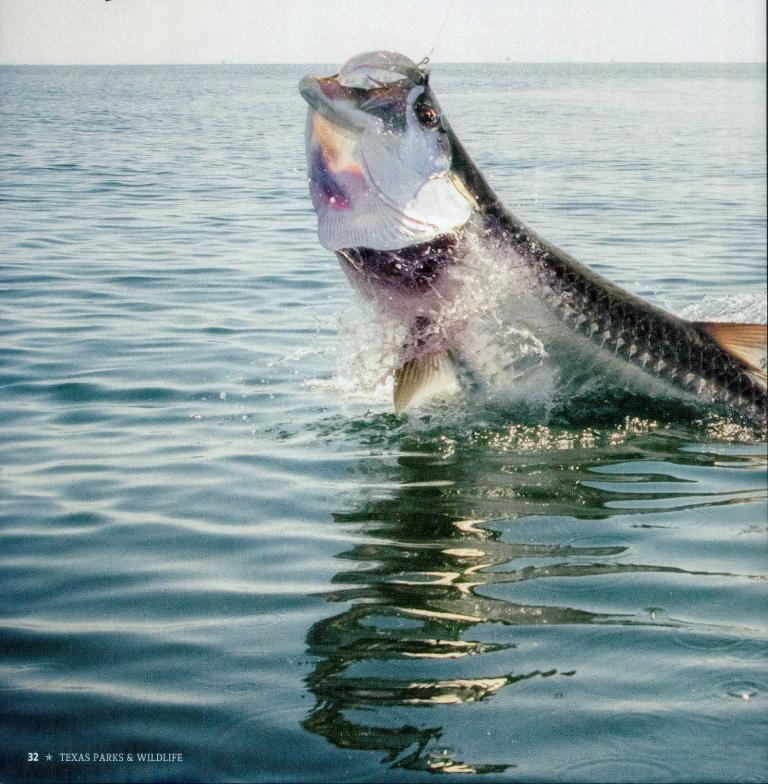
**GURMAN FALLS AT COLORADO BEND STATE PARK** View the 60-foot falls on a two-hour guided hike or without a guide along the 1.5-mile Gorman Falls Trail (steep section at the end). The falls and travertine pools with unique aquatic life are fragile. There is no swimming at the falls, but swimming is allowed at the south and of the park. Hiking, mountain biking and cave tours are popular park activities.



attract hikers to Texas' most dramatic water features.

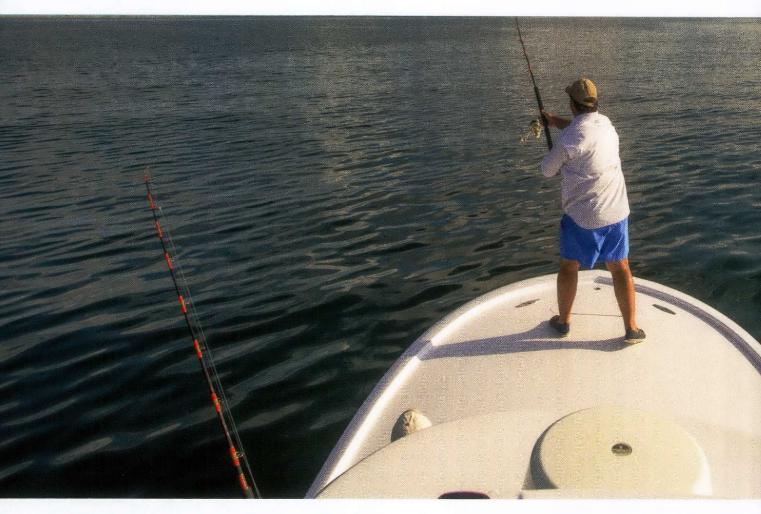
'SILVER KING' TARPON ARE H

# 



RD TO FIND AND PRONE OF TO FIGHT.





The "slabs" swim beneath us as the boat rocks, the inboard motor humming. Soon a group of large fish breaks in the distance. They're "greyhounding" — a colossal display I have seen on a dozen fishing trips without considering that the leaping torrents were far-flung tarpon on the move while wheeling birds crashed down to catch scattered bait.

Scott Alford, a Houston lawyer and hard-core tarpon addict, patiently swings his 30-footer around for another pass to see if the tarpon beneath us will take the bait. No dice.

It's early, and the sun hangs low in the sky. A few scattershot slicks stain the green Gulf waters, and I'm beginning to get itchy. I've never trolled for tarpon before and have little experience with deep-sea fishing, but I've been skunked enough times to wonder if we are on a wild goose chase.

Tarpon are a totemic, aspirational species that have survived on this planet for more than 100 million years. Dressed in gaudy silver chainmail, the fish haunt the depths of the Atlantic Ocean from the Gulf of Mexico all the way to West Africa. In the 1930s, the abundance of the so-called silver kings along our coast helped establish Texas as the tarpon capital of the world.

Capable of living up to 80 years, with the biggest tipping the scales at nearly 300 pounds, tarpon maintain an enduring presence that holds up a splintered mirror

to our own existence. Their struggles reflect humanity's foibles — the damming of our rivers, the soiling of the ocean, an economic system that makes tarpon part of subsistence diets in Latin America — yet their persistence, strength and cunning suggest that the situation isn't beyond hope.

"The tarpon fisherman of the future is going to be forced to learn a lot more about the ways of his great game fish if he expects to hang one now and then," wrote Texas outdoor writer Hart Stilwell way back in the 1970s (in his memoir, *Glory of the Silver King*, published posthumously in 2011). "I do know before we can do anything to save him, assuming that we want to, we must admit the sorry state of tarpon today. And that of other estuarine creatures."

Targeted by anglers, famed for their aerial acrobatics, "jumping" tarpon are prized nearly as highly as landing a bona fide Leviathan. Curiously, however, tarpon begin life as deceptively modest ocean babies, dime-sized translucent larvae that rely on luck and tides to reach the





brackish inland estuaries and sloughs where they hide out during their infarcy.

An evolutionary adaptation allows the fish to breathe air through a lung-like swim bladder, and that capacity to draw atmospheric oxygen intimates yet another kinship between *Homo sapiens* and *Megalops atlanticus*. In adolescence, tarpon attain their notorious appetite. By age 12, with females measuring 4½ feet or more, they achieve reproductive maturity. The mature fish return to deep Gulf, Caribbean and Atlantic waters, with individuals traveling as far as 1,200 miles. Research suggests such epic migrations hold the key to their long-term survival.

"This stuff is not by chance, it's by design," says Jerry Ault, director of the Tarpon and Bonefish Research Center at the Jniversity of Miami in Florida. Ault has worked closely with Alford, providing him with satellite tags and advising Alford's newly formed nonprofit International Tarpon Conservation Association.

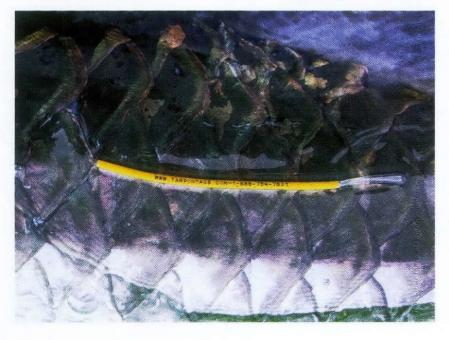
**Above:** Tarpon advocate Scott Alforc fishes for the elusive "silver kings" in the Gulf.

