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TEXAS PARKS & WILDLIFE

JUNE 1993

Texas Tarpon

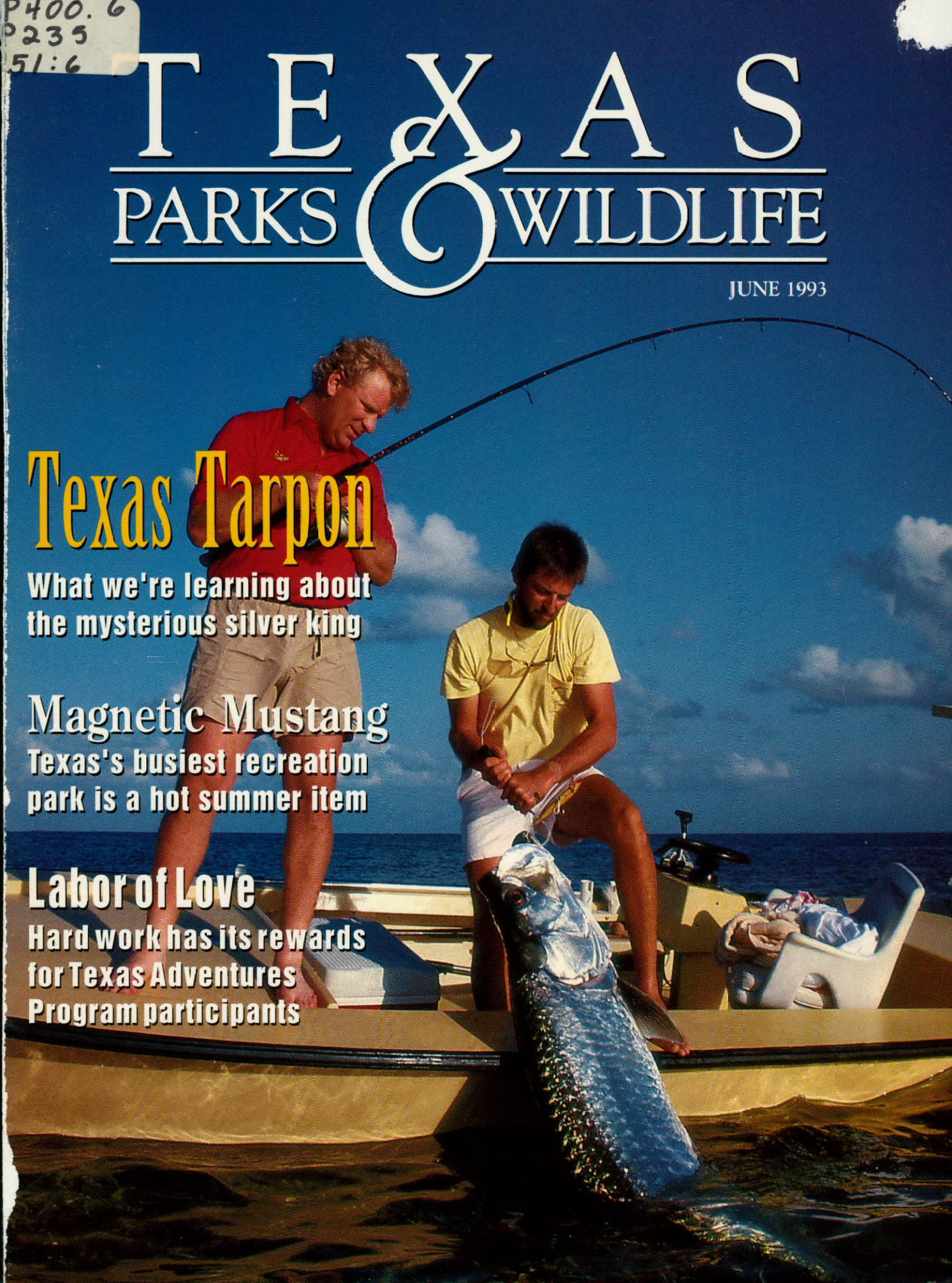
What we're learning about the mysterious silver king

Magnetic Mustang

Texas's busiest recreation park is a hot summer item

Labor of Love

Hard work has its rewards for Texas Adventures Program participants





JUNE 1993

TEXAS PARKS & WILDLIFE

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Glen Mills

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COVERS

Front Are tarpon on the way back? See page 14. Photo © Grady Allen. Nikon F3 camera, 50mm lens, 1/250 second at f/8, Kodachrome 64 film.

Inside Front A starfish lies just under the water at Mustang Island State Park. A story about the park begins on page 4. Photo © Stephan Myers. Nikon EL2 camera, 105mm lens, 1/125 second at f/5.6, Fujichrome 50 film.

Back Cover Big Bend Ranch State Natural Area was the site of the 1992 Texas Adventures, where tour participant William Day shot this photo of Madrid Falls. Read about the Big Bend Adventures beginning on page 28, and find out about Adventures planned for this year.

- 4 ONE OF THE GULF'S MOST POPULAR BEACHES** With a five-mile beach right on the Gulf of Mexico, Mustang Island State Park is a top choice for swimming, fishing, sailing and beach combing. Visitors can camp on the open beach or choose a campsite with water and electrical hookups. *by Janet R. Edwards*
- 12 FISHING LITTER** Monofilament fishing line, bobbers, tackle containers and remains from cleaning fish are just some of the types of litter that accumulate around lakeshores. And fishing litter, more than most other types of litter, can cause problems for wildlife. *by Kristi G. Streiffert*
- 14 TEXAS TARPON** Once abundant almost beyond belief in Texas coastal waters, tarpon populations began a sharp decline in the 1960s. But encouraging sightings of the silver king in recent years have made biologists and anglers determined to protect and restore this fragile fishery. *by Phil H. Shook*
- 24 MORE THAN A MAE WEST** Forget those bulky orange life jackets. Today's personal flotation devices are designed to serve a variety of water sports enthusiasts, and they come in fashionable colors, too. *by Kristi G. Streiffert*
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- 36 HISSING HISTRIONICS** Meet the hognose snake, whose unusual behavior makes it an interesting member of Texas's reptilian community. When threatened, this docile snake acts out its own dramatic death to discourage its attacker. *by Suzanne Martin*
- 38 HIGH SEAS DRIFTER** From its mysterious origin in the North Atlantic Ocean's Sargasso Sea, sargassum weed frequently lands on Texas beaches. This gives observant beachgoers an opportunity to study the unique creatures that make up a sargassum community. *by Kathleen Rutherford*
- 44 BILL OF FARE** Its upside-down, red-and-black bill gives the black skimmer an almost comical appearance. But this coastal bird uses its unusual appendage for a unique and effective feeding method. *by Janet R. Edwards*

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AT ISSUE

Not too long ago, I took the ferry from Port O'Connor to Matagorda Island and spent the day exploring one of the most unusual and interesting outdoor places in America. As the boat traveled down the Intracoastal Canal and across the bay, dolphins cavorted in the wake, loons bobbed up and down among patches of marsh grass and the mysterious thin line of the island itself began to take shape on the horizon. As we scrambled off the ferry and onto the island shuttle, we escaped virtually all reminders of civilization and entered a part of the New World as it was first seen by Cabeza de Vaca.

This is the spirit and the opportunity of Texas Adventures, one of the most innovative programs offered by a governmental agency anywhere in the world. Taking advantage of an internal loan fund created by the Texas Parks and Wildlife Commission, a committed entrepreneur named Carolyn Cribari has pioneered an exciting activity that accomplishes three objectives simultaneously. First, Texas Adventures provides access to some of Texas's most unusual and significant lands, guided by experts in the natural sciences. Second, Adventures team members contribute new revenue for conservation efforts in Texas. Finally, the participants assist with research and other important work that normally would cost our agency thousands of dollars.

This summer and fall, Carolyn and her team plan expeditions not only to Matagorda Island but also to Big Bend Ranch, Devils River State Natural Area and Caddo Lake. Thanks to a talented lady and her commitment to conservation, a new pathway to the best of Texas has opened up for those who wish to explore the best kept secrets of our state while preserving them for the future with their money and labor. ★

—Andrew Sansom, Executive Director



© Laurence Parent

In July . . .

Caddo Lake is a haven for wildlife and recreationists. Next month we'll tell you about the proposed barge canal through it. Also in July are stories about the beautiful Mississippi kite, Houston's Sheldon Wildlife Management Area, and what's happening to the Laguna Madre's valuable sea grasses and how it could affect fishing.

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TEXAS
PARKS & WILDLIFE

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enjoyment of Texas wildlife, parks,
waters and all outdoors.*

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A Good Year

Last year was a very good year. From Fort Lancaster and Seminole Canyon in the west to San Jacinto Battleground and the Battleship *Texas* in the east, the state parks have been great. And from the January issue to the December issue, your magazine has helped me enjoy the state parks.

The best deal you have thought up in years is the Texas Conservation Passport. It is extremely convenient and easy to use.

The magazine just keeps getting better and better. The articles are well-written and informative and there are no words to do justice to the photography. I am a Texas history teacher, and many of the features find their way into the hands of my students for extra credit reading. The larger photos get turned into posters and bulletin board displays.

Of the dozen or so parks visited this year, my favorite has to be Matagorda Island. It is just the way a beach is meant to be enjoyed—just sand, sun and sky, no crowds, no boom boxes, no motor vehicles racing around to spoil the enjoyment of nature. Keep it that way.

T.E. Kirkland
Cuero

■ Once again this summer, a passenger ferry is running between Matagorda Island and Port O'Connor on weekends and holidays. Call 512-983-2215 for information.

Mariscal Hermit

I enjoyed Laurence Parent's article in the March issue on floating Mariscal Canyon. I've made this trip myself several times, the first in April 1971. By coincidence, the hermit Mr. Parent mentioned was at that time building his house on the Mexican side of the canyon near the Tight Squeeze rapid. We never actually saw him, although there was evidence he was in the process of building a reed floor in one of the cave levels. We realized after the fact that he probably was the person we had noticed at Talley loading a raft made of large inner tubes.

LETTERS

In April 1972, when we went through again, we discovered a note he had left. He said he lived in Houston, he planned to be back in May and he asked any passersby to feed his chickens and water his banana tree, which we did. We didn't make this particular float trip again until 1976, and at that time his homestead looked like it had been abandoned some time earlier. There were no chickens or banana tree.

Kemp B. Gorthey
Arlington

Belated Gift

While going through some old papers I ran across a letter dated December 1947 from Margaret Driscoll in Hobart, Tasmania. On the chance that she still lived at the same address, I sent her a Christmas card. To my amazement she is still there.

My troop ship docked in Hobart for one day in 1944 on our way to Bombay, India. The people, particularly Margaret and her family, did everything they could to entertain us for that brief stay. I'm sure that, being a proud Texan, I bragged endlessly about our great state. So as a belated thank you to Margaret and her family, I would like to send them a subscription to *Texas Parks & Wildlife* to prove my point.

Alex Ellis
Mansfield, Louisiana

Educational Tool

Thank you for providing current, quality information on a variety of topics. As an environmental science teacher I continually find material that has pertinence in my classroom. I began receiving *Texas Parks & Wildlife* 18 months ago and already my files are full of articles concerning endangered species, water pollution, desert biomes,

ecosystem balance, wildlife management and conservation.

I can insert the information into my lectures and my curriculum by having the students read the articles. However, most of the time I assign students certain passages within the articles and have them teach their classmates about the material. I've been able to give my students current information on issues that affect their state's ecology. It is my hope that increased awareness will help them make educated, intelligent decisions concerning these topics in the future.

Michelle Migura
Hurst

Fort Richardson Flies

I got a chuckle from reading Don Brewster's letter in the April issue. He thought the flies on the Fort Richardson food (January issue) were disgusting? I thought a whole article could have been written about the replicated food (and flies). The artistry involved in creating a table that looks exactly as if the soldiers had just stepped away is incredible.

Jean Henderson
Jacksboro

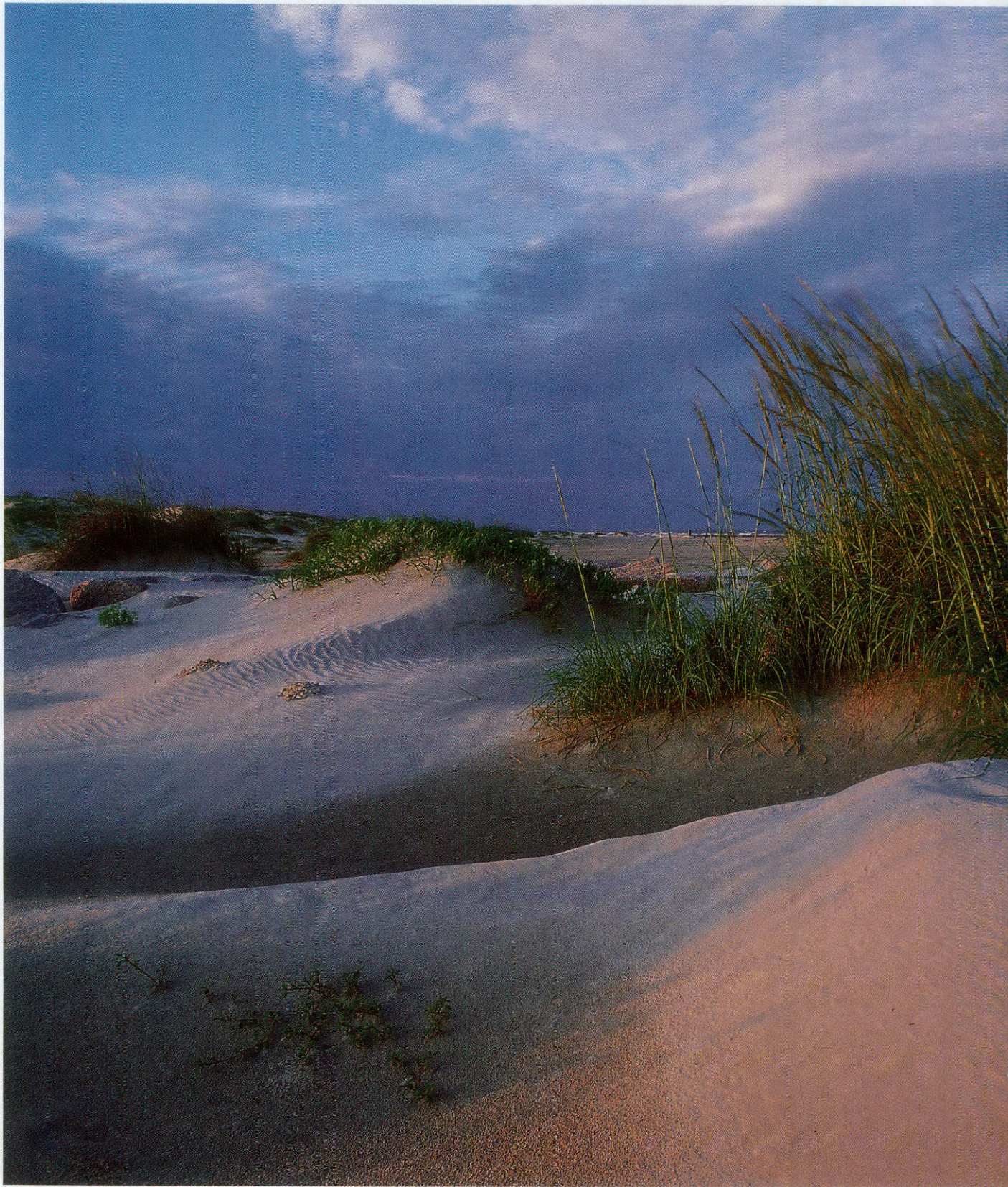
Hill Country

The wonderful photograph by Bob Parvin on page 36-37 of the April issue is the perfect embodiment of Roy Bedichek's description of the Texas Hill Country: ". . . billowy rise after rise growing ever more purplish and smoky in the distance until they finally blur vaguely into an indefinite horizon."

It is a blessing for those of us who love Texas that there were and are writers such as Roy Bedichek, photographers such as Bob Parvin and *Texas Parks & Wildlife* magazine.

Beck Runte
Austin

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



Mustang Island: One of the



© Stephan Myers

A

peculiar restlessness fills the air as you drive along Park Road 53 on Mustang Island. Vegetated dunes dance past the car window, hiding the surf that lies yards from the road. Just when you think you might be lost, an object that looks more like a sculpture than a sign announces your arrival at one of the most popular summer travel destinations in Texas, Mustang Island State Park. Today you will discover what thousands of other Texans already have: the Gulf of Mexico's exhilarating surf and sandy turf in a natural setting far removed from inland surroundings.

"Because we have water and electrical hookups and rinse-off showers all along the beach," said Park Superintendent Bill Gathright, "we attract lots of family campers in the summer for every type of coastal recreation imaginable—swimming, fishing, sailing, beach combing, wildlife watching, sand sculpting,

by Janet R. Edwards

Gulf's Most Popular Beaches

jogging, sunbathing and surfing. Between November and March, 90 percent of our visitors are winter Texans, along with some surfers and fishermen. Overall, except for the San Jacinto Battleground, we're the most heavily visited park in the state."

Activities at the park, which opened in June 1979, range from restful to rousing. Some visitors savor the sound and smell of surf and the sight of skittering ghost crabs and foraging shorebirds. Backwash tugging at their ankles, sand squishing up between toes, beachcombers are content to look for a variety of natural sea treasures including pink acorn barnacles, pen shells, sand dollars, speckled crab shells, starfish, whirled whelk egg casings and driftwood deposited at high tide along the ocean's edge.

Other visitors seek excitement, bob-

bing in and out of the surf or scooting off on fiberglass boards in search of breaking swells near giant blocks of pink granite known as the rock jetties. Located about a half mile north of park headquarters, the jetties reach several hundred feet into the sea, setting up some of the best surfing (as well as some of the best shell collecting at low tide) on the Texas coast.

The jetties form the mouth of a former water exchange between Corpus Christi Bay and the Gulf of Mexico locally known as the fish pass. Constructed in the 1960s by the Texas Parks and Wildlife Department, the fish pass lies entirely within park boundaries and once ranged in depth from two to eight feet. Today, the pass is almost entirely silted in, with bay waters at depths of two to three feet extending about a mile inland and Gulf waters penetrating the jetties

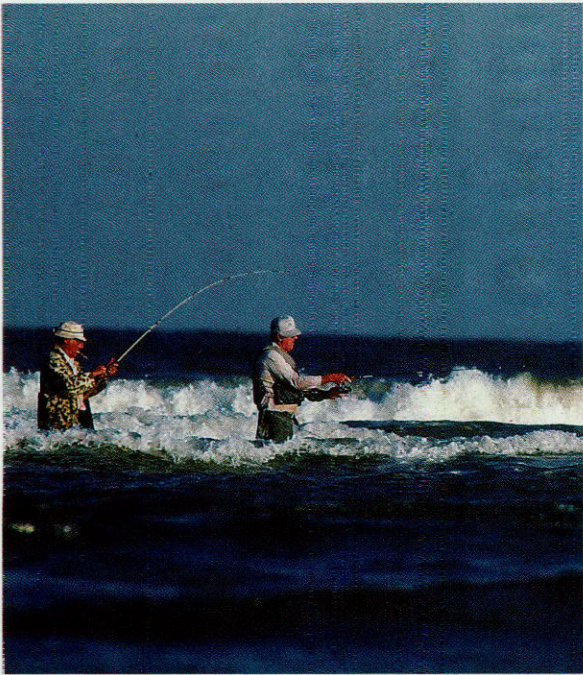
only as far as the beach. At certain times, anglers catch spotted seatrout, flounder, golden croakers, bluefish, whiting, redfish and sharks.

From July to mid-August the surf usually quiets down, which gives experienced snorkelers and certified scuba divers better water clarity to observe the sea urchins, schools of sergeant major fish and other marine species that make the jetties their home. As hurricane season nears in late summer, swimming and snorkeling near the jetties becomes dangerous due to unpredictable riptides and strong currents.

Although they have no control over what the currents bring in from the Gulf, park staff make every effort to keep the beach clear of excessive seaweed and discarded ship clutter, sometimes raking the sand twice a day if needed.



© Stephen Myers



© Grady Allen



© Stephan Myers



© Stephan Myers

Always looking for a handout, laughing gulls are part of Mustang Island State Park's charm (opposite). Fishermen, surfers and laughing children are among those drawn to the exhilarating surf off the park's five-mile coastline.

"We're known for having the cleanest beaches in the area," said Gathright. "Because of this, we attract lots of family campers during the summer. We also patrol the beaches pretty heavily, which helps keep things orderly and safe."

Mustang Island State Park is situated on the southern end of Mustang Island, one of several coastal barrier islands that lie between the mainland and the open waters of the Gulf. Other islands in this chain, which together form about half of Texas's 367-mile coastline, include Galveston, Matagorda, San Jose and Padre. Padre is the longest barrier

island in the chain, extending 113 miles northward from Brazos Santiago Pass near the southern tip of Texas to Corpus Christi Pass, which lies within the park's southern boundary. Mustang Island extends another 18 miles north to the ship channel at Port Aransas.

Barrier islands are created from sandy beach deposits brought in by longshore currents and wave action, then built into dunes by wind action. They provide a narrow but important buffer dividing the tempestuous Gulf from the bays, lagoons, estuaries and mainland areas. The islands by definition are dynamic landforms. The waves and winds

that formed them constantly change their shape and size. Storms and surging tides have the greatest effect, often destroying or drastically altering their topography.

