TEXAS PARKS & WILDLIFE

JUNE 1990


"I could have sworn this suit had pockets."

TEXAS PARKS & WILDLIFE

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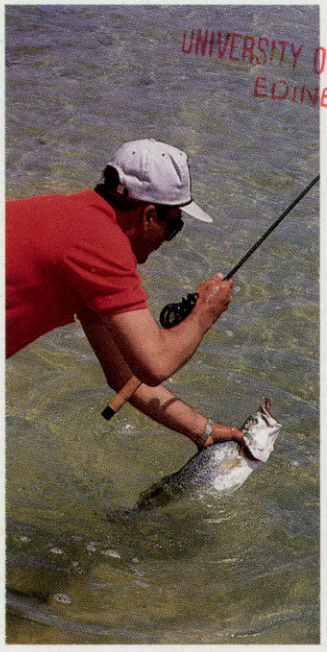

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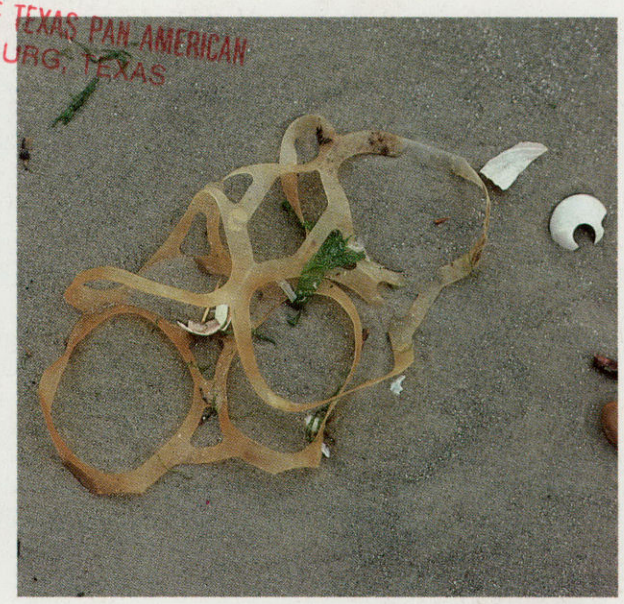

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COVERS—**Front and Back:** Perhaps only an angler can fully appreciate the serenity of daybreak on a favorite fishing lake. Freelance photographer Wyman Meinzer captured this scene at a private lake in Knox County, shooting at 1/250 second at f/2.4, Kodachrome 64 film using a Canon F1 camera and a Canon 300mm f/2.8 lens. Enjoy more scenes of summer on page 26. **Inside Front:** The handsome Harris' hawk is one of many bird species that can be enjoyed at Choke Canyon State Park. (See story on page 12.) Freelancer Leslie Semmelmann used a Canon F1 camera, Canon 500mm f/4.5 lens, 1/500 second at f/5.6, Kodachrome 64 film.

At Issue

I made a trip to Port Aransas back in April to visit the folks at the University of Texas Marine Science Institute for a story to run this fall. They do a lot of interesting work down there, one project is to monitor some seven miles of Mustang Island beach.

Tony Amos of the UTMSI has been travelling this beach for more than a decade, recording what he sees in the way of birds, stranded dolphins and debris both natural and man-made. While I was at the Institute, on-shore winds were especially strong and tides were washing up into the foredunes. After a thunderstorm moved through, the wind and waves abated enough for a walk along this stretch of beach, usually an enjoyable jaunt during the week and before summer vacations fill the beach with people.

Stephan Myers

Last fall volunteers picked up some 219,000 pounds of plastic from Texas beaches. Plastic is made up of long, chainlike molecules called polymers. The length and stability of these polymers make plastic inherently long-lasting.

Rather than people, the beach was filled with junk. There were globs of oil, lengths of hawser and huge pieces of driftwood. Most of all there was plastic—bleach and soft drink bottles, sheets half buried in the sand, six-pack beverage holders and the ubiquitous dark green garbage sacks. One of our stories this month deals with so-called biodegradable plastic and the capital that has been made of it by marketers of those products.

Each fall the Center for Marine Education (CME) sponsors a nationwide beach cleanup. The cleanup in Texas was held September 23, 1989, and according to figures from Linda Maraniss of the Texas office of the CME, 8,751 volunteers picked up 316,000 pounds of trash along Texas beaches, 69 percent of which was plastic. The irony of this noble effort is the trash picked up goes into, you guessed it, plastic garbage bags and on to landfills. This year plans are to give volunteers two bags, one for stuff that has to go to the landfill and a second to fill with plastic that can be recycled.

I'm no better than the next Texan when it comes to using plastics, especially trash and garbage bags. Our tiny yard in Austin is shaded by huge elms and pecans for most of the year, but come October the shade comes tumbling down. We mulch the leaves into the yard, even used to compost them, but after a while they get the better of us and some end up in leaf bags and are carted off to the Austin landfill.

Also while I was at UT's Port Aransas facility, Tony Amos showed me some of the turtles he is rehabilitating for release into the Gulf. Another of our stories this month deals with the Kemp's ridley, an endangered species that has received considerable attention during the past few years by folks such as Tony. We originally planned to run the ridley story last month, but it worked out well in the same issue as the story on plastics since turtles and other marine creatures often are the most harmed by plastics dumped into the Gulf of Mexico. As Tony explained to me, turtles can mistake plastics for food, such as jellyfish, and eat them with often fatal consequences.

Most of this junk, plastic and otherwise, is dumped by boaters, but we all can shoulder a bit of the blame. Plastics are easy. They are easy to make into products we all have come to depend on. Their affordability makes them easy to buy and easy to dispose of and buy some more. Our friends over at the *South Carolina Wildlife* magazine tell me their agency is considering banning styrofoam cups in the department coffee shop. How tough is it to take your own reusable cup into the canteen for morning coffee? Not too hard at all, and I suspect the same goes for a lot of other easy products we use.

Maybe it's just summer, but in looking at the lineup for the August issue we have quite a few stories dealing with water. Next month we take an unusual look at Balmorhea State Park, from beneath the waters of its huge, spring-fed pool. We have a photo selection of other favorite swimming holes, a story on Cypress Creek that runs through the Central Texas town of Wimberley, sunfish, crabbing and just anything else we can get out of the pool.

—David Baxter

LETTERS

Not For the Birds

In "Picture This: Readers' Questions" (April), Mr. Williamson answered a question about using taped calls to attract animals for photography. I would like to expand on his answer, and tell your readers about using calls to attract birds.

Using taped bird voices to attract subjects for photography or any other purpose should be done sparingly at all times and never in the nesting season. Most birds are extremely territorial when nesting, and many species are equally territorial on their winter ranges. When songbirds hear tapes of their calls and songs they read them as rivals in their territory and come out to defend it.

In response to the popular screech owl tape, they rush out to scold and mob a hated enemy. When no rival or enemy is seen, the birds become confused and may be distracted from their daily routine of feeding and resting. Repeated use of tapes amounts to harassment, causing nesting birds to abandon eggs or young and leave the territory. No photo or tick-mark on a checklist can justify that.

Kay McCracken
Corpus Christi

■ Corpus Christi *Caller-Times* readers know Kay McCracken well. She wrote a weekly birding column for that newspaper for 31 years before retiring in February, shortly before her 85th birthday. She also authored a book about eminent Texas birder Connie Hagar and is a charter member of the Texas Ornithological Society.

Texas Pride

I recently ordered two subscriptions to your magazine, one for my 11-year-old nephew Kyle, who loves the outdoors, and one for myself.

Born and reared in Fort Worth, I am currently living and working in Taiwan. When the Chinese people become aware of my home in Texas they automatically call me a cowboy. I laugh and explain that not all Texans are cowboys, just as not all Chinese are Kung Fu experts.

I tip my hat to your smooth and informational writing as well as the down-home style pictures. Thank you for a sensational magazine.

Greg W. Bridges
Fort Worth/Taiwan

An Avid Equestrian

I have taken your wonderful magazine for years, even through my 18 years in the Northwest before moving back home to Texas. I recently let my subscription lapse, but after reading the last issue I have decided to resubscribe since you are going to put more emphasis on parks and history.

As an avid equestrian I am interested in exploring the parks on horseback when possible, but neither your magazine nor others I have read include the availability of horseback riding facilities. There are tens of thousands of horses in Texas and probably enough trailers to haul them all. The horse industry moves a lot of dollars in this country and more and more trails and facilities are being made around the country to accommodate the horse lovers.

Grace May
Hamshire

■ The following state parks have equestrian trails: Caprock Canyons, Copper Breaks, Dinosaur Valley, Hill Country, Lake Arrowhead, Lake Mineral Wells, Lake Somerville, Monahans Sandhills and Palo Duro Canyon. The 11-mile Somerville Trailway that connects the Birch Creek and Nails Creek Units of Lake Somerville State Park is an excellent spot for horseback riding, and both Nails Creek and Birch Creek have equestrian campsites. Other parks with equestrian camping are Caprock Canyons, Lake Mineral Wells and Hill Country. Contact the parks for more information. See the special section in our May issue for addresses and phone numbers of the parks, or call 1-800-792-1112.

Spring and Summer Fawns

The photo of the doe and fawn in the "Springtime" story (April) is beautiful but incorrect. Fawns normally are not born until June or July, some as late as August, considering a normal rut for November and December. This should be a summer photo and not a spring photo.

Mike Saunders
Cotulla

■ Breeding time for white-tailed deer varies from one area to another. It can begin as early as September in the coastal regions; in the Edwards Plateau it reaches a peak in November while in South Texas the peak comes in late November and December. Fawns are born after a gestation period of seven months.

Oxymoron

Your article in the May issue describing the restoration of wildlife in Hopkins County was very interesting, and it's encouraging to see such excellent cooperation among landowners.

I'm writing to suggest a sharpening of your editing pencil. The text included references to "outlaw hunters." If your excellent magazine ever contained a phrase that qualifies as an oxymoron (contradictory terms), this is it! They are criminals, thieves and outlaws, but they are *not* hunters.

Tom Torget
Houston

All Wrapped Up

My wife and I visited our frozen citrus grove at Mission in late December, and on the way back we stopped at Choke Canyon to see how the animals were doing. We found one buck with an unusual problem. I don't know if he got in a trotline, clothes-line, net, or if someone tried to rope him, but he sure got wrapped up. I'm sure he's shed the antlers and the rope by now.

I'm sending a photo of this buck to remind your readers that even our large mammals have their share of trouble with man's carelessness and environmental pollution.

Bill Bell
Tulsa, Oklahoma

Texas Parks & Wildlife 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.

The ridleys may need a miracle to survive.

The Plight of the Parrot Turtles

by Val Waisanen

On a spring day in 1947, Andres Herrera flew over the rugged western coast of the Gulf of Mexico. About 100 miles north of his home in Tampico he found what he was looking for. Below him, covering a mile of beach, were an estimated 40,000 sea turtles in a nesting frenzy, scrambling over rocks, logs and each other to reach the dunes and deposit their eggs.

The Mexican road contractor, pilot and turtle buff had unwittingly discovered the world's only Kemp's ridley nesting beach, and witnessed the anomaly of daylight nesting. The location of the Kemp's natal beach was unknown for so long that its existence—and the turtle's status as a separate species—was in doubt; many thought *Lepidochelys kempi* was a non-breeding loggerhead/green hybrid.

Herrera had a movie camera in the cockpit of his plane and filmed the historic *arribada* (Spanish for "arrival"), but he didn't know how important it was to the scientific community and he made no attempt to publicize his find.

The stretch of beach Herrera filmed is near the tiny village of Rancho Nuevo. The subsistence farmers of the region were not blessed with much in the way of material goods; they did, however, consider themselves blessed, especially on those spring days every year when a north wind blew and the "tortuga lora," or parrot turtle, returned from the sea. It was a spectacle, a holiday and a harvest. Children rode the benign females to the water's edge while men dug the caches of round, resilient eggs.

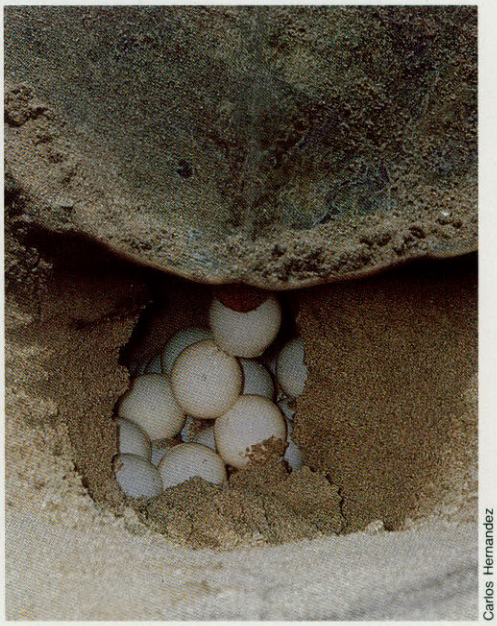
The eggs were an important source of protein for the people and livestock of Rancho Nuevo and the species may have been able to sustain a purely local demand. In time, however, they became a "cash crop." Turtle eggs have long been considered a delicacy, even an aphrodisiac, in Mexico. By the

Stephan Myers

A newly hatched ridley dashes across Padre Island before being recaptured and flown to Galveston for a year of captive care. Biologists hope the beach will "imprint" on the hatchlings, causing them to return there to nest.

Carlos Hernandez

Crews at Rancho Nuevo, Mexico, tag and measure female ridleys when they come ashore to lay eggs (above). After laying the eggs (right) the turtle returns to the Gulf, and crews carefully collect the eggs.