**Right:** A tarpon leaps out of the water as two anglers attempt to land it. After a tarpon is caught, it is measured, tagged and released as quickly as possible.









**From top:** First mate Tommy Gary gets his gear ready. Gary and Scott Alford work to land and tag a tarpon. A tarpon tag allows scientists to learn more about tarpon migration.

Right: Tarpon often surface to meet oxygen needs.

"They have an almost magical connection to the environment that helps them to survive."

That means that even though catching the fish in Texas is more difficult these days, there are still opportunities to pursue them — especially in the near offshore between San Luis Pass in Galveston and the mouth of the Sabine River, where pioneers such as Mike Williams started guiding in the 1980s.

"The fishery has basically gone from an international-type fishery to more of an incidental fishery," offers Larry McKinney, retired director of TPWD Coastal Fisheries, who now leads the Harte Research Institute for Gulf of Mexico Studies at Texas A&M University—Corpus Christi. "They're not billfish, but they are something else. They go north to feed and south to breed. It's easy to see why people who know about them want to catch them."

Indeed, anglers who fish for tarpon speak in almost religious terms about how catching one can change your life.

Fifty or 60 years ago, it was not uncommon for new converts to make a pilgrimage to Texas. At the Tarpon Inn in Port Aransas (a town once known simply as Tarpon for its famous fishery), thousands of tarpon scales decorate the lobby, homage to a time when the fish were thick in the passes and along the beaches and they earned a hard-fighting reputation as a poor man's marlin. One of the faded scales hanging in the Tarpon Inn even dates to 1937 and carries the signature of President Franklin Delano Roosevelt, whose catch was promoted by the White House to lift national spirits during the Great Depression.

"I was interested in tarpon when I was a little kid," Alford tells me. "I saw tarpon fishing in Florida on TV. I was into fishing and thought, 'Well, that's a cool fish!' In college, I read a newspaper article about a guide in Galveston named Mike Williams, who was catching tarpon. I had no clue we even had tarpon in Galveston!

"So I booked a trip with him, and jumped — didn't land! — but jumped probably one of the biggest fish I've ever hooked in my life, right around 200 pounds," Alford says. "We fought it for over an hour and a half, and lost it. All I know is Mike kept saying over and over again, 'Did you see how big that fish is? Did you see that?'

"I was hooked after that."



In 2006, this obsession led Alford to found the scientific angling group Project Tarpon, a precursor to the newer ITCA, modeled in part after the Coastal Conservation Association. For the past decade, Alford has organized an annual invitation-only tournament to facilitate satellite tagging of tarpon that pass through Texas waters. Alford estimates he has placed 50 tags, a remarkable contribution that accounts for about one-eighth of the 400 satellite-tagged tarpon Ault's team tracks from Miami. Two years ago, Project Tarpon also started distributing streamer tags, which, like bird bands and cattle brands, offer a low-tech way to monitor the size and movement of fish.

"The idea behind the organization," Alford says, "was to create a mechanism geared toward funding people that want to do tarpon research."

There are two main satellite tags that researchers use to monitor tarpon and their migratory behaviors. Pop-up Archival Transmitting, or PAT, tags, designed to release from a fish after a given interval, record information and then transmit it once they've been discharged and reach the ocean surface. Smart Position and Temperature, or SPOT, trackers beam constant information (technology also used by wilderness travelers to track routes and call for help). The trackers have helped scientists understand the annual migrations made by tarpon, including those that travel the Texas coast from Mexico to the waters beyond the mouth of the Mississippi, where they are a favorite of Louisiana anglers.

A lifelong fisherman, I lobbied Alford to let me join him last summer. I had never seen a tarpon outside an aquarium, so I was transfixed watching the silver kings — "slabs" to Alford — on the fish finder, the radio occasionally crackling. Fish stories notwithstanding, I had found tarpon anglers, including guides, a pretty tightlipped bunch, so I felt lucky to be on board, although our prey remained elusive. Alford remained confident the fish would turn on, and I was not about to argue.

"If it looks right, we are going to stop and spend some time," he explained. "Some of the time, you might have to spend a half-hour or an hour, then it's like all of a sudden. You might not have seen any fish, but they were there, and now they're showing up."

Given my previous experience with tarpon specialists, I was champing at the bit when Alford called. Years earlier, when I expressed my interest in tarpon to a fly-fishing guide after a day chasing Matagorda redfish, he told me to forget it until I could drop a fly to a moving target 100 feet away; my capacity seems to have stalled out at less than two-thirds of that distance. When I went in search of an escort for this story, the first guide told

me he didn't want the publicity. Another pro insisted that tarpon were too much trouble — difficult to find inshore and too inconsistent to be chased offshore.

Alford was having none of it, however. When not in the courtroom, he lives for tarpon fishing, using all the science he can collect to improve his chances. And if I was a little disappointed that the actual opportunity to cast to surfacing tarpon would be slim to none, I was equally impressed with the custom vessel Alford designed to tackle the task. His gleaming 30-foot inboard has a full suite of electronics and an ultra-quiet gas engine with a specially designed transmission capable of trolling at walking speeds over the long distances. Six rods with wire leader and between 250 and 300 yards of monofilament hung off the back gunwales. Acting as Alford's first mate was a longtime friend of Alford's, Tommy Gary, who used to guide goose hunts alongside Alford in the lowlands west of Houston.

Suddenly, the water seemed to boil around the boat as the tarpon finally decided to announce their presence. I was shocked to see one of the stout offshore trolling rods bent like a radio antenna. As it straightened back up, Gary grabbed the rod, and a moment later a 100-pound tarpon burst from the water off the back of the boat. It sailed through the air, twisting like a chrome dervish in its effort to throw its hook, while Alford shouted instructions. It took Gary a sweaty 20 minutes to boat the fish. Alford pulled a scale, planted a streamer and released it.

The next strike, they let me pick up the rod.

Again, the fish was in the hundred-pound range, and again it leapt high in the air with all the power and grace of an Olympic gymnast. Gary handed me a rod plate so that I could hold the shaft against my pelvis, and the fish surged deep before the line went slack. Then, a millisecond later — boom! — the silver king was back in the air before making another diving run. Shaking with adrenaline and my biceps burning, I don't know how long it took to reel in that tarpon, the biggest fish I ever caught. At the boat, it rolled to one side and appraised us with an enormous eye. After we had measured and tagged it, Alford revived the fish, and it disappeared in a swirl.

We caught four fish that afternoon, and I had the good fortune to reel in a second. Alford ranked the tr:p an "8 out of 10." I was reminded of what Ault told me in a moment of unguarded sentimentality: "We all love tarpon, and with the increase in angling efforts, we need to ask what can we do to keep them around." \*

Dan Oko is a freelance outdoor writer in Houston.