According to local legend, Mustang Island is named for herds of wild horses that once roamed the area. The island originally lay within the territory of the Karankawa Indians. The Spanish explorer Alonso Alvarez de Piñeda was the first European to come ashore on the barrier islands, charting this section of the Texas Gulf Coast in 1519.

Some three decades later, in 1553, a hurricane beset a Spanish treasure fleet

of 20 ships off Padre Island. Many ships were lost, but 300 survivors made it to land. However, only two of them survived attacks by the fierce Karankawa Indians and the physical hardships of the journey to Mexico.

In 1747, Captain Juan Orobio y Basterra traveled overland to a bay he named San Miguel Arcangel. When Diego Ortiz Parilla made a more detailed exploration of the islands and coastline 19 years later, he identified the bay, located at the mouth of the Nueces River, with the name Corpus Christi, body of Christ.

Mustang Island and Padre Island were

part of a Spanish land grant to Padre Nicholas Balli in the early 1800s. But permanent settlements didn't appear on Mustang Island until about 1850, when several families began cattle ranching, a tradition that continued several decades. One of these ranchers, Henry L. Kinney, established a trading post on the bay in 1840, and earned distinction as one of Corpus Christi's founding fathers. During the Mexican War, Gen-

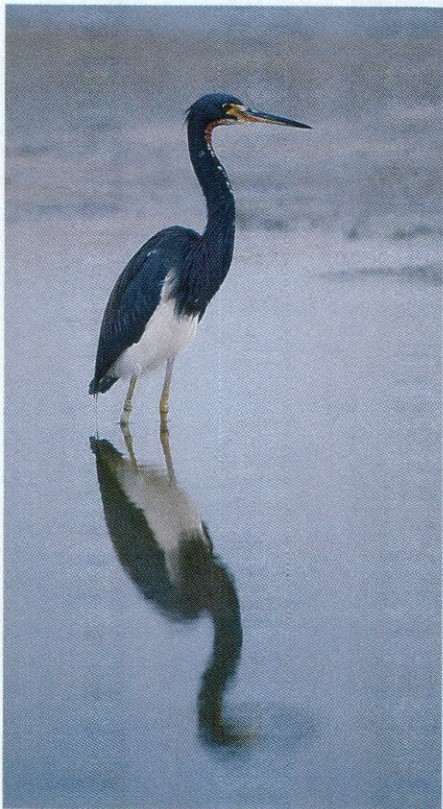
eral Zachary Taylor maintained a U.S. Army encampment at Corpus Christi, which stimulated further settlement in the region.

Despite growth in the bay area, Mustang Island escaped widespread attention because it could be reached only by boat. The construction of a causeway connecting Corpus Christi to Padre Island during the 1950s, along with Park Road 53, made Mustang Island more

Watching birds is a year-round activity at Mustang Island State Park. Among the species to be seen are the long-billed curlew (right), snowy egret (below right) and tricolored heron (below).



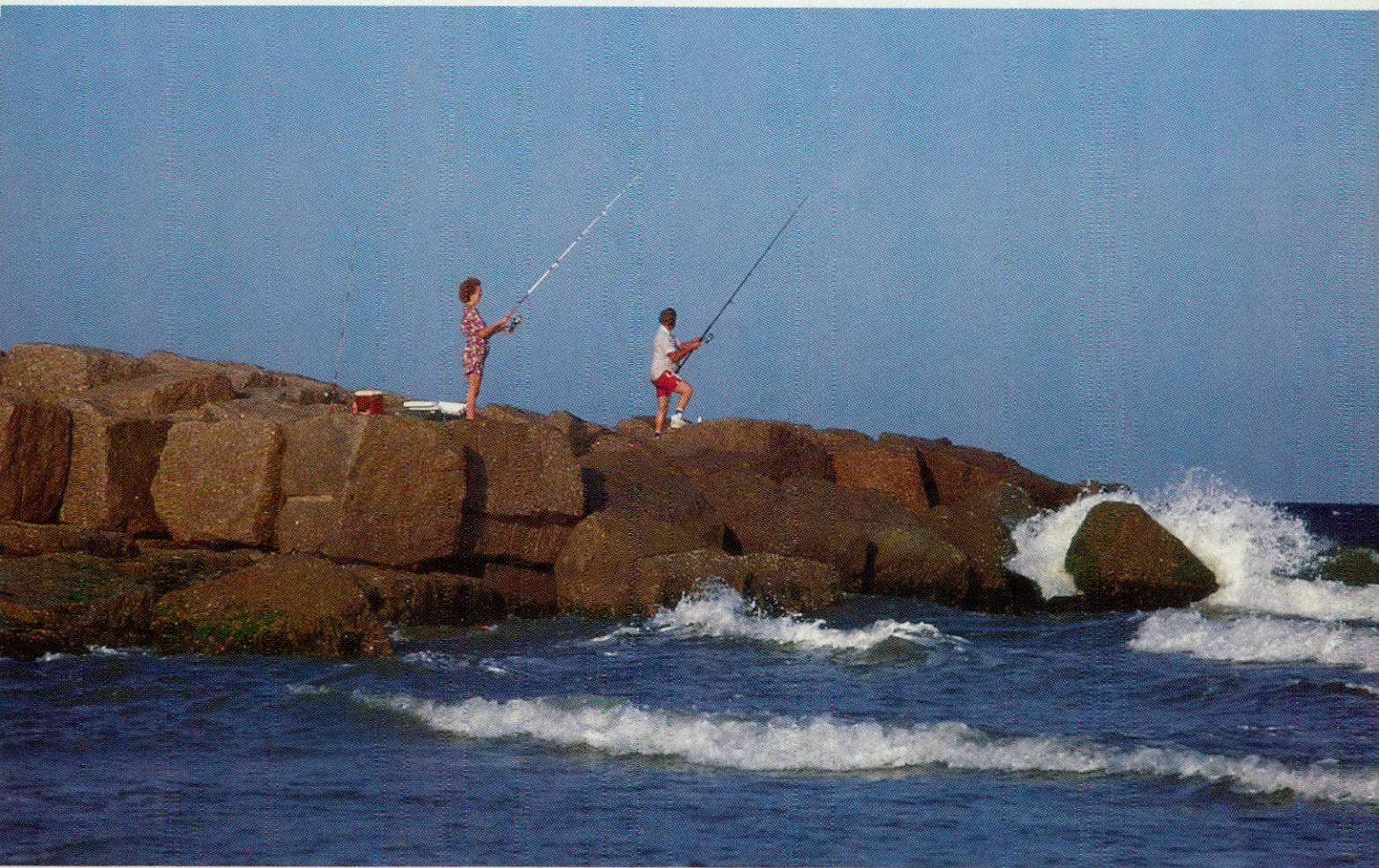
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accessible. Port Aransas, located 14 miles north of the park at the tip of Mustang Island, began as a commercial shipping port in the 1850s and developed into a popular tourist attraction. For many years, the stretch of beach to the south of Port Aransas served as a favorite camping and surfing spot, particularly for local residents of Nueces County. But careless use of motorized vehicles led to widespread destruction of the ecologically important sand dunes, which not only lend beauty to the beach, but also help protect the bays and mainland areas from hurricanes.

In 1972, the Texas Parks and Wildlife Department purchased the Mustang Island State Park site from private owners, and in 1977 park staff began the process of restoration, in hopes that proper management could rebuild and preserve the dunes for the future.

Has the effort been successful?

"The dunes are in good shape now," said Gathright. "In fact, erosion has been halted and the dunes have begun to move back toward the beach. Because we have higher winds and waves,

our dunes are unusual: larger in size than those on Matagorda Island. It's interesting to note that as you go from Padre Island northward, the average wind velocity gradually decreases, so that by the time you get to Sea Rim State Park, the wind is often calm."

So powerful is the Gulf's spell that many visitors notice only the dunes immediately adjacent to the beach, unaware of other coastal habitats that lie beyond the 5.5 miles of well-kept coastline. Primary and secondary dunes, grasslands, freshwater marshes, tidal flats, salt marshes and bay shoreline support a medley of animal and plant life within the park's 3,703 acres, each specially adapted to survive the hardships and exploit the riches of its ever-changing environment.

Reaching heights of up to 35 feet, the primary dunes maintain a semblance of stability where they are anchored by drought-resistant, salt-tolerant vegetation with fast-growing, deeply penetrating roots. Sea oats, whose tall, feathery tops sway in the breeze, serve as indicator plants for the foredune area and may

The granite jetties that reach several hundred feet into the Gulf are popular fishing spots. Depending on the time of year, anglers might catch everything from flounder to sharks.

have roots extending as deep as 15 feet beneath the surface.

Purple blossoms and waxy, cup-shaped leaves adorn goat's foot morning glory (railroad vine), whose long, criss-cross runners trap rivulets of sand to form dense bouquets of radiant color, often interspersed with yellow blooms of other hardy plants such as beach evening primrose. Though sparse on the seaward ridge of the foredunes, shrubs, grasses and forbs form dense, stabilizing mats across the troughs, hummocks and grassy flats of the back dune region. Only salt-tolerant plants grow in the tidal flats and marshy areas on the bay side of the island, but depressions in the finer-grained sand of this region hold water after heavy rains and support

lush growths of cattails, bulrushes and sedges.

Mustang Island State Park's diverse vegetation offers shelter to a variety of small animals including gophers, ground squirrels, grasshopper mice, rice rats and cotton rats, whose midnight

meanderings leave telltale tracks in the sand. Larger mammals include cottontail rabbits, jackrabbits, opossums, raccoons, skunks, armadillos and coyotes. Many snakes, lizards and insects also dwell among the dunes. But the birds are probably the most watchable wild-

MUSTANG ISLAND STATE PARK

Location: Nueces County, 14 miles south of the City of Port Aransas on Park Road 53. Or travel south from Corpus Christi to Padre Island, then north on Park Road 53 for a total distance of about 22 miles.

Entry fee for day-use only is \$3 per weekday, \$5 per day weekends.

Visitors may purchase a \$25 Texas Conservation Passport which allows free access to all state parks where a per-motor-vehicle entrance fee is charged. Certain disabled veterans and persons 65 years of age and over qualify for a Parklands Passport which exempts the holder and the occupants of his/her vehicle from paying per-motor-vehicle entrance fees.

Facilities:

Multiuse camp area: 48 sites, each with water and electrical hookups, picnic table, shade structure, waist-high cooking grill, restroom with hot water showers nearby. Camping fee \$10 per weeknight, \$12 per weekend night. Reservable 90 days in advance at park headquarters from 8 a.m. through 5 p.m. daily from Labor Day through Memorial Day, 8

a.m. through 10 p.m. from Memorial Day through Labor Day.

Regular camping: On Gulf beach, maximum 300 sites. Beach convenience station with chemical toilets, rinsing showers and potable water supply provided in the area. Camping fee \$5 per weeknight, \$7 per weekend night.

Other facilities: Day-use swimming beach with bathhouse (restrooms, outside rinse-off showers). Parking provided at bathhouse; no vehicles permitted within designated swimming areas. Picnic tables with shade shelters provided on first-come, first-served basis. No fee for use of beach shade shelters. Swim at your own risk. No lifeguard on duty. Minor emergency first-aid available from rangers or at park headquarters. Surf fishing and fishing off jetties are permitted.

Please remember:

Park closes at 10 p.m. except to overnight visitors.

Glass containers prohibited on beach.

Vehicles are prohibited from operating on sand dunes or outside established roadways.

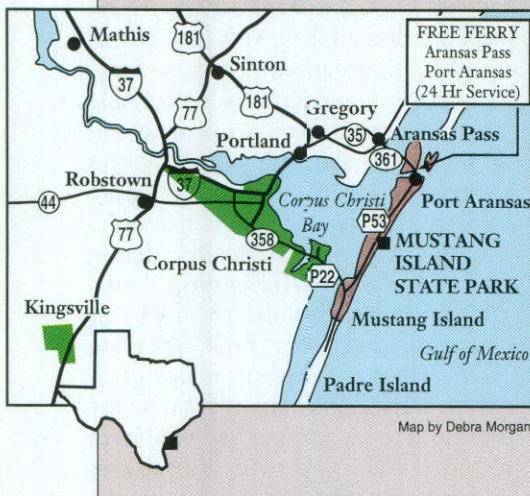
Park staff assumes no responsibility for freeing vehicles stuck in the sand.

Camping west of Park Road 53 (bayside) is prohibited.

Public consumption of alcoholic beverages is prohibited.

All Texas state park rules and regulations are applicable.

For more information contact: Park Superintendent, Mustang Island State Park, P. O. Box 326, Port Aransas, Texas 78373, 512-749-5246.



life at Mustang Island State Park.

"Located at the northern edge of the Tamaulipan biotic province, the park is most suitable for year-round observations of coastal water birds," writes Warren Pulich, Jr., coastal studies program leader of the Resource Protection Division of the Texas Parks and Wildlife Department and former resident of Port Aransas, in the booklet "Birds of Mustang Island." "Resident herons, egrets, ibises, gulls and terns from nearby rookeries and nesting colonies easily are seen feeding or resting in the park wetlands.

"With its relatively mild winter climate, this area is prime wintering grounds for many waterfowl and shorebird species. Birds of prey also find the island a good wintering spot. Situated on the Central Texas coast, the park is an excellent location for migrating birds that tend to follow the Texas coastline. On some days, the island acts as a 'highway' for streams of migrating water birds and passerines. One then only has



© Paul M. Montgomery

to sit and watch birds moving by!"

Facilities at the park were designed for two purposes: to maintain harmony between recreation and preservation of the beach and to withstand the force of hurricane winds. An interpretive center in the park's main headquarters has a saltwater aquarium and educational displays on a variety of topics related to the coastal environment including seashells, fishing, beach litter and endangered Kemp's Ridley sea turtles. Maps, camping and park-use information also are available.

"We host two 'trash offs' every year during April and September for the public to come out and help us do a thorough cleaning of the beach," said Gathright. "We hope to offer a beach seine interpretive tour this summer, available by request with advance notice, which will involve collecting and identifying marine species found in shallow Gulf waters."

At the north end of the 2.3 miles of developed beach, a day-use area pro-

Who can resist a sunset walk along the beach? Sea treasures awaiting the observant beachcomber include starfish, sand dollars, whelks and wentletraps.

vides ample parking and easy access to the fish pass and the south jetty. Facilities include portable toilets and outdoor rinse-off showers. The main swimming beach is served by a large bathhouse with restrooms and dressing rooms with showers. This day-use area also has a large number of slated-roof shade shelters with tables for picnicking available on a first-come, first-served basis as well as conveniently located sanitary facilities.

South of the main swimming beach, a 7,000-foot stretch of Gulf coastline offers up to 300 sites for open beach camping. This overnight-use area, accessible by sand road, has seven convenience stations spaced at 1,000-foot

intervals, each of which has portable toilets, outdoor rinse-off showers and potable water supply. Camping and driving are not allowed in the dunes. Multi-use campsites with water and electrical hookups, slated-roof shade shelters, picnic tables, waist-high cooking grills and nearby bathhouse (with hot-water showers) also are available and can be reserved up to 90 days in advance. Other facilities include an unpaved access road to the bay, located on the north side of the fish pass, and a trailer dump station for the use of park visitors.

Unusually high tides during March and April sometimes require beach campers to move to higher ground. Beach tar, once an unsightly year-round problem during the Ixtoc oil spill of the late 1970s, has diminished considerably. However, warm waters continue to break up layers of oil that remain on the bottom of the Gulf, causing oil and tar on the beach to reappear during the summer.

Padre Island National Seashore, located about 14 miles south of the park, offers 67 miles of beach maintained by the National Park Service. With primitive camping and other recreational facilities, the park offers a wealth of wildlife viewing and educational opportunities related to the Gulf Coast. The Aransas Wildlife Refuge also is located nearby—north of Rockport near Austwell via State Highway 35. Aransas is best known for the endangered whooping crane, which winters there from late October through March.

Speaking a ceaseless, passionate soliloquy as old as time itself, the ocean inspires a peculiar sense of awe in many people. Whatever their favorite beach activity, many visitors come to enjoy certain social and psychological benefits just by spending time there.

"My youngest daughter, Helen, used to say 'Let's go to the beach and get the grouches out,'" said Corpus Christi resident Mary Hanks, a devoted park visitor. "It's a different world out there. Time kind of stops. There's a rhythm and a harmony that just puts things into a more Godly perspective. I always leave feeling renewed and restored." ★

Janet R. Edwards, a regular contributor to the magazine, enjoys the beach at Mustang Island in the cool of early mornings.

"Fishermen litter at a rate way out of proportion to their numbers," said one nature center director who is tired of picking up after anglers. "Debris tossed into waterways and on the bank includes beer cans, old line, bait containers, rusty hooks, dead carp, fish guts and lure containers"



Not everyone agrees that fishermen are such slobs, however. Bill Collins, the U. S. Army Corps of Engineers' regional coordinator for the Texas Lakeshore Cleanup Program, defends anglers. "I think the amount of litter attributed to fishermen is overstated," he said.

Jess Ramsey, superintendent of the heavily fished Purtil Creek State Park, agrees: "Most fishermen are courteous; many leave the area cleaner than they found it. Texas fishermen are the best sportsmen in the world"

While most park superintendents and reservoir managers seem to agree with the latter sentiments, they acknowledge that fishing litter does exist—and fishing litter, even more than other types of litter, can cause problems for wildlife.

Monofilament fishing line caused more than one-third of all the wildlife entanglements reported during the Center for Marine Conservation's 1990 beach cleanup. Out of 32,174 pieces of fishing line retrieved, 5,597 were found in Texas, more than any other state except Florida.

Florida beach cleanup volunteers, who picked up 5,789 pieces of monofilament in 1990, had been asked to keep length records. They discovered they'd collected more than 260 miles of line.

"Monofilament seems to be the worst (litter) problem we have that can be attributed solely to fishermen," said Paul Seidensticker, Texas Parks and Wildlife fisheries biologist. "People throw the monofilament line out when they have a backlash or other problem; they just strip the line off and leave it. That monofilament is there from now on—I don't guess it ever breaks down. The stuff is just like a giant wad of spider web floating around in the water or on the bank—an animal gets it around its foot or head and it's next to impossible to get it off. This is hard on birds and aquatic mammals such as beavers and otters."

Ironically, monofilament threatens the resource anglers most want to protect. Ramsey once found a seven-pound bass entangled in fishing line. "It was dead; the line was entangled in the gills; the bass had swallowed some of the line and it had gone all the way through the intestines."

Alan Allen, executive director of Sportsmen Conservationists of Texas,

Fishing Litter

by Kristi G. Streiffert

believes anglers can make a positive impact by being more aware of the consequences of improperly discarded fishing line. “Whenever I see some monofilament line hung up in a tree it kind of irks me because that line can get tangled around a bird and end up killing it. Even for the fisherman, it can get wrapped around trolling motors and cause problems. If I find monofilament, I always cut it down, stuff it in my back pocket and take it home.”

Once the concerned angler retrieves some abandoned monofilament, it can

in Texas, these are some nuisance items mentioned: plastic bait tubs, bobbers, tackle containers, broken fishing equipment, dead fish and remains from cleaning fish.

One reservoir manager reported that abandoned trotlines can be deadly. “In one instance a deer was found dead with a trotline wrapped around its neck,” he said.

Much of the debris found can be attributed not to intentional litter, but to the feathery weight of most gear packaging. Paul Seidensticker says,

Not all anglers litter, but litter affects all anglers.

be recycled. Berkley, a fishing tackle manufacturer, recently placed 8,000 recycling bins in tackle shops and department stores across the nation. The line is shipped to a recycling center, where it is transformed into products such as stove knobs, boat propellers and fasteners for backpacks.

If you can’t find a recycler in your area, snip the monofilament into small pieces before putting it in your household garbage.

Other fishing items end up as litter, too. In an informal survey of U. S. Army Corps of Engineers reservoir managers

“These lure packages and little plastic bags—fishermen toss them into the bottom of the boat and then take off. The stuff is just sucked right out. They’re not littering on purpose, but if they’d stick it in a bag or something, it wouldn’t blow out so easily.”

To help counteract this problem, anglers are advised to carry litter bags (free at Texas State Park entrances), or to remove packaging before leaving home. Using non-disposable containers such as worm buckets whenever possible also would lessen the number of plastics left behind for fish or other



© Michael Bayloff

animals to ingest. Anglers also are encouraged to try harder to retrieve accidentally lost debris and gear.

Although lost hooks and lures usually fall to the bottom of waterways and cause little trouble, some biologists worry about their effects, especially on birds of prey. Eagles have been reported to catch fish with imbedded lures and then ingest the fish or carry it back to young, with disastrous results.

Certainly not all anglers litter, but litter affects all anglers. Those who share resource managers’ concerns about the impact of litter have an opportunity to help. Beach, lakeshore and river cleanup programs, coordinated by the Texas General Land Office and sponsored by a number of state and federal agencies and private groups, collect tons of Texas litter every year. Anglers may participate as individuals or encourage their fishing clubs to become sponsors. To find out more about the beach, lakeshore and river cleanup programs, call 1-800-85-BEACH.

Some of the clubs around the state that have helped with lakeshore cleanups include Central Texas Sportsmen Club, Heart of Texas Bassmasters, Garland Bass Club and Plano Bass Anglers. Cleanup coordinators hope many more clubs will participate in the future.