Carlos Hernandez

1950s, buyers from Mexico City and beyond were converging at Rancho Nuevo each year and carrying eggs off by the truckload.

Some turtles were killed for local consumption, but the eggs were more lucrative and less work than butchering, preserving and transporting the meat of an adult. There was no wholesale slaughter at Rancho Nuevo but the egg harvesters were just as surely killing off the species.

Herrera's film languished until 1961 when Dr. Henry Hildebrand, then an associate professor of biology at the University of Corpus Christi, tracked it down. That June, an excited Hildebrand showed it to a meeting of the American Society of Ichthyologists and Herpetologists in Austin, Texas.

It took five critical years, but by 1966 the harvest was over. The Mexican government ordered an investigation and sent biologists to the beach at Rancho Nuevo. Departmento de Pesca, the Mexican Federal Department of Fisheries, gave orders to preserve the species and declared the area a game preserve. The Mexican Marines (la Infanteria de Marina) were charged with enforcing the ruling.

Today, the village of Rancho Nuevo is much the same as it was 30 years ago. Chickens scratch in bare dirt yards and javelinas are penned behind modest homes. The flamboyant tree, an orange-flowering giant, provides color in the drought-stricken landscape. The annual egg harvest is now called poaching; however, only a

small number of nests are lost to human predation. Skunks take a few nests, as do raccoons, coyotes and crabs, but when the wind blows from the north and the "parrot turtles" emerge from the surf they are more likely to meet a four-wheeler and a pair of sunburned biologists than a predator. In the words of Jack B. Woody, the Fish and Wildlife Service's national sea turtle coordinator, the Rancho Nuevo beach "has become one of the most intensely patrolled and actively managed nesting sites in the world."

The first *recorrido*, or beach patrol, is at 6 a.m. There is another at midday and one before sundown. Two teams are scheduled for each patrol; one drives south along the beach, the other heads north. Camp personnel look for nesting females or the telltale tracks from the surf to the "scrabble" of sand that marks a nest. While the turtle is preoccupied with nesting it is tagged, or information from an existing tag is recorded. Then the carapace is measured and dangerous barnacles are removed from the head and shell.

Approximately 40 minutes after landing, the female returns to the Gulf, moving surprisingly fast without

Stephan Myers

Eggs laid by the ridley in Mexico are counted and transferred to a protected corral.

HEART

They are not marine biologists or herpetologists; sometimes they are called "turtle huggers." They are people like Dearl and Ethel Adams, Ila Loetscher and Carole Allen: civilian foot soldiers in the fight to save sea turtles.

Dearl and Ethel Adams transplanted 5,000 ridley eggs between 1963 and 1967. Ila Loetscher, the "Turtle Lady of Padre Island," dresses her turtles, which perform in educational shows.

Scientists cringe at the anthropomorphism and the occasional misinformation, but admit the educational and public relations successes of these committed amateurs.

Patrick Burchfield, North American Group Coordinator and Deputy Director of the Gladys Porter Zoo in Brownsville says, "People like Ila Loetscher and Carole Allen have done more to help sea turtles than any biologist I know."

Carole Allen formed HEART—Help Endangered Animals—Ridley Turtles—in 1982 to help save the endangered sea turtle species. HEART helps support the turtle camp at Rancho Nuevo, Tamaulipas, Mexico, and the Headstart program in the United States. In the past few years HEART contributed $2,000 for the construction of the American barracks at Rancho Nuevo, purchased a four-wheeler for beach patrols, and donated a truck to the turtle camp.

Stephan Myers

A display at HEART's Galveston office contains the names of people who have donated to the ridley project. HEART helps support the turtle camp at Rancho Nuevo and the Headstart Program.

Although cash and vehicles are crucial to the camp, Allen says the educational programs at Rancho Nuevo may be the most important contribution HEART makes. As part of an ongoing educational effort, camp administrator Jose Manuel Sanchez distributes sea turtle coloring books, crayons and pins donated by the Houston-area conservation group to Rancho Nuevo area school children. Allen says: "We are educating the children and grandchildren of people who harvested ridley eggs for food and cash. The children will teach their elders and spread the conservation message."

North of the border, HEART donated $40,000 to build the turtle house at the National Marine Fisheries facility in Galveston. Members also buy turtle food—five tons in 1988—for the hatchlings in the headstart program.

To sponsor a Kemp's ridley hatchling, or for more information, write: HEART of PWWS, P.O. Box 681231, Houston, Texas 77268-1231.

her burden of eggs. For a moment she can be seen in the surf, then she dives and is lost once again to the Gulf of Mexico.

The turtle's mission is complete, but the biologists' work has only begun. All nests must be gently unearthed and the round, soft eggs counted, transferred to a protected corral and reburied. The workers return to camp tired, sweaty and covered with sand. The job would be impossible and unnecessary with *arribadas* the size Herrera found in 1947; however, with only an estimated 500 nesting females alive today, an *arribada* of 100 is significant and all too rare.

The camp, a motley assortment of barracks and thatch-roofed shelters surrounded by a high wire fence, is manned from April through August. It is at the end of a tortuous dirt road about four hours south of Brownsville. Here, each spring since 1978, an international crew has assembled to protect and study the endangered Kemp's ridley sea turtle.

The international cooperation is the result of an informal 1978 agreement between a gamut of Mexican and American fisheries and conservation agencies. The United States bartered research and management assistance for eggs—2,000 to 3,000 per year for 10 years. The eggs were the basis of an experimental effort to establish a second nesting beach at Padre Island.

The Padre Island experiment was

Stephan Myers

Carlos Hernandez

The crew monitors the eggs after they are transferred to a protected corral at Rancho Nuevo (left). The little ridley turtle is about the size of a silver dollar when it breaks through its leathery shell.

Stephan Myers

A tiny tag is injected just under the skin of the turtle's flipper prior to its release. Known as a passive integrated transponder tag (PIT), it is read by passing a sensor over the flipper to reveal a tag number, which in turn indicates when and where the turtle was released. The advantage of the PIT over a metal tag is the length of time it remains with the animal—25 years for the PIT versus two for the metal—an important consideration for such a long-lived species.

THE TROUBLE WITH TURTLES

Quenton R. Dokken

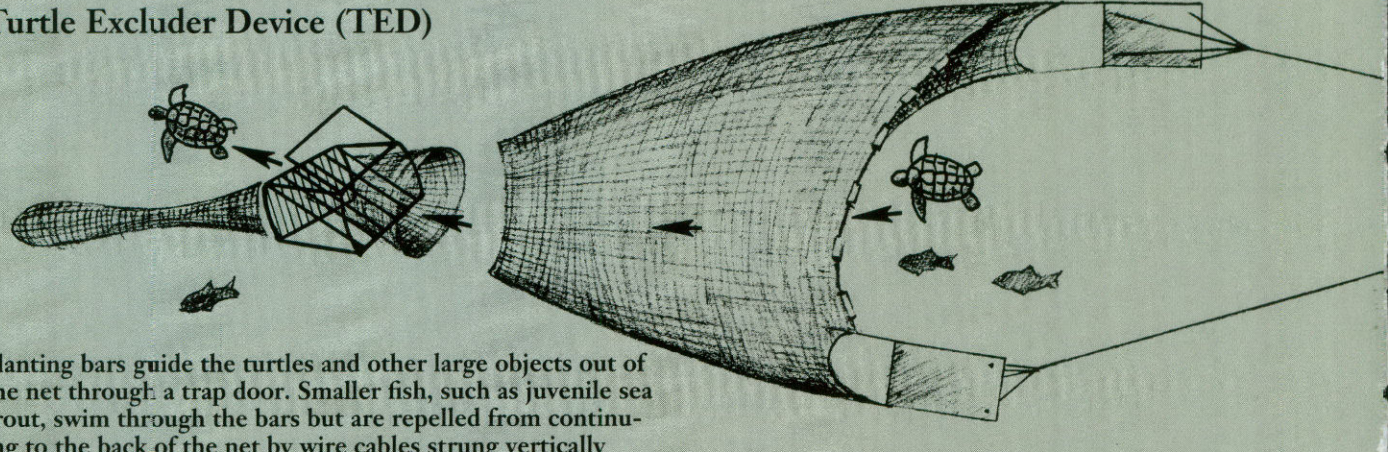
Shrimpers responded to a 1989 announcement that the TED requirement would be enforced with a blockade of major Texas and Louisiana waterways.

Historically, the ridleys' weakest link has been their link to the land. Today, with a protected beach at Rancho Nuevo, they face bigger threats at sea. According to Dr. Henry Hildebrand, the trouble with the ridley is "that it must migrate through the Texas and Louisiana shrimp fleet to reach its feeding area."

The NMFS estimates 12,000 sea turtles drown in nets each year. Gulf Coast shrimpers vehemently beg to differ. They say they seldom catch turtles and there is no need to pull TEDs, variously known as turtle excluder or trawler efficiency devices. Conservationists claim the shrimpers are insensitive to the plight of an endangered species; shrimpers consider themselves a beleaguered group fighting mandatory use of expensive, ineffective, and sometimes dangerous equipment.

The conflict came to a boil July 21, 1989, when the Coast Guard announced it would begin enforcing TED requirements immediately. Department

Turtle Excluder Device (TED)



Slanting bars guide the turtles and other large objects out of the net through a trap door. Smaller fish, such as juvenile sea trout, swim through the bars but are repelled from continuing to the back of the net by wire cables strung vertically behind the TED. Shrimp pass through the cables and are collected at the back.

predicated upon the theoretical answer to an old question: how do the ridleys find "their" beach in northern Mexico after more than a decade at sea? The best guess is that the smell, sight, taste and/or chemical composition of the beach is "imprinted" somehow upon the eggs or hatchlings. The effort to establish a second nesting beach was therefore an elaborate case of switching nests. Eggs destined for the states were caught in sterile bags before they touched the beach at Rancho Nuevo, packed in Padre Island sand, flown across the border and reburied.

Once in place, they were protected from the gauntlet of natural predators by National Parks Service personnel, the Youth Conservation Corps, and dedicated turtle workers under the direction of Donna Shaver, project manager since 1980 and a natural resources management specialist with the National Parks Service.

When the eggs hatched, the silver dollar-size turtles were allowed to make their instinctive rush for the Gulf, hopefully "imprinting" in the process; then they were recaptured and flown to Galveston for a year of captive care and feeding at the National Marine Fisheries Service's "turtle house."

On May 25, 1989, the Padre Island hatching and imprinting program officially ended with the release of 808 plate-size ridleys off the coast of Port Aransas. Although conservationists hope the 14,600 turtles released since 1979 will recall their hatching and brief gambol on Padre Island and return to nest when they reach reproductive maturity, some biologists, including Jack B. Woody, one of the program's founders, have doubts. Can turtles "head started" in four-gallon milk cartons and fed Purina turtle chow adapt and survive in the wild? If they do—and there are post-release reports that document the survival of

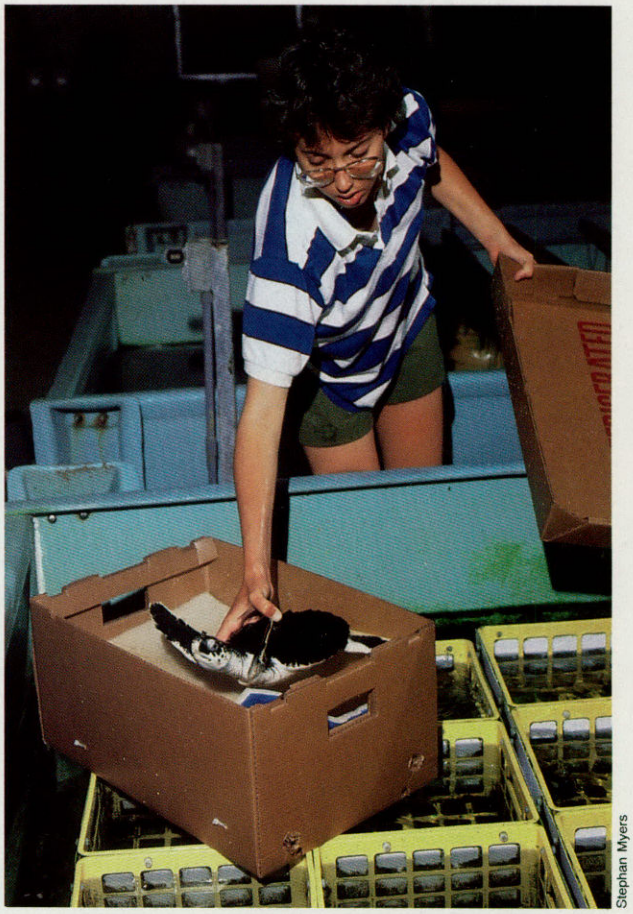
of Commerce Secretary Robert Mosbacher had suspended the requirements earlier in the month and the about-face took shrimpers by surprise. By nightfall the marine band radios forecast action and by morning a 30-hour blockade of major Texas and Louisiana waterways was underway.

At Aransas Pass, the self-styled "Shrimp Capital of the World," shrimpers flew the U.S. flag upside down, the signal for ship in distress. The blockade brought commercial and recreational marine traffic to a halt. The Coast Guard responded, cutting anchor lines and blasting boats with high pressure water hoses. The O.M.S. *Aransas*, an oil rig supply boat, hit two shrimp boats that attempted to block its passage through the ship channel and at least two boats were damaged by the Coast Guard fire. Predictions of violence proved unfounded, however, and the Robinson Crusoe-like blockade ended July 23 after Mosbacher agreed to another meeting with Texas and Louisiana congressional leaders.