#### Lost Springs an At a glance... **Lanners Springs** Light blue dots show the location of more than Red Deer Springs 410 lost springs; 87 lost **OKLAHOMA** Cabin Springs Stage Hollow Springs major springs (marked with blue triangles) were Amarillo along the routes of main trails and roads. Escarbada hree Corrals Springs Martin Springs Dead Horse Springs Dawson Springs Wichita Springs Eagle Springs China Barrel Springs Springs Lubbock **English Springs** Victoria Springs Blaine Springs Sulphur **Guthrie Springs** Veal Springs Diamond Y, Leon, **Camp Springs** Fort Worth Boar's Nest & Comanche Springs **Springs** Browde Soda Springs **Cold Springs Greene Springs** Baldwin Springs **Crow Springs** Mustang Fountain El Paso Midland Coyote Springs Sulphur Springs Willow Springs Mitchell Springs Hackberry Springs Hoban Springs Castle Gap Springs lat Rock Springs Cottonwood Springs Leon Springs **Grierson Springs** Van Horn Wells Sharp Spril Barrila Spring Pecos Spring Fort Davis Spring Burgess Spring Nine-Mile Waterholes King Springs Mount M Stein Springs California Springs San Antonio Escondido Palo Blanco Springs & Tunas Springs Stage Stand Sp Cline or Turkey Springs Soldiers Camp Spring Ojo de Agua Carrizo Springs San Lorenzo Water Hole 50 miles Santa Catarina Springs Charco Valiente Lost springs Major lost springs near known trail Atascosa Road --- Indian Trail El Pato Water Hole La Bahia Road Butterfield Overland Mail El Chacon Spring Ojo de Agua La Salle Marcy Trail Mackenzie Trail Castillo Las Animas Lake Mendoza Chihuahua Road Military Road Chisholm Cattle Trail San Juanito Springs Coronado Moscoso De Leon - Old Spanish Trail Oñate De Vaca --- Santa Fe Expedition Brownsville El Camino Real Espejo --- Trammel's Trace

--- Western Cattle Trail

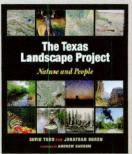
Herreras Road

## Old Trails **Grove Springs** Red Springs Chalybeate Spring Coushatta Spring Nacogdoches & **Shawnee Springs** King Spring Gibbons Spring Houston Spanish Springs **Illiott Springs**

## Mapping Texas by Louie Bond

(adapted from The Texas Landscape Project)

A map tells a story that can't be told in a few words or photos. If you're trying to describe Texas, great in size and diversity, you'll need a lot more than a few words. What better way to comprehend a statewide situation than to see visual data across the entire area, all at once?



The 300-plus maps of The Texas Landscape Project: Nature and People (Texas A&M University Press, 2016) make up an atlas chronicling conservation and ecology across the state. "A breathtaking compendium of insights into the natural history, the environmental richness and the manifold conservation dilemmas confronting the Lone Star State today," genera editor Andrew Sansom writes in the foreword, "... an int mate rendering of both its treasures and its challenges."

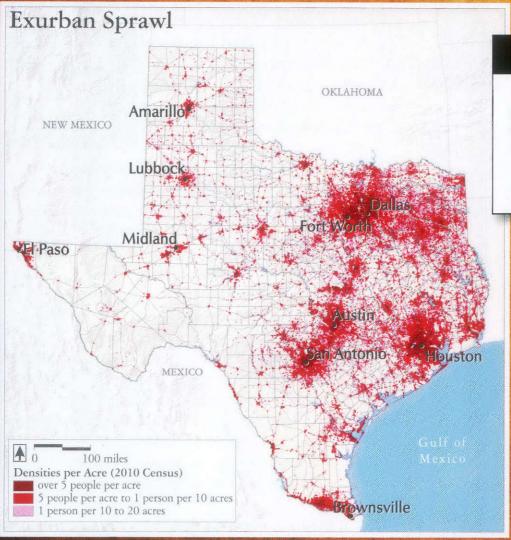
The Texas Landscape Project authors David Todd and Jonathan Ogren have been kind enough to share a dozen of these maps on our pages, selecting topics that fit with the Texas Parks and Wildlife Department mission statewide. We've sorted 11 maps into sections focused on cities and suburbs, streams and lakes, weather and more, but first, we'll take a trip back to the state's earliest days, when maps meant the difference between life and death for travelers.

Readers can learn more about The Texas Landscape Project at the book's companion website, www.texaslandscape.org.

#### LOST SPRINGS & OLD TRAILS

More than 2,000 springs have been documented in Texas, many of them critical to the early exploration and settlement of the state. Numerous western explorers - including de Vaca, Coronado, Moscoso and Espejo during the 1500s and Oñate, Castillo, Bosque, Mendoza, La Salle and De León during the 1600s — relied on these watering holes for survival. Pioneers depended on these same Texas springs as they traveled along El Camino Real, La Bahia Road, the Old Spanish Trail, the Atascosa Road, the California gold-mining road, the Butterfield Overland Mail route and the Chisholm cattle trail. Today, as many as 400 of these historic and environmentally important springs have dried up. The impact that loss has had or, migrating wildlife, local plants and endemic fish can only be guessed.

## People and More People



#### At a glance...

With different shadings, this 2010 map shows areas with more than five people per acre, between five per acre and one person for every 10 acres, and one person per 10 to 20 acres.

#### COUNTRY ROADS, TAKE ME HOME

At least 88 percent of Texans live in the large metropolitan areas — Houston, Dallas-Fort Worth, San Antonio and Austin — but many have moved to the suburbs and exurbs. Of the 15 fastest-growing American towns with a population over 50,000 (according to the 2015 U.S. Census), six are satellite communities in the orbit of a Texas city. San Marcos led the pack with a growth rate of nearly 8 percent, followed by Georgetown, Frisco, Conroe, McKinney and New Braunfels.

**SUBURB OR EXURB?** While definitions vary, suburbs are the first few rings of communities around a city, mostly separated only by a political boundary drawn on a map, not by much of a change in density or landscape. As cities and suburbs fill, some people (particularly those with higher incomes) choose to settle farther out on larger pieces of land, or exurbs, paying for that pastoral setting with a longer commute.

#### At a glance... The state map compares farm acreage in 1959 and Farm Acreage: 1959 to 2012 50+ years later. Green areas had gains in farmland, vellow showed little change, and orange/red areas Amarillo NEW MEXICO saw significant losses. Lubbock Fort Worth Midland El Paso Austin San Antonio Houston MEXICO A 0 100 miles Change in Farm Acreage, 1959 through 2012 40 to 72% more 20 to 40% more 5 to 20% more less to 5% more 5 to 20% less 20 to 40% less 40 to 72% less Brownsville

#### DOWN ON THE FARM

Texas has more than double the number of farms found in any other state, representing 12 percent of the U.S. total. We also lead the nation in the amount of agricultural land being developed.

The total number of farms in Texas decreased by nearly half from 1940 to 2012, but the number of small farms operated by part-time farmers is increasing, as is the number of nonfarm landowners. Land ownership is becoming more of a lifestyle, with owners using their spreads for recreational purposes, including hunting, fishing, bird-watching and relaxing.

Urban sprawl also affects wildlife. Wildlife dens, nests and habitats are swapped for human homes. Some animals, such as the white-tailed deer, raccoons, coyotes, grackles, doves and black rats, can share built-up lands with their two-legged relatives. Others are not so adaptable.