With the exception of a few disgruntled nature center directors, anglers still enjoy the positive regard of most people. By participating in cleanups, by being careful to prevent the accidental escape of debris and gear and by educating youngsters, anglers can protect both wildlife and their “clean” reputation. ★

Kristi G. Streiffert is a regular contributor to the magazine.



© Dale Linenberger

Monofilament line, fish carcasses and beer bottles scattered around a lakeshore are more than just an eyesore. Fishing litter, even more than other types of litter, can cause problems for wildlife such as the black skimmers above.

TEXAS

TARPON

by Phil H. Shook

*Will this legendary
fish ever return to its
former glory?*



F

ishing guide Darrell Skillern was traveling along the beachfront off Galveston on a fall day when he looked down from his Boston Whaler into the water and saw evidence of a resurgent Texas tarpon fishery. “We came on a huge school and they were balled up like a can of nightcrawlers in a giant wad,” Skillern recalled. “As far down in the water as you could see was solid tarpon.”

In the last three or four years a number of guides and anglers up and down the Texas coast have noticed an increase in mature tarpon appearing in Gulf waters during the peak fishing period from June through October.

“All of a sudden, there were four or five guides out there putting tarpon up in the air every day,” said James Trimble, another Galveston guide. “Pretty soon people said this is real. It is happening.”

On one memorable day during the 1990 tarpon season Trimble and his party of three “jumped” 12 fish and boated and released four, all mature fish weighing an average of 140 pounds.

Skillern, Trimble and two other colleagues who guide out of Galveston boated and released more than 60 tarpon in 1990 ranging in size from 70 to 180 pounds.

Popularly known as “silver kings” because of their size and power, tarpon remain largely a mystery to biologists who are attempting to learn more about the fish’s Texas populations.



© Grady Allen

© Grady Allen

There have been other encouraging signs in recent years that the once-healthy Texas Gulf Coast tarpon fishery—if nowhere near the levels of its storied past—at least is stirring:

•Captain Joe Surovik, a marine biologist who also guides tarpon anglers out of Port O'Connor, said he has seen increasing numbers of mature tarpon around Pass Cavallo in recent years. A county extension marine agent working for Texas A&M University, Surovik said he thinks the pass at Port O'Connor "is going to turn into one of the best tarpon fishing areas along the Gulf Coast."

•Veteran Port Aransas fishing guide Smokey Gaines said he has noticed an improvement in the tarpon population

in recent seasons around the jetties. "In the 1970s we began to get a trickle of tarpon and by the late 1980s a bit of a showing," Gaines said.

•Bryan Ray, an experienced Port Isabel guide, reported that the mercurial silver king was rather elusive off this South Texas hotspot in 1991 but that August was a good month.

•Dr. Gary Matlock, former director of the Texas Parks and Wildlife Department's Fisheries Division, cited an increased presence of tarpon beginning in the late 1980s. He attributed the increase to bans on harmful agricultural chemicals over the last two decades, which helped alleviate damage to marine species.

The increased sightings of mature fish in recent years along the Texas coast and the success of some guides have made responsible anglers and biologists even more determined to protect and restore this fragile fishery. Coastal fisheries officials also are con-

cerned about the larval and juvenile stages of the tarpon in Texas waters and the critical "recruitment" process in which juvenile fish progress in the growth cycle to maturity.

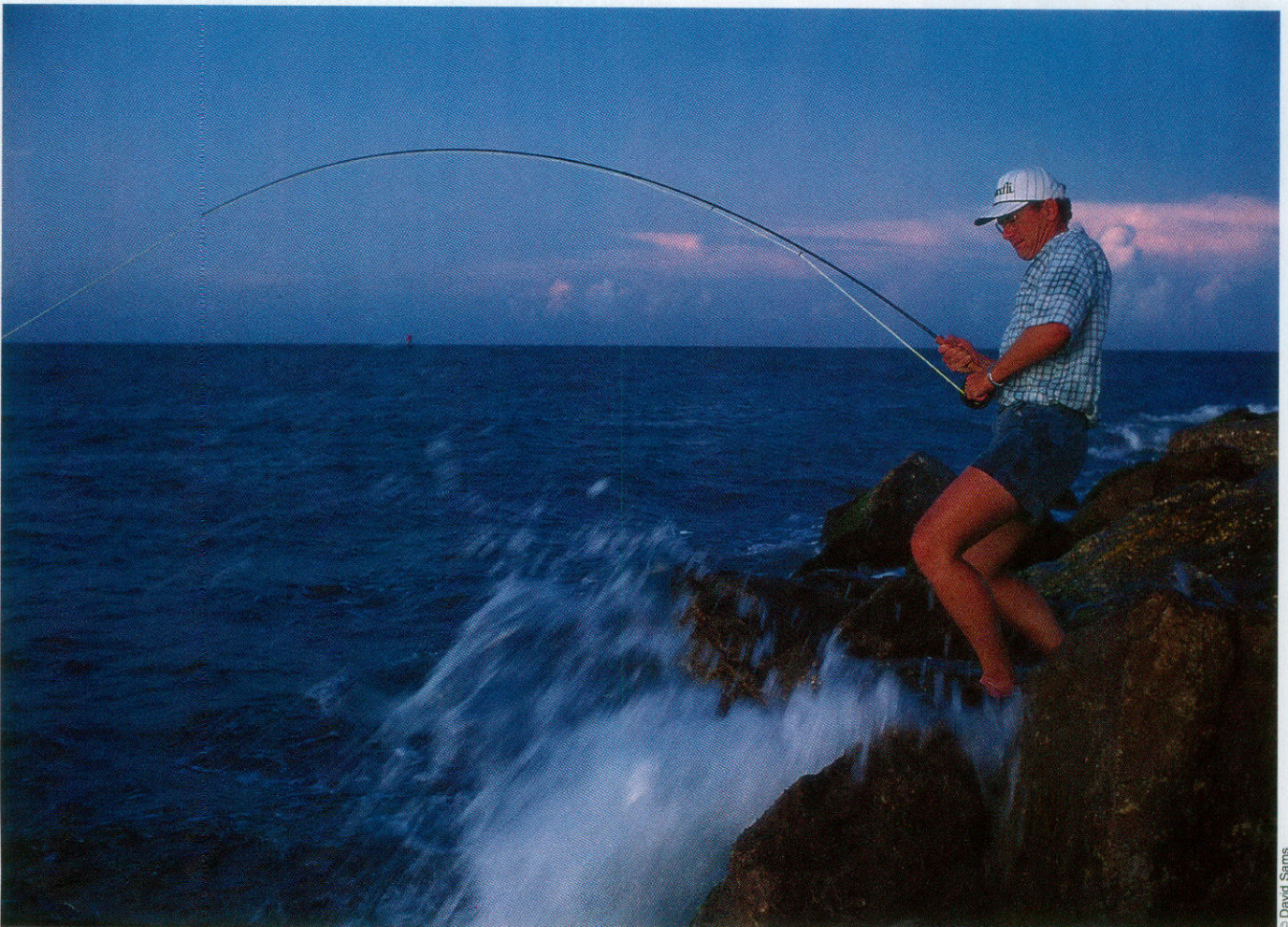
On September 1, 1991, the Parks and Wildlife Commission amended the bag limit on tarpon in Texas waters from one fish per day to catch-and-release only. In other words, tarpon still can be fished for and caught in Texas waters but they must be released unharmed.

Gene McCarty, Coastal Fisheries Branch chief for the department, said the commission made the move because of the renewed interest in tarpon fishing in Texas waters. "We had to ensure that the (tarpon) stock remained viable," he said.

McCarty said evidence encountered in routine monitoring since the early 1980s indicates a decline in the overall tarpon population in the bays, which includes juveniles as well as mature fish.

He said that has led to concerns that

Tarpon cruise the Gulf's open waters, but they also venture into major bays and through coastal passes, offering jetty fishermen like the flyfisherman below an opportunity to sample their amazing acrobatics.



THE TARPON'S TALE

by Jim Cox

*How five
knaves were
weighed and
found
wanting in
the silver
king's court.*

Expectations were modest at best as we cruised past the Port Aransas jetties into the Gulf of Mexico on a balmy June morning in 1992.

The five-man crew in Bob Peery's 21-foot boat consisted of two small business owners, a dentist, an economist and your correspondent, all from Austin. Admitted lightweight in the salt-water angling sport, our collective lifetime catches consisted of a few king mackerel, small sharks and a scattering of red drum, red snappers and the usual party-boat fare of sand trout, croakers and the like.

This was to be a brief, all-male outing in the nearshore Gulf. We hoped to stumble onto a school of kings or Spanish mackerel before returning for a relaxing lunch with our families back at

the motel around noon.

Less than a mile past the jetties, we rigged a couple of standard three-hook kingfish leaders, baited them with ribbonfish and started trolling aimlessly around the greenish waters.

About 20 minutes of trolling passed with no sign of fish. Peery, staring captain-like across the shining water, suggested that I steer the boat to where the greenish water met some clearer, bluish water in a distinct line.

We were close to dozing off to the restful hum of the 150-horsepower outboard when Peery jolted us with a shout. "Look, a big tarpon just jumped out of the water!" I don't know about the others, but at the time I was skeptical.

Peery, intent on watching for another jump, happened to notice that one of the trolling rods was bending and the reel's drag was singing. "Hey, we have him hooked," he said, jerking the rod from the holder.

We were incredulous about having actually hooked, by sheer accident, one of the legendary fish we had seen only in magazine pictures and on television fishing shows.

Peery adjusted the drag to get the most out of the 30-pound-test line and stout boat rod, and settled to the task. The fish obviously was solidly hooked, and we were confident that after a dozen or so picture-book jumps the fish would yield sufficiently for a measurement and ceremonial removal of a scale before release.

We already were rehearsing the speeches we would make when we returned to shore with the fish story of a lifetime.

Four hours later, we just wanted to go ashore, period.

About an hour into the battle we used the outboard to chase down the tarpon, reeling in line as we closed the gap. The huge fish surfaced some 20

yards from the boat, and at that moment we saw our problem. The tarpon was hooked in the upper jaw with the bottom hook of the kingfish rig, but one of the upper hooks had managed to lodge itself just forward of the dorsal fin.

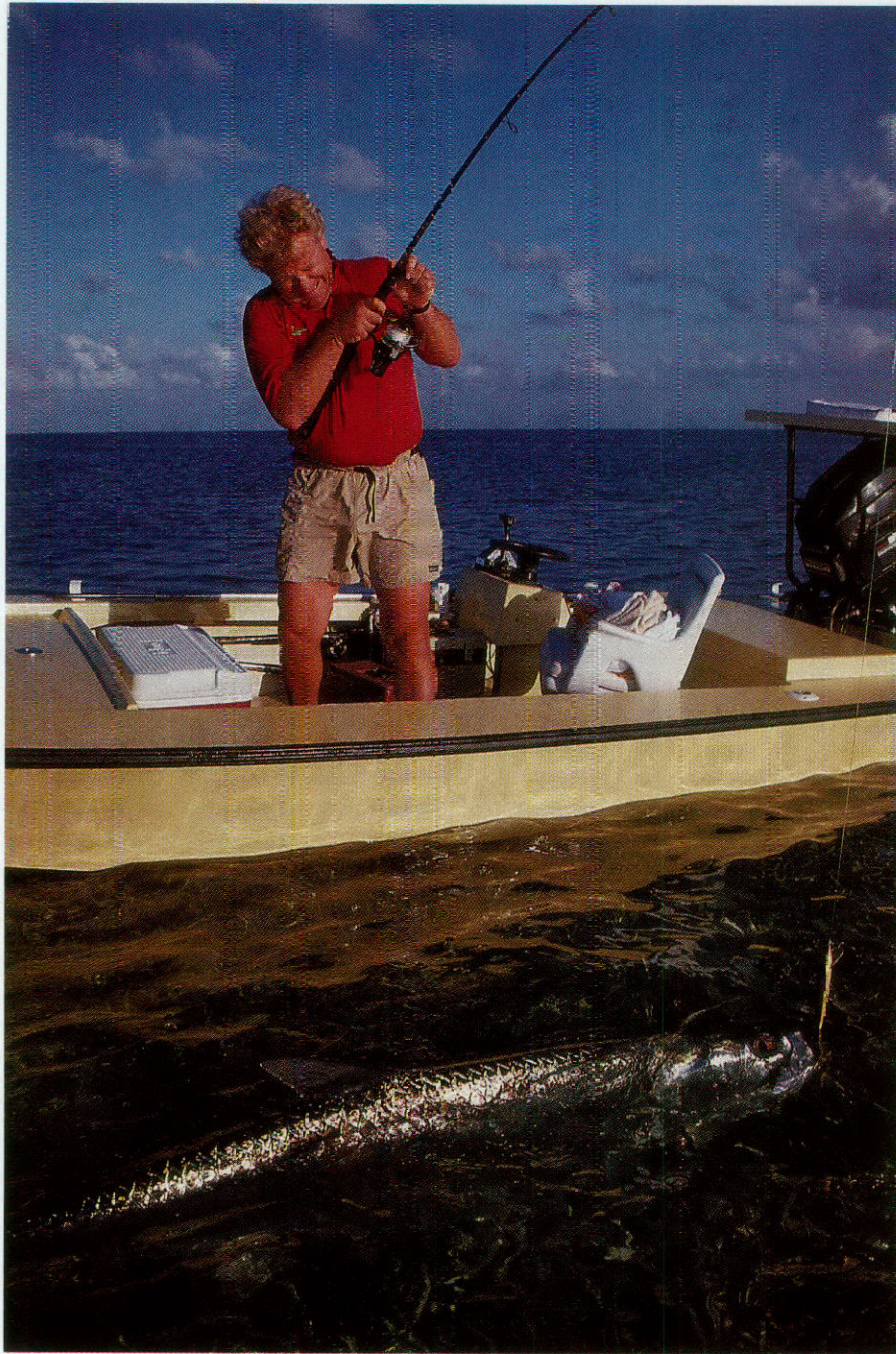
The hook arrangement was tantamount to fitting a mule with a shoulder harness and then trying to turn its head. We took turns holding the rod as the brutish fish towed us around the area. The tarpon apparently knew it needn't jump, since it could swim in any direction it chose. Its only leap, in fact, was not a head-shaking, gill plate-rattling exhibition, but a tremendous rainbow arc that took the fish easily 12 feet over the Gulf surface. The tarpon's purpose in jumping, we all agreed, was simply to size up its tormentors.

We continued to pass the rod around, and fresh volunteers were becoming increasingly reluctant to do their part. On one rod exchange, Tom Joyce, who packs about 140 pounds on his five-foot-six frame, skidded across the deck and would have joined the tarpon in the drink if one of his mates had not grabbed his pant leg as he swan-dived across the transom. Dr. Bob Peterek and John Bell had little more success at turning the silver king.

As the noon hour struck, we five sweat-soaked anglers were really no closer than we had been at 8 a.m. to boating the tarpon, which conservatively was over six feet long and 100-plus pounds in weight.

We managed to maneuver the boat over the fish at one point, getting a close look at its silver-green back which was a foot thick. Then, with an almost casual surge, the tarpon swam under the boat, sawing off the line and, in effect, setting us free.

Red-faced and sweating from the toil, Peery eyed the frayed end of the line and deadpanned, "That fish sure spoiled a beautiful morning of fishing."



Tarpon fishing is catch-and-release only on the Texas coast. This regulation is an effort by the department to avoid the needless waste of fish caused by tournament practices of the past (right).

the great Texas tarpon fisheries of that era: "The graceful giants . . . frequently travel in great schools," he wrote. "I have seen them so thick in the water that it looked as if one could walk ashore on their backs."

As recently as the early 1960s, tarpon still were arriving each year with enough abundance to put on a show for anglers fishing off many Texas piers. Serious-looking men with leathery faces would sit elbow-to-elbow at night along the rail of the south T-head of Horace Caldwell Pier at Port Aransas, holding long, stout rods over the "tarpon hole." As the waves rocked the pier pilings, the big corks they used would rise with the sea and rattle up the wire leaders before settling back in the current.

Six feet below the corks, flashing under the pier lights in the clear green water, was the bait—a smorgasbord of mullet and pinfish. When a cork went under, someone would holler "down," and a tarpon as long as a dining room table would come busting out of the night surf before making a run that would sizzle line off a heavy reel.

But the explosive action that carried into the 1960s was the last hurrah for a long time. The tarpon fishery was about to go into a severe decline.

Although there has been no scientific evidence to account for the dropoff in the Texas tarpon stock, there are a number of plausible theories.

Increased boat traffic through the major passes, pollution, overfishing and the damming of all the major rivers, stopping the freshwater flows to the bays and estuaries, are among the reasons most often given.

Although previous generations have been accused of hanging carcasses of tarpon at dockside only to boost the ego or attract the attention of potential charter customers, there also were early efforts to conserve the fishery.

Back in the 1920s, Sutton wrote that ". . . in Texas, it is not considered good manners to kill your fish, or to bring it

(Continued on page 21)

juvenile tarpon are not being produced in Texas bays in numbers sufficient to replenish offshore stocks. This situation would become more critical if a major fish "kill" occurred on the coast.

McCarty said there also were signs that the tarpon stock has had problems in Mexican waters. "So we wanted to ensure that this (Texas) stock, which may be coming back as the guides indicate, continues to make progress."

Gill net sampling of tarpon taken between 1981 and 1989 in bay systems up and down the coast indicate a declining population of juvenile fish, said

Brenda Bowling, a biologist at the department's Seabrook Marine Laboratory. "We are not saying the fishery is going downhill and never will come back up, only that there is a decline in catch from our sampling," Bowling said.

Although it is difficult to envision that Texas tarpon stocks ever can be restored to the early days of glory, memories of the not-so-distant past provide a strong incentive for conservation efforts now underway.

Pioneer tarpon angler R.L. Sutton, author of the book "Silver Kings of Aransas Pass," wrote in the 1920s about

© Grady Allen



CLOSING THE TARPON KNOWLEDGE GAP

Research may shed light on the mysteries of tarpon life history.

A few summers ago, a fisherman trying to catch live bait from a tidal canal on Cancun Bay near Palacios was surprised to see a fingerling tarpon in his castnet.

He notified the Texas Parks and Wildlife Department, and biologists from the nearby Perry R. Bass Marine Fisheries Research Station seined up eight small tarpon from the slough.

Those fish, and 14 others collected since then, now reside in ponds at the research station and form the nucleus for tarpon research now underway in Texas.

Bob Colura, a department fisheries biologist studying a number of marine species at the center, said tarpon research is an important program in Texas. He said the next step will be the addition of a facility large enough to allow the fish to spawn.

Because a female tarpon does not

reach sexual maturity for a decade or more, the holding tanks must be large enough to hold fish of 60 to 100 pounds. The fish must be placed in a covered greenhouse-type structure that will protect them during the colder months.

"We would like to have six to eight fish per tank and try to spawn them," Colura said. He said the tarpon larvae could be reared in the outdoor holding ponds at the research center.

Colura said researchers have been successful in rearing the larvae of ladyfish, a similar Gulf Coast species, in ponds at the center. Tarpon and ladyfish undergo similar transformations in that they both come from a tiny, dragon-like leptocephalus larvae. "I'm assuming we could do the same with tarpon," he said.

Colura said it may be premature to predict that someday tarpon could be stocked in Texas bays and estuaries like the department's successful programs for red drum and spotted seatrout, but the potential is there. "That is essentially what we are working toward," Colura said. "If we decide it is necessary to stock, we would want to have the technology to do the stocking."

Gene McCarty, the department's Coastal Fisheries Branch chief, said that approach would not require the sacrificing of fish to get the kind of life history, length and age information needed.

McCarty said the department has received inquiries from people who would like to support tarpon research in Texas, and the department is excited about taking advantage of these opportunities. "We could do some good-quality tagging and similar efforts that could utilize the recreational tarpon guides," he said.

Until recently anyone seeking answers to questions about the life cycle and behavior of tarpon had to rely on

the observations and conjecture of anglers and guides. Few if any scientific studies had been conducted on what many consider the greatest game fish that swims.

During the past three years researchers at the Florida Marine Research Institute and the University of South Carolina have undertaken studies that for the first time unlock some of the secrets of the life cycle of the tarpon and back up the findings with scientific evidence. Data now are available on how fast tarpon grow, how old they get, the difference in growth rates between male and female fish, and where and when tarpon reproduce.

In ecological terms, researchers say the tarpon is characterized by large size, slow growth rates and slow annual reproduction. The researchers say species with these life-history characteristics tend to have very stable population sizes over time as long as they are not disturbed by habitat degradation or fishing mortality.

Studies of more than 200 adult tarpon (fish of 20 pounds or more) indicated an age range of 10 years to 51 years with an average of 22 years. The smallest sexually mature female examined by the researchers was about 37 pounds and 11 years old. The smallest mature male fish was 25 pounds and about seven years old, based on growth curve estimates.

Dr. Roy Crabtree, who heads the tarpon research program at the Florida Marine Research Institute in St. Petersburg, said it may be difficult for science to provide immediate answers to the questions being asked about tarpon.

In Florida, where fishing guides and anglers also have expressed concern about a perceived decline in the numbers of tarpon in recent years, Crabtree said it is impossible to prove that there are fewer juvenile fish in Florida bays

and the Everglades system than there were in previous years because you cannot turn back time to take scientific measurements.

Florida, which attracts anglers from all over the world to fish for tarpon on two coasts, also has enacted measures designed to conserve the fishery.