The July 24 meeting netted another moratorium on TED enforcement. Shrimp season was barely a week old and Gulf Coast shrimpers hailed the suspension. Tee John Mialjevich, a Louisiana shrimper associated with one of the most outspoken industry organizations, said, "I've been on a trip to happiness."

The National Wildlife Federation and the Center for Marine Conservation were outraged at what they perceived as Mosbacher's "capitulation" to pressure from special interest groups and filed suit, alleging the 45-day moratorium was illegal. On August 4, Federal District Judge Thomas F. Hogan agreed, ruling the Commerce Department had no right to suspend enforcement. The interim rules ended September 7, 1989, and the TEDs regulations went into effect again in Gulf waters on March 1.

Despite the economic hardship of outfitting a shrimp fleet with TEDs, the shrimp fishery has a bigger problem: 75 percent of the shrimp consumed in the United States is imported. Shrimpers may have lost the TEDs battle, but they are lobbying for an import restriction that could help them win the war. * *



Stephan Myers

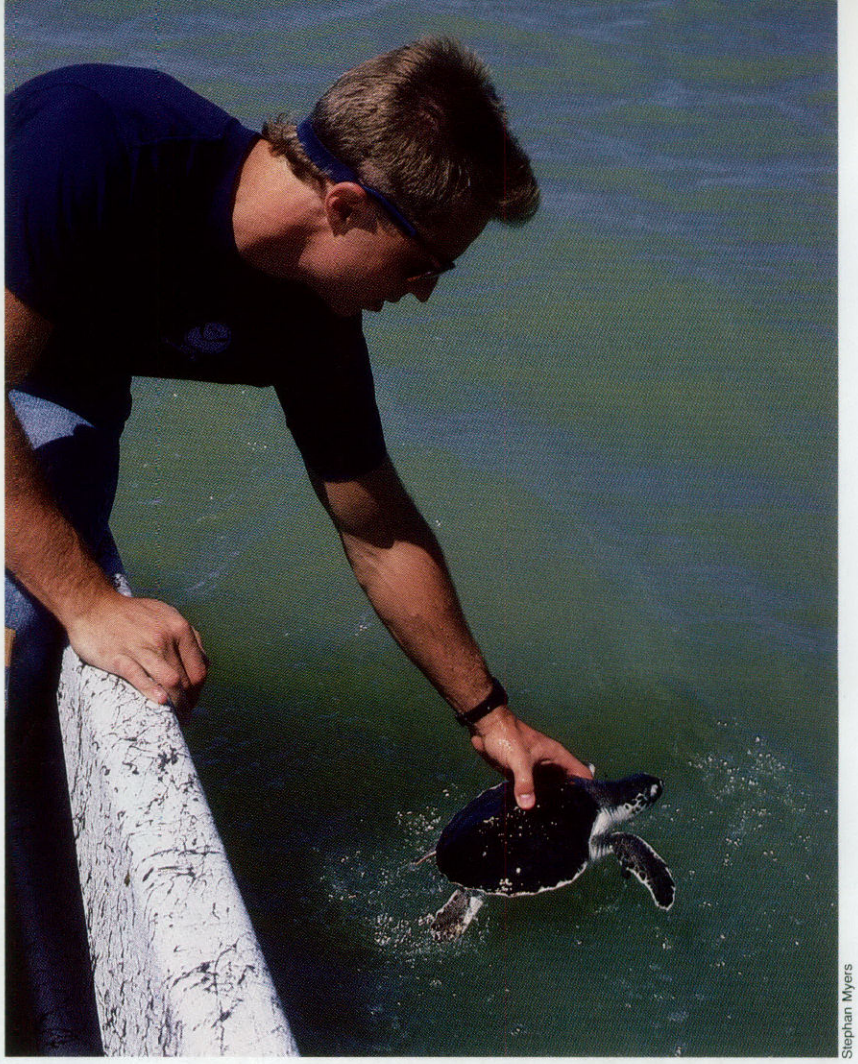
After almost a year in Galveston, the plate-sized ridleys are boxed and readied for release. Releases often receive media coverage, which assist educational efforts on behalf of the endangered species.

at least 600 of them—will they return to Padre or Rancho Nuevo, or will they nest at all?

Although 2,010 Rancho Nuevo-imprinted hatchlings are being fattened in Galveston this year, no more eggs will be imported until these questions are answered. The Headstart and Padre Island imprinting experiments are admitted long shots; with fewer than 500 mature females left in the wild, they are desperate measures for desperate times. Privately, many think the species is doomed, but the National Parks Service stepped up the beach patrols in April.

Certainly, no one will ever see what Andres Herrera saw 40 years ago. Today *one* Headstart turtle nest on Padre Island would be heartening and 20 might prove the program's premise; 1,000 nests would be a miracle, the miracle the ridleys may need to survive. **

Val Waisanen, a freelance science and nature writer, has written the exhibits and coordinated exhibit design and fabrication for the Texas State Aquarium, which opens this month in Corpus Christi.



Stephan Myers

A total of 14,660 ridleys has been released off the coast of Port Aransas since the program began in 1979. Will these headstarted turtles return to Padre Island to nest? Only time will tell.

TURTLES AND TRASH

by Pamela Plotkin

Texas beaches have gained notoriety in recent years for accumulating more trash than any other beach in the United States. Beach users leave some of the trash behind, but the majority is washed ashore after being discarded or lost at sea. Marine debris is transported by prevailing winds and currents that carry virtually all of the trash that is discarded in the Gulf of Mexico (and to a lesser extent the Caribbean) to the Texas coast. Unfortunately, some of the marine debris never makes it to shore because it is eaten by fishes, sea turtles, birds and marine mammals that mistake it for food.

Postmortem examinations of sea turtles found stranded on the South Texas coast from 1986 through 1988 revealed 54 percent (60 of the 111 examined) of the sea turtles had eaten some type of marine debris. Its presence in the digestive tracts of so many sea turtles is indicative of a pervasive problem.

Plastic materials were the most frequently ingested and included pieces of plastic bags, styrofoam, plastic pellets, balloons, rope and fishing line. Non-plastics included glass, tar, cardboard, aluminum foil and stainless steel fishing hooks. The majority of this marine debris is discarded from offshore oil rigs, cargo ships, commercial and recreational fishing boats, research vessels, naval ships, seismic supply boats, and other seagoing vessels operating in the Gulf of Mexico.

Annex V of the International Convention for the Prevention of Pollution from Ships, also known as the MARPOL Protocol, (MARine POLlution) went into effect on December 31, 1988. The MARPOL treaty prohibits the at-sea disposal of all types of plastics and regulates the distance from shore that non-plastic debris may be discarded. Enforcing this law will be difficult at best in so vast an environment; MARPOL is, however, an indicator of growing concern over marine debris and the lives of the animals it claims. **

OTHER SEA TURTLES

by Pamela Plotkin

Four species of sea turtles in addition to the Kemp's ridley inhabit Texas waters. The loggerhead sea turtle, *Caretta caretta*, is classified as "threatened" and is considered to be the most common sea turtle in Texas. Loggerheads spend most of their time in the nearshore waters along the Texas coast, where they feed on crabs and other invertebrates. The majority of our loggerheads are subadult animals that are not yet sexually mature. No one knows for sure where these turtles go when they are ready to breed. Loggerheads rarely nest on the Texas coast.

The threatened green sea turtle, *Chelonia mydas*, once the most abundant sea turtle in Texas, was almost completely fished out during the 1800s when the turtle fishery exploited these animals to make turtle soup. The large, adult-sized greens that were once very common in our waters are now rarely found. Today, our green sea turtle population is made up primarily of small juveniles and subadults. Juvenile greens frequent the rock jetties at the entrance to the passes that connect inland waters to the Gulf of Mexico. There, they feed mainly on the algae that grow along the jetties. The larger subadult greens occur primarily in the bays where they feed on submerged sea grasses. An adult female green nested on Padre Island during 1987, the first confirmed nesting of a green sea turtle in Texas.

The endangered hawksbill sea turtle, *Eretmochelys imbricata*, once considered to be a rare visitor to our area, is in fact fairly common. Every year, currents carry small post-hatchling hawksbills from the Caribbean, Mexico and farther south into Texas waters. During the late summer and early fall, when our southeasterly winds increase in intensity, small post-hatchling hawksbills are often found washed ashore alive on Texas beaches. Juvenile hawksbills are also found in Texas. These juveniles frequent the rock jetties, feeding primarily on sponges.

Very little is known about the endangered leatherback sea turtle, *Dermochelys coriacea*. The leatherback is the largest of the sea turtles, capable of growing as long as seven feet and weighing as much as two tons. Leatherbacks inhabit the deep, pelagic waters of the Gulf of Mexico, but on occasion will swim into nearshore, shallow waters to feed on jellyfish. * *

Pamela Plotkin is working with sea turtles in connection with her Ph.D. studies at Texas A&M University's Department of Biology.

Allan Chaney

Carlos Hernandez

A. F. Amos

D. C. Rostal

The loggerhead (top), classified as threatened, is the most common sea turtle in Texas. The green sea turtle (center), once the most abundant in Texas, was almost completely fished out during the 1980s. The endangered hawksbill (above) is a fairly common visitor to Texas. The leatherback (left), an endangered species, is the largest of the sea turtles.

A Bit of Shade

We were a multi-generational family in search of a bit of shade. After a summer under the scorching gaze of the South Texas sun, our houses were too confining, our nerves were frayed, and our front yards lay bleached and crisp beneath our sandaled feet.

It was clearly time to run away from home, and we decided to run away together. But where could we find an oasis in the heart of these mesquite-studded South Texas ranchlands to escape from the daily grind for a weekend?

Research and democracy guided us to one of the best-kept secrets in Texas, Choke Canyon State Park. Located near the fork of the Nueces, Atascosa and Frio Rivers, the park sprawls across Live Oak and McMullen Counties.

The Choke Canyon Dam and Reservoir Project was initiated in the 1970s by the Federal Bureau of Reclamation and the City of Corpus Christi. The two agencies recognized the opportunity to create an important supplemental water supply for the city and the surrounding region by damming the Frio River in an area where steep banks of rocks form a natural "choke" in the river during floods.

After completion of the dam, the reservoir's fishery, wildlife and parkland resources were placed under the management of the Texas Parks and Wildlife Department and subsequently developed into two separate parks: the South Shore Unit, consisting of 385 acres on the far east end of the park near the dam; and the more highly developed 1,100-acre Calliham Unit, which is centrally located on the lake's southern border. Both developments allow immediate public access to approximately 26,000 surface acres of fresh water pooled from the Frio River.

With a broad range of excellent recreational facilities, Choke Canyon offers something of interest for everyone. The park's fortuitous location in the midst of the 38,000-acre James E. Daughtrey Wildlife Management Area has allowed a surprisingly diverse collection of wildlife to shed much of their natural shyness, making them ideal subjects for the amateur outdoor photographer.

Enjoy water

Grady Allen

by Janet R. Edwards

and wildlife at Choke Canyon State Park.

Choke Canyon Reservoir was created by damming the Frio River in an area where steep rocks form a natural "choke" during floods.

The majority of these animals are most active in the early morning or late evening, and our arrival at the Calliham Unit just before sunset was officially noted by an entourage of velvet-antlered bucks and graceful does. Approximately 100 to 200 whitetails live in the area, including one 16-point buck. Visitors are reminded not to feed the wildlife within the park. Feeding can make the animals more tame and "tame" wildlife can be dangerous. Feeding wildlife can artificially support some species whose population levels within the park are already too high.

The winding park road led through what appeared to our rain-starved eyes to be an oasis. Dense thickets of comparatively lush mesquite and blackbrush acacia, maintained by an underground sprinkler system, serve as an attractive backdrop for Calliham Unit's remarkable selection of modern camping facilities. Most campsites afford an excellent view of the reservoir, which frequently means a ringside seat for spectacular lakeside sunsets that cast delicate pink and lavender hues across the cloud-streaked sky.

The next morning, our sleepy attempts to stretch away the aches and pains of a night spent on the ground drew the inquisitive gaze of a doe and her dappled fawn standing a few yards away. Their nightly foraging had led them right into our campsite.

Completion of the Calliham Unit added 59 camping sites and 20 screened shelters to the number available at Choke Canyon and a tour of Calliham's unique recreational complex shed light upon the real reason for the park's increasing notoriety. The com-

Mike Biggs

Lance Krueger

Vegetation in the park is lush by South Texas standards. These velvet-antlered bucks are part of a large wildlife population that makes Choke Canyon popular among photographers.

plex, located a short walk east from the lake, includes an auditorium with a gymnasium; an Olympic-sized swimming pool and bathhouse; tennis, shuffleboard and basketball courts; and a baseball diamond. A nearby park store is operated seasonally.

The auditorium is equipped with a raised, curtained stage and a pair of well-lighted dressing rooms, flanked on each side by two long rows of smoothly varnished wooden bleachers. This building's suitability for large gatherings is made complete by a connecting dining hall with ample kitchen facilities and outdoor seating.

As we began the short drive to the South Shore Unit, the roadside served once again as a peaceful thoroughfare for a different flock of fauna, the Rio Grande turkey. As if moving to a silent drumbeat, the close-knit group of regal fowl had little trouble gleaning kernels of leftover corn amid the grass, their crimson jowls bobbing comically with each simultaneous thrust of head and scaly talon.