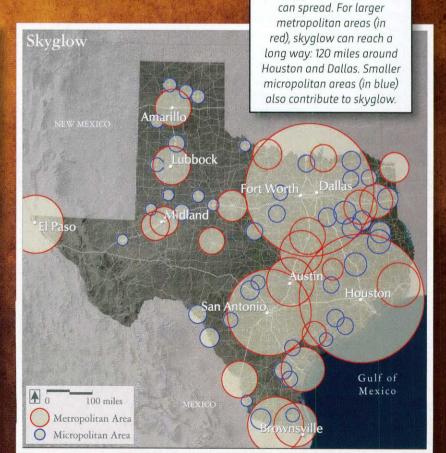
#### THE STARS AT NIGHT

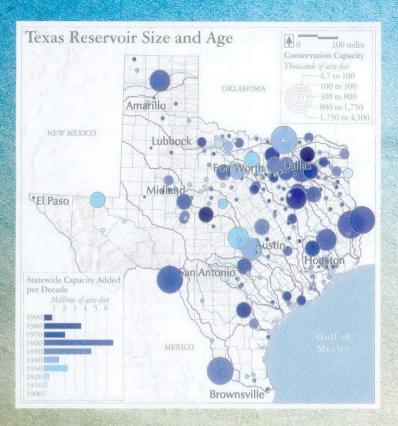
Eighty percent of Americans have never seen the Milky Way. The unaided eye can discern 8,000-plus stars in a naturally dark sky, but most urbanites can see 500, at best. The glare of artificial lights has overwhelmed the night sky. Millions of lights illuminate our lives but also spill over (and upward) to light the heavens, causing "skyglow"

State statutes now protect lightsensitive observatories and military bases across Texas; towns and cities are passing ordinances to minimize unnecessary lighting, joined by neighborhood and landowner associations.

At TPWD, we're making changes to protect the night skies over state parks. Enchanted Rock, Copper Breaks and South Llano River are certified Dark Sky Parks (texasstateparks.org/darkskies).

## At a glance... This map shows how far a skyglow of 10 percent





#### BIG, OLD LAKES

Texas hasn't always been dotted with lakes, but now we've got more inland water than any state except Alaska. The great drought of the 1950s motivated us, and now Texas boasts 190 reservoirs exceeding 5,000 acre-feet (1.63 billion gallons) in capacity, flooding bottomland hardwood forests and affecting river flows.

Reservoirs are manmade systems, often lacking in native aquatic plants. Damming a stream and flooding the terrestrial habitat around it creates a submerged waterscape of dead trees, brush, old roadbeds and whatever else was built on the land. Decaying vegetation releases nutrients into the water that jump-start the fishery, but conditions can decline over time as the flooded vegetation degrades and water

#### At a glance...

At a glance, you can compare location, relative size and age of Texas reservoirs circa 2007 (no major changes since then). Circle size reflects the reservoir's conservation capacity (water volume when full); color intensity shows impoundment (creation) date (lightest for 1900-1909), darkest for 1990-1999).

quality worsens. TPWD's Inland Fisheries biologists coordinate a growing patchwork of partnerships aimed at revegetating reservoirs, resulting in improved water quality as well as more food and habitat for fish (making anglers happy).

## Bodies of \



#### At a glance...

Sections of impaired Texas waterways are highlighted in red, while those able to meet water quality standards remain blue. The problem of clean waterways occurs across the state, but particularly in the eastern half.

#### DON'T DIVE IN

Many waters aren't safe for swimming and fishing. Impaired streams, bays and estuaries are listed under the Clean Water Act as unable to meet their designated water quality standards. More than 7,000 miles (42 percent) of all assessed rivers were cited as impaired for swimming, while 963 miles of assessed Texas streams (24 percent) were impaired for fishing. Water influences every aspect of TPWD's mission, and the water resources branch coordinates the agency's involvement in water planning, water permitting and other water-related issues. The TPWD river studies team works to assess river/stream conditions to inform policy decisions affecting quantity/quality of water to maintain natural biodiversity.

## Vater

#### At a glance...

It's not hard to spot lonely Balmorhea State Park's spring-fed pool, the oasis in the desert of West Texas, or Lake Fryer up in the farthest reaches of the Panhandle. The promising cluster in Central Texas contains many favorites.

El Paso

100 miles

OKLAHOMA

Coveted Rivers

#### Swimming Holes Canadian Amarillo Lubbock Sulphur Dallas Fort Worth Cypress Midland Sabine Trinity Brazos **Neches** Colorado Austin Rio Grande Houston San Antonio Guadalupe Nueces Brownsville

#### SPLISH, SPLASH

A swimming hole is simply any place that's wide and deep enough to swim, with bonus icy-chill points if it happens to be springfed. Texans retreat to these cool, watery retreats, many clustered in pristine areas of the Hill Country, to beat the grueling heat of endless summers.

## At a glance... This map compares historic stream flows of most major Toyas

historic stream flows of most major Texas rivers, except the Rio Grande. Find location and interconnectivity, force of flow, origins and final connections with the Gulf of Mexico.



#### RUN, RIVER, RUN

All rivers start as a trickle, but as they wind their way down to the coast, smaller streams join in and add to their power and size. Gauging stations that provide this data cover different periods of time, so it's hard to pinpoint a particular "average" time. Western rivers swing wildly from flash flood to low base-flow; reservoirs and diversions have significantly affected many rivers.

Texas weather varies widely. Drought visits some part of the state every four years or so. By 2050, scientists expect that the average Texas temperature will increase by 3.6 degrees and precipitation will decline by around 5 percent. Projected stream flows at the coast could fall by 3C percent under normal conditions, and by 85 percent in drought.

#### At a glance...

This map shows the shift of the Zone 7 top boundary line northward from Amarillo to the state line, a shift in Zone 8 from San Angelo to Lubbock and a shift in Zone 9 from Houston to Austin/San Antonio. Zone 10, the southernmost tip of Texas, did not exist in Texas in 1990.

## Natural Forces



#### TAKING ROOT

To assist gardeners and farmers with planting success, the U.S. Department of Agriculture offers a map delineating temperature zones across the nation. This simple map on the back of seed packets and in farming catalogs helps determine which plants are most likely to thrive at a particular location and when to plant them. The map is based on the average annual minimum winter temperature, divided into 10-degree zones.

Compared with 1990, zone boundaries have shifted northward in every region. The new map is generally one half-zone warmer than the previous map. The shifts can portray actual temperature rise, but some changes are due to more sophisticated mapping methods as well as more station observations, improving accuracy.

#### A DROP OR A DELUGE

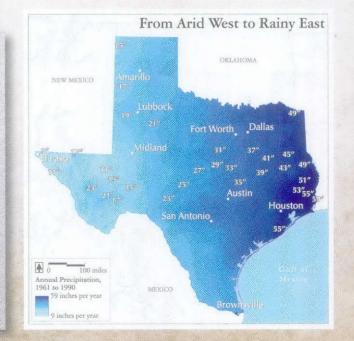
Texas rainfall varies widely, ranging from almost 60 inches per year in Beaumont to less than 10 inches in El Paso. That West Texas rain can come

3 or 4 inches at a time during summer monsoons but then stay away for most of the year. In many parts of the state, long droughts can be broken by intense rainfall and flooding.

El Niño brought increased rainfall in early 2015, helping ease the drought of 2011 but causing historic flooding. A return of El Niño for hurricane season can mean wetter forecasts, but in Texas, anything can happen.

#### At a glance...

This map shows how annual precipitation dwindles from more than 55 inches in southeastern Texas (purple) to less than 10 inches in the parched deserts of the west (pale blue), using depth of shade to signify wetter climes.