Crabtree said there is no doubt that a \$50 permit now required to take a tarpon in Florida has reduced the number of fish killed each year. He said information gathered from Florida taxidermists indicates that the numbers of tarpon being mounted had been dropping even before the permit was introduced, reflecting catch-and-release practices. Crabtree said the tarpon permit accelerated this downward trend, reducing the number of tarpon killed in Florida waters to about 300 annually. This compares with previous annual estimates that ran as high as 5,000 fish, although he said that number was based largely on guesses.

A former Florida Keys fishing guide who holds a doctorate in biology, Crabtree said that when it comes to figuring past tarpon populations you either believe what you are told or you don't. He said guides are keen observers of nature and there is some reality in what they conclude, but adds that there is no scientific data on long-term trends in juvenile tarpon abundance in Florida.

Crabtree said increased pressure on the tarpon fishery from guides and private boaters in recent years may have reduced the success rate for anglers. But this may mean only that the fish have been pushed out to water deeper than most people fish, not that there are fewer fish.

In Texas, the department has conducted routine samplings for both large and small tarpon and other finfish since 1975. Results of this intensive bay and Gulf sampling effort yields a continued decline in juvenile tarpon stock. This "red flag" has dictated that fishery managers be conservative in their regulations so that the silver king once again may take its throne along the Texas coast.



© David Sams

Tarpon strike a variety of lures and live bait, but many anglers are turning to flyfishing equipment (left) to compound the thrills.

(Continued from page 18)

in, unless you are fishing during the annual rodeo competitions, when the judges must pass on the size and weight of the catch." He wrote that 80 percent of the tarpon captured at other times were released uninjured.

And even in the 1950s and 1960s some tournament anglers made the effort to release tarpon. The Port Aransas Rod & Reel Club was one of the conservation-minded organizations that provided certificates for tarpon and other game fish that were tagged and released by its members.

Whatever the reasons for the decline, the excitement on the piers and the once-common sight of hundreds of tarpon rolling northward just beyond the surfline from Port Isabel to Sabine Pass soon dropped to a trickle. The tarpon left and so did the pier fishermen. It was a curtain call without much fanfare. After all, there wasn't much anyone could do about it.

Tarpon are difficult to keep track of. They don't crawl up on a beach to lay eggs like sea turtles and they don't make predictable stops on a journey from Canada to the Aransas National Wildlife Refuge, as do whooping cranes.

Tarpon anglers, a passionate bunch who find it difficult to recover from the experience of hooking their first silver king, lamented the loss of the Texas fish. But there were healthier tarpon

fisheries elsewhere—in the Florida Keys, Mexico, Central and South America—where one still could be challenged by the tarpon.

Today, some of those fisheries also are being threatened and anglers, biologists and conservationists are taking steps to protect the tarpon. Fisheries officials in Texas, as well as a loyal following of dedicated anglers who prize the tarpon as one of the world's greatest game fish, say something of great importance was lost when the fishery went into a severe decline back in the 1960s.

"Obviously the tarpon is a spectacular sport fish," McCarty said. "It is one of those kinds of fisheries that entice tourists from across the nation to come into our state."

"I think there's probably no way to measure the economic loss of the fishery because accurate records were not kept in these days," said Parks and Wildlife Commissioner George C. (Tim) Hixon of San Antonio. An angler who actively has supported tarpon research and conservation efforts in Texas and Florida, Hixon says the decline in the fishery has cost the state millions of dollars a year.

But for anglers and conservationists like Hixon who consider the tarpon one of the greatest game fish that swims, the real loss is incalculable. ★

Phil Skook is a freelance writer living in Houston.

Mirror, Mirror! The Best Lens of All?

Article and Photos by Leroy Williamson

Mirror (catadioptric) folded optic lenses may not be the best super-telephoto instruments on the market, but they certainly have been improved recently and offer wildlife photographers a workable and less-expensive option when purchasing a long lens.

Mirror lenses are available in a variety of focal lengths ranging from 250mm to 2000mm, with 500mm being the most popular. With a fixed aperture, usually $f/8$, the lenses are considered

slow, but with recent advances in film quality high-speed films can be used successfully.

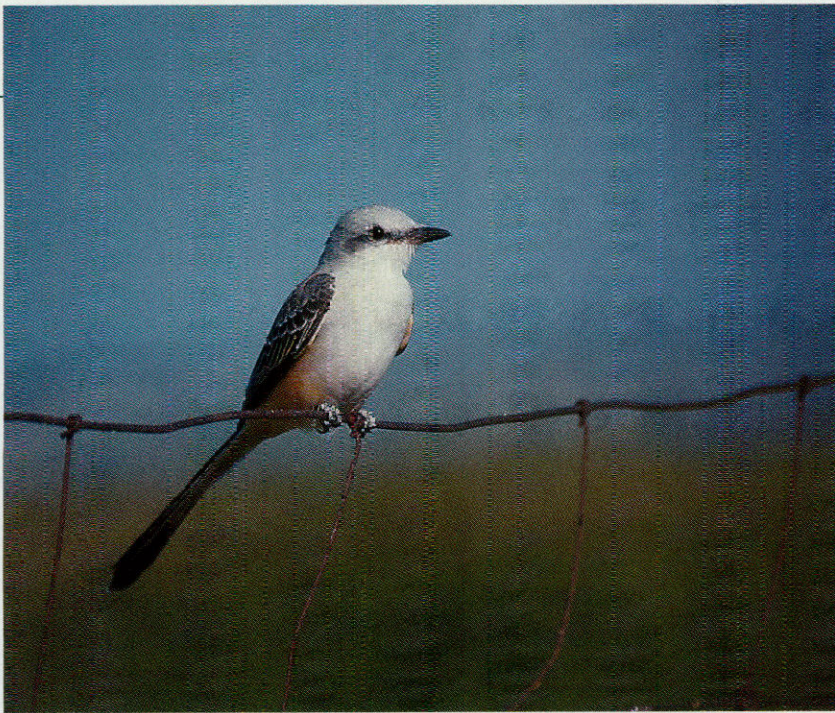
Mirror lenses are available with apertures of $f/4.5$ or $f/5.6$ but the price increases with the wider apertures. Prices also get a little steep for 1000mm and 2000mm mirror lenses even though they have limited apertures of $f/11$ to $f/13.5$.

If you are looking for a good lens for wildlife photography, consider a 500mm $f/8$ mirror lens. Modern technology has

brought vast improvements in mirror lenses, and images are sharp and contrasty with good color saturation.

A few years ago, I purchased a 650mm $f/8.5$ mirror lens. With ISO 64 film in my camera and a bright sunny day, the highest usable shutter speed was in the neighborhood of $1/30$ second. In shade, early morning or late afternoon light the shutter speeds fell to $1/8$ second or longer. Faster films left much to be desired at the time, so the mirror lens got little use and I finally sold it.





A few months ago I decided to purchase another mirror lens, this time a 500mm f/8. Fortunately, the lens apparently is a true f/8. ISO 64 or 100 can be used in bright light situations. For low light, I switch to ISO 400 film to obtain shutter speeds that make handholding the camera possible.

For best results, use a sturdy tripod when shooting with long lenses. Al-

though mirror lenses are compact, lightweight and can be hand-held at fast shutter speeds (1/1000 or higher), using a tripod ensures sharpness. Focusing is critical with mirror lenses and may require some practice. The depth-of-field is extremely shallow with a long lens and there is no aperture control to increase the depth. With a tripod-mounted camera, it is easier to compose and focus and it is far easier to keep the camera steady.

The main disadvantage of a mirror lens is the lack of aperture control. There are times when increasing the depth-of-field is desirable but not possible with a

fixed aperture. Some photographers consider the out-of-focus highlights, making bright doughnut-shaped images, a minus for mirror lenses. Other photographers use the out-of-focus highlights creatively.

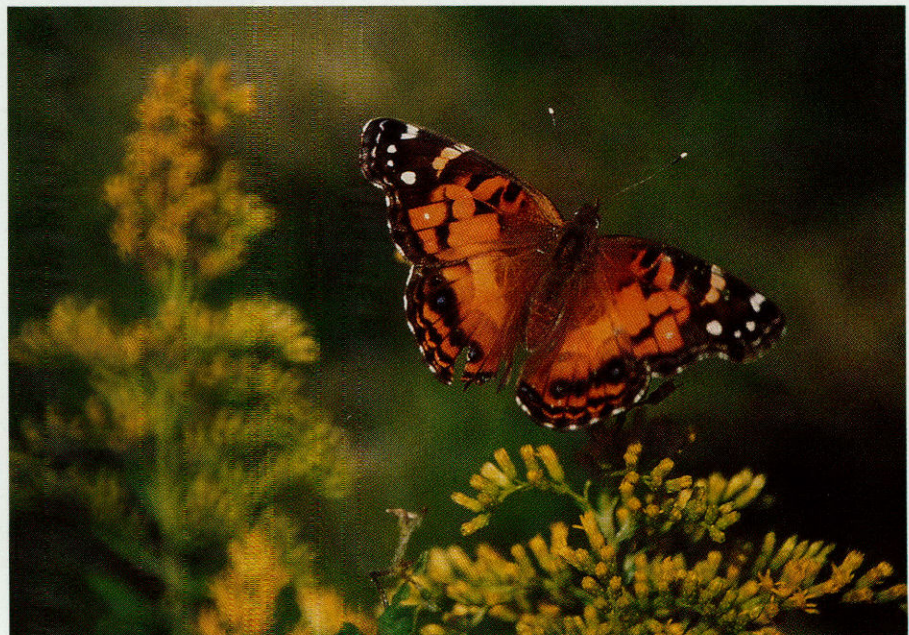
Other than the obvious advantages of being compact and lightweight, one big edge mirror lenses have over conventional telephoto lenses is their ability to focus at close range. A 500mm lens that focuses to five feet or so permits macro photography at about one-half life size. These lenses are marvelous for butterflies and other small wildlife subjects, allowing a tolerable distance between photographer and subject.

Perhaps the clincher is price. For about \$220 to \$350, you can be the proud owner of a new super-telephoto mirror lens. A conventional 400mm or 500mm costs several hundred dollars more for an f/5.6 maximum aperture. Expect to pay thousands more for a fast, super-telephoto lens and expect such a lens, good as they are, to get very heavy if you have to pack it around all day.

Today's mirror lenses are fine photographic instruments offering photographers another creative tool in the art of making dazzling pictures. ★

Pelicans glide along a Central Texas lake (left), captured on film with a 500mm mirror lens. The birds in this photo are 10 times larger than they would have been had a normal 50mm lens been used. Pentax LX camera, Tamron 500mm f/8 mirror lens, Fuji RH 400 film, shutter speed 1/1000 second. Camera was on a tripod. For the flycatcher photo (above), a 500mm lens created an image almost twice the size a 500mm lens would have created. Pentax LX camera, Tamron 500mm f/8 mirror lens, Kodachrome 64 film, shutter speed 1/250 second. Camera was on a monopod. With a minimum focusing distance of five to 5 1/2 feet, the 500 mirror lens is perfect for macro photography from distances that will not disturb the subject. Note the shallow depth of field in the photo at right. Although the butterfly's body and left wing are sharp, the right wing is out of the zone of focus. Pentax LX camera, Tamron 500mm f/8 mirror lens, Fuji RH 400 film, shutter speed 1/500 second. Camera was on a tripod.

Leroy Williamson is the retired chief photographer for Texas Parks & Wildlife magazine.





More than a Mae West

*Life jacket design
renaissance
makes water
safety fashionable.*

by Kristi G. Streiffert

Not very long ago life jackets came in one style (bulky) and one color (orange). But today's active water sports participants choose between colors such as electric blue, teal and purple. Even better, we choose among technical designs specific to the type of craft we use and challenge level we pursue.

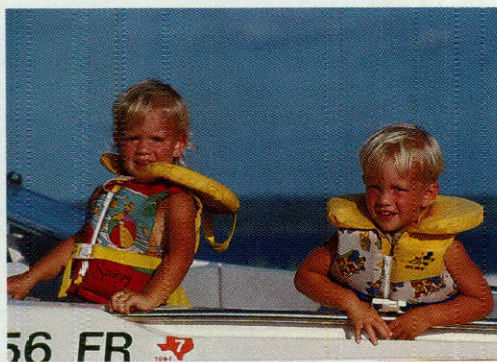
Personal flotation devices, as they are more properly called, have evolved to meet the demands of a variety of water sports enthusiasts. Sailors, skiers, sailboarders, anglers, canoeists, kayakers and rafters all find PFDs to meet their individual needs. Children (and even pets) aren't forgotten by the manufacturers, either.

With all the choices available, boaters must consider carefully when selecting a PFD. The first order of business is to make sure that the PFDs under consideration meet U. S. Coast Guard standards. Look for a sewn-in label describing the type of Coast Guard approval, and the weight and size person for which the PFD was designed. New PFDs come with a pamphlet giving even more information. Keep this valuable information and refer to it often.

When shopping for a PFD, ask a knowledgeable salesperson or a more experienced boater to point out features you may need. Look for a good design and a good fit. Your life jacket should suit your sport. Skiers, knee boarders and wet bike users often look for four buckles and three fully encircling body straps. Many anglers use a drab-colored vest featuring pockets with drain holes, handy D-rings and hoods. Those who fish from high-powered boats may use sportfishing vests designed to withstand a 100 m.p.h. impact. (Boaters should realize that although the vest will withstand such an impact, they might not.)

Kayakers and other whitewater enthusiasts choose vests designed for maximum mobility. They also may choose

Modern PFDs, such as the Type IIIs worn by the anglers at left, will not get in the way of casting or landing big fish. Children under 13 years of age must wear a PFD when a boat is underway, which might save the lad at right if he falls overboard.



To be effective, Type II youth/infant PFDs should be checked for proper fit, and have all straps fastened. This type PFD has a handy grab loop to aid in the rescue of youngsters.

the crotch-strap option, a design that keeps the jacket from being pulled from the wearer under extreme conditions.

More casual boaters choose from a wide variety of general purpose PFDs. Today's designs feature lightweight construction. Look for adjustable straps, easy on and off buckles, rugged fabric and multiple sections providing ease of movement.

PFDs also are available for children, starting with infant size (less than 30 pounds). Children's vests are designed to provide safety for energetic toddlers and preschoolers without inhibiting their mobility. When shopping, look

for a flotation collar, grab loops and leg straps. Easy on/off is another important factor.

You already have a PFD? Be aware that age, wear and tear and sunlight eventually wear out life jackets and affect buoyancy. Here's how to tell if you need a new one. First, check the PFD for rips, tears and holes. See that seams, straps and hardware are in good condition. Waterlogging, mildew odor or shrinkage of the buoyancy materials are warning signs. Worn out PFDs should be cut up and thrown away or donated to the Texas Parks and Wildlife Department for use in boater education courses.

If the PFD looks okay, try it on and make sure it fits comfortably and snugly. Test it in shallow water for buoyancy. Relax your body and let your head tilt back. Does it keep your chin above water? Can you breathe easily? Remember that the clothes you wear and the items in your pockets may change the way your PFD works. Persons with a chest measurement less than or equal to their waist or stomach should be especially cautious about "ride-up of the



Glen Mills

PFD.” Never alter a PFD if it doesn’t fit—shop until you find one that does.

Children’s flotation aids must fit to work properly. To check for a good fit, pick the child up by the shoulders of the PFD. If the fit is right, the child’s chin and ears will not slip through. Test your child’s jacket in shallow water at least once each season. Some children float best in one style of vest, while others do better in another. If one does not work well, try another style. Texas law requires children under 13 years of age to wear their PFDs when the watercraft is underway. However, any time children go near water is the time to ensure they have on their PFDs, even those children near docks, shorelines and swimming areas or pools.

To keep your PFD in good condition, don’t put heavy objects on it, or use it as a cushion or kneeling pad.

Let your PFD dry thoroughly before stowing it in a well-ventilated place.



Glen Mills

These young jet-skiers are wearing the right PFD for their sport—Type IIIs fitted to their individual size. Note also the jet ski kill switch cord wrapped around the smaller rider’s wrist for added safety. The Type IIs the summer camp canoeists below are wearing are designed for near-shore activities. They can be worn without hampering a good time.



© Barton Wilder Custom Images

Don't leave it exposed to sunlight for long periods.

Remember, personal flotation devices won't work if we don't wear them. According to Dexter Harris, Texas Parks and Wildlife's boating law administrator, more than 80 percent of Texas's drowning victims were not wearing their

PFDs at the time of the accident.

One final caution. Don't depend on a PFD to compensate for lack of skill. Know your limitations, your craft and your environment. Your safety depends on good judgment as well as proper equipment and preparations.

For more information regarding

boater education courses and personal flotation devices, call toll-free 1-800-253-4536 or in Austin 512-389-4999. ★

Freelance writer Kristi G. Streiffert is particularly interested in researching children's life jackets because she recently became a mother. (It's a girl!!)

PFDs

TYPE I Offshore Life Jacket

- Recommended uses: Offshore cruising, racing and fishing
- Minimum buoyancy: 22 pounds (11 pounds for child size)
- Best for open, rough or remote water where rescue may be slow to arrive
- Will turn most unconscious wearers face-up in water
- Offers the best protection, but bulky and uncomfortable

TYPE II Near-shore Buoyant Vest

- Recommended uses: Inland cruising, dinghy sailing and dinghy racing
- Minimum buoyancy: 15.5 pounds
- Good for protected, inland water near shore, where chance of immediate rescue is good. Not suitable for extended survival in rough water
- Will turn most unconscious wearers face-up in water
- More comfortable, but less buoyant than Type I

TYPE III Flotation Aid

- Recommended uses: Supervised activities, such as sailing regattas, dinghy races, water-skiing, canoeing, kayaking and for personal watercraft
- Minimum buoyancy: 15.5 pounds
- Good for protected, inland water near shore, where chance of immediate rescue is good. Not suitable for extended survival in rough water
- Most comfortable to wear; less buoyant than Type I

- Wearer must tilt head back to avoid face-down position in water
- ## **TYPE IV** Throwable Device

- Recommended uses: Throw to overboard victim, or to supplement the buoyancy of a person overboard.
- It is not to be worn.**

- Minimum buoyancy: 16.5 pounds for ring buoy, 18 pounds for boat cushion

- Can be a cushion, ring or horse-shoe mounted on deck

- For calm, inland water with heavy boat traffic, where help is always nearby

- Not for unconscious persons, nonswimmers or children

TYPE V Special Use Device

- Recommended uses: Restricted to the special use for which each is designed; for example, sailboard harness, deck suit, commercial white

water vest, float coats. Must be worn when underway to meet minimum Coast Guard requirements.

- Minimum buoyancy: 15.5 to 22 pounds

TYPE V HYBRIDS "Hybrids"

"Hybrids" have 7.5 pounds of built-in foam buoyancy, and can be inflated to 22 pounds by activating a CO₂ cartridge. Hybrids perform like Type I, II or III PFDs, as specified on the label. They are more comfortable than Type I or Type II, but are inadequate for unconscious overboard victims. Hybrids are recommended for boating activities where rescue is nearby. They are popular among fishermen and hunters for their stylish comfort, pockets and added warmth in cold-water boating. Like other Type Vs, hybrids must be worn when underway.



The magazine staff has been justifiably criticized for running photos of water recreationists not wearing PFDs, this month's front cover for instance. Even though the law does not require PFDs to be worn by those over 12 years old, we recognize that we should strive to set the example for water safety. So here's the properly attired magazine staff. From left to right: Editor David Baxter, Senior Editor Jim Cox, Managing Editor Mary-Love Bigony, Photo Editor Bill Reaves and Art Director Dwain Kelley. PFDs courtesy of Stearns Manufacturing Company.

© Wyatt McSpadden

A Working Vacation

by Jean Hardy

“Rattlesnake!” someone shouted from below. My heart leapt as I shakily picked my way down the steep slope. “Don’t let it get away, I want to see,” I yelled.