Choke Canyon's array of wild creatures includes roadrunners, American alligators, coyotes, opossums, fox squirrels, raccoons and skunks. The park offers a truly alluring opportunity for camera buffs, with many animals allowing human approach as near as 15 yards or less, a distance well within the range of even the most humble camera. If you run out of film or batteries, plan to pay a visit to one of the park's two stores.

For those interested in ornithology, the park is sometimes referred to as "Bird Nirvana," due to the presence of nearly 200 different bird species. These include the double-crested cormorant, roseate spoonbill, Harris' hawk, ruby-throated hummingbird, golden-fronted woodpecker, Say's phoebe, crested caracara and vermilion flycatcher, which either live in the park or visit during various times of the year.

The reservoir is home to more than

The Calliham Unit's recreational complex includes an Olympic-sized swimming pool and bathhouse; tennis, shuffleboard and basketball courts; a baseball diamond; and an auditorium with a gymnasium.

Grady Allen

12 species of fish, with bass catches frequently reported to exceed 10 pounds. Largemouth, white and striped bass, white crappie, bluegill, longear sunfish, green sunfish, flathead, channel and blue catfish, carp, freshwater drum and gar attract a devoted following of avid fishermen from across the state year around.

The abundance of bait fish, mesquite brush cover, a long growing season, careful management practices and the presence of many submerged stock tanks, which provide an under-

Largemouth bass fishing has been a mainstay of Choke Canyon Reservoir since it opened in the 1970s.

Grady Allen

Lance Krueger

Keith Kingdon

Its location within the James E. Daughtrey Wildlife Management Area gives the park a diverse collection of wildlife. Some of the most frequently seen species are Inca doves (above) and Rio Grande turkeys (left).

water habitat (located near the dam on the more open, eastern section of the reservoir), are factors that will continue to ensure excellent fishing on the lake for years to come.

Snakes, a form of wildlife somewhat less popular than those aforementioned, are found throughout Choke Canyon and occupy important niches in the local ecosystem. However, park visitors should be aware of the danger they may present and should alert park rangers if one is found near camping areas.

"I've seen rattlesnakes out here as long as my desk and as big as my arm," said Superintendent Tommy Hicks. "We even have an occasional coral snake and of course, there are a certain number of water moccasins in the lake. Most of them come out at night when the temperature drops."

The smaller South Shore Unit of Choke Canyon Park, offering 55 well-planned campsites within three recreational areas, was the first of the two units to open, accepting visitors in March of 1986.

"I've had the privilege of opening two brand new state parks," said South Shore Unit Superintendent Lee Escamilla. "I've found that it takes about five years for the public to become fully aware of a new park, especially people who travel the circuit. We are already running 50,000 visitors over this same period last year, which was about 500,000. When the winter Texans find out about us, we'll have more visitors during the winter months."

After a day of water skiing, fishing and relaxing under the shade of one of South Shore's group picnic shelters, we returned to Calliham for another late-evening visit. As we swung north of the trailer dump station, our headlights caught the ruby glow of several dozen pairs of eyes and the trademark outline of dark, crested ruffs. They belonged to a herd of hungry javelina, or collared peccaries, including several tiny young less than a foot in length. Like the deer we had observed the previous evening, the peccaries rooted for their evening meal in the soil along the road's wide, grassy shoulder. The presence of our automobile did not seem to disturb them. The group of 15 to 20 sauntered away only when one of them discovered nocturnal insects lying deeper in the thickets.

Choke Canyon Reservoir rests at an elevation of 220.5 feet above Corpus Christi's bayfront, which is about 80 miles southeast of the park. The lake is surrounded by eroded, gently rolling, semiarid brushland crossed by silted stream valleys.

The local terrain was formed during the Cenozoic era, the period following the extinction of the dinosaur. Sediments accumulated from seas that once covered most of South Texas, and ancient rivers flowing from the southeast dumped their sediments into what was then part of the Gulf of Mexico, producing new land. The sea intermittently covered the newly formed earth, but the river-carried sediments eventually prevailed. An ancient Gulf shoreline, thought to have existed some 30 million years ago, is located near the current Choke Canyon Dam site.

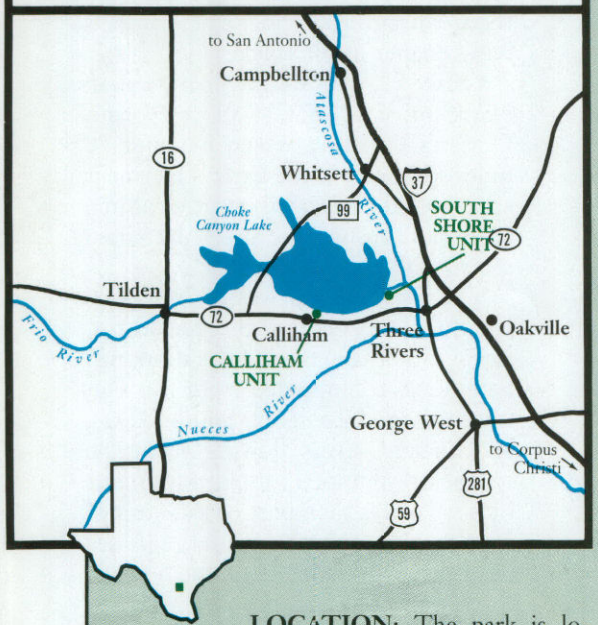
A cultural resource and archaeological survey, funded by the Federal Bureau of Reclamation and the largest ever carried out in South Texas, was conducted at the Choke Canyon site prior to construction of the reservoir in order to recover information that might be lost after the land was flooded.

The research data, collected and assembled by the Center for Archeological Research during the late '70s and early '80s, was published by the Uni-

versity of Texas at San Antonio. More than 150 archaeological and historical sites were identified, mapped and, in some cases, excavated at a cost of more than $1 million. The results, published in 10 volumes, are housed at the Center for Archeological Research, along with the artifacts collected.

Although evidence is scant, Paleo-Indians are believed to have crossed the Frio River Valley 10,000 years ago following large game such as the mammoth and bison. Approximately 2,000 years later these game animals disappeared, leading to the appearance of small bands of nomadic hunters and gatherers associated with the Archaic culture. Although numerous Archaic sites have been identified near the Frio River, the scarcity of food implies that these groups consisted of only a few individuals who found it necessary to move frequently from one campsite to another in order to survive.

Choke Canyon State Park



LOCATION: The park is located on the north side of Highway 72 on the Frio River in Live Oak and McMullen Counties between Three Rivers and Tilden. From Corpus Christi take Interstate Highway 37 north to Three Rivers, then turn west on Texas Highway 72 and drive 3.5 miles toward Tilden to South Shore and another 10 miles to Calliham. From Austin take Interstate Highway 35 south to San Antonio, take Loop 410, turn west on Texas Highway 37 to Three Rivers, turn south on Texas Highway 72 and drive 3.5 miles toward Tilden to South Shore and another 10 miles to Calliham.

FEES: Entry per vehicle is $2 a day; campsites with electricity and water are $9; campsites with water only are $6; screened shelters are $12. Reservations may be made 90 days in advance for overnight camping facilities. The auditorium with gym may be reserved for $75 a day and the dining hall for $50 a day. Both of these facilities are included in the annual drawing held each January 11.

CALLIHAM UNIT: 38 picnic sites with shade shelters, 18 without shelters, 40 multi-use campsites with electricity and water, 19 walk-in tent sites, one group picnic area, 20 screened shelters and adequate restroom facilities. Recreational complex includes tennis, shuffleboard and basketball courts, a baseball diamond, swimming pool and bathhouse, gymnasium, dining hall and park store. Lakeside facilities include designated swimming beach, multiple lane boat ramp, fish-cleaning station, bait/tackle shop, fishing jetty (in 90-acre lake) and boat trailer parking.

SOUTH SHORE UNIT: An area adjacent to the boat ramps features 14 walk-in tent sites and a large day-use area including 29 single picnic sites, playground, seasonally operated concession area, two covered picnic areas that can be reserved, two restrooms with outdoor rinse showers, two fish-cleaning stations, a scenic overlook located on top of the dam and a six-lane boat ramp and auxiliary, two-lane ramp. An area below the dam has 20 campsites with electricity and water, restroom with showers, playground, 21 walk-in tent sites with restroom without showers, fishing platform, fish-cleaning shelter and playgrounds and trailer dump station. A single-lane boat ramp provides canoe access to the Frio River for fishing and canoeing. (Check park headquarters for ramp availability, which varies during periods of low rainfall.)

Approximately 6.5 miles downstream from the Frio River boat ramp is Tips Park, operated by the city of Three Rivers. This stretch of river is sufficiently deep for canoeing or float trips and affords an excellent opportunity to observe native wildlife. The dam at Tips Park requires portage. Check with Calliham Unit Headquarters for more information.

FOR INFORMATION AND RESERVATIONS: For the Calliham Unit, call 512-786-3868 or write Calliham Unit, Choke Canyon State Park, P.O. Box 2, Calliham, Texas 78007. For the South Shore Unit, call 512-786-3538 or write South Shore Unit, Choke Canyon State Park, P.O. Box 1548, Three Rivers, Texas 78071.

HUNTING REGULATIONS: Hunting is available on the James E. Daughtrey Wildlife Management Area on a permit-only basis. Drawings are held to select hunters for deer, turkey and javelina. Write the Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744 to request a hunt application card and additional information.

No hunting is allowed within state park boundaries.


Mike Biggs

Young animals such as these javelinas are seen accompanying their parents during spring and summer months.

Artifacts collected from these sites include stone tools, used for many purposes ranging from grinding plant food to containing campfires, and dart points, commonly called arrowheads. These points, attached to a wooden shaft, were extremely useful in food gathering and protection. Thrown using a weighted extension called a spearthrower, these weapons could be used with great power and accuracy. Refuse indicates a diet consisting of small animals, land snails and freshwater mussels (an inedible species still is found along the western edge of the lake), in addition to a variety of plant materials.

Pottery use, which is believed to have begun in the Late Prehistoric Period (AD 1000 to 1400), was accompanied by the development of the bow and arrow. Small arrow points from this period, sometimes erroneously believed to have been used only for hunting birds, were used to kill anything from bison to many types of small animals.

In the 16th century, Spanish explorers discovered bands of Coahuiltecans occupying the brushlands of South Texas. These Indians were also hunters and gatherers who found it necessary to establish temporary camps in locations as much as 80 miles apart in order to take advantage of seasonal harvest times. In summer months they ate prickly pear fruit, followed by pecan nuts in the fall from trees that grew along the river.

Promises of food and protection from the enemy Apache eventually drew many Coahuiltecans away from their nomadic lifestyle into the Franciscan Mission labor force, particularly during the winter. However, their adaptability, which had served them well in a harsh environment, was no match for a host of common childhood diseases introduced by the Europeans, for which they had no opportunity to develop an immunity.

In the early 1800s, settlements sprang up under the encouragement of the Mexican government and, later on, the Republic of Texas. However, these communities were successful only in the coastal area, due to raiding Apache and Comanche Indians in the interior, along with a lack of water for crop irrigation.

Finally, in response to gradual development and occupation of the area, a small settlement called Yarborough Bend, a location now covered by the current Choke Canyon reservoir, was established in the late 1850s east of Tilden.

During the Civil War, Camp Rio Frio, later called Dog Town, was built to protect local ranchers from Indian raids and bandits. The ranchers had come to establish homesteads along the Frio River and take advantage of large herds of mustangs and wild, unbranded longhorn cattle left by the Spanish.

Special techniques and equipment required for the tedious process of gathering these wild animals in the thorny brush were recorded in the stories of local ranchers, including historian J. Frank Dobie. The numerous books of Dobie, one-time area resident, contributed significantly to the development of the legend of the Texas cowboy.

Some of the archaeological and historical sites examined during the survey currently lie in areas above the water's edge. Although most of these sites are not marked, a few are visible to a trained and patient observer. Remember that all prehistoric, historic or paleontological artifacts in Texas state parks are protected by state law and must not be disturbed. Current Choke Canyon park philosophy includes a heavy emphasis on preservation of the area's natural habitat.

Choke Canyon's modern facilities, abundant wildlife and unexpected beauty made it an excellent choice for our family's outdoor excursion. Whether your preference is fishing, bird watching, water sports, photography or just plain relaxing, you're sure to find Choke Canyon a desirable destination for the entire clan. **

Freelance writer Janet Edwards of Corpus Christi enjoys diving and boating. She has had articles published in Diver *magazine and* Corpus Christi Monthly, *and earlier this year she told our readers about Lake Corpus Christi State Park.*

The Best Light

by Leroy Williamson

Leroy Williamson

Early morning is the best time for photographers. The light is softer and the sun's lower angle provides depth.

There is really no great secret about lighting in photography. Essentially, you can learn about the best lighting by reading books or through experience. By far, the most frequently used and the easiest to use is the natural light of day. But the light changes, not only from day to day, but from minute to minute. At times the light may change rapidly; at other times it may change so slowly that it appears to remain the same for hours.

Unfortunately for photographers, the best light of day is when the light is changing rapidly—in the early morning and late in the afternoon. When the sun is high in the sky, lighting is flat, bright and glaring. In addition, there are deep shadows, most often where shadows are not wanted. By contrast, early morning and late afternoon photographs display a special quality. The light is softer and the sun's lower angle provides modeling and depth that are lacking in midday pictures. You'll notice a much richer color in your early and late pictures due to the color temperature of the light.

An interesting experiment you can perform to learn more about the quality of light is to select a subject that can be photographed during the course of one day. Take an early morning picture, one about noon, and another late in the afternoon or at sunset. When your pictures are processed, look at the difference the lighting made.