# This map shows the prevailing breezes in Texas at an elevation of 80 meters above the ground, close to the height of many modern wind towers. Part Worth Gallet Austin Aust

#### CATCH A BREEZE

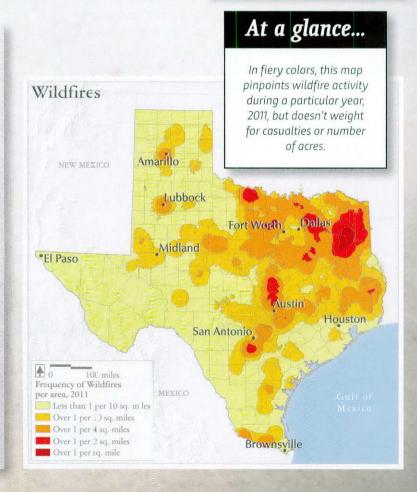
Texas is blessed with a rich wind resource throughout much of the state. Railroads first used windmills to pump water for their steam engines as early as 1860 near Houston. Another important use was to water cattle in dry areas. From the 1920s through the 1950s, some ranchers and farmers even installed Jacobs wind generators that charged car batteries, ran radios and lit homes. The arrival of rural electricity in the 1930s replaced most windmills, but there's been a phenomenal resurgence of wind turbines in recent decades. There are concerns about wetland sites. road impacts, and bird and bat strikes, but the TPWD Wildlife Habitat Assessment Program stands ready to assist project developers to address problems.

#### RING OF FIRE

For a time, it seemed as though the entire state was on fire in 2011. No fire captured our attention more than the one in Bastrop County, but 50-plus other wildfires raged on that same day. The worst drought since the 1950s brought down millions of acres that year. As of mid-fall 2011, the Texas Forest Service reported that a staggering 25,365 wildfires had blackened 3.8 million acres and destroyed 2,876 homes since November 2010.

Tree rings in Bastrop revealed that, before settlers came, lightning strikes cr Native Americans ignited fires every six or seven years. So, why did 2011 prove so deadly for Bastrop State Park?

"Long-term fire suppression left an incredible amount of fuel available to be burned," says Bastrop/Buescher State Parks Superintendent Jamie Creacy. 'Couple that with a record-breaking drought, and all you needed was a spark. And that's what we got. We began a prescribed burn program in 2002, but you can't undo 100 years of fire suppression in just a few years."





**1971** 20 bighorn sheep are released at Black Gap Wildlife Management Area, beginning the re-establishment of the species in Texas.



**1972** The first Florida largemouth bass fingerlings are stocked in Texas waters.

**LEGACY** 

# Looking back at... THE 1970s

The activism of the 1960s spilled over into the 1970s, with the anti-war movement and the fight for equality going strong as the calendar turned over to a new decade. On the culture front, the decade gave us Farrah Fawcett, Jaws, disco and the Bicentennial. It was a time of both "I'm not a crook" and I'm OK, You're OK. Americans held the first Earth Day in 1970, marking the beginning of the modern environmental movement. In the Texas environmental realm, state parks were beginning to get the money they needed. Starting in 1971, a cigarette tax of 1 cent per pack generated a steady stream of money for parks and led to a golden age of park acquisition. Several new parks were added each year in the 1970s, including Enchanted Rock, Brazos Benc and Mustang Island. Texas anglers grabbed their tackle boxes and headed out to the state's newly built reservoirs, ushering in a new era of fishing popularity and active fisheries management.

#### WHY WE DON'T PLAY WITH MATCHES

ULY 1974

Exhibit A for flame-retardant tent materials. Such fabrics were just beginning to enter the public eye.

#### **BIG ILLUSTRATIONS MAKE A BIG SPLASH**

ULY 1974



#### **HEADLINES OF THE DECADE**

## "Poor Man's Pig"

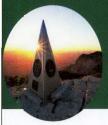
Pileated Woodpecker
Flamboyant
Lumberjack

the reverted to the wild partner and Joanness them reverted to the wild by the sould hear her pooring het tasks like a javelina. The sounds were so impressive that the sounds were so impressi

in the feral hogs, and their charac- by Adrian Benke

↑ In the '70s, every animal got a nickname.

Janger in Fires in



1972 Guadalupe Mountains becomes a national park.

1974 The first state list of endangered species is published.



Parks and Wildlife Department to Build New Heacquarters

1976 TPWD headquarters is moved from downtown Austin to its location adjacent to McKinney Falls State Park.

#### **POETRY CORNER**

NOVEMBER 1971

#### Sweet Nothings to the Little Armored Thing

Some armadillo roto-ti lered my land Upending a handful of cearly-priced day lilies, All hybrids.

Snout-shoveled up my garden path Cleaving a curly wake through asters, Late-blooming and wholly poised. Destroyed in one masterfully-rendered statement A flock of callas, arrow-leaved, serene, And for an afterthough: In case I might have dcubted who he was Threw down the slope with an amazing violence

Two dwarf azaleas, fat and in full health, Ending their long domirance over That fiefdom by the stream. He must have laughed in passing With the thought

That in a single night he could arrange to his own tastes A studied landscaped scene Long labored over by the earth's elite.

Lucille Germany

#### **GETTING TOGETHER FOR A MEAL**

From fish fondue to a squirrel camp stew, Texans were invited to put new things on the menu — including our first recipes for shark!



sides being a sportfisherman's chaings, sharks have merit on the table, at shark flesh has been slow to gain epularity with most fish-eating eoole. This could be because of the hark's reputation as a killer or a loodthirsty demon. Nevertheless, naughts such as these should be fortotten sirce most sharks are good to set when correctly prepared and are us that titles. The secret of success is in butchering he shark as soon after carching it as ocssible and icing down the meat. However, do not get too hasty and start carving on a shark that is not dead. After the meat is skinned and washed, try some of the following recipes for a meal that is quite delicious.

BROILED SHARK
Shark meat is relatively dry, so be sure to slice it at least one-half to two inches thick.

inches thick.

Place fish on a buttered shallow pan.
Sprink-le with salt and pepper. Smear
senercusiy with but er or baste with
olive oil. Cook 15 min. tes in broiler
about three inches from heat. Turn, dat
with butter or olive oil and cook 10
minures longer, or until fish flakes.

SHARK WITH

MUSHROOMS

1 pound diced shark meat

1 toblespoons butter

1 onion, chopped

1/2 round mushrooms, slicec
buttered bread rrumbs

1/2 cup dry white wine

1 teaspoon chopped parsley

1 teaspoon chopped parsley

2 cayenne pepper

Saute onions and mushrcoms in a
ter and add diced shark which it
been well washed. Add w ne, seen
irgs, and chopped parsley. Fill india

1/2 rumekins and sprinkle with

1/2 tered crumbs. Bake a: 350° i

BAKED SHARK CAKE

i pound salted shark 4 medium potatoes, cooked and mashed

1 teaspoon minced onior 2 tablespoons butter 14 cup milk

1 egg
Boil shark meat for 20 minutes,
and flake with fork. Mix with pot
onion, milk, pepper and unbeak
Shape mixt yre into cakes and 5
moderate oven at 350° or 35 m x

**ILLY 1973** 

lerge, washed .quirrels

prelect tomators | medis m cans bernel corn |4 lbs. sliced sait pork | medicm-sized potators, peeled and scartered

4 onions
4 lb. butter beans
2 tosp, Worce tershire sauce
Sal and peoper

Not use re-Four Rub squirels with butter and place with all other ingrellents except flour in an iron pot over the fire. When dens, thicken with flour and sim-ner a chile longer. Serves at least 6 peopse.