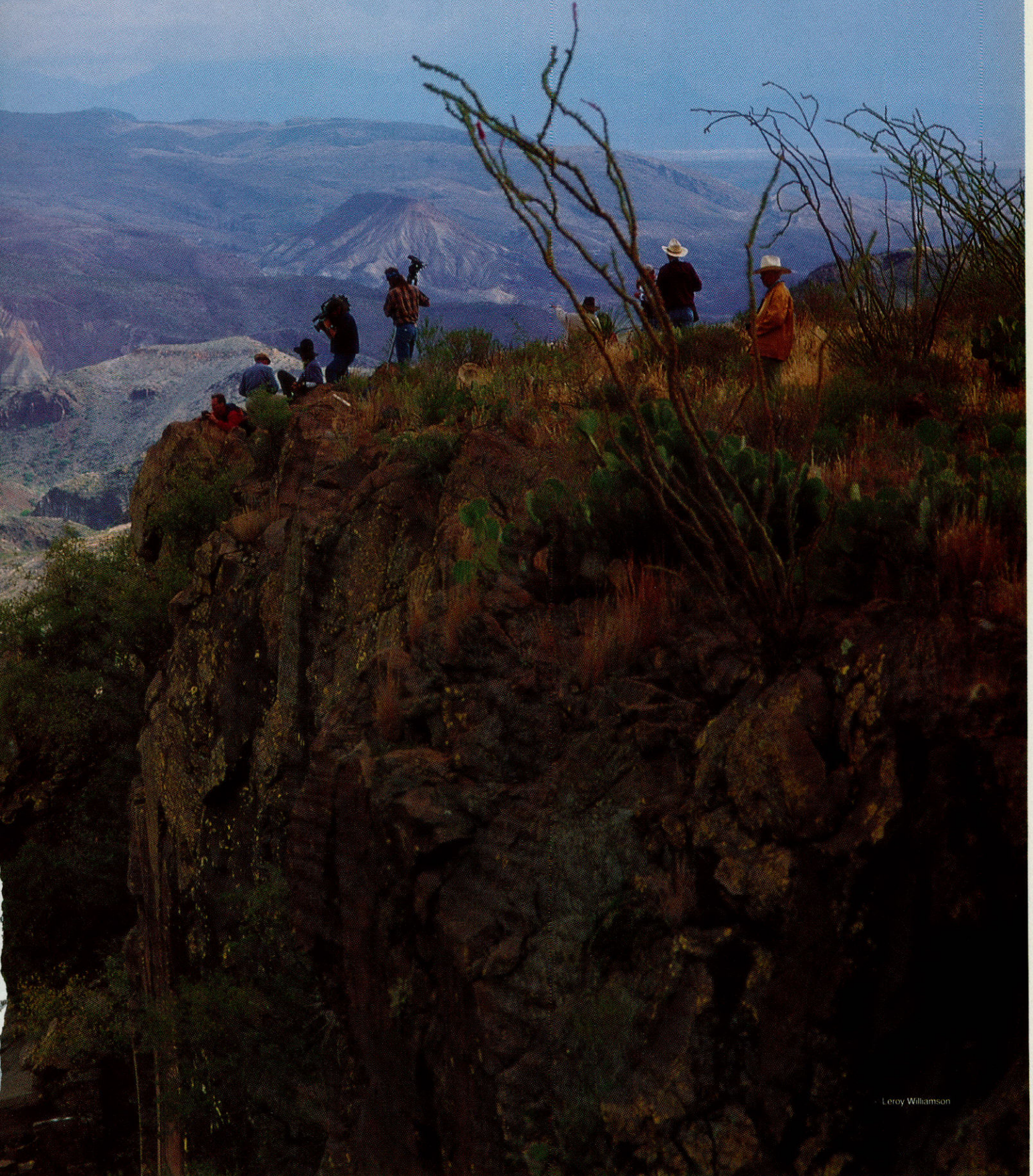
Above me, the other hikers descended through the sotol and bluestem, making their way toward the trucks. We had been scouring ledges of ancient rock looking for a rare cactus. One group had taken the north ridge, the other the south. Our leader had instructed us to look on the ridgerock for the thumb-sized Nellie cory cactus, *Coryphantha minima*, known to grow elsewhere in outcroppings of Caballos Novaculite, the Paleozoic layers capping these ridges.

The other group already had descended and was making noises about lunch. Those of us still on the south slope moved with care because the footing changed with each step. Take your eyes off the gravel- and rock-strewn surface for an instant and you could fall into the spiny arms of tasajillo or nopal.

Texas Adventures team



Find personal rewards in the wilderness.



Closer now, I could hear the others discussing the snake. "Fourteen segments on its rattle . . . Austin almost stepped on it . . . his foot was just inches away before he heard it . . ."

"Oh, I wanna see . . ." I called again and suddenly went down hard on my left side, wrenching my wrist under me. I sat dazed and embarrassed as Mark rushed to help. Scooting down the few remaining feet to the bottom of the hill, I scrambled to my feet in time to see the diamondback coiled in the midday shade of a creosotebush. It was a monster, fully six feet long and as big around as my arm.

Someone snapped its picture and, after a lively session of snake talk, we climbed into our trucks and left the reptile to crawl away. Someone produced an ice pack for my wrist as we bounced along the rough road through the Solitario, heading for Tres Palalotes and lunch. It had been a full morning and there was more exploring to do before sunset. And this was only day five of our 12-day Texas Adventure on the Big Bend Ranch State Natural Area.

I think the adventure actually began the day the brochure came in the mail. "As part of our new 'Texas Adventures' Program, the Texas Parks and Wildlife Department is pleased to announce a series of work/study opportunities in

the rugged Big Bend area of far West Texas."

I knew immediately that it wasn't a matter of "if," but rather a matter of "which one." The brochure described four expeditions into the heart of the state's newest, largest and most spectacular natural area. Team members would help scientists and other experts carry out their work in archeology, geology, botany, bird monitoring, historical architecture and photography.

The concept struck me as brilliant. Here was the state with a newly acquired chunk of prized public land full of mountain vistas, desert vegetation, abundant wildlife, geologic wonders, canyons, caves, pictographs, old ranch houses, longhorn cattle and who knows what else. Those in charge of this natural and historical bounty were trying to figure out how to protect and restore it, and at the same time they had a mandate to let in the public.

So here's the genius: Put the public to work, under expert supervision, and charge them a fee for the privilege. I was more than happy to send my donation.

I chose Adventure Team II: Botany & Geology; Vegetation & Landscape, October 26 - November 6, 1992. The leaflet listed leaders David Riskind, TPWD ecologist and resource manager; botanist Dr. Barton Warnock, lately retired from Sul Ross State University in Alpine; and Dr. Chris Henry,



Big Bend Ranch State Natural Area (above) served as an outdoor classroom for participants in the department's first Texas Adventures program. At the Javelina Canyon (below left) Adventures team members and TPWD researchers documented structures from an abandoned ranching operation. On the previous page, a film crew captures the grandeur of Guale Mesa, with the mountains of Mexico in the background.



© Niley Church

a geologist with the University of Texas Bureau of Economic Geology. Besides liking the subjects and already having met two of the three leaders, I noticed this adventure offered 12 days instead of only seven or 10 days, and I wanted total immersion.

On that first day, under a bright and cloudless sky, our bus left Fort Leaton mid-morning, heading across the Chihuahuan Desert to Saucedo Ranch headquarters. It pulled up at the simple rectangular bunkhouse that would be our temporary home. We urbanites



© Leroy Williamson

stepped out and took stock of our surroundings like astronauts dropped onto the moon. The bunkhouse sat on a slight rise at the edge of a sprawling group of buildings, its wide, inviting porch stocked with benches, tables and chairs.

Across an expanse of scraped earth we saw two big, low-slung houses, cool and inviting with tall cottonwoods and other greenery behind their white-washed adobe walls. One was the main ranch house, where those on official business stay; the other, temporarily vacant, would be the home of the new park superintendent.

Off to the right stretched a long metal shed full of ranch and road machinery; to the left were a barn, tack room, a row of simple apartments for the hands and several enclosures with horses and cattle. Obviously, this was still a working ranch. We met ranch manager Clay Webb, who, in his saddle-polished jeans and dusty boots, not only looked the part but is a Texas cowboy. We met his wife,

Fran Webb, who presides over the bunkhouse and kitchen, and Texas Adventures director Carolyn Cribari.

Over lunch, the dozen team members got better acquainted before plunging into our first assignment. Although our ages and vocations ranged widely, we soon learned we had plenty in common. We were all Texans by choice, we relished the outdoors, and we felt drawn to this mysterious, harsh and beautiful land.

The bunkhouse made a comfortable home away from home, with dormitory-style sleeping quarters occupying one end of the building and the kitchen at the opposite end. The spacious common area in the middle served as living and dining room. The men slept in bunks off a long hall to the left; the identical women's quarters were to the right.

Living here was something like being in college again. No streaking or party raids, though, and no rock music. As a matter of fact, there was no TV, no

radio (except an emergency shortwave), and no private telephones. The single phone, a party line, served the entire park.

I had asked for total immersion and I was going to get it. Most of us already had voted in the presidential election by the time we arrived on October 26. For the remaining eight days until the general election we would have virtually no news of what was going on with Bush, Clinton or Perot. Indeed, when we came to the "ranch," as I began to call it, we left behind the world as we knew it and

“. . . the land spread out before us like a great banquet for the spirit.”

entered a beguiling new one. I'll never forget the anticipation we shared that day; the land spread out before us like a great banquet for the spirit. We would go out in all directions from Saucedo, to study and work, hoping to fathom the magic of the place.

In late October, daylight and dark hours are roughly equal, so we rose each morning before first light and ate a hearty breakfast prepared by Fran and her staff. Then we made lunch from the fixings spread out for us on the counter and packed our gear. Essentials for a full day in the desert or mountains can fill a backpack in a hurry: field guides, maps, notebooks, sunscreen, cameras, film, bandannas and especially food and water. After that, we grabbed our hats and headed for the trucks.

On a map, the 265,000-acre ranch looks like a jigsaw puzzle piece. It lies just upriver from Big Bend National Park, its southern border following the undulations of the Rio Grande between Presidio and Lajitas. Its eastern edge slices across the rugged terrain due north of Lajitas for about 20 miles, then makes a 90-degree left turn and heads west. A

long, narrow chimney, or panhandle, juts up to the Cienega Mountains off its northwest corner. Adventures team members have worked in every major region of the park. Our team worked in the river corridor, in the Solitario area to the east, and at several locations in the large central section—what we came to know as the “Bcfecillos volcanic plateau.” Although our team did not make it to the Cienega Mountains, Team I camped there and documented dozens of new archeological sites.

One morning hike took us down the Lava Creek drainage, where we saw occasionally lush vegetation and intermittent pools of water. Waist-high clumps of deergrass, diverse shrubs, the ubiquitous blackfoot daisy, and an occasional cottonwood tree grew along the creekbed. The subterranean flow of the Lava (pronounced *láy-vah*) surfaced here and there in the sandy channel as a small cienega or marsh. “These areas are like little sponges that hold moisture and nourish the grasses and other plants,” David Riskind explained. As head of the natural resources program for the TPWD, he stressed the importance of focusing management efforts on these riparian areas, which furnish water and food for wildlife. “These are fragile ecosystems and subject to human and animal impact,” Riskind said.

I was astonished to see buttonbush, a shrub I knew required wet soil—hardly a typical desert plant. “What this buttonbush is telling us,” said Riskind, pointing to a large specimen, “is there is permanent water here.” Although we could not see it, “if you dig down a foot or two, you’ll find it. In fact, what is remarkable about the entire natural area,” he continued, “is that there is water everywhere.”

This surprised us. Water plentiful in the desert southwest? In Big Bend National Park, for instance, water is scarce outside the Chisos Mountains and the Rio Grande. In contrast, Big Bend Ranch has almost a dozen major water courses and dozens of dependable desert springs.

The abundance of water in the park led to a discussion of its geology; it was Chris Henry’s turn to talk. He explained



© Niley Church

Sheron Smith-Savage, project leader, and Adventures team member Bob Simpson of McAllen investigate a rock wall in the old Fresno and Whitroy Mine area of Big Bend Ranch State Natural Area.

that geology is everything. “Geology determines the shape of the landscape and thus the hydrology—the flow of water,” he said. “The geology also determines the soils. The soils and hydrology in combination with the climate determine what vegetation will grow, and the vegetation, along with available water and shelter, determines what animals, including humans, can survive.”

Surviving in this spot when the state acquired the property were a sizable number of animals, not all of them naturally selected. Longhorn cattle grazed freely in this pasture for many years. We noticed several old, large cottonwood trees along the creek bank. Cottonwoods are important on a desert stream, explained Riskind, because they hold the soil and provide shade that nurtures the growth of other plants. But we could see no young or “middle-aged” cottonwood trees.

Cattle find cottonwood saplings very tasty, Riskind said, hence the absence of young trees. The stream, no matter how lush in spots, lacked much of its natural vegetation. I tried to imagine what it might have looked like 100 years ago. Who could know?

The department removed cattle from this area about two years ago, so part of

our job was to look for signs of a cottonwood comeback. Eventually, we began to notice a few scattered, skinny stalks about two feet tall. Then we saw more—even thickets of them in places. We estimated the seedlings ranged in age from a few months to possibly two seasons of growth. “What you’re seeing in this cottonwood population is the same as seeing a human population of nothing but 90-year-olds and babies,” said Riskind. “The generations in between are missing.” But nature appeared to be mending things along the Lava.

We continued for about two miles along the creek to a place called Los Baños Mexicanos (the Mexican baths). Henry related the intricate histories of the layers of rock upon which we walked. Molten lava had spread outward radially from a nearby volcano, halting twistedly here and forming a warped ramp of rock with falling water and crystalline pools.

“Most people think geologic events happen very slowly, over extremely long periods of time,” said Henry. “But geologic events can occur very suddenly and violently with catastrophic results.” This has been particularly true in the Big Bend Ranch area, he said, which has experienced repeated volcanic activity. Pointing out another rock layer nearby, he told us it was the famous Mitchell Mesa Rhyolite, cooled from “a tuff flow that covered hundreds of square miles and wiped out every living thing in its path. We think of Mount Saint Helens as a major volcanic eruption,” said Henry, “but the Mitchell Mesa flow that erupted in the Chinati Mountains area was a thousand times bigger. It flowed south into Mexico, north to Marfa and Alpine and east to this region. It killed everything.”

Someone in our group picked up a piece of Caballos novaculite, an oddity here in the Lava streambed because it

Mexicana Falls surrounded by fall foliage (right) is one of the spectacular sights seen by Texas Adventures team members at Big Bend Ranch State Natural Area.

was eight miles removed from its source, the Solitario. How did it get here? Henry explained that long ago, molten magma pushed upward under thick sedimentary layers in the Solitario area, including the novaculite, and lifted them well above the existing surface, where they lay exposed to erosional forces. Pieces of novaculite broke off and washed downstream to an area that later solidified into a type of conglomerate. This bed then was lifted by another outpouring of magma—the West Saucedo Dome. The weathering process continued and the piece of novaculite eventually broke out of the conglomerate and continued its downstream journey to its resting place where we picked it up on October 27, 1992. Its trip of eight miles had taken about 35 million years.

Later we walked across the Llano

flats southwest of headquarters and saw what happens to a grassland when too many sheep graze in one place for too long. Historically, the mineral-laden volcanic soil supported an abundance of black grama, sideoats, muhly and other rich grasses. But whether through ignorance, economic necessity or outright abuse, the land was denuded of grass and the fertile topsoil blew and washed away. We saw invader species that moved into the vacuum—deceptively pretty annuals like limoncillo and bitterweed and common Chihuahuan Desert shrubs like mariola, broomweed and creosote.

Mariola, *Parthenium incanum*, is an interesting plant. It is a poor first cousin to the rubber-rich guayule, *Parthenium argentatum*, which was processed and sold at a factory in Marathon, Texas, in

the early part of this century. Both plants are small, gray-leaved shrubs with unremarkable composite flowers. Guayule is now relatively scarce because of heavy harvesting for rubber extraction. But poor-cousin mariola has spread like kudzu. Although a harmless plant, it's good for almost nothing (except perhaps to slow soil erosion) and where it is plentiful, it indicates land exhaustion.

In some places the Llano flats are so devastated that no grass grows there at all, even though this is primeval grassland country. Not even fluffgrass—a tough little desert species—survives in the blasted soil. Hints of the ruined magnificence can be seen on a few steep slopes where fewer animals browsed.

Riskind showed us 50-foot-square plots on the Llano flats that park personnel have fenced off from livestock in

© Leroy Williamson



an interesting experiment. They selected several sites with distinctive vegetation and soils and established two plots in each of these zones. In one of each pair, resource managers will take active control and restoration measures such as seeding and chemical weed control; but in the plot's twin, they will do nothing but allow the plants to grow naturally. "This land has a high potential for restoration," Riskind said. "It eventually will make good antelope country again."

Park managers built the little corral-like structures themselves because it was hard to explain the ecological project to the ranch hands' satisfaction. After all, a fenced enclosure usually is designed to hold livestock. When the men finished their work, the hands had a great laugh, one of them telling Riskind: "What useless things are these corralitos, Señor, for you have forgotten the gates!"

We drove repeatedly to the Solitario, on the eastern edge of the property. Circular in shape and with a diameter of about nine miles, this intriguing formation has challenged geologists for decades, some saying it is a meteor impact site (a largely discredited view); others that it is a laccolith (a massive dome of igneous rock that displaced sedimentary strata); and still others that it is a caldera (a crater caused by an extraordinarily violent volcanic eruption). Chris



Project leader Kelly Bryan, an ornithologist and superintendent of Davis Mountains State Park, displays a loggerhead shrike he caught, banded, and released during a Texas Adventures outing at Big Bend Ranch.

© Jean Hardy

Henry, after carefully studying the arrangement and sequence of the rock layers for more than two years, recently has demonstrated that the Solitario is a rare combination of both laccolith and caldera.

From the ground, we could see its uplifted and tilted layers only one section at a time. To be fully appreciated visually, it must be seen from the air. Several of us noted that goal as one of life's imperatives in the near future.

On another day, semi-retired botanist Barton Warnock (see related story, *Texas Parks & Wildlife*, September 1992)

led us down Arroyo Segundo on a two-mile walk to Ojo de los Mexicanos, an oasis where three stream courses meet and water a stand of cottonwood, seepwillow, buttonbush, deergrass and canyon grape. In a great crevasse we saw water trickling from the rocks, dainty maidenhair fern and a perfect yellow-flowering mimulus that looked as if a gentle gardener had tended it.

That afternoon we gathered at the fine old ranch house to work with the herbarium specimens kept there in four metal cabinets. The 1,000-plus plant specimens are the work of Warnock, who began collecting on the ranch in 1978 when it was owned by Walter and

Mary Mischer and Robert O. Anderson. An ongoing process, scientific documentation of plant species on the ranch constitutes a valuable record for the state. Our work was to integrate into the collection newer specimens Warnock had processed at his Alpine office. We also refined and updated the organization of the specimens.

With his usual smile and charming manner, the legendary teacher of Trans-Pecos botany sat at a table in the large, sunny kitchen of the old house and showed us how he mounts the dried and pressed plants on white sheets of archival paper. His weathered hands, after more than six decades of practice, worked easily at their task. We gathered around the table and grew quiet.

On yet another day we drove along the spectacular river road to Closed Canyon, where University of Texas geology student Rebecca Smith was examining the fracture patterns in the igneous rock as part of a master's project. We formed teams and measured and mapped the major fault lines that crisscrossed the narrow tuff canyon like empty blood vessels frozen in stone.

The pace never let up:

- We drove through Fresno Canyon on an unpaved road that followed the old stage route from Marfa to Lajitas. It had endured two years of unusually heavy rainfall. Coming to deep washouts, we poured out of the trucks like worker bees to make repairs lest we had

1993 Texas Adventures

Texas Adventures is a Parks and Wildlife Foundation of Texas, Inc. program offered through the Texas Parks and Wildlife Department. The program provides Texas-based outdoor experiences on lands managed by TPWD. Through education, interpretation, recreation and a variety of work-oriented projects, the program is designed to give the participants a deeper appreciation and understanding of the natural environment.

These adventures offer a unique opportunity for participants to learn about the work of TPWD professionals and discover Texas's most spectacular natu-

ral resources, while living and working in a natural setting. The 1993 program will offer eight, seven-day adventures starting in mid-July and running through mid-November. The sites will be Devils River State Natural Area, Big Bend Ranch State Natural Area, Caddo Lake State Park and Matagorda Island State Park. The donation for each seven-day adventure will be \$875 with a \$25 discount to Texas Conservation Passport holders. Specific project dates and names of participating professionals are available in the 1993 program brochure. Contact Texas Adventures at 4200 Smith School Road, Austin, Texas 78744, 512-440-8050 for a brochure and further information.



© Syvan Fossi

to turn back. Our trucks made it through.

- We hiked through more treacherous rock and thorny brush under a blazing sun to the type locality (the place where a new species is first discovered and described) of the rare Henckley oak. A low, intricately branched shrub with tiny, hollylike leaves, it grows in limestone outcrops near Solitario Peak. An early photograph of oak specialist C. H. Muller taken by Warnock led us to the precise spot.

- We watched a bird-banding demonstration by ornithologist Kelly Bryan, superintendent of Davis Mountains State Park. Bryan clamped tiny aluminum bracelets on the legs of two complaining pyrrhuloxias, a Bewick's wren, a white-crowned sparrow, a Baird's sparrow (only the sixth documented in Texas) and a loggerhead shrike. The birds were trapped in filmy "mist" netting Bryan had stretched between poles along a creek. As the birds became ac-

tive in early morning, they flew into the almost-invisible netting and were easy pickings for Bryan, who gently disentangled them and put each in a separate canvas bag suspended from his belt. Soon after banding and photographing, Bryan released them.

- We spent election day in the hot sun looking for a rare type of rock at Campo Javelín, an old line camp south of headquarters. Henry and Sul Ross University geologist Kevin Urbanczyk led us in looking for xenoliths (literally "foreign rocks"), which occur in other rocks. Henry suspected there might be some in the basalt outcrops around the campo. We spread out search-party fashion and eventually hit paydirt. In black soil and crumbling basalt, we found chunks of quartzite, amphibolite, gneiss and other rocks that had eroded out of the mother rock. They lay here and

Texas Adventures team members hike along the rim of a canyon in Big Bend Ranch State Natural Area.

(Continued on page 53)



© Wyman Meinzer

Hognose snakes stage a realistic dying act.

by Suzanne Martin

Hissing Histrionics

Early one morning while walking through an East Texas pasture, I had an encounter with an eastern hognose snake. It wasn't as bad as it sounds.

Meetings with hognose snakes usually turn out to be more comical than threatening. I spent most of my time with the reptile trying to flip it back onto its belly. Hognose snakes favor belly-up death feigning to aggressiveness and give new meaning to the old saying "playing 'possum."