The sun doesn't always shine. There are times when the lack of a bright sun can be a blessing to photographers. Hazy-bright days provide soft, shadowless lighting which is great for many subjects. Portraits, flower closeups and wildlife are just some of the great subjects for this lighting. The secret of getting good photographs on hazy-bright days is to frame your subject, excluding the sky. The sky is colorless white and will be much brighter than your subjects, so don't include the sky in your picture.

On overcast days, your exposures will be longer than on bright sunny days, so be extra careful to steady your camera for sharp photos. The use of a tripod and slow shutter speeds com-

Leroy Williamson

Late afternoon and early evening also provide dramatic photo possibilities. During the middle of the day lighting is flat and garish, creating problems for the photographer.

bined with minimum apertures can create pictures with a tremendous depth of field, even in low-light situations.

Many people put their cameras away during inclement weather and at night, but both offer situations for spectacular photos. Often, the lighting and conditions preceding or following a storm are unique and dramatic. And there are times during storms when extraordinary pictures can be made. Of course, you must take special precautions to protect yourself and your equipment. But your pictures will be worth the effort.

Time exposures at night also offer some different but wonderful picture-taking opportunities. Spectacular lightning storms can be captured simply by placing your camera on a tripod, pointing the camera toward the storm and opening the lens for a long exposure. Keep the shutter open for several flashes of lightning. If you are using an ISO 100 film, set the aperture at f/8 for a beginning exposure. Your shutter may be open for several seconds or several minutes, depending upon the frequency of the lightning and whether there are any other lights in the scene.

City lights at night are another easy subject to capture. When using fast film in a brightly lit city, a tripod may not be necessary. However, whenever time exposures are made, a tripod or some other solid support for your camera is necessary. For some wild effects, hand-hold your camera when photographing night lights, and twirl, spin or rotate your camera while the lens is open. Or use a zoom lens and zoom the entire range of the lens while the shutter is open.

Flash is artificial lighting and permits the taking of pictures when ambient light is insufficient. This is the only time many people use a flash, but there are many occasions when a flash can improve the quality of a picture, even when there is sufficient light to make an exposure without it. Flash used for a fill-in light during the day, especially during the midday hours, will open heavy shadows, brighten eyes, and generally make your pictures more colorful since the lighting has been improved. Most of the new automatic cameras, including the point and shoot models, will do all the calculating for you to make using fill-flash simple and painless.

By definition, light is necessary to make a photograph. At times though, the quality of light is better than it is at other times. It is the photographer who must make the best of any lighting situation. Knowing how best to use the light, when the light is best, or how to modify it to make it good are all marks of a good photographer. A sure way to improve your photographs is to learn how to make the best use of light. * *

Magnolia
TREE OF THE SOUTH

Article by Barbara Dunn, Photos by Stephan Myers/Collaborations

Texas has two faces. One is carved from the western plains and mountains, where the land is bare and history is written in spurts of territorial conquests and lawlessness. The other face is molded by a rich, verdant landscape and deeply rooted culture. Our eastern border may separate the people of Texas from those of Louisiana, but the land and flavor of the Old South still flourishes. The South is magnolia country, and nothing serves as a better reminder of our link with that region than the beautiful, aristocratic southern magnolia, also known as the bull bay.

An evergreen native of the southeastern United States, the southern magnolia, *Magnolia grandiflora*, is considered one of the noblest and most popular ornamental trees in North America. At maturity, its stout branches form a pyramid reaching as high as 135 feet. Around its lower trunk they bow to the ground in a skirt of thick, ovate leaves spreading up to 40 feet across. When other trees lose their foliage in winter, the southern magnolia remains lush and full with nine-inch leaves that are glossy and smooth on top, and covered with a reddish, woolly coating underneath. Part of the magnolia's stateliness comes from its size, but its grandest contribution appears after other trees and shrubs drop their spring colors.

Magnolia trees add southern charm to East Texas landscapes, and during the early summer their huge blossoms (above) give the air a lemony scent.

Grandiflora means large flower. Every June, the enormous pale blossoms of the southern magnolia unfold around green-tipped fleshy cones and, for a few weeks, exude a luscious, lemony scent. The blooms can measure nine inches in diameter, and their thick, leathery petals are as creamy and smooth as the skin of a southern belle. "The best time to smell the blossoms is in late afternoon or evening, when the wind has died," says John Yarbrough, park superintendent at Martin Dies, Jr. State Park. "They grow along our roadways, woodlands and campsites. Sometimes

1. Prior to opening, the magnolia blossom's petals are folded around the fleshy center.

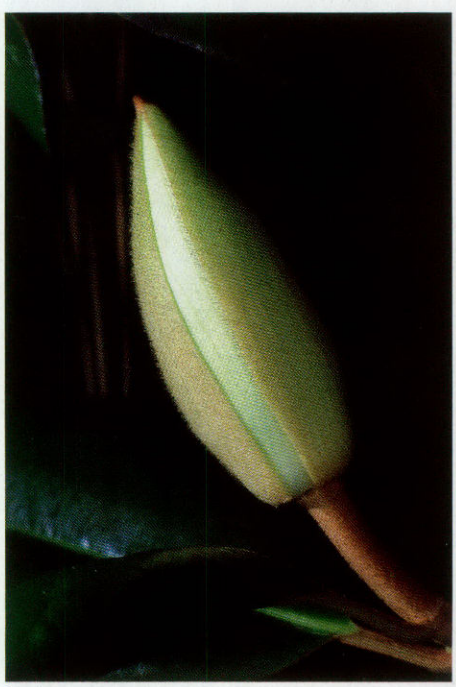
***Above:** The pale flowers can measure nine inches in diameter.*

2. After fertilization by bees and other insects, the petals and stamens fall.

3. Each pistil develops into a fruit-bearing carpel, ripening from pale green to a rosy color.

4. Around November each carpel bursts open, revealing two bright red seeds.

5. Each seed dangles from a thin, white thread for a week or two before falling to the ground.



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their scent covers the whole park."

Bees and other insects alight on the cone in the center of the flower, transporting pollen from short stamens to the moist, curling tips of green pistils that protrude from the center. After fertilization the petals and stamens fall, and each pistil develops into a fruit-bearing carpel. The fruit ripens from pale green to a dull, rosy color, then darkens and hardens into a four-inch knobby cone covered with woolly hairs. Around November, each carpel bursts open and two seeds, looking like oversized, leather-skinned red hot candies, slip out to dangle from thin, white threads for one to two weeks before falling to the ground. About 1/2 inch long, these brilliantly colored seeds invite birds, squirrels and opossums.

Located in the hilly, forested terrain near B. A. Steinhagen Reservoir between Woodville and Jasper, Martin Dies, Jr. State Park provides a perfect habitat for the southern magnolia. They also grow widely in the climax forests of the northern portions of the Big Thicket. Throughout the South, they thrive in moist, rich bottomlands or gentle, protected slopes with mixtures of hardwoods such as pine and beech. The magnolia grows naturally from North Carolina through Florida, across Oklahoma and into small portions of East Texas. It cannot tolerate drought, and is rarely seen in higher than 540-foot elevations.

The Magnoliaceae family includes more than 75 species in North America, West India, Mexico and Asia. Before the Tertiary ice sheets advanced millions of years ago, magnolias grew as far north as Greenland and Siberia, but cold temperatures dwindled their present distribution to warmer, temperate climates. Only six species are native to the United States.

Cultivation of magnolias began as early as 1734, and in China the Yulan, *Magnolia conspicua*, is known to have been cultivated for 13 centuries. Pierre Magnol (1638-1715), a professor of botany at Montpellier Botanical Gardens in southern France, has been credited with identifying and studying the magnolia.

Although many varieties of magnolia exist, the southern magnolia provides the largest flowers and is easy to cultivate in East Texas. Its permanence, low maintenance requirements, natural beauty, and site adaptability make it a popular ornamental tree. With a thin, scaly bark and weak creamy wood, commercial uses of the southern magnolia are restricted to fuel, baskets, crates and other light products.

Southern magnolias should be planted in spring, balled and burlapped or container grown, in a wet, moist soil that is acid to nearly neutral. Cover the root zone with mulch to avoid disturbing the fleshy roots. The first flowers will bloom in 10 years. In 15 to 20 years, it will stand 20 to 40 feet tall, and average 50 to 90 feet at maturity.

Whether you're in the sprawling suburbs of Houston or the hilly forests of East Texas, this grand dame of southern trees decorates the landscape year-around. Everything about it is as big and versatile as Texas, and as noble and permanent as the South. **

Writer Barbara Dunn and photographer Stephan Myers of Houston have covered a variety of topics for this magazine.

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TEXAS SEASONS

Summertime

Lenny Williamson

It's those lazy, hazy days again, when the temperature creeps upward, lakes beckon and sun-baked days seem to stretch as far as the eye can see.

Summer is the season that shows up right on time and never wants to leave. Beginning with a Memorial Day picnic and trailing on into the dog days, summer is punctuated by fireworks, fireflies and the crack of a thousand bats against baseballs, from empty lots to the Astrodome.

Texas is long on summer. Forget the solstice in June and the equinox in September; summers here refuse to be confined by dates on a calendar. People have been less than charitable about Texas summers. General Philip Sheridan's often-quoted, "If I owned Texas and all hell, I would rent out Texas and live in hell," was a commentary on a sweltering summer day. More than a century later, a Dallas *Morning News* columnist wrote that Texas summers "are not meant to be shared; they were created to be endured," and went on to call them "our shame and our sorrow."

But Texas summers are ours, all ours. Instead of complaining, try tubing down the Guadalupe, wading in the surf or dozing under a big shade tree. And take time to notice how nature, like Texans themselves, can rise to any occasion.

—Mary-Love Bigony

Leroy Williamson

The Guadalupe River below Canyon Lake is a favorite summer spot for tubing enthusiasts (right). Long summer days mean more time for fishing on Sam Rayburn Reservoir (previous page).

Leroy Williamson

An American bittern perches quietly near the water, while a group of youngsters makes the most of a summer day at Caddo Lake.

Leroy Williamson

Stephan Myers

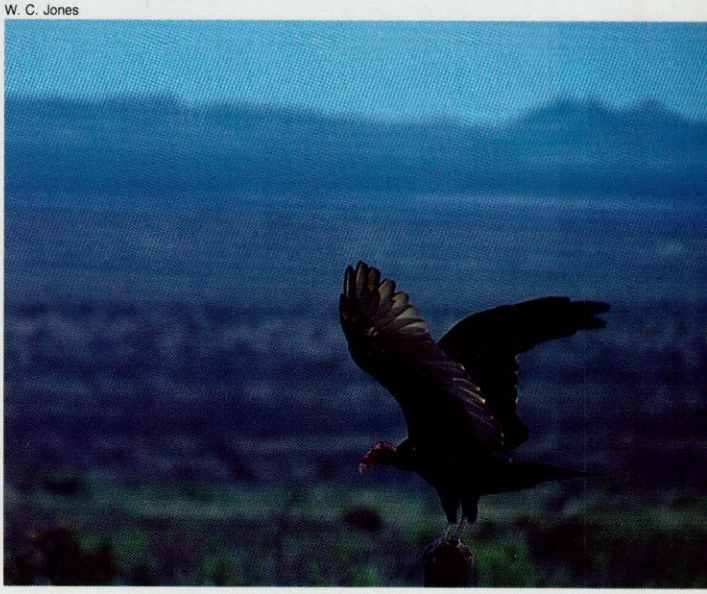
Sunset on Padre Island brings the wind-sculpted dunes into sharp relief (above). Tubers floating down the Guadalupe pay little heed to Highway 81 traffic passing overhead.

Leroy Williamson

A two-tailed tiger swallowtail pauses at a Texas thistle, while a turkey vulture surveys the landscape below.

John Peslak

W. C. Jones



Leroy Williamson

A yellow-bellied racer basks in the summer sun to control its body temperature. Calm prevails on a July day at the Rockport boat basin, while fireworks light up the summer sky in every corner of the state.

Leroy Williamson

Leroy Williamson

Plastic:

The Problem that Won't Go Away

I may have discovered the ideal roofing material!" wrote Jim Pastore in a Houston *Chronicle* editorial. Last fall Pastore experimented with one of the hottest products on the grocery shelf. He took a trash bag labelled "Degradable! Safe for the Environment!" and stapled it to a landscape timber at his Pearland home that receives sunlight about half the day. Four months later, this consumer-turned-scientist published his results. "Not only is that square of plastic still there," the editorial said, "it looks brand new! It seems to resist the onslaught of sun, rain and pollution better than my home does."

This may be news to Pastore and millions of other consumers who have bought the concept of degradability as a magical solution to the plastic waste dilemma. While no one claims degradability to be a panacea for the problem, environmental groups, the plastics industry and the solid waste industry have been debating the basic merits of degradable plastics for a number of years. "Consumer ripoff!" shout the environmentalists. "Environmental alarmists!" return the manufacturers.

As we await the final verdict, 11.5 million tons of plastic will be discarded each year, and plastic litter will build up on our beaches and in our lakes and oceans. Manufacturers remind us that plastic makes up a smaller percentage of the solid waste stream than paper or glass. Environmentalists express concern over thousands of sea birds and an estimated 100,000 marine mammals that die annually from plastic litter. What everyone does agree on is that our country has a landfill crisis, and the volume of plastic and other waste is threatening to bury us and adversely affect the environment for hundreds of years.