BAKED SOURRELS

3 sq sirrels

6 th-p, swottening

3- sup inche wine

Salt and people

3- sup while wine

Salt and people

3- sup is swotter

4- sup chopped oxion

2 spring norsley

Dress and wond squirrels, split in hal). Sook in

salt weeter: if quirrels are young, for 10 to 15

natures: i old, hey must be souled et least 4

hars. Med. 6 they, shattening in iron sadlet and

the salt in 32% oven and bake 1 tours. If

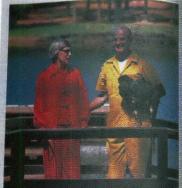
schirrels are old, nack for one-third more time.

#### THEN AND NOW: ALL THE PARKS SEPTEMBER 1975 AND IANUARY 2016

The idea of visiting all of the state parks in Texas has captured the imagination of Texans for decades.

IS NOT ENOUGH





#### All of the Parks

et became the goal of this Fort Worth couple.

#### THAT'S RIGHT, **WE SAID IT...**

"Whether you call it the naked Indian, madrone or lady's leg, if you are familiar with the Texas madrone by any name, you are one of a fortunate minority."

From August 1976

JUNE 2017 \* 47

DECEMBER 1970



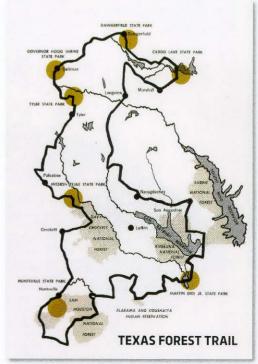


#### **HAPPY TRAILS**

MAY 1970 - LATE 1971

Beginning in May 1970, Texas Parks & Wildlife magazine published a series of articles identifying various trails throughout the state. Complete with maps, these features gave Texans an opportunity to explore the state thematically as well as geographically, broadening our understanding of our history and natural resources.





#### **NEW SPORTS TECHNOLOGY**

## New electronic lure may catch too many fish; one state bans it.

Blinks blood red to mimic an injured prey.

> A bass every seven minutes in test.

NEWARK, DE- A new fishing technology that set a record for catching bass in Mexico is now showing its stuff



by Mike Butler

in the U.S. It has out-fished shrimp bait in Washington State and beat top-selling U.S. lures three to one in Florida. The new technology is so effective one state, Wyoming, has banned its use.

The breakthrough is a tiny, battery-powered electrical system that flashes a blood-red light cown a lure's tail when its moved in water. Fish think it's an injured prey and strike. Some fishing authorities, like those in Wyoming, think that gives fishermen too much of an advantage.

They may be right. Three fishermen using a flashing lure in Mexico caught 650 large-mouth bass in just 25 hours. That's a bass every seven minutes for each person, and a record for the lake they were fishing. They said the bass struck with such ferocity they hardly lost a strike.

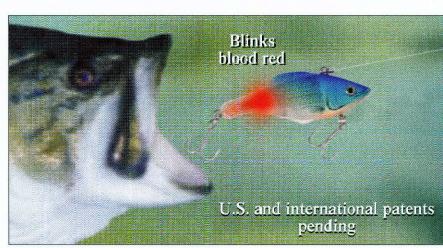
In Florida two professionals fished for four hours from the same boat. One used a flashing-red lure; the other used some top-selling U.S. lures. The new, "bleeding" lure caught three times as many fish.

#### Works when others don't

Three fishermen in Washington State used a popular lure baited with shrimp and caught nothing after fishing three hours in cold weather. One of them tried a flashing lure he was asked to test and 30 minutes later caught a thirty-pound steelhead.

A Tournament fisherman on a lake in Florida tried everything in his tackle box and had no bites. He switched to a flashing lure and caught a bass on his first cast, and had his limit in 45 minutes.

Before reporting this, I asked a veteran fisherman in my office for his opinion. Monday morning he charged into my office yelling "I caught six monster



New technology uses a blinking red light to create appearance of a live, bleeding prey. Triggers a genetic strike response in fish.

fish in an hour with this thing! Where did you get it?"

Then I phoned an ichthyologist (fish expert) for his opinion.

'Predators - lions, sharks," he said, "will always go for the most vulnerable prey. Fish are predators, so if a fish sees



New lure flashes blood red to attract fish. Blinks a different presentation each cast.

a smaller fish bleeding, it knows it's weakened and will strike. There's a survival program built into predators that says 'Grab a meal when you can. It may be a while before the next one.'

"If a lure could appear to be a live, bleecing fish, a few fishermen could probably empty a lake with it."

I told him three almost did.

#### Different presentations

Because the technology reacts to movement, every retrieval generates a different kind of flash; so if a fish passes on your first cast, it sees a new presentation on your next one, and so on.

The technology is so new I could find only one distributor in the U.S. that offers a finished product. It's called Bite Light® and has several international patents pending. It comes in a kit of three.

There is a U.S. company that offers a kit of three blinking lures (che each for shallow, middle and deep water) called the Bite Light® Each lure is a different color. They work in fresh or salt water, contain rattle attractants inside and last 300 hours in the water.

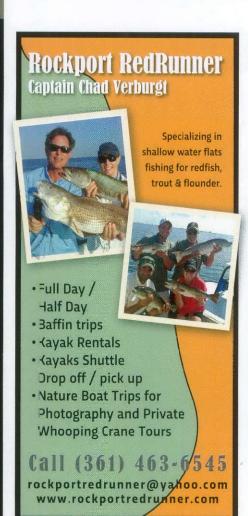
This year, they're introducing a new series of the Bite Light, the Bite Light MM15, for even better action. One kit of three Bite Lights costs \$29.95, two more cost just \$25.00 each. S/h is only \$7.00 no matter how many kits you buy

To order, go to www.FishingTechToday .com or call 1-800-873-4415 anytime or day and ask for the Bite Light® lure (Item #kbl). Cr send your name, address and a check to Scientific Edge LLC (Dept. LL-8C4), 40 E. Main Street, Suite 1416, Newark, DE 19711.

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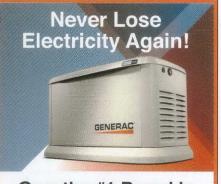
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#### I'LL TAKE MINE BLACK... NO SUGAR

In the early 1930s watch manufacturers took a clue from Henry Ford's favorite quote concerning his automobiles, "You can have any color as long as it is black." Black dialed watches became the rage especially with pilots and race drivers. Of course, since the black dial went well with a black tuxedo, the adventurer's black dial watch easily moved from the airplane hangar to dancing at the nightclub. Now, Stauer brings back the "Noire", a design based on an elegant timepiece built in 1936. Black dialed, complex automatics from the 1930s have recently hit new heights at auction. One was sold for in excess of

\$600,000. We thought that you might like to have an affordable version that will be much more accurate than the original.

Basic black with a twist. Not only are the dial, hands and face vintage, but we used a 27-jewe'ed automatic movement. This is the kind of engineering desired by fine watch collectors worldwide. But since we design this classic movement on state of the art computer-controlled Swiss built machines, the accuracy is excellent. Three interior dials display day, month and date. We have priced the luxurious Stauer *Noire* at a price to keep you in the black... only 3 payments of \$33. So slip into the back of your black limousine, savor some rich tasting black coffee and look at your wrist knowing that you have some great times on your hands.