Four varieties of hognose snakes occur in Texas: the eastern hognose and the three western subspecies: plains, dusty and Mexican. The name hognose comes from the reptile's upturned snout, which is more pronounced in the western races.

Hognoses are medium-sized, docile snakes. Eastern hognose adults reach 20 to 33 inches, with muscular, stocky trunks. Coloring on the back and sides ranges from almost solid black to a pattern of large reddish, olive or brown blotches. The light grayish or yellowish underside can be seen clearly when the snake goes belly-up and plays dead.

The three western subspecies have similar markings. Brown, oval blotches cover the back, and distinctive black blotches mark the belly. The western races grow to between 15 and 25 inches. And like the eastern hognose I met, all exhibit quirky natural defenses not normally associated with snakes.

"Behaviorally, they're very unusual snakes," said biologist Noreen Damude of the Texas Parks and Wildlife

Department's Fisheries and Wildlife Division. "All are mild-mannered as far as snakes go."

Hognose snakes will not bite humans, even though their scientific name *Heterodon* means "different" or "multiple-toothed." The reptiles use the tips of enlarged, hinged, rear teeth to introduce mild toxins into small prey. Toads and frogs are the preferred food, but western hognose snakes also feed on lizards, newborn rodents and smaller snakes.

A hognose finds its prey by rooting through plant and leaf litter or loose soil. Its rough-keeled scales provide good traction, and its wedge-shaped, upturned snout helps the snake burrow along, moving dirt aside as it goes.

Left alone, hognose snakes maintain



© Jack Dermid

The eastern hognose snake (right) displays a color phase that has a rather uniform blue-black pattern, while the western subspecies (top and far right) have brown, oval patches on their backs.



Leroy Williamson



© A. B. Sheldon

If puffing and hissing fails to deter a potential predator, the hognose snake feigns death by flipping onto its back and opening its mouth. It resumes its normal routine only after the perceived danger passes.

a deliberate pace as they root for food. But if disturbed, the creatures will perform numerous defensive tactics to ward off an attacker.

At the first sign of danger, a hognose flattens and spreads its neck, similar to a cobra spreading its hood. The snake may raise its head or coil as it makes loud, sharp hisses with each breath exhaled. The defensive posture and harmless hiss have led to common names such as puff adder, spreading adder and hissing adder.

The puffing and hissing may be accompanied by fake strikes toward an assailant. The eastern hognose actually jerks its head backward, although the motion gives the impression of a viper attempting to bite. The plains hognose keeps its jaws clamped shut so firmly that the snake merely bumps its snout against any predator.

Nor will the dusty hognose open its jaws against human adversaries. Indeed, a dusty hognose "will gag on a finger poked into its open mouth rather than close its jaws," writes Alan Tennant in "A Field Guide to Texas Snakes."

Should puffing, hissing and mock at-

tacks fail to frighten away a molester, hognose snakes begin an elaborate display of playing possum. "Death feigning is characteristic of a hognose," said Damude. "If you see a snake do it, it's probably a hognose." Watching a hognose fake its own death is not an appealing sight. The snake writhes and may snicker violently. It regurgitates its last meal and discharges a foul-smelling musk from its anal glands. The convulsing is accompanied by a wide-open mouth that often fills with dirt.

Slowly, the writhing ceases and the hognose comes to rest on its back, exposing its underside and becoming limp. To complete the death pose, the snake leaves its mouth open and hangs its tongue out loosely. The hognose now appears dead, but the snake will fight to maintain its lifeless position. If rolled right-side up, the hognose flops belly-up again.

A hognose will hang limp and seemingly lifeless even if prodded or picked up with a stick. It rights itself and glides away only after danger has passed. But if an interloper returns for a second look, the snake immediately rolls belly-up

and plays dead again.

Finding a hognose snake to perform these death-feigning antics can sometimes be difficult in Texas. While the eastern hognose is abundant in the state, the western races are rather uncommon. Western hognoses occur in the plains from Canada through Texas. The Mexican hognose occupies two distinctly different habitats in Texas. In the Trans-Pecos region, the snake lives primarily in the prairie. But the reptile is more abundant in its thorn brush

habitat of South Texas.

The plains hognose makes its Texas home in the Panhandle, where sandy soil offers easy burrowing and canyons provide seasonal water. Populations of dusty hognose are widely scattered in Texas. It ranges from the coastal short-grass prairies northward into the semi-desert region of western Texas and the open woodlands of East Texas.

The eastern hognose has a large range, from the East Coast through the High Plains of the U.S. The snakes can be found from northern Florida into the Great Lakes region. In Texas, it ranges from the eastern half of the Panhandle southward to the coast and occupies Central as well as East Texas habitat.

Eastern hognose snakes mate from March until May and deposit up to 60 eggs about six weeks later. The western races lay up to 23 eggs from early June through August, and some evidence suggests that they breed only in alternate years. ★

Suzanne Martin is a freelance writer who looks for hognose snakes and other wildlife in East Texas. She lives in Wills Point.



Hardly a Texan has been to the beach without encountering sargassum weed. On one summer's sabbatical I was enjoying the surf on my legs, the breeze on my face, and the sense that momentarily all was well with the world.

Then in an instant my equilibrium was destroyed as something coarse and scratchy wrapped itself around my leg. A scream escaped my lips, as if my worst ocean nightmare suddenly had caught up with me. But to my relief and embarrassment, I found it was only a lowly piece of golden seaweed floating innocently in the murky water.

Like many other Texans, I had no idea where this unsightly seaweed had come from or the biological treasure that lies hidden from the casual observer. Sargassum weed, also called gulfweed, rockweed or sea holly, is a member of the same genus as brown algae. The weed derives its name from the Portuguese word for grapes. Tiny, pea-sized air bladders resembling amber grapes support the weed on open water. The olive-gold tendrils sport sawtooth-shaped leaves which, if examined by touch only, feel suspiciously like a cheap, plastic aquarium plant.

Commonly intertwined, the two species of sargassum weed are distinguished from each other by their leaves. The predominant *Sargassum natans* bears narrow 1/8-inch leaves with fine, pointed teeth, while *Sargassum fluitans* has 1/2-inch-wide leaves with broad teeth. All other plants that float free in the ocean are microscopic; sargassum weed is the sole exception. This miniature ocean liner cruises in the Gulf laden with a crew of bizarre, camouflaged organisms.

The Sargasso Sea is the primary source of sargassum weed

Sargassum weed drifts from the Atlantic Ocean to Texas beaches, and every several years there is an unusually large sargassum invasion (left). The sargassum fish (right), one of many species that travel with the weed, matches the plant in color and pattern.

High Seas Drifter

by Kathleen Rutherford

and its marine companions. Located in the center of the North Atlantic Ocean, this immense, oval-shaped sea covers an area roughly two-thirds the size of the continental United States. Like frenzied freeways, the Equatorial Current, North Atlantic Drift, Gulf Stream and Canary Current rotate around the idle center of the Sargasso Sea. Restrained and defined by this wall of cooler water, the Sargasso is both warmer and saltier than the water surrounding it.

History credits Christopher Columbus with the first authentic description of the Sargasso Sea. While seeking a new route to the Far East, he headed south to the Canary Islands and then turned westward. The discovery of a crab clinging to the weed hauled on board led to speculation that land must be near. What Columbus did not know

was that he had skirted the edge of the Sargasso Sea.

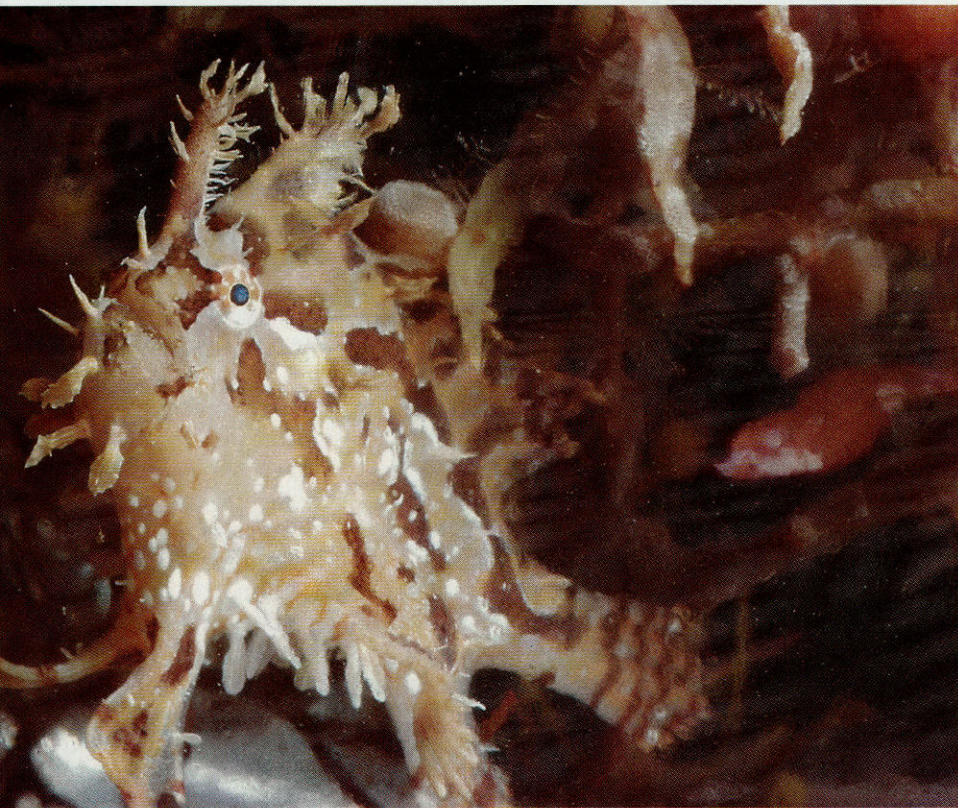
In the 15th and 16th centuries this mysterious area became a mother lode of myths and legends. Tales of sailing ships trapped by ominous-looking sargassum weed and rotting in huddled masses no doubt chilled the blood of many a young sailor. In reality the weed is rarely thick enough to impede any sizable sailing vessel, although the lack of wind at these latitudes might make it appear so.

Scientists speculate that sargassum weed originated on the shores of the West Indies, torn from its coasts by wind and waves. However, as oceanographer Tony Amos of the University of Texas Marine Science Institute in Port Aransas concedes, "The origin of sargassum weed remains a mystery." Despite conjecture on how sargassum weed

actually arrived, it has adapted to life on the open seas.

Reproduction is strictly a private affair with the weed. It occurs without the production of seeds. Waves break off the tips of the branches, which then float away and continue to grow as new plants. This pelagic weed, buoyed by its tiny air bladders, can live for many years. "Its ultimate fate is to sink slowly because of encrustments, where the weed then becomes an important part of the bottom ecology," explained Amos.

Some of the weed does not descend to the ocean depths. Instead, winds blow it to coastal regions. Unusually strong winds or currents can cause portions of the weed to break loose and drift into the Gulf Stream. "The weed becomes captured by currents. It moves in circles, reproducing and growing in the Gulf," said Amos.



Sea creatures travel from the Atlantic Ocean to Texas beaches in floating sargassum weed.

Jim Whitcomb

Texas beaches are subject to periodic invasion of sargassum weed. At times the Gulf of Mexico is second only to the Sargasso Sea in quantities of sargassum weed. "Some comes in every year, but every several years there is a large beaching," said Amos. In summer 1989 the weed buried Texas beaches in two-foot-deep windrows that extended for hundreds of miles. Observed from the jetties, large amber mats of sargassum weed, 300 to 400 yards long, drifted in the current. Like gigantic tea bags, they steeped the ocean water until it resembled the color of tea.

Though somewhat unsightly, a weed invasion provides the ideal opportunity to observe and study the sargassum community. Marine biologist Rick Tinnen of the U. T. Marine Science Institute coordinates public education, which includes information on sargassum weed. "A small tank is on display at the visitors' center where tourists can observe the assembly of sargassum animals," said Tinnen. For the more adventuresome types the experience of a hands-on search in the surf is both fun and rewarding.

The easiest technique for collecting fresh weed is to use a large dip net or fine-meshed insect net. Simply locate a piece of floating sargassum weed and dip the net directly below it. Lift the net straight up as quickly as possible, then hold the captured weed over the net and shake it. The aquatic treasures will tumble out: crabs, shrimp, pipefish and, for the lucky ones, a sargassum fish.

Even the most casual observer will be amazed how these tiny creatures have adopted the shape and coloration of their surroundings. From mottled yellow to light brown, their skins and shells duplicate the weed's coloring. Some of the animals display feathery appendages that move gracefully in time with the leaves. The white body markings of others resemble the encrustments so common on sargassum weed.

Each clump of weed nurtures the species that eat it, hide in it, and cling to it like opossums riding on their mother's back. Some of the creatures are poor swimmers, able to swim only short distances. All of the animals are in fierce competition for food. "It is a life-and-death struggle in this complex, unique environment," said Tinnen. Sufficient

numbers of each species must survive long enough to breed and ensure the continuum of life. The trick is to eat but not be eaten.

Upon closer inspection, many sargassum community members bear a marked resemblance to their coastal or shallow-water cousins. The swimming crab, *Portunus sayi*, looks like a miniature version of its relative, the coastal blue crab. *Portunus* swims from branch to branch in search of food, perfectly disguised with its amber shell and white markings. In a graceful dance, the crab stalks its prey and snatches the victim with its pincers.

Appropriately named, *Planes minutus*

is a tiny, pea-sized crab measuring about one inch. With coloring ranging from yellow to brown it feeds mainly on encrustments. *Planes* crabs display a tendency to remain with a drifting partner as they travel on the open water.

Diminutive, ghost-like shrimp named *Latreutes focurum* appear to haunt the weed as they float among the fronds. Their rhythmic motions seem timed with the movement of the leaves, and their almost-transparent limbs give the shrimp an ethereal appearance. The body shape of *Latreutes focurum* copies the sargassum leaf, and the mottled white blemishes mimic the encrustments typical of the leaves. These phantoms



Tiny air bladders support the sargassum on the open water. Sargassum is the only non-microscopic plant that floats free on the ocean.

are difficult to spot as they move carefully between the clumps. Because the shrimp can swim only very short distances, a hop must be prudently calculated or the result will be a free fall to the ocean floor.

To the naked eye sargassum weed seems to be covered with a furry, white substance. It's not slime, mold or fungus like you might find growing at the back of the refrigerator. It's a colony of miniature filter-feeding animals called bryozoans. Their community is the forerunner of the condominium complex. Bryozoans build small, box-shaped homes with a trap door at the top. At feeding time, the animal extends out the trap door, resembling a minute feather duster sweeping the water. When startled, the whole colony retracts at once, causing the white fur to ripple. As the weed becomes laden with these encrustments, it begins to sink several inches in the water, and thereby begins its gradual demise.

Lurking in the sargassum's shadows is the weed's "king of the beasts," *Histrio histrio*, commonly known as the sargassum fish. Compared to the smaller animals, *Histrio* is a sea monster, growing to a size of seven inches. This fish has stealth and concealment that would be the envy of any army in the world. Its brown body is covered with yellow and white mottle. Ragged fins and numerous appendages resembling hydroids and bryozoans complete the ensemble, rivaling any outlandish designer creation. "It's so ugly, it's beautiful," commented one beachcomber upon the discovery of a sargassum fish in her net.

Anyone who has watched the neighborhood tabby cat patiently stalk a chattering squirrel has a mental picture of the cat slinking slowly along the ground, nose twitching and ears moving like radar. The squirrel usually awakens to the impending danger just

as the cat pounces through the air. Intended victims of the sargassum fish generally are not so lucky.

Hard as it is to imagine a prowling fish, that is exactly how the sargassum fish moves on its hand-like pectoral fins. These modified fins appear to have fingers that can clinch and grip the sargassum fronds. This unusual ability seems to be focused on *Histrio's* favorite activity, eating. Often described as the little fish with a big stomach, the sargassum fish consumes vast quantities of food. It is capable of eating its own weight in shrimp and fish in a short time. When it eats, the sargassum fish resembles a vacuum cleaner—in one instantaneous gulp both the food and surrounding water are sucked in. Keeping *Histrio* healthy in a saltwater tank requires a good supply of live fish.

Sargassum weed plays an integral role in coastal ecology. It provides food for a number of predatory animals. Large fish follow the weed clumps hoping for an easy lunch. It proves to be a great buffet, as a variety of weaker species of fish use the weed for protection. Juvenile spadefish rest by the thousands among the fronds, resembling dime-size tarballs. Pipefish, which are poor swimmers, take sanctuary among the leaves. "Young sea turtles feed and hover around pelagic weed," said Amos.

In a final grand farewell, the sea casts the sargassum weed onto the beach, depositing it on the glassy line made by receding waves. Crabs and sargassum fish let go of their moorings before they are beached, but the shrimp hang on

until the end. They can be seen flicking out of the seaweed, leaping like rainbow trout. "The shrimp attract gulls and other shore birds," observed Amos. They arrive with a raucous chorus for a delightful smorgasbord.

Even in death, sargassum weed refuses to give up its place in nature's scheme of things. Accumulations of seaweed, thrown up by the tide, bind the sand together long enough for young terrestrial plants to be established. The process is the catalyst for the creation of new dunes, and an important reason for keeping the smelly weed on the dune line. "The indiscriminate removal of sargassum weed is not helping the problem of dune erosion," said Amos. At Mustang Island State Park, tractors with rakes and front-end loaders collect and pile the rotting, nutrient-rich weed next to the dunes, an example of man and nature working together toward a positive end.

Offshore, however, this working relationship begins to unravel. In the Sargasso Sea, the weed manages to thrive in a low-nutrient environment, often termed a "watery desert." Nitrogen-rich pollutants flowing into the Gulf overstimulate the growth of sargassum weed, and for the weed it is a matter of too much of a good thing. This accelerated growth results in massive amounts of sargassum weed washing ashore. In summer 1991, Florida Power Corporation was compelled to temporarily close down two of its power plants after clumps of sargassum weed clogged the cooling systems. The solution to the problem, a reduction of pollutants from human sources, is a complex and difficult question that will have to be addressed.

Despite the negative publicity, the sargassum community remains one of the most marvelous examples of tenacious adaptability and superb survival skills. The unique environment of sargassum weed and its assembly of camouflaged companions proves to be a fascinating study both for the professional and amateur marine biologist. ★



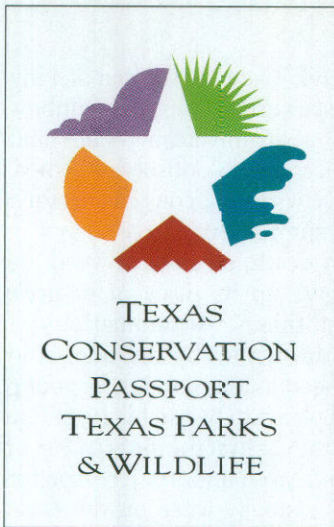
A relative of the blue crab, the swimming crab, Portunus sayi, swims among the sargassum branches in search of food. Like the sargassum fish, the crab resembles the sargassum weed in color and form.

© Stephan Myers

Kathleen Rutherford is a freelance writer living in Houston. This is her first article for Texas Parks & Wildlife.