We live in a world of plastic. From the moment we whack the plastic knob on our alarm clocks in the morning until we clean our teeth with a plastic toothbrush at night, this material plays an integral part in our daily lives. Disposable diapers, fast-food packaging, computers, toys, car interiors, utensils, appliances . . . an endless variety of products are designed to meet our demand for safety, light weight, economy and durability.

Plastic is a generic term for a variety of materials that includes vinyl and styrofoam. Pure plastic resin, which is a blend of petrochemicals, air and other natural substances, contains very long, chainlike molecules called polymers. The length and stability of the polymers make plastic inherently undegradable except through oxidation, which takes hundreds of years, or

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Article by Barbara Dunn, Photos by Stephan Myers/Collaborations

Some 11.5 million tons of plastic are discarded each year. Plastics, along with other inorganics, make up 30 percent of the volume in municipal landfills.

through burning.

A pair of eyeglass frames received the first application of plastic in 1868. The discovery during World War II that plastic electronic and communications equipment could withstand the effects of heat and humidity set the stage for its enormous commercial growth. Plastic products have proliferated so in the private and industrial sectors that they now outpace the use of steel in the United States.

In 1986, 45 billion pounds of plastic were sold. Seventy-five percent went into long-life applications such as the transportation and construction markets. Packaging items made up the other 25 percent: films for trash bags and "boil in bag" products; bottles and containers; coating for paperboard containers such as milk cartons and food packages; closures such as snap-on lids and screw caps. A third of the total solid waste stream is packaging. Hamburgers are consumed in less than ten minutes, but their polystyrene "clam shell" containers remain intact for centuries.

Interest in degradability grew from the environmental awareness of the late 1960s and the oil embargo of the early 1970s. The word "degradable" simply means that the plastic is able to degrade under the right conditions. Photodegradable products now include trash bags, grocery bags, six-pack yokes and agricultural mulch films. "Dissolving" medical sutures, protective coverings for nursery tree seedlings and disposable diapers are the most available biodegradable products.

"Biodegradation" occurs when microorganisms such as fungi and bacteria consume the plastic in a moist, oxygen-rich environment. Manufacturers insert natural additives such as starches made from corn, potatoes and wheat into the plastic polymers. Once the starch decomposes, the remaining plastic molecules should be small enough for organisms to penetrate. Other types of biodegradation, although still in their initial stages of development, include the addition of bacteria and cellulose such as woody fibers.

In "photodegradation," the poly-

mers weaken when exposed to ultraviolet rays. To enhance photodegradation, manufacturers insert chemical photosensitive additives. As the plastic becomes brittle, wind and water break apart the molecules further until, hypothetically, biodegradation can take over. This process is most effective in a sunny environment.

While plastic degradation has been successful in laboratory tests, its usefulness in nature is questionable. Biodegradable products may not break down in dry conditions. Photodegradable products cannot break down when buried in a dark landfill. Under our current system of municipal solid waste disposal, neither product is pro-

Innocent-looking plastic six-pack yokes (above) can be death traps for birds that become tangled in them. Plastics make up 70 percent of the trash collected in the General Land Office's semiannual beach clean-up (below).

vided with the necessary environment for degradation. Ignorant of these facts, consumers buy degradable bags, stuff them with garbage, and set them on the curb for pickup with the impression that they will disintegrate in a short period of time. After only a few hours in the sun, the bag and its contents wind up in a landfill. The only thing that doesn't get buried is the good intention of the consumer.

"The issue for us is economic," says Allen Gray, a spokesman for Mobil, which manufactures the degradable plastic used in Hefty® trash bags. "Consumers are enchanted with degradability, so manufacturers give it to them. If one company stamps degradable on the box and it sells, everyone else will follow. This whole thing about making products biodegradable has no validity. You could say that all plastics degrade over some period of time, but our solid waste is a volume problem, and the solution lies with other methods."

Eighty percent, or 160 million tons, of municipal solid waste goes into landfills each year. Ten percent is recycled, and ten percent incinerated. On average, each person in the United States discards nearly four pounds of waste every day. Plastics make up only seven percent of a landfill by weight, but with other inorganics, they take up 30 percent of its volume.

"Texas is the world's largest producer of plastic resin," says John Hamilton, director of resource conservation at the General Land Office. "We also don't have the landfill crisis that plagues other states." Texas has plenty of land, but the litter along our roads and 624-mile coastline, and attempts by other states to pay us for burying their garbage, bring the solid waste problem to our back doorsteps.

When we hear of a barge laden with garbage drifting at sea for weeks because no one will accept its load, or truckers transporting fresh food east by day, and returning west with garbage under the darkness of night, we get only a glimpse of the enormity of the solid waste problem in our country. In an article for *The Naturalist*, Houston Audubon Society president-elect Jane Scheidler reports that active landfills have dwindled from 19,000 in the late 1970s, to fewer than 9,000 today. Another study estimated that one out of every four states would simply run out of landfill space in 1990. The Council for Solid Waste Solutions, a program of the Society of Plastics Industry, says that the landfill crisis stems from an increasing waste stream, a decreasing amount of space, and the "not in my back yard" syndrome of communities that fight the location of landfills near their neighborhoods.

Jimmy Clem, manager of community relations for Browning-Ferris, says, "It costs about $150 per ton to landfill waste in the northeast. In Houston, it only costs $15 per ton." Up to 1,500 loads of solid waste arrive daily at the 585-acre Browning-Ferris landfill east of Houston. "There are 33 active landfills in the Houston area," says Clem. "We've been filling this tract at an average rate of 20,000 cubic yards per day for 20 years." Fresh garbage is kept to a 300-square-foot active area. The rest of the landfill consists of massive hills covered with soft grass, young trees, and an occasional methane gas pipe. A lot of people think a landfill acts like a compost pile, but the reverse is true. As new waste arrives, bulldozers spread it out and compact it between six-inch layers of dirt. Pipe systems suck out methane gas and leachate liquid. Three feet of plastic line the bottom, and at least a foot of impervious material, such as clay, covers the top. So much effort goes into protecting the surrounding natural environment and underground aquifers that landfills become dry, airless tombs. Decomposition is nonexistent, or very slow.

William Rathje, an archaeologist/"garbologist" at the University of Arizona in Tucson, has spent the last several years studying modern society by digging up landfills across the country. He and his students found 40-year-old newspapers as legible as the day they were printed. Even hot dogs and carrots remained intact after many years. The big question is whether plastic, even biodegradable plastic, would break down. Without air and moisture, there is little evidence to suggest that it would decompose any better than newspaper.

Armed with this knowledge and with an ear tuned to public relations problems, some plastic manufacturers are approaching the degradable market with caution. Bob Prioleau, recycling manager for Exxon Chemical Company, says, "We're still in the process of examining degradable plastics. Biodegradable options are pretty slim. Few actually work and those that do, such as medical sutures, cost 100 times more than common plastic. Photodegradability might be a workable system, but we're concerned that it may prompt people to litter more."

Scientists believe that photodegradation can alleviate the problem of litter, that immeasurable amount of plastic that falls outside the solid waste

management system. However, there seems to be no definitive answer on the rate of photodegradation. Some manufacturers quote months, and others years. If you toss a plastic bag in the barren, sun-drenched landscape of West Texas, it's supposed to photodegrade faster than a bag tossed in the Pineywoods of East Texas. Generally, the rate increases with higher levels of ultraviolet rays, but in order for plastic molecules to become brittle and break apart, their structure must first be grossly changed. For example, a 1987 report on degradable plastics issued by the Society of the Plastics Industry cited research data that polyethylene, the plastic used in soft drink bottles, must have its molecular weight decreased from 20,000 to 500 before it becomes vulnerable to microorganisms.

While litter has always been an eyesore, recent data on its harm to the environment and wildlife cause greater concern. Birds get tangled in six-pack yokes and frequently strangle. Turtles mistake plastic bags for tasty jellyfish, and die slow, painful deaths when the bags clog their organs. Sea lions tangle and drown in cargo strapping. The Woods Hole Oceanographic Institution recently reported a staggering 46,000 pieces of plastic per square mile at sea. According to the Society of the Plastics Industry, sources of marine plastic pollution include fishing gear and netting thrown from commercial fishing vessels, millions of pounds of trash dumped from commercial and military shipping fleets, boaters and beachgoers, and antiquated municipal storm and sewage systems. Even if it were photodegradable, none of it could degrade on the

Last year, Texas became one of 16 states to require labeling of plastics. The triangular labels (above) contain numbers that tell plastic recyclers the type of plastic. Items such as plastic fittings (right) are shredded and shipped to industrial manufacturers.

Of the two types of plastic degradability, photodegradable would work well in open, sunny areas of West Texas (above), while biodegradable would be better suited to shady, humid environments. Recycling still might be a better alternative. The bench at left, located at the Houston Audubon Society, was made from recycled plastic.

dark ocean floor.

The Texas General Land Office hosts a massive beach clean-up twice a year under the Adopt-A-Beach Program enacted four years ago. For three hours, thousands of volunteers pick up trash from Texas beaches stretching from Beaumont to Brownsville. "We've picked up over 1,050 tons of trash since the program started, and 70 percent of it was plastic," says Dave Roberts of the Land Office's Public Information Office. In March 1990, the recovered litter was collected at Corpus Christi, Padre Island National Seashore, and Galveston for recycling and production of beach benches made from plastic.

In a September 1988 report to the U.S. Senate Committee on Governmental Affairs, the General Accounting Office stated that the lack of standards for degradable plastics has raised technical questions concerning the initiation and rate of degradation, and the possibility of harmful residues. The U.S. Departments of Agriculture, Defense and Energy, and the National Science Foundation supported research projects in 1988 funded with $1.7 million. The Department of Commerce, the EPA, and the Office of Technology Assessment are currently doing technical studies.

In a December 1989 report titled "Degradable Plastics: The Wrong Answer to the Right Questions," six environmental groups, including the Environmental Defense Fund, called for a consumer boycott of degradable plastic products. They claim that degradable plastics do not extend the life of landfills, they compete with recycling programs, leave toxic residues and may even increase the amount of litter by deluding consumers into thinking it will disappear.

Recycling and incineration are viewed as the most viable alternatives to degradability. The General Land Office is spearheading efforts to increase recycling in Texas. "Texas has no formal recycling program," says John Hamilton. "What I'm hearing from people on all sides of the issue is not how much money they can make, but how they hate to see the waste. We're trying to educate the public that plastic is a commodity with value. It has a proper reuse, and shouldn't be thrown out where it can hurt wildlife."

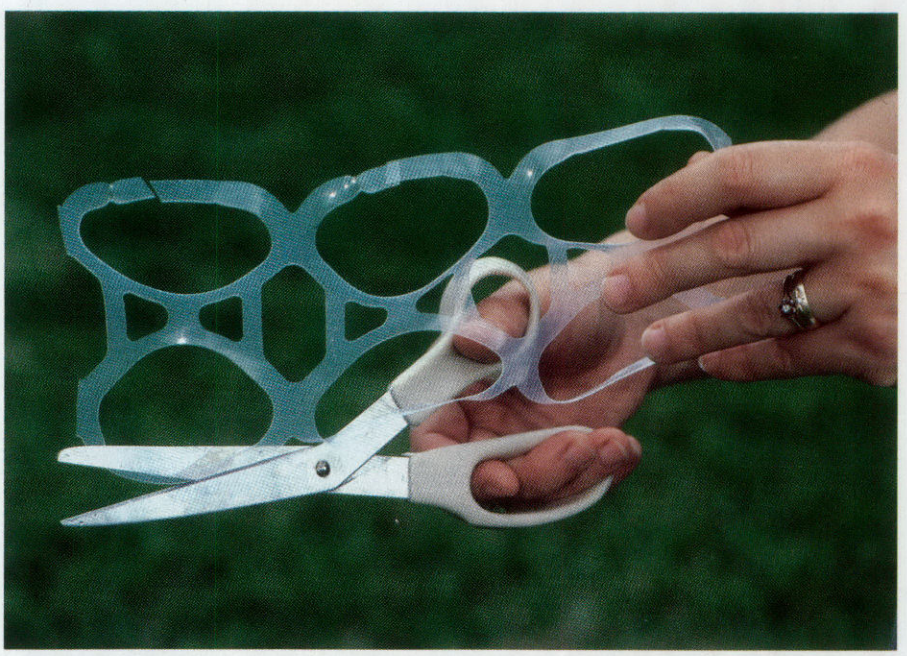
Eleven states now require that plastic yokes be degradable. Last year Texas joined 16 other states in mandating labelling of plastics. The triangular labels contain numbers that tell recyclers the type of plastic. This helps operations like NFM Plastic Recyclers in Houston. "We started with nothing in September 1989," says Morris Taibel, the company's president. "In February 1990 we processed 249,000 pounds of plastic. We accept mostly household plastic, sort it, shred it, and ship it off to industrial manufacturers." Recycling only 20 percent of plastic soft drink bottles and two percent of milk cartons reduced solid waste nationwide by 155 million pounds in 1984.

In addition to recycling, incineration can decrease the volume of solid waste by 80 to 90 percent. Pound for pound, plastic produces more than twice the energy of Wyoming coal. The existing 100 incineration facilities now operating in the United States provide enough energy to power more than 650,000 homes at any one time.

Every alternative has its pros and cons. Compared to landfills and incineration, degradability is still in its infancy. On one hand, the release of toxic residue or an increase in litter raises serious questions. On the other hand, continued experimentation may some day yield a product that works with our current system of waste disposal. The most optimistic outcome of the plastic and solid waste problem is the reaction of the consumer. With the increase in household recycling, and even the purchase of degradable plastics, consumers are sending a message that they can change their habits to improve the solid waste problem and protect the environment.