27 jewels and handassembled parts drive this classic masterpiece.

An offer that will make you dig out your old tux. The movement of the Stauer *Notre* wrist watch carries an extended two year warranty. But first enjoy this handsome timepiece risk-free for 60 days for the extraordinary price of only 3 payments of \$33. If you are not thrilled with the quality and rare design, simply send it back for a full refund of the item price. But once

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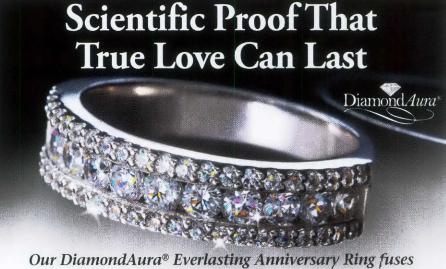
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1 ctw lab-created DiamondAura® rounds • .925 sterling silver setting Whole ring sizes 5–10 • 60-day item purchase price guarantee

## Brazil Expedition Uncovers Thousands of Carats of Exquisite Natural Emeralds

Brandish a whopping 50 carats of genuine South American emeralas in a handcrafted new necklace design for **less than \$100!** 

Alfway into our ambitious trek through the rain forest I had to remind myself that "Nothing good comes easy." These days it seems that every business trip to Brazil includes a sweltering hike through overgrown jungles, around cascading waterfalls and down steep rock cliffs. But our gem broker insisted it was worth the trouble. To tell you the truth, for the dazzling emeralds he delivered, I'd gladly go back to stomping through jaguar country.

**Now our good fortune is your great reward.** Don't miss this rare opportunity to own an impressive 50 total carat strand of genuine South American emeralds for under \$100.

Faced with this embarrassment of riches, our designer transformed this spectacular cache of large stones (each is over 8 carats average weight) into a stunning 50 total carat necklace of faceted emeralds set into .925 sterling silver. Each emerald is surrounded by delicate sterling silver rope work and filigree in the Bali-style. The 18" necklace dangles from a sterling silver chain that fastens with a secure double-sided shepherd's hook clasp.

What is the source of our emerald's timeless appeal? The enchanting color of the Stauer Carnaval Faceted Emerald Necklace comes from nature's chemistry. Our polished and faceted, well-formed natural emeralds are immediately recognized as something special. Indeed, when we evaluated these emeralds, color was the most important quality factor. Today, scientists tell us that the human eye is more sensitive to the color green than to any other. Perhaps that is why greer is so soothing to the eye, and why the color green complements every other color in your wardrobe.

Emeralds are, by weight, the most valuable gemstone in the world. Now you can wear genuine emeralds and feel great about knowing that you were able to treat yourself to precious gems without paying a precious price. A top-quality 50 carat emerald necklace found on Rodeo Drive or 5th Avenue could cost well over \$100,000...but not from Stauer. Wear and admire the exquisite Stauer Carnaval Faceted Emerald Necklace for 60 days. If for any reason you are not dancing the Samba with pure satisfaction after receiving your faceted emerald necklace, simply return it to us for a full refund of the purchase price. But we're confident that when you examine this stunning jewelry, you'll be reminded of the raw beauty of the Amazon rain forests mixed with the flash and dazzle of the exotic Carnaval in Rio de Janeiro. Call today! This cache of genuine emeralds is extremely limited.

Carnaval Faceted Emerald Necklace (50 ctw) \$299

Offer Code Price \$95 + S&P Save \$204

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† Special price only for customers using the offer code versus the price on Stauer.com without your offer code.

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Code

50 ctw of genuine emeralds. Enlarged to show exquisite details.

'You will rarely find an enerald necklace with 50 carats and certainly not at this price!"

— JAMES T. FENT, Stauer GIA Graduate Gemologist

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50 ctw of genuine emerald (6 stones) • Oxidized sterling silver settings and chain • 18" length (+2" extender) with double-sided shepherd's hook clasp





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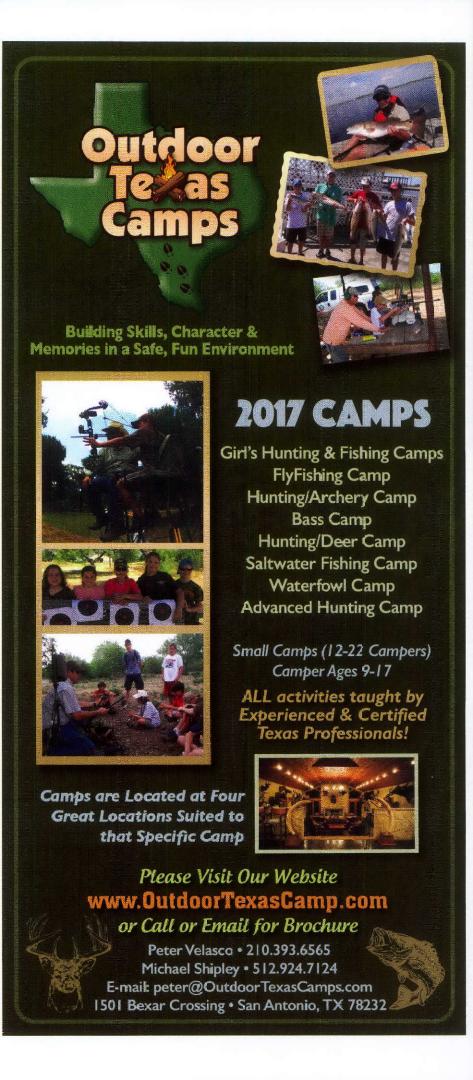
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#### **Field Dress For Success**

The hunt for the perfect outdoorsman knife is over. There's only one tool you need: the Whitetail™ Hunting Knife—now ONLY \$49!

The consummate outdoorsman never goes on deep woods hunting trips without the essentials. Not just the basics for every hunting trip, but the items he's come to depend on over the years.

Our new Whitetail™ Hunting Knife will quickly become your go-to blade for every expedition. The Whitetail™ is a premium fixed-blade hunting knife that's perfect for skinning. With the Whitetail at hand, you'll be ready for field dressing in only seconds, and you'll never need a separate gut hook tool ever again. The Whitetail™ boasts a mighty 420 high carbon, full tang stainless steel blade, meaning the blade doesn't stop at the handle, it runs the full length of the knife. According to Gear Patrol, a full tang blade is key, saying "A full tang lends structural strength to the knife, allowing for better leverage ...think one long steel beam versus two."

The comfortable handle is made from pakkawood—moisture-resistant and more durable than hardwood. If hunting is your life, then the Whitetail™ Knife was designed to make your life easier.

With our limited edition Whitetail™ Hunting Knife you're getting the best in 21st-century construction with a classic look inspired by legendary American pioneers. What you won't get is the trumped up price tag. We know a thing or two about the hunt—like how to seek out and capture an outstanding, collector's-quality knife that won't cut into your bank account.

BONUS! Call today and you'll also receive this heavy duty sheath!

EXCLUSIVE Compact Binoculars -a \$99 valuewith purchase of Whitetail™ Hunting Knife

This knife can be yours to use out in the field or to display as the art piece it truly is. But don't wait. A knife of this calibe- typically cost hundreds. Priced at an amazing \$49, we can't guarantee this knife will stick around for long. So call today!