OUTDOOR DATEBOOK

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



SM

JUNE

June: * Bat emergence tour, every Thursday and Saturday in June, Old Tunnel Wildlife Management Area near Fredericksburg, 210-868-4186

June 1: Free fishing clinic for children, Matagorda Island State Park, 512-983-2215

June 4: * National Fishing Week Open House, Coastal Fisheries Field Station at Sabine Lake, 409-983-1104

June 5, 19: * Bus tour with chuck wagon lunch, Big Bend Ranch State Natural Area, 915-229-3613

June 5: * Birding tour, Cedar Hill State Park at Joe Pool Reservoir, 214-291-3900

June 5-6: * Texas tortoise and Texas horned lizard tour, Chaparral WMA near Artesia Wells, 210-676-3413

June 5: * Nature tour, Gene Howe WMA near Canadian, 806-492-3405

June 5: * "Quanah Parker and His People" lecture, Copper Breaks State Park near Quanah, 817-839-4331

June 5: Free fishing clinic for kids and National Trails Day celebration, Copper Breaks State Park near Quanah, 817-839-4331

June 5: * Hill Country spring tour and fisheries research station tour, Heart of the Hills Research Station near Ingram, 210-866-3356

June 5, 12, 19, 26: * Lower Edwards Plateau ecosystem tour, Honey Creek State Natural Area in Comal County, 210-438-2656

June 5: * Colonial water bird nesting tour,

J. D. Murphree WMA at Port Arthur, 409-736-2551

June 5, 12: * Beginning hiking and backpacking seminar, Kerrville-Schreiner State Park in Kerrville, 210-257-5392

June 5, 19: * Cavern tour and Green Cave bat flight observation, Kickapoo Cavern State Natural Area near Uvalde, 210-563-2342

June 5, 12, 19, 26: * Twin Falls nature trail walk, Pedernales Falls State Park in Blanco County, 210-868-7304

June 5-6: * Horseback ride and overnight campout with mount and campfire meals provided, Hill Country State Natural Area and Lightning Ranch near Bandera, call 210-535-4096 or 210-535-4136 for reservations or 210-796-4413 for information only

June 5: Back to Rath's Trail, 1876-1879, historical celebration, Hamlin, 915-576-3493

June 5: Kids fishing clinic and tournament, Lake Mineral Wells State Park at Mineral Wells, 817-328-1171

June 5: National Trails Day cleanup of the Blue Hole near Garner on the proposed rail trail between Mineral Wells and Weatherford, 817-328-1171

June 5-12: Texas Archeological Society Annual Field School, Lubbock Lake Landmark State Historical Site at Lubbock, for information contact Brenda Whorton, 214-369-3751

June 6, 27: * Hike and mountain bike trail ride, Devils River State Natural Area in Val Verde County, 210-395-2133

June 8-9: * Archeologists in action tour,

Lubbock Lake Landmark State Historical Park at Lubbock, 806-765-0737

June 8, 15, 22, 29: Junior buffalo soldier outdoor educational program at various locations in Abilene, 915-676-2241

June 10, 11, 12, 18, 19, 20: Stage production "Summer of the Wild Plum Moon," Copper Breaks State Park near Quanah, 817-839-4331

June 12: * Penn Farm walking tour, Cedar Hill State Park at Joe Pool Reservoir, 214-291-3900

June 12: * Orphaned owl release, Cedar Hill State Park at Joe Pool Reservoir, 214-291-3900

June 12: * Horseback trail ride, Dinosaur Valley State Park near Glen Rose, 817-897-4588

June 12: * Shelling tour, Matagorda Island State Park, 512-983-2215

June 12: Caves and Lower Glen Rose Aquifer program, Guadalupe River State Park near Bulverde, 210-438-2656

June 12: * "Wings on the summer thermals" tour and slide show, Fairfield Lake State Park near Fairfield, 903-389-4514

June 12-13: * "A day at the fort," active participation in re-enactment festivities, Fort Richardson State Historical Park, 817-567-3506

June 12: * Birding walk, hatchery tour and slide program, GCCA/CPL Marine Development Center at Corpus Christi, 512-939-7784

June 12: * Canyonland songbird hike, Hill Country State Natural Area near Bandera, 210-796-4413

June 12: * "Conservation dogs," retriever demonstration, Lake Arrowhead State Park near Wichita Falls, 817-528-2211

June 12: * Birdwatching walk, Lake Brownwood State Park near Brownwood, 915-784-5223

June 12, 26: * Lost Pines bus tour, Bastrop State Park at Bastrop, 512-321-2101

June 12: * Undeveloped caves tour, Colorado Bend State Park in Llano County, 915-628-3240

June 13: * Plant and wildflower tour, Matagorda Island State Park, 512-983-2215

June 13: * Interpretive horseback riding tour with mount and lunch provided, Hill Country State Natural Area and Running R Ranch near Bandera, call 210-796-3984 for reservations or 210-796-4413 for information only

June 17: * "Lights and shadows" nature photography program, Lubbock Lake Landmark State Historical Park at Lubbock, 806-765-0737



Glen Mills

The popular Twin Falls Nature walks are offered every weekend during June and July at Pedernales Falls State Park.



© Robert Liles

Birding opportunities abound on Texas Conservation Passport outings this summer. Pictured above is a pair of immature great blue herons.

- June 18: * "Call of the wild" wildlife calling seminar, Fairfield Lake State Park near Fairfield, 903-389-2216
- June 18: Western Frontier Day education program, Stevenson Park in Abilene, 915-676-2241
- June 19: * "View of the tunnel" driving tour, Caprock Canyons State Park near Quitaque, 806-455-1492
- June 19: * Nature tour, Matador WMA near Paducah, 806-492-3405
- June 19: * Botany and geology walk, Honey Creek State Natural Area in Comal County, 210-438-2656
- June 19, 27: * Marine ecosystem tours, Matagorda Island State Park, 512-983-2215
- June 20: * History tour, Matagorda Island State Park, 512-983-2215
- June 25: * Deer breeding pen tour, Kerr WMA near Hunt, 210-238-4483

JULY

- July: * Bat emergence to Jr every Thursday and Saturday, Old Tunnel WMA near Fredericksburg, 210-896-2500
- July 3, 17: * Bus tour with chuck wagon lunch, Big Bend Ranch State Natural Area, 915-229-3613
- July 3-10: * "Deer of Fairfield Lake" tour and slide show, Fairfield Lake State Park near Fairfield, 903-389-4514
- July 3: * Hill Country spring and fishery station

- tour, Heart of the Hills Research Station near Ingram, 210-866-3356
- July 3, 10, 17, 24, 31: * Lower Edwards Plateau ecosystem tour, Honey Creek State Natural Area in Comal County, 210-438-2656
- July 3: * "On the wing again" birds of prey demonstration, Lake Arrowhead State Park near Wichita Falls, 817-528-2211
- July 10, 17, 24, 31: * Twin Falls nature trail walk, Pedernales Falls State Park in Blanco County, 210-868-7304
- July 3-4: * Horseback ride and campout, Hill Country State Natural Area, Bandera County, in cooperation with Lightning Ranch, call 210-535-4136 for reservations or 210-796-4413 for information only
- July 4, 25: * Hike and mountain bike trail ride, Devils River State Natural Area near Uvalde, 210-395-2133
- July 5-9: 58th Annual Port Aransas Deep Sea Roundup fishing tournament for charity, 512-749-6339, or 512-749-5919
- July 9: * Deer breeding pen tour, Kerr WMA near Hunt, 210-238-4483
- July 10: * Penn Farm walking tour, Cedar Hill State Park at Joe Pool Reservoir, 214-291-3900
- July 10: * Birding tour, Cedar Hill State Park at Joe Pool Reservoir, 214-291-3900
- July 10: * "Wings on the summer thermals" birding tour and slide show, Fairfield Lake State Park near Fairfield, 903-389-4514
- July 10: * "Deer of Fairfield" tour and slide show, Fairfield Lake State Park near Fairfield, 903-389-4514
- July 10: * Birding walk and hatchery tour, GCCA/CPL Marine Development Center at Corpus Christi, 512-939-7784
- July 10: * Canyonland songbird hike, Hill Country State Natural Area near Bandera, 210-796-4413
- July 10: * Cavern tour and Green Cave bat flight observation, Kickapoo Cavern State Natural Area near Uvalde, 210-563-2342
- July 10: * Birdwatching walk, Lake Brownwood State Park near Brownwood, 915-784-5223
- July 10: * Undeveloped caves tour, Colorado Bend State Park in Llano County, 915-628-3240
- July 10, 18, 24: * Island tour, Matagorda Island State Park, 512-983-2215
- July 10, 17, 24, 31: * Painted bunting bird walk, McKinney Falls State Park at Austin, 512-243-1643
- July 11: * Interpretive horseback riding tour, Hill Country State Natural Area and Running R Ranch, Bandera County, call 210-796-3984 for reservations or 210-796-4413 for information only
- July 14, 28: Cavalry Fun-tier Days outdoor educational program for children, Stevenson Park in Abilene, 915-676-2241
- July 17: * Birding and nature walking tour, A. E. Wood State Fish Hatchery at San Marcos, 512-353-0572
- July 17: * "View the tunnel" driving tour,

**T E X A S
P A R K S & W I L D L I F E**

TELEVISION SCHEDULE

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

CITY/STATION	DAY	TIME
Austin KLRU, Ch. 18		Check Local Listings
Corpus Christi KEDT, Ch. 16	Thursday	7:30
Dallas/Ft. Worth KERA, Ch. 13	Monday, Wednesday and Friday	6:30
El Paso KCOS, Ch. 13	Sunday	11:00
Harlingen KMBH, Ch. 60	Saturday	6:30
Killeen KNCT, Ch. 46	Sunday	5:30
Lubbock KTXT, Ch. 5	Thursday	1:00
Odessa KOCV, Ch. 36	Saturday	7:30
San Antonio KLRN, Ch. 9	Sunday	7:30 a.m.
Waco KCTF, Ch. 34	Thursday	11:30

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

In stereo where available


- Caprock Canyons State Park near Quitaque, 806-455-1492
- July 17: * Birding and nature walking tour, Dundee State Fish Hatchery near Electra, 817-586-1576
- July 17: * Birding and walking nature tour, GCCA/CPL Marine Development Center at Corpus Christi, 512-939-8745
- July 17: * Children's nature walk, Honey Creek State Natural Area in Comal County, 210-438-2656
- July 17: * Birding and nature walking tour, Possum Kingdom State Fish Hatchery near Graford, 817-779-2301
- July 17: * Birding and nature walking tour, San Angelo State Fish Hatchery at San Angelo, 915-653-2977
- July 17: * Birding and nature walking tour, Tyler State Fish Hatchery at Tyler, 903-592-7570
- July 17: Endangered species slide show and presentation, Honey Creek State Natural Area in Comal County, 210-438-2656
- July 24: * Lost Pines bus tour, Bastrop State Park at Bastrop, 512-321-2101
- July 25: * Island history tour, Matagorda Island State Park, 512-983-2215
- July 29: * Predator calling workshop, Possum Kingdom State Park near Graford, 817-549-1803
- July 31: * Tour of undeveloped Tawakoni State Park site at Lake Tawakoni, 903-425-2332

Bill of Fare

A unique beak
allows the
black skimmer
to catch a meal
on the wing.

by Janet R. Edwards





Moonlight shimmers on a shell-strewn beach. A wave breaks, casting foam in layered sheets across the sand.

Kak, kak, kak, kuk, kuk, kuk, kaup, kaup. The faint, guttural barks send shivers through the salty air. You know they're birds, but on this Texas coastal island's lunar landscape, it's easy to imagine the dark, streamlined silhouettes to be a gathering of extragalactic visitors.

Even by the light of day, the curious notion lingers, for the black skimmer is a bird that doesn't look as if it belongs. Its wings seem too long, its legs too short, with a neck too thick and a bill too broad and thin. But when this bird does its spectacular aerial grocery shopping, the total picture of an organism occupying its own ecological niche far exceeds the sum of its extraordinary parts.

With the grace and skill of a fighter plane, the skimmer descends to within inches of the water's surface. Dipping its lower bill, the bird slices a long line that generates a fine, rippling wake. Circling back, the skimmer descends once more, cutting another furrow in the same section.

Payoff comes with a punishing price. As the lower bill makes contact with a fish, the bill springs shut like a mousetrap, causing an abrupt head dunking. Strong neck muscles absorb the shock and pull the prey clear of the water where it is swallowed in flight. Wings held high and dry, the ballet resumes.

A close relative of gulls, terns, plovers and sandpipers, the black skimmer is only one of three skimmer species found in the Americas. Its range includes coastal areas and riverine marshes from Massachusetts south to Argentina on the Atlantic Coast, along the Gulf Coast to Texas and from southern California south to Chile on the Pacific Coast.

Common names such as cutwater, knifebill, scissorbill and shearwater probably originated from the skimmer's novel fishing technique. Other common names include sea dog and storm gull. Because it allows food to be located by touch rather than sight in typically murky coastal waters, this specialized fishing behavior is highly advantageous. No other bird in the U.S. feeds this way. But then again, no other bird, with the possible exception of the flamingo, has the remarkable adaptation of a seemingly upside-down bill.

Fully a third longer than its upper counterpart, the black skimmer's sensitive lower mandible grows continuously to help counteract the wear and tear of skimming. From the side, both halves are broad and flat. Yet viewed from the front, they're so thin they're hard to see. Water pressure on the lower bill helps maintain a wide gape that keeps the upper bill free of the water's surface, while strong muscles wield a vise-like grip on slippery prey. When closed, a groove in the lower bill acts like a partial sheath for the top bill, providing a snug fit.

But does this unorthodox feeding technique really work?

"The skimmers have a trick that nobody else has," said Johnny French, senior staff biologist with the U.S. Fish and Wildlife Ecological Services Office in Corpus Christi. "You can't always tell how successful they are with skimming, but we have three reasons to think they do quite well.

"First, they are well-designed for it. Second, while most species have at least two or three competitors, no other bird



© Joe McDonald

feeds like the skimmer. Third, the species has been around a very long time and we see them repeat this feeding behavior on a regular basis."

A long wingspan, which in males may reach 50 inches from tip to tip, might seem to be a serious liability for flight at such low altitudes. Ironically, it cuts the skimmer's in-flight energy expense by nearly 50 percent. Turbulent air produced at the edge of a wing in flight will normally slow forward motion. However, an aerodynamic phenomenon known as "ground effect" tends to smooth and draw away this disturbed air when wings travel within inches of an inflexible surface, such as water. Giving added lift is the "downwash effect"

produced when air beneath the wings becomes slightly compressed. When the black skimmer's bill connects with a food item or collides with underwater clutter, the tail feathers fan out and brake briefly, while the wings flutter to keep the bird in flight.

Skimming usually is more productive in the early morning and late evening in shallow areas where the water is calm. Catches of worms and small crustaceans supplement a diet of fish. But with hungry young calling on the nest, the birds will skim all day, regardless of wave conditions. Even nocturnal skimming is possible for this water bird, because of its cat-like pupils. At full circle, these ocular openings give the

skimmer better vision in dim light. Narrowed to vertical slits, they cut out glare in bright sunlight.

Sociable year around, the black skimmer feeds, nests and roosts in colonies on sand and seashell beaches near salt marshes, coastal lagoons, bays, estuaries, brackish rivers, undisturbed Gulf beaches and channel islands, often in the company of terns and other water birds. In fall and winter skimmers congregate in large numbers, at times wheeling together across the sky in synchronized flight. They normally feed alone or in pairs, but when a school of fish moves near the surface, groups of 10 to 15 birds may gather for a brisk bout of communal skimming. Rarely do they swim or dive for food. Only during hurricane season, from July through September, do the skimmers visit inland waterways and they almost never venture out to sea.

The black skimmer's striking plumage that makes it a favorite subject of wildlife photographers also makes it easy to spot, even in a mixed flock of waterbirds. A black cape like that of a masked bandit covers the eyes, head, back and wing tops. The lower face, neck, chest and underwings are white. The bill is two-toned red and black, while the legs and webbed feet are red-orange.

Skimmers reach sexual maturity by the age of three to four years. Breeding behavior can begin in early April and nesting may last until early fall, a period much longer than that of terns and gulls. Proper nursery areas are hard to find, a fact that may explain why colony sizes can range from only a few pairs to

Like so many long-billed penguins, skimmers' black-and-white plumage makes them a favorite of outdoor photographers. The sociable birds roost and nest in colonies, but normally feed in pairs or alone, such as the solitary skimmer on the previous page. The beach-colored eggs and chicks blend in with their backgrounds. Chicks that break and run negate their camouflage and become easy targets for predators.

a thousand or more.

"They prefer sandy, sparsely vegetated spoil or natural islands for nesting because of the protection such places offer against predators," said Emily Payne, former Audubon Society warden and sanctuary manager for South Bird Island on the Laguna Madre. "Skimmers avoid highly vegetated areas because they must be able to see predators approaching and take off if danger threatens."

Plumage is almost identical in both sexes, with hormonal surges during the breeding season producing more brilliant shades of red in the bill stripe. However, the male easily is identified by his size, which may be 25 percent larger than the female.

Both males and females engage in aerial acrobatics, aggressive territorial disputes and competition for mates, which ultimately lead to a bond that lasts for life. After an exchange of dog-like yelps, the male offers a gift of fish to the female, followed by mating and a wing-flapping display. This noisy, highly visible behavior may stimulate breeding in nearby pairs so that nesting can begin at about the same time throughout the colony.

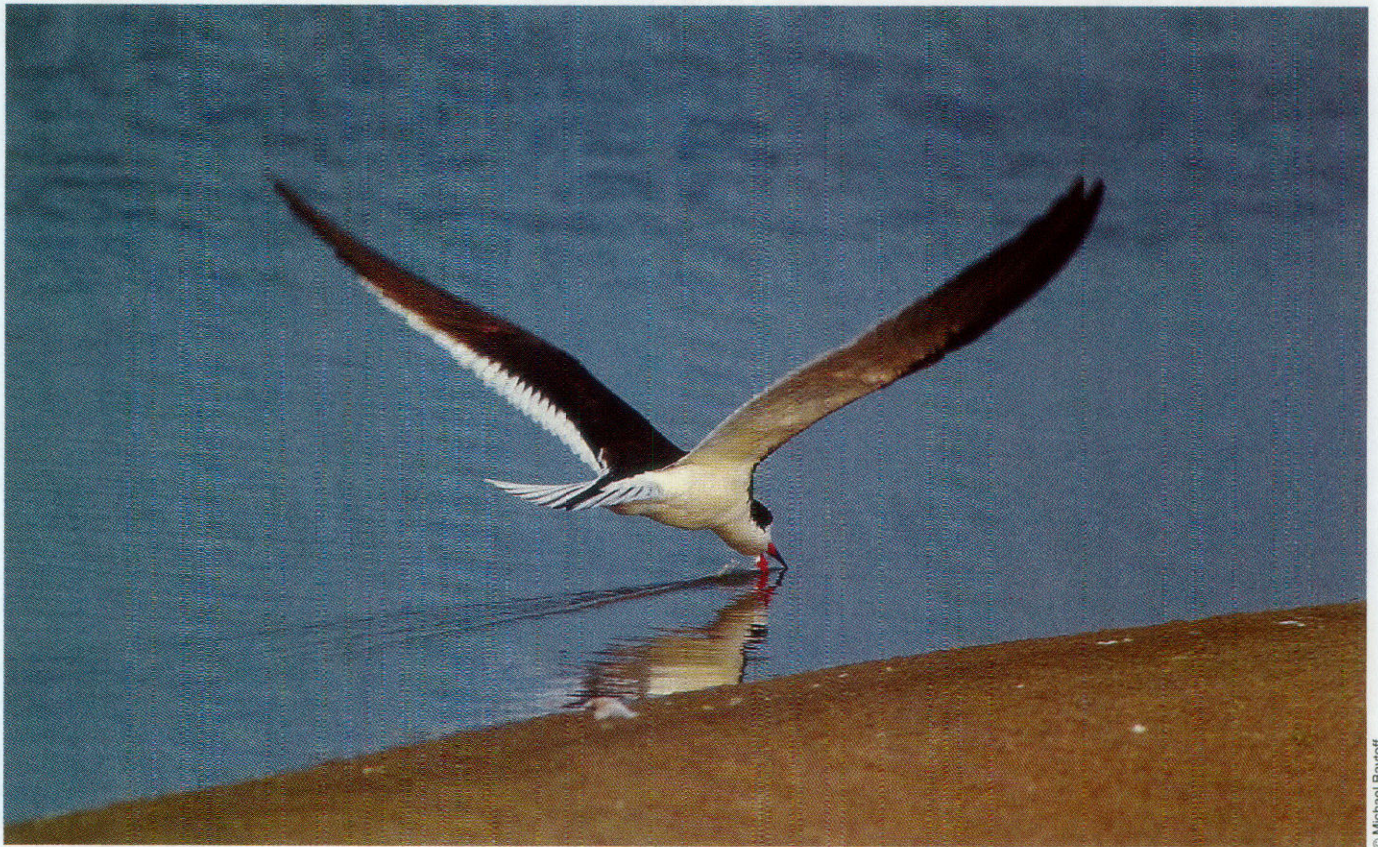
Shorebirds generally nest on or near the ground close to water, and the black skimmer is no exception. Depending on the terrain and vegetation, nest sites are spaced an average of six feet apart. A model of domestic simplicity, the skimmer nest is no more than a shallow depression or scrape in the sand. About two inches deep and eight inches wide, the nest may be marked by grooves where the adult bird rests its bill.

Parents take turns incubating two to five ivory-colored, black-spotted eggs that soon appear. Although males and females spell each other frequently on the nest, males incubate the eggs more than females. In the heat of day, both parents frequently dip their feet and bellies in nearby shallows to cool them.

The first egg in the clutch will hatch within three to four weeks. However, eggs are laid over a period of days and seldom hatch at the same time. Nursery duties may include protecting unhatched eggs as well as feeding baby chicks of different sizes, which the female usually does. Able to walk around within 12 hours, the nestlings instinctively crouch on the sand or burrow flush with the surface at the first sign of danger. Their downy, buff-colored coats blend per-



© Emmeos



© Michael Bayroff

fectly with their sandy surroundings, making them as invisible as a piece in an island-sized jig-saw puzzle. Chicks that panic and run become easy targets for coyotes, raccoons, snakes, hawks and dogs.

The black skimmer's habit of nesting with terns seems more than accidental. Warned by the terns' raucous call when a predator or human approaches, skimmers first will sit tight, waiting to see if their smaller, more aggressive neighbors can drive the intruder away. If the threat persists, the skimmers will take flight, returning moments later to make a low sweep, but seldom to strike. Unlike terns and gulls, the skimmer may pretend to have a broken wing, hoping to draw attention away from the nest. If successful in its dramatic hoax, the parent quickly flies away to safety.

Although a highly skilled and agile fisherman on the wing, the adult's long lower bill makes collecting food on foot from the beach or water a difficult task. Only by twisting its head at almost a 45-degree angle can it retrieve something accidentally dropped. Feeding the offspring might be equally frustrating, if not for the skimmer chick's innate ability to peck its food like a domestic chicken, along with a delayed lengthening of its lower bill.

For the first two weeks, the nestlings' loud squawking and vigorous body language stimulate the parents to regurgitate food on the sand. But as the chicks begin to feather out, their diet is upgraded to whole fish. Plucked from the parent's bill, the meal can be swallowed headfirst. By the end of four weeks the chicks are fledged, their feathers marked with mottled stripes of brown and black. Although they may be able to fly, their parents continue to feed them until they perfect their skimming skills.