Jim Pastore checks the condition of his degradable plastic from time to time. "Well, it's been eight months now," he says. "The only change I can see is that the staples holding it to the timber have rusted, and there's a slight curl to the edges of the plastic." * *

The Houston freelance team of Barbara Dunn and Stephan Myers are regular contributors to this magazine.



Consumers can minimize plastic's threat to wildlife simply by cutting up six-pack yokes before throwing them away (above). NFM Plastic Recyclers of Houston shreds some items before shipping them out, while other materials are compressed and shipped out directly (right).

THE ROYAL RINGNECK

My introduction to the ringneck snake came from a naturalist I know. We were sitting around chatting when he said, "I've got something to show you."

He left the room and returned a minute later with a small snake looped around his hand. I knew he had been collecting Texas snakes for a program he was giving. "I dare you to show me a piece of jewelry prettier than this," he said as he carefully handed me the snake.

Indeed, it was one of the loveliest creatures I'd ever seen. From above, the snake was a glossy gray; it was the diameter of a pencil and about nine inches long. Across the top of its neck was the golden collar for which it is named. Its scientific name, *Diadophis*, is similar to the Latin word for "royal headband." Turning the ringneck over, I saw a belly of golden-yellow and a tail of strong orange—both colors looking as though they'd just been painted on with glossy enamel.

The snake curled around my hand, enjoying my 98-degree warmth. "But even more interesting," the naturalist went on to say, "is that you are holding a venomous snake." My eyes may have widened a bit, but I didn't panic. The creature was too docile, too engaging to provoke fear. "Venomous to what?" I wondered.

The ringneck snake ranges throughout most of the United States, from coast to coast and into southern Canada and northern Mexico. It is absent from the northwestern United States. In Texas it occurs, under the right conditions, everywhere except the southern tip.

Ringneck snakes love moisture. In damp East Texas, finding moist conditions is no problem, and ringnecks will be found within rotting logs, under rocks and around construction debris. In the drier western part of the state they are found in overgrown fields near water, in leaf litter in the bottom of ravines and gullies and, in the Trans-Pecos area, up in the mountains that receive substantial rainfall.

Three subspecies of ringneck snakes are found in Texas: the Mississippi ringneck, found in the eastern part of the state; the prairie ringneck, found in the Panhandle and Central Texas; and the regal ringneck, a western subspecies found from the Trans-Pecos to Central Texas.

The ringneck snake feeds on earthworms, slugs, and particularly in Texas, on small frogs, lizards and other species of small snakes. This is where the venom comes in handy. The snake does not strike, but injects the toxic saliva by chewing when the prey is captured. The venom is used to subdue prey and never for self-defense. These snakes are harmless to larger, warm-blooded animals, including humans.

"Ringnecks are very tame," says Professor Frederick Gehlbach, who has studied them and wrote about them in his book, "Mountain Islands and Desert Seas." According to Gehlbach, "I've never seen or heard of one attempting to bite anyone. That just isn't their way of defending themselves."

When faced with danger, a ringneck will coil its tail into a corkscrew, displaying the bright orange coloring, hoping to distract a predator from its head. The bright color might also serve as a warning, suggesting that the ringneck might be dangerous or unpalatable. Other defensive behaviors include playing dead and releasing an unpleasant musk odor and feces.

Ringnecks apparently like one another's company because they are often found in groups. Two to 10 or more can be found in a damp hiding place such as under a large, flat stone or beneath discarded lumber. It is thought that individuals are guided to the communal spots by scent trails laid down by earlier arrivals.

Scent also helps the males find the females during the spring breeding season. The female releases a special scent, or pheromone, as she sheds her skin. The male avidly courts her by rubbing her with his body and entwining her tail with his.

Nesting occurs in June or July and is often communal. Sometimes up to a dozen females have been observed de-

by Kristi G. Streiffert

John E. Thomason

positing their eggs in the same hollow over the course of two to three days. Each female lays two to eight oblong eggs, one inch in length and slightly curved like a parenthesis. The eggs are leathery, not brittle like chicken eggs.

The young hatch in about five weeks and are four to five inches long. They look like greenish-gray miniatures of the adults. The young are not protected by the parents and begin fending for themselves immediately. They mature after about two or three years and usually grow to about a foot in length.

Ringneck snakes are often listed in field guides as "burrowing snakes," but perhaps they should be called "burrow-borrowers" instead. They are unable to dig their own burrows, but use those of earthworms, moles or insects to retreat from heat and dryness, as well as to avoid winter cold. Because they spend so much time in one type of burrow or another, the ringneck is seldom seen.

But if you're alert and lucky, you might see a ringneck as it crosses a hiking trail on a wet day following a long dry spell. Maybe you'll discover one under a pile of wooden fence posts, or perhaps under a flat rock if it was cool the night before. But don't look in the dead of winter, because the royal ringnecks will be hibernating. **

Kristi Streiffert is a freelance journalist who specializes in nature and conservation. She lives in Joshua, Texas.

Tide Runners of Summer

Article and Photos
by Buddy Gough

The past two summers have seen a surge of big trout action in the bays.

Ed Speed and his son Matt were practically benchwarmers in the grand game of fishing. During years of saltwater fishing in the Port Aransas-Corpus Christi area, the San Antonio anglers had made some modest catches here and there, but the hot action of limit trips eluded them. Their hooks somehow never found the monster specks and 28-inch redfish other fishermen proudly displayed at the docks.

"We tried everywhere—the jetties, the reefs, the wells—but we never had much luck," Ed admitted one June morning two years ago when I joined him and his son for a Baffin Bay outing with guide Bill Sheka, Jr.

"Everywhere," echoed Matt, who was then a high school senior.

"We even subscribed to outdoors magazines like *Outdoor Life* to see if that would help," Ed added.

The revelations were delivered in a tone that was quietly matter-of-fact rather than complaining. A senior vice president with a San Antonio credit union, the mild-mannered and sociable banker had a demeanor suited to his profession, and a stoic attitude fitting for a man whose job involved dealing with problem loans.

As a fisherman, his experiences are typical of many coastal anglers whose fishing ventures are limited to occasional weekend trips during the summer.

As the father of a son who would soon be leaving home to start college and chart his own future, Ed had another problem. He was running out of time to capture the kind of peak experiences for bonding father-son memories.

"Finally, we decided to get a guide and learn something about catching fish," Ed said. "We met Bill when he had a booth at the (San Antonio) boat show, and were impressed enough to book a trip with him.

"Fishing is one thing Matt and I can do together, so to me it's worth it," he added, referring to the cost of a guided trip.

I joined the Speeds and Bill Sheka for a morning of drift-fishing over the famed reeflike "serpulid" rocks of Baffin Bay. Picking scattered specks from barely keepers to several respectable fish in the three- to five-pound range, the outing at first showed the makings of a classic good day of summer action.

Then, under the hot beat of an overhead sun, we observed a mysterious patch of muddy water discoloring a half-acre of Baffin's green waters.

"Could be a school of black drum, or maybe redfish," Sheka speculated as we drifted down on the murky cloud.

When the Speeds and Sheka were able to reach the edge of the muddy area with their big Sassy Shad baits, their rods suddenly and simultaneously bowed before hard strikes, and the water's surface blew up with the frothy thrashing of heavy specks, all of them 27 to 30 inches in length, and each of them members of an awesome school of sow trout.

The first skirmish was still hotly contested when Sheka's boat drifted over the muddy area, and the water boiled up astern.

"Look behind the boat!" Sheka yelled in the midst of the ongoing trout tussles as he gaped at a cord's worth of speckled "logs" fleeing the boat's passage. "There must be 100 or 200 of them!"

The first drift scattered the school, but enough big stragglers remained to hammer the anglers' lures again and again during the next two drifts of chaotic action.

The best came last when young Matt nailed a beautiful 30-inch speck and fought it to boatside to claim a trophy that is the lifetime goal of trout enthusiasts.

As I listened to Ed's and Matt's exclamations during the peak of the action and saw their mutual admiration of Matt's trophy catch, it was obvious they were sharing an experience of unforgettable magnitude.

And if our fates are truly written in the stars, this big fish story could end right here.

Nevertheless, that wouldn't adequately explain the presence of large, roe-laden trout ganged up in a big school months past the April peak of the speck spawning season.

"Tide-runners," Sheka called them, explaining that they were surf-run specks that had moved into the bay to spawn.

The school's milling activity that had so roiled the water in one distinct spot may have been associated with a feeding binge or some facet of the spawning ritual, the guide contended.

Of course, like many seasoned and successful coastal guides, Sheka is rarely at a loss for theories to explain his angling experiences, but his claim gained more credibility the following

year during a drift-fishing outing on the deep rocks off East Kleberg Point in Baffin Bay.

Under an azure sky plumed with clouds like mare's tails at full gallop, a sow speck suddenly crashed the bay's surface, scattering foam for yards in the act of pulverizing a bright orange broken-back Red Fin.

"It's a good one!" the guide exclaimed needlessly as he wrestled with a speck that would go 30 1/2 inches and weigh nine-pounds-plus.

"What'd I tell ya," he gloated while he prepared the big fish for tag-and-release. "The tide-runners are back!"

And so it seemed.

The same location soon yielded two 27-inch specks, plus another 30 1/2-inch trophy the next morning.

By then, it was surely time to give some thought to the tide-runner theory.

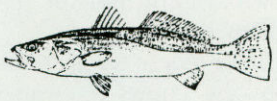
The fact is, the past two summers have seen a surge of big trout action that has lasted into early August. And not just in Baffin Bay either, but also the Upper Laguna Madre and Corpus Christi and Aransas Bays.

According to a fishing diary Sheka keeps of daily catches, roughly 35 to 40 percent of the trophy trout he and his clients have boated in the past two years have come during the summer. That's a hefty percentage, considering that last year alone Sheka and his clients caught, tagged and released more than 100 specks 26 inches or more in length, plus another two dozen or so trophies kept for mounting.

"We still catch the most (big trout) in March and April, but the largest ones have come in the summer," he noted.

The total take reflects a general increase in numbers of large trout in excess of 25 inches that have been detected in the Texas Parks and Wildlife Department's gill net samples and creel surveys each year since 1981. For this, anglers can thank a ban on the commercial harvest and sale of trout, as well as the 14-inch minimum length limit and 10-fish per day bag limit.

Nevertheless, among all the sow specks out there, plenty certainly run



the surf.

Rock-walkers on the North Jetty at Port Aransas, for example, have been first shocked and then extremely pleased to observe large numbers of big trout sunning in the clear, calm surf at the foot of the jetty after the passage of a cold front. But that was during the winter.

On the upper Texas coast, one of the major trout happenings of the year is the annual spring "run" of sows in the surf along the Bolivar Peninsula and around the mouths of passes from San Luis to Pass Cavallo. These are often big fish, running in schools of like-sized companions.

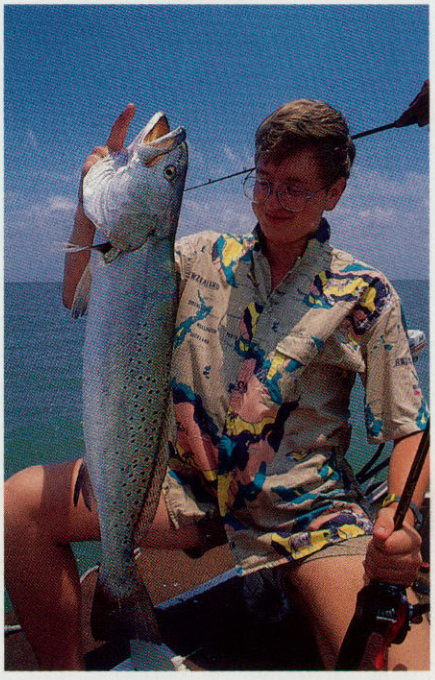
Sometimes they can even be encountered in the surf during the summer, as surf anglers along the Bolivar Peninsula prove with regularity.

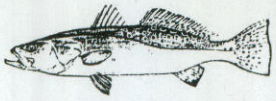
The question remains—do any of these so-called tide-runners move into the bays during the summer?

That's entirely possible, according to Hal Osburn, director of coastal finfish programs for the department.

"We know that trout move a lot and over longer distances than, say, red drum," Osburn said last summer. "That's been proven by tagging data."

Strings of "sow" trout such as the one on the opposite page are usually associated with early springtime fishing on the Texas Gulf Coast. However, guide Bill Sheka, Jr. has found that the whopper specks apparently stage a late-summer run as well. The crystal-clear waters of Baffin Bay, below, are a prime staging area for the big specks that hit oversized floating crankbaits.





He mentioned the sample of a trout tagged in Christmas Bay, a minor bay in the western part of West Galveston Bay, and recaptured several weeks later in the surf near the Texas-Louisiana border, a distance of 75 to 100 miles depending on whether the fish went by land or sea.

"Fish in the surf zone now could have been in the back bay two weeks ago, or vice versa," he noted.

It is also possible that Sheka's "tide-runner" is a speck that has been in the bay all along, but is starting its second spawning cycle.

Some anglers believe the peak spawn for large specks is virtually over and done in the spring, that the skinny, spawned-out "snakes" caught in May were the thick-wasted specks of April, fish that won't spawn again until the next year.

Not necessarily so.

The trout spawning period runs in peaks and valleys from early spring to early fall, during which a trout may spawn several times.

"That big fish (trout) you catch in June may be a fish that spawned in April and built herself back up to spawn again in June or July," Osburn explained.