Your satisfaction is 100% guaranteed. Feel the knife in your hands, wear it on your hip, inspect the craftsmanship. If you don't feel like we cut you a fair deal, send it back within 60 days for a

complete refund of the item sale price. But we believe that once you wrap your fingers around the Whitetail's handle, you'll be ready to carve your own niche into the wild frontier.

What customers are saying about Stauer knives...

\*\*\*\*

"Good value. Great looking. Sufficiently sharp. Overall an "A" purchase and I ordered three.'

- B. of Maryland

Whitetail™ Hunting Knife \$79\*

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Not shown actual size



• 5 ¼" 420HC stainless steel blade • Full-tang design with gut hook • Pakkawood handle with brass pins • Bonus heavy duty nylon sheath



THOREAU WRITES that all nature is connected, yet we know so little of how the underwater world is connected to us. The ocean is the last great area to be explored on cur planet. The most accessible way for us to examine it is with scuba gear

Scuba (self-contained underwater breathing apparatus) diving goes beyond snorkeling, allowing us to spend more time underwater, taking in all the astonishing sights beneath the surface of the waves. You can explore freshwater lakes, springs and rivers as well; these are the best places to begin your training.

Texas diving features pristine freshwater springs, marine sanctuaries, shipwrecks and a huge array of sea life, suitable for beginners and experts.

Certification is required, and the gear requires an investment, but the experiences you'll have are well worth the price of admission.

**CERTIFICATION:** The Professional Association of Diving Instructors (PADI) and National Association of Underwater Instructors (NAUI) are the two primary certification agencies. Scuba-related sales and rental outlets require proof of diver certification.

By Bruce Biermann

#### WHERE TO GO

#### BALMORHEA STATE PARK:

Scuba diving in the desert?
You bet, and it's wonderful.
The pristine spring-fed
water is full of fish and is a
safe, fun and easy dive for
all levels of divers.

LAKE TRAVIS: Because of its depth and location in Central Texas, Lake Travis is a popular spot for divers. Visibility is 30 feet max on a good day.

**SPRING LAKE:** Special training is needed to dive in these San Marcos springs. With visibility at 60 to 90 feet, it's one of the clearest places to dive in Texas.

#### THE TEXAS CLIPPER:

TPWD turned this ship nto an underwater reef off South Padre Island. The top of the ship's at 66 feet and the bottom rests at 134 feet. It's usually considered to be an intermediate to advanced dive.

#### FLOWER GARDEN BANKS NATIONAL MARINE

**SANCTUARY:** About 100 miles offshore from Galveston, this 55-square-mile sanctuary is one of the most scenic dives in Texas. Recommended for advanced divers.

#### **GEAR UP**

- MASK: Provides an air space in front of your eyes, allowing you to see clearly underwater.
- SNORKEL: Allows you to breathe air while on the surface to conserve your compressed air supply.

FINS: There is no better way to maneuver and propel yourself than with fins.

- BCD: A buoyancy control device is worr to control the rate of descent or ascent in the water.
- TANK: A gas cylinder used to store and

transport the highpressure breathing gas requ red to breathe underwater.

- REGULATOR: A pressure-reducing device that delivers the breathing gas to you at a comfortable pressure.
- GAUGES: Allows you to keep track of your depth, tank pressure and water temperature.
- WETSUIT: Usually made of foamed neoprene, it provides thermal insulation, abrasion resistance and buoyancy.

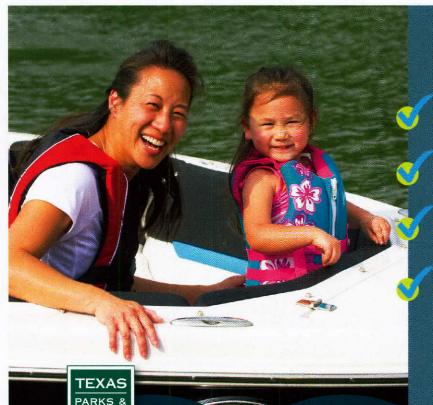


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Water Safe!

Wear a life jacket

Supervise children closely at all times

Learn to swim

Take a boater education class

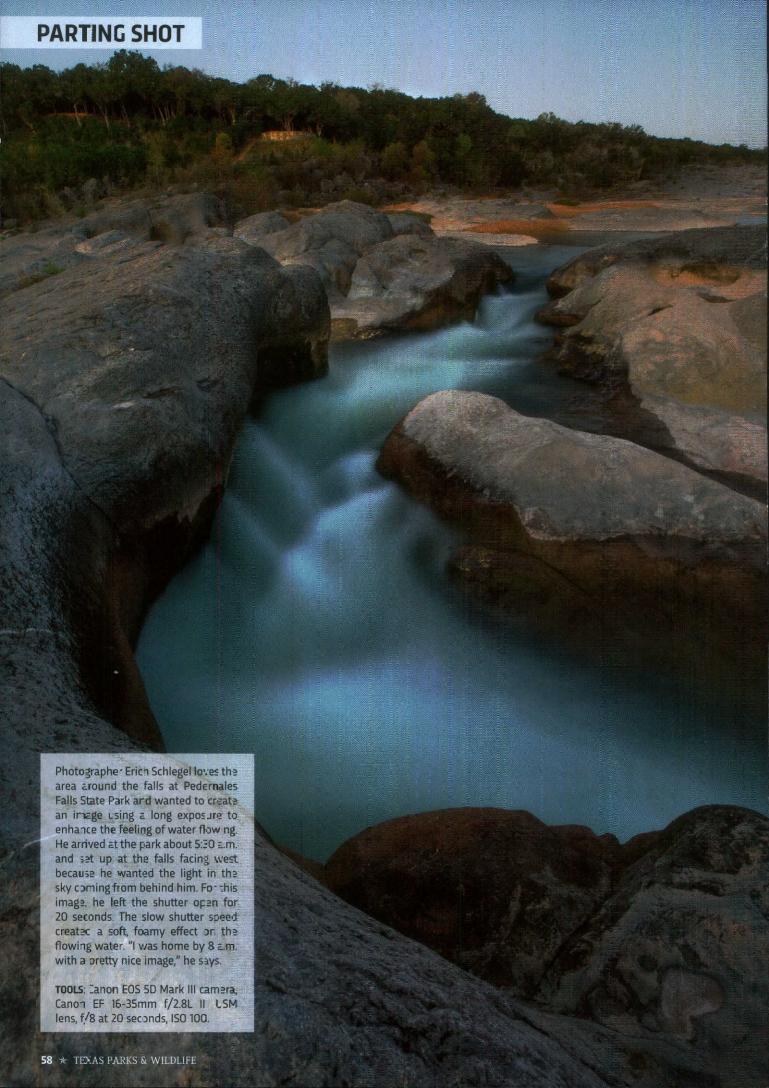
Every year, children and adults drown unnecessarily. Keep your day on the water fun by being water safe.

Life's better outside."

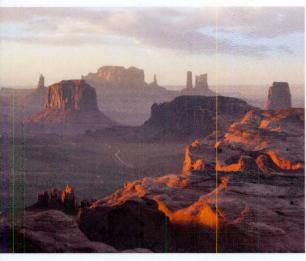
WILDLIFE

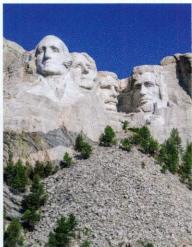
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