Nesting is completed by mid-October. The skimmers stay together in loose-knit groups, flying south over major river systems and coastal waterways to areas where food is more plentiful. They sometimes range as far as the Yucatan Peninsula and nearby islands. If the weather is mild, skimmers may winter on the Texas coast. Like other water birds that feed on a variety of organisms in shallow coastal waters, Texas populations of black skimmers have suffered significant setbacks in recent years, for reasons that are only partially understood. "The black skim-

Feeding is most productive in shallows during the early morning when the water is tranquil. A skimmer's nest is no more than a shallow depression in the sand to hold eggs and chicks. Parents will feed the chicks until the young birds learn the trademark skimming skills.

mer is not listed as an endangered species," said Mike Lange, wildlife biologist for U.S. Fish and Wildlife Service at the Brazoria National Wildlife Refuge, "but recent data show an overall decline in their numbers. In 1974 there were an estimated 11,731 pairs on the Texas coast. By 1986, that number had dropped to 5,342 pairs. In 1990, the most recent year tabulated there were 8,484 pairs."

No one is certain what might have caused the dramatic dip in the mid-1980s, but the persistent, overall reduction surely warrants at least cautious speculation.

"In my opinion, there are two major factors involved in the decline of black skimmers—increased disturbance by people and loss of good nesting sites, including construction of fishing cabins in areas like the Laguna Madre and Bastrop Bay," said Lange. "But it's also interesting to note that coastal species

increasing in numbers, such as the brown pelican and royal tern, are birds that feed in open water. Species declining in numbers, such as the reddish egret, white ibis and black skimmer, are birds that feed in marshes and shallow water.”

It’s likely that a combination of deteriorating environmental conditions is to blame—domestic, industrial and agricultural pollution, drought conditions and damming of rivers that reduce the influx of nutrients and sedimentation needed to replenish food chains in wetland ecosystems, disturbance by man during the nesting season and the loss of prime nesting sites.

Driven from smooth, sandy beach fronts and estuarine sandbars along the Texas coast, the skimmer often has had to settle for spoil islands created from

regular dredging of the Intracoastal Waterway and related channels. Although these barren islands initially are hospitable to the black skimmer, three factors may conspire to interfere with reproductive success.

“Once the rains leach the salt out of spoil islands, vegetation begins to grow very rapidly, sometimes before nesting is completed,” said Payne. “We have tried resalting, but it doesn’t work because the plants are extremely salt-resistant. Herbicides can’t be used because they would pollute the marine environment, and burning the plants only makes them grow back faster and thicker than ever. Adding another layer of spoil material is best, but bringing heavy equipment into shallow water makes the job impractical.”

Heavy summer rains may collect in the scrapes, drowning birds whose eggs are not completely pipped (opened). The water may turn the spoil into slippery mud, letting the eggs wash out to sea. As it dries, the mud gets sticky and then hard, sometimes fatally immobilizing incubating eggs. Should luck hold out and none of these things occurs, constant barge traffic may cause the spoil area itself to erode and disappear over time.

To make things worse, careless fishermen and even well-meaning birders sometimes come ashore on rookery islands, causing the parents to leave their chicks exposed to the summer sun, rival birds and predators. Signs recently posted by the Texas Parks and Wildlife Department on nesting islands from Baffin Bay to San Antonio Bay now clearly remind everyone that it’s illegal to land a boat or enter a nesting area.

Greater numbers of people flocking to the Texas coast each year mean continued competition by the birds for nesting sites, but the feisty skimmer doesn’t give up easily. Taking squatter’s rights, the birds squeeze onto narrow strips of sand alongside coastal highways and bridge causeways or even crushed oyster-shell parking lots. They endure the perils of noise and air pollution as well as the high probability of getting run over.

The TPWD, USFWS and volunteer groups such as the National Audubon Society are taking the lead in trying to protect established rookeries and develop new ones. Regularly maintained fences and posted signs help keep out car and foot traffic in vulnerable beach nesting areas, and businesses sometimes ask their employees to park their cars elsewhere when skimmers arrive to set up housekeeping.

Doing things differently can have distinct advantages in a competitive world. And when we watch the black skimmer slice a living from the surface of our coastal waters, we realize that what at first seemed alien is nothing less than truly awesome. ★

A freelance writer in Corpus Christi, Janet Edwards is a bird enthusiast and a frequent contributor to the magazine on a variety of subjects.





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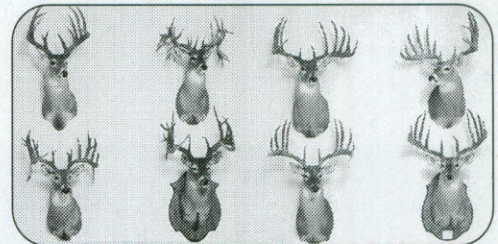
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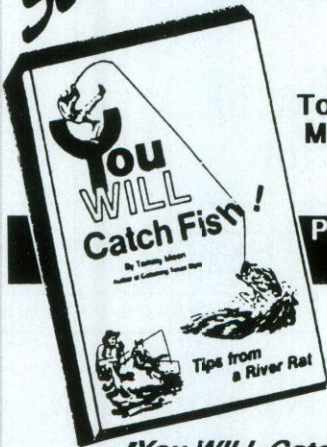
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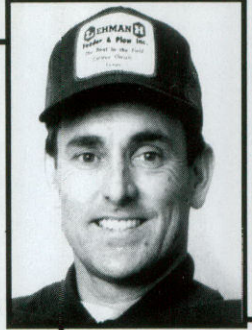
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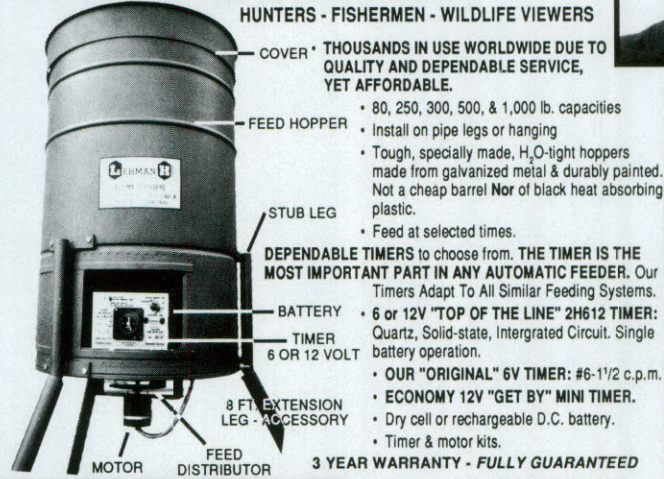
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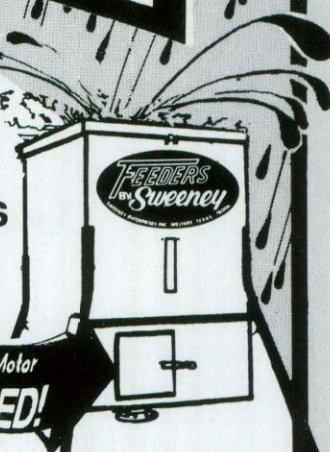


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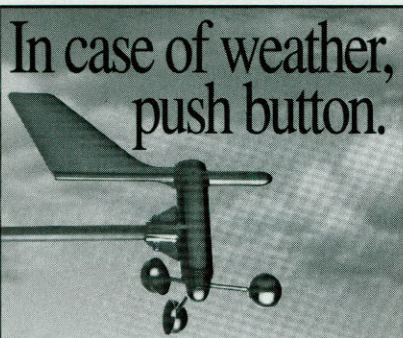
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Project leader Dr. Chris Henry of the University of Texas Bureau of Economic Geology, seated above, inspects and identifies rocks associated with the Solitario Crater in Big Bend Ranch State Natural Area as Adventures team participant Jesse Keck of Iowa City, Texas, looks on.

(Continued from page 35)

there like poorly hidden Easter eggs.

These particular xenoliths came from the earth's crust, Henry said. Until we discovered them, no one knew they occurred in this formation. We carefully wrapped them in toilet paper (a field geologist's staple) and stowed them in canvas bags for the trip back to headquarters. Henry was beaming.

We did as well on the fossil hunt the next day in the Lefthand Shutup. In that canyon, one of three leading into the Solitario, we saw magnificent layers of Cretaceous limestone uptilted and leaning like books falling over on the shelf. From them we extracted dozens of fossilized remains of ammonites, snails, oysters, clams and foraminifera, about half of which had never before been documented for the Solitario, and even a few of which turned out to be new species.

As our adventure drew to a close, we gathered one evening around a log fire in the common room to talk about the program and the future of the natural area. A few rags of the morning's snow, the season's first, clung to the leaves of yucca and prickly pear outside. It was cold and dark out there and warm and cozy in here—a good time for a powwow.

We debated. Should hunting be al-

lowed here? If so, what kind and how much? Should the gates be unlocked? What kind of "development" (that loaded word) is needed? Should the ranching operation continue? If so, at what level? How do we protect the archeological sites? Should this particular program be repeated? How can it be improved? What other programs will work?

We went on for a long time, at times hotly debating a point, yet unanimous in affirming that something vitally important had happened to us here, that we had come to understand a great many things about natural processes and the interrelationships of people, earth, livestock, climate, soil, rocks, trees, grass and wildlife.

And one thing more. We understood that no matter where we disagreed on details of a management plan, we knew that this land was a priceless treasure that had to be protected and restored.

Chris Henry said it best that night: "We live in a world of cities where children grow up and never see a wild place like this. If we don't take care of the Big Bend Ranch and other places like it, where will people go in the future to learn how things work in the natural world?" ☆

Jean Hardy is a freelance writer and photographer based in Houston and Marathon.



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O U T D O O R R O U N D U P

P&W Foundation Sets Conservation Initiatives

The Parks and Wildlife Foundation of Texas, Inc. has announced plans to protect bottomland hardwood forests, improve marine and freshwater fisheries, enhance wildlife habitat on private lands and promote conservation education. The nonprofit corporation was formed in 1991 to support the Texas Parks and Wildlife Department.

"We recognize that the private sector has an important role to play in protecting the cultural and natural heritage of Texas," said Edwin L. Cox, Jr., foundation chairman. "The need for protecting this heritage is so great that it exceeds the capacity of government to meet the demand. We as an independent foundation can move quickly with private dollars to help build a long-term support system for conservation in Texas."

Foundation priorities for the 1990s include:

Bottomland Hardwoods Forests Conservation

Texas has lost an estimated 75 percent of its historic bottomland hardwood forests, some of the most biologically diverse ecosystems in the nation. The foundation is considering a project to protect 4,938 acres along the Sabine River in East Texas, one of the largest intact bottomland tracts remaining in Texas.

Private Lands Enhancement

With a \$500,000 challenge grant from the National Fish and Wildlife Foundation, the department has launched a major expansion of existing efforts to help private landowners improve wildlife habitat through voluntary partnerships. Since 97 percent of the land in Texas is privately owned, these partnerships are critical to protect wildlife resources in the state.

Conservation Education

The foundation plans to work with other governmental agencies to foster education in conservation science and resource management. These efforts will include special youth and minority scholarships for outstanding students in conservation law enforcement, wildlife management, ecology and related fields.

The foundation made headlines in October 1992 when it chose Athens as the site for the new Texas Freshwater Fisheries Center. Athens submitted the winning bid of \$4,063,000, one of the largest contributions ever made to a conservation project in Texas. The facility will increase hatchery production and also generate an estimated \$7.5 million in annual tourist spending.

Matagorda Island Ferry Offers Shuttle Service

Hustler Marine Services of Port O'Connor is in full operation, shuttling visitors to Matagorda Island State Park and Wildlife Management Area. The ferry will run Saturdays and Sundays through October as well as July 4th and Labor Day.

During September and October, the ferry will leave Port O'Connor at 8 a.m. and 10 a.m. on Saturday. It will return to port at 5 p.m. On Sundays, the ferry will leave port at 10 a.m., returning at 5 p.m. During June, July, August and the holidays, the ferry will leave Port O'Connor at 8 a.m. and 10 a.m. on Saturdays and Sundays. Return trips are scheduled for 3 p.m. and 5 p.m.

A minimum of 10 passengers is needed before a run will be made during summer and fall. From November through February, the ferry will operate only for scheduled tours or groups with a minimum of 20 people.

The shuttle service gives easy access to one of the state's most interesting areas. The island is outstanding for birding, fishing, shell collecting and history. Once on the island, visitors can take a department shuttle to the Gulf side. Many island visitors enjoy bringing bicycles for cruising the beach and visiting the historic lighthouse.

Admission is \$12 for anyone over 12 years old. The fee is \$6 for those under 12. School groups will be charged \$4 per person. More trips will be scheduled if necessary, said Ronny Gallagher, park superintendent.

For information or reservations on the ferry, contact the park at 512-983-2215. Check the park for scheduled

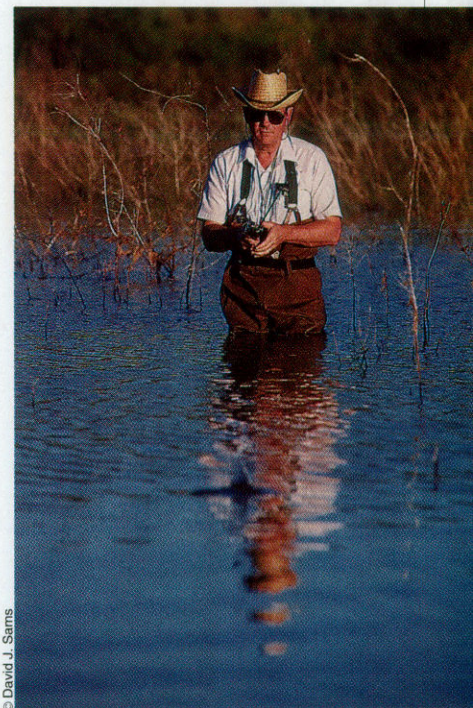
Texas Conservation Passport tours.

New Lake and State Park To Serve North Texas

People living in the Dallas/Fort Worth metroplex have a huge new playground just north of them near Denton. Ray Roberts Lake offers not only great recreational opportunities, it also is expected to be a significant source of tourism and economic development for North Texas.

The 48,000-acre project features a 30,000-acre lake surrounded on all sides by 18,000 acres of recreational parkland and wildlife management area where the public can boat, swim, hike, hunt and fish. This means that all the lake shore property is protected by state ownership from development.

The Ray Roberts Lake project, which features two state park units and six satellite park/boat ramp areas, will open in stages over the next few years. The



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Isle Du Bois State Park near Denton is gateway to a wide variety of recreational opportunities, including fishing, at the new Ray Roberts Reservoir.

1,397-acre Isle Du Bois State Park unit on the lake's southern shore opened for day use on March 19. Isle Du Bois offers camping, picnicking, swimming, boat ramps and trails for hiking, biking and horseback riding.

The park is located on FM 455 just off I-35W north of Denton. For more information on Ray Roberts Lake, call Randy Bell, park manager, at 817-686-2148.

Lunker Program Moved To P&W Foundation

The Operation Share A Lone Star Lunker program has been renamed Share A Lunker, Inc. and is operated by the Parks and Wildlife Foundation of Texas, Inc.

The Boards of Trustees of Share A Lunker, Inc. and Parks and Wildlife Foundation of Texas, Inc. have given unanimous consent to plans to house the operation of the lunker program at the new Texas Freshwater Fisheries Center to be built in Athens.

The changes were made in name and operation to allow close coordination of resource use and development of the

program, said Kurt Kalkomey, board president of Share A Lunker, Inc. "This is an unusual opportunity for growth in the Share A Lunker program, which continues to be aimed at promoting education and genetic research to increase the production, size and quality of Florida largemouth bass."

The lunker program accepts largemouth bass weighing at least 13 pounds caught from December 1 through April 30 each year. The fish are studied and allowed to spawn, if possible. When the department is finished with the fish it is returned to the angler, who usually releases the fish back into its lake of origin. The angler receives a fiberglass replica of his catch.

"This affiliation will broaden and expand the potential to develop the Share A Lunker program, thus enabling future program goals to be met," he said. "We are looking forward to the opening of the center."

Red Drum Bag Limit Remains the Same

The Texas Parks and Wildlife Commission during March voted to keep the

red drum bag limit at three per day for 1993-94, in response to testimony from anglers wishing to retain the more conservative regulation.

Department data indicate that coastal populations of red drum have made significant recoveries from previous natural disasters and overfishing, said Gene McCarty, coastal fisheries branch chief, explaining why the department was asking for an increase in the bag limit from three red drum per day to four. "Coastal fisheries data indicate that spawning success, relative abundance of sub-adults and the escapement of red drum to the Gulf spawning stocks have all increased. This moderate liberalization is justified to increase recreational opportunities without jeopardizing long-term health of the red drum fisheries."

However, during the public hearing process, 46 of 63 comments received on the subject were against increasing the bag limit. "Based on the lack of public support, staff recommended withdrawing the proposal," McCarty said.

The length limit for red drum taken in salt water also will remain the same for 1993-94. Only red drum between



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OUTDOOR ROUNDUP

Continued

the lengths of 20 and 28 inches may be retained.

For details on all fishing regulations going into effect on September 1, 1993, anglers should consult the free Texas Fishing Guide, available during August from department offices and sporting goods outlets.

Record Deer Highlight Big Game Awards

The Texas Big Game Awards program received more than 1,300 entries in 1993, including more than two dozen animals that had Boone & Crockett qualifying scores, completing what has been the finest Texas deer hunting season in memory.

The Texas Parks and Wildlife Department, which is sponsoring the program with the Texas Wildlife Association, received 1,317 entries—1,031 scored entries and 286 entries from hunters who killed their first deer

or antelope. The scored entries included 896 white-tailed deer, 71 mule deer and 64 antelope.

Last year's initial contest drew 833 entries, including 550 white-tailed deer, 93 mule deer and 25 pronghorn antelope in the scored entry categories and another 165 entries in the first animal category.

Deer Bag Limits Reduced In Several Areas

The Texas Parks and Wildlife Commission has adopted white-tailed deer regulations that are more conservative than originally proposed for the Pineywoods and Post Oak regions, allowing TPWD staff to continue work on a new antlerless permit system based on available habitat.

Commissioners also approved regulations increasing the bag limit and hunting season in some South Texas counties as well as a number of other wildlife-related regulations.

The majority of the 75 counties in the Pineywoods and the Post Oak became "buck only" counties, with the taking of antlerless deer allowed only through permits issued by the department. Other counties with a three-deer bag limit would have either two, six or 16 doe days—days where a hunter is allowed to take either sex, beginning with the first day of the season—or a full season of either-sex hunting.

The new permitting system for doe harvest is called the Landowner Assisted Management Plan and Permitting System (LAMPPS). The idea of the system, said Dr. Rudy Rosen, director of the Fisheries and Wildlife Division, is for individual landowners or "cooperatives" to provide specific information that will allow department biologists to determine an approximate habitat value of an individual property to deer. Permits will be issued to the landowner based on this landowner-provided information in combination with TPWD deer population survey data and past harvest information.

All regulation changes are effective on September 1. Hunters should obtain a free 1993-94 Texas Hunting Guide for details on hunting regulations. The guides will be available during August at department offices and sporting goods outlets.

Angling Events Added To Wildlife Expo '93

Texas Wildlife Expo's inaugural event in 1992 was a successful effort to salute the role of hunters in wildlife conservation and environmental protection. Texas Wildlife Expo '93, set for October 1-3 at Texas Parks and Wildlife Department headquarters in Austin, has been expanded by one day and will include a variety of activities recognizing the contributions of fishermen to the state's fishery resources.

The three-day celebration will open Friday evening, October 1, with a celebrity sporting clays shoot followed by a banquet with Dallas Cowboys owner Jerry Jones as keynote speaker.

On Saturday and Sunday, angling enthusiasts will be able to view the Share A Lunker Foundation's display of fiberglass replicas of the largest bass entered in the lunker program during the past six years. Bass anglers have loaned more than 100 largemouths weighing more than 13 pounds each for research and hatchery production. Most of the fish were returned to the lake where they were caught, helping to promote the catch-and-release concept.

Also at Texas Wildlife Expo '93, the Share A Lunker Foundation's "Hawg Trough" will feature fishing demonstrations by experts, using a huge aquarium trailer stocked with a variety of game fish.

Other fishing-related activities include a youth fishing derby sponsored by the Texas Association of Bass Clubs and a youth casting clinic sponsored by Zebco Corp. Also, many of the 300-plus booths and exhibits will feature fishing information and equipment.

Many of the hunting-oriented events and displays that were popular last year will return, including turkey and deer calling, wild game cooking and a wide variety of visitor participation events in archery, muzzleloader, skeet and air gun shooting. John Karger also will return with his live raptor demonstrations, game wardens will stage their entertaining "who dunnit" camp and youngsters will compete for lifetime hunting and fishing licenses in a statewide poster, essay and poetry contest.

The TPWD headquarters complex is located at 4200 Smith School Road in Southeast Austin. For more information write to Texas Wildlife Expo '93, P.O. Box 17991, Austin, Texas 78760, or call toll-free 1-800-792-1112, ext. 4472, or 512-389-4472.



Entries into the Texas Big Game Awards program this year reflected the success of hunters taking record-sized whitetail bucks during the 1992-93 season.

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