Sheka doesn't reject that explanation—he knows bay-run specks can and do spawn more than once a season. Even so, he also believes in tide-runners.

"When you find typical bay specks, they are usually in small groups of two or three fish or maybe as many as two dozen; you don't find them in schools of 100 to 200 fish like you do in June; that many fish is more characteristic of surf trout," he explained.

The massed numbers of fish is itself a relatively short-term phenomenon because the schools break up within a week or two, the guide added.

Regardless of where the sows of summer come from, sunny-day fishermen are not catching their share.

Osburn said department surveys indicated about seven percent of total trout population consisted of fish 25 inches or more in length, whereas less than two percent of the specks caught by fishermen were that long or longer.

One reason, as far as summer is concerned, is that fishermen are neither looking for nor expecting to find big trout on the move. Big specks prefer big meals, but by June or July, most bay fishermen have switched from large baits to live shrimp or shrimp-sized lures.

Not that any of it at all makes any difference to the elder Speed.

When I called him recently to clear his quotes, he mused, "You know, Matt will be coming home soon from his first year of college, and I was thinking it's about time to give Bill (Sheka) a call . . ."

He probably thinks tide-runners are Father's Day trout. * *

Buddy Gough, outdoor editor of the San Antonio Light *and frequent contributor to our magazine, probably never caught one of the "sows of summer" he writes so eloquently about. But his writings reflect the reverence he holds for Texas' coastal waters and the angling sport he has enjoyed for a quarter-century.*

OUTDOOR ROUNDUP by Jim Cox

Cooperative Study Launched on West Texas Mule Deer

The desert mule deer, one of the Trans-Pecos region's most valuable wildlife resources, is the subject of a new cooperative study by Texas Tech University, through its Cooperative Fish and Wildlife Research Unit, the Texas Parks and Wildlife Department (TPWD) and private landowners.

The study is funded by a special legislative appropriation and is being conducted under an interagency contract between the TPWD and Texas Tech.

According to Tec Clark, TPWD's acting program leader for mule deer, the study was initiated to focus on the natural mortality rate of the mule deer in the area. Dr. Steve Demarais, a research scientist in Texas Tech's Department of Range and Wildlife Management, will direct the investigation by the University.

"The TPWD needs to know how many mule deer are dying annually and how and when they are dying," Clark said. "Then we can make scientifically-based harvest recommendations that will keep the population at an optimum level."

These harvest recommendations could impact future hunting regulations for mule deer. There has been concern among landowners about a recent expansion of the mule deer hunting season. In 1988, the season was increased to 16 days—up from nine days in past seasons.

"Landowners have noticed a decline in mule deer populations, yet harvest data indicate that the buck segment may currently be underharvested," said Clark. "We want to quantify the annual mortality rates and the causes of mortality for fawns and male and female yearlings and adults."

Demarais pointed out that once the numbers and causes of death are known, the Texas Tech researchers will develop a population reconstruction model to test the effect of various theoretical harvest strategies on mule deer population size. "The information should help determine an optimum hunting regulation with respect to harvest rates," Demarais said.

The three-year study began in February with the capture of 102 mule deer at the TPWD's Elephant Mountain Wildlife Management Area in Brewster County and private ranches in the surrounding area. Crews used net guns fired from helicopters and ground-based drop nets to capture the deer.

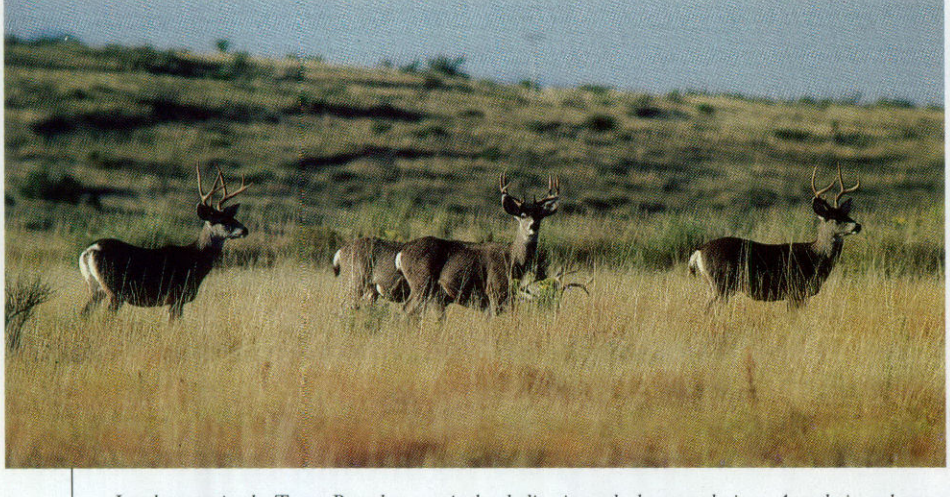
The deer were aged, fitted with radio collars and then released so that they can be located remotely using directional antennae. Mortality sensors in the radio collars will indicate when an animal dies. Then field personnel will locate the dead animal and attempt to identify the cause of death.

Demarais said researchers will try to quantify the loss of deer to predators such as mountain lions and coyotes. "This information could allow landowners to determine the cost-effectiveness of predator control," he said.

In addition to studying the mortality of mule deer, the scientists also will observe the life of the animal. "Part of the study will determine habitat use and preferences by adult males and females during the generally wet season (May–October), and the dry season (November–April). If habitat use and preference is known, then the habitat can be manipulated to improve its quality for mule deer," Demarais said.

The study may also help hunters in their pursuit of quality deer. "The activity data we accumulate will help us quantify when bucks are active and how the breeding season affects their activity patterns," he said.

Sightings of collared and ear-tagged mule deer outside the Elephant Mountain WMA should be reported to the management area headquarters at 915-364-2228, or the TPWD Wildlife Division in Alpine, 915-837-2051.



Glen Mills

Landowners in the Trans-Pecos have noticed a decline in mule deer populations. A study is underway to determine the cause.

We've Reached West, Texas, Now Heading for Waco

State fishery officials, somewhat giddy over this year's hatchery production of largemouth bass, pronounced that if this spring's fingerlings were laid nose-to-tail they would reach from downtown Dallas almost to Waco.

"I still think we can get past Waco with a little luck this year," laughed Bill Rutledge, hatchery chief for the Texas Parks and Wildlife Department, explaining that the first spawning and grow-out period produced 4.48 million one-inch bass and the next batch could easily push the total past 6 million and bring the Waco skyline into view.

By comparison, total production of Florida bass fingerlings last year was 2.7 million, or only enough to stretch from Reunion Arena to just past Waxahachie, laid end-to-end.

The mileage was calculated by dividing the number of one-inch-long bass fingerlings by 12 to get the number of feet, then dividing that sum by 5,280, the number of feet in a mile.

Rutledge is especially pleased with the increased production because it was a direct result of new technology at the A. E.

Leroy Williamson

The A. E. Wood Fishery Center at the San Marcos State Hatchery is producing record numbers of largemouth bass fry.

Wood Fishery Center at San Marcos State Fish Hatchery. "The indoor raceways at the Wood facility are producing record numbers of fry during a year when spawning in outdoor ponds would have been severely curtailed because of the weather," Rutledge said. Bass also are produced at the department's Jasper and Tyler hatcheries.

With the complete renovation of the state's aging fish hatcheries, Rutledge hopes eventually to produce about 17 million largemouth bass fingerlings annually for release in public waters of Texas. "That number would enable us to stock every lake in Texas once every five years," Rutledge explained. "It also would make a line of fingerlings from Dallas to San Antonio."

TPWD Acquires Additional White-Winged Dove Habitat

The Texas Parks and Wildlife Department has completed acquisition of a new white-winged dove habitat area in the Lower Rio Grande Valley.

The 125-acre tract of irrigated cropland and native brush is located four miles southeast of Donna. The tract was purchased from the Taormina Co. with funds derived from the sale of White-winged Dove Stamps, according to Ron George, dove program leader.

Part of the new tract is being reforested with native brush for whitewing nesting habitat and the rest will be managed for wildlife food production. Although the land is managed primarily for white-winged doves, many tropical and temperate wildlife species, including endangered ocelots and jaguarundis, may ultimately benefit from this habitat, George said.

To date, the department has acquired 16 separate units of whitewing habitat, totaling 3,842 acres in five Texas counties. "These units of native habitat, collectively known as the Las Palomas Wildlife Management Area, are especially important to wildlife during years such as this when alternate nesting cover in citrus orchards has been damaged by freezing weather," said George.

Ocotillo Unit Habitat Improved with Plantings

Dove hunters who don't mind driving a few hundred miles should keep this place in mind next September.

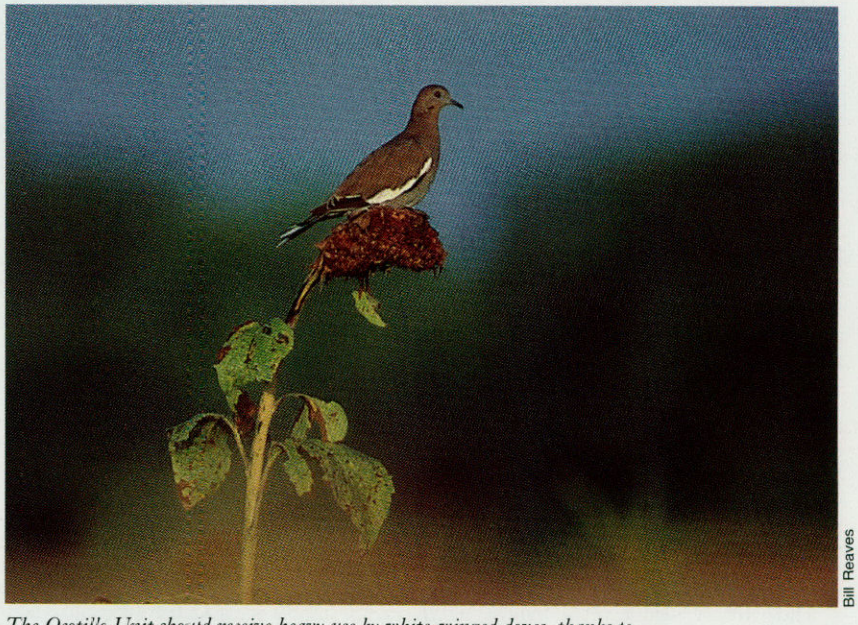
It's called the Ocotillo Unit of the Las Palomas Wildlife Management Area. Owned and operated by the Texas Parks and Wildlife Department, it is located 39 miles west of Presidio and contains 1,861 acres adjacent to the Rio Grande.

Danny Swepston, area manager, said about 10 acres of Rio Grande bottomlands have been planted with grain sorghum and native and domestic sunflowers. These irrigated areas are expected to receive heavy use by both white-winged and mourning doves, as well as other wildlife.

"We also are maintaining salt cedar thickets along the river for nesting habitat, and providing water for doves and other birds," said Swepston.

Last year, public hunts were held for white-winged doves during the special two-weekend open season. Hunters registered and paid a $10 daily permit fee to hunt. Hunting also was allowed free of charge during the mourning dove season on a permission by registration basis. Officials said the permit fee for white-winged dove hunts is proposed to increase to $12, but otherwise the same basic opportunities probably will be available for hunters at the Ocotillo Unit this fall.

For more information on the Ocotillo Unit, contact Swepston at 915-837-2051 or the management area office, 915-229-3190.



Bill Reaves

The Ocotillo Unit should receive heavy use by white-winged doves, thanks to plantings of grain sorghum and sunflowers.

Striking Ansel Adams photographs such as this view of California's Mount Williamson will be on display this month at the Houston Museum of Natural Science.

Ansel Adams Photographs Highlight Houston Exhibition

An exhibition of 93 photographs by Ansel Adams will be on display in the Houston Museum of Natural Science July 6 through September 30.

Officials said the exhibition, one of the most comprehensive gatherings of Adams' work, covers 50 years and includes 18 of his earliest photographs.

The exhibition was made possible through the cooperation of the Mitsubishi Estate New York, Inc.

The Houston Museum of Natural Science is located in Hermann Park at 1 Hermann Circle Drive. The museum is open Monday through Saturday from 9 a.m. to 6 p.m. and Sunday from noon to 6 p.m. Admission is free to members; $2.50 for adults; $2 for children 11 and under. For information call 713-639-4600.

Agreement Will Create Saltwater Hatchery

Officials of the Texas Parks and Wildlife Commission (TPWC), the Gulf Coast Conservation Association (GCCA) and Dow Chemical Co. celebrated Earth Day weekend on April 21 by officially breaking ground for a saltwater fish hatchery that is expected to provide millions of red drum, spotted seatrout and other fish for restocking Texas' saltwater bays.

The agreement launching the unique hatchery was signed by Walter Fondren, chairman of the board of directors of the GCCA; Chuck Nash, chairman of the TPWC, and Larry Wright, vice president of Dow Texas Operations.

The hatchery facility will be built on a 60-acre site donated by Dow and located just southwest of Lake Jackson near the Brazos River. The GCCA will provide funds for construction of the facilities, which will include 50 acres of rearing ponds and 10 acres of associated buildings and facilities. Expenditures by the GCCA will be eligible for reimbursement from federal matching funds. The facility will be operated by Parks and Wildlife Department Fisheries Division personnel.

When completed the facility will be the second saltwater fish hatchery operated by the department on the Texas Gulf Coast, and should effectively double the TPWD's production of saltwater game fish. The GCCA-CPL Marine Development Center at Corpus Christi already has produced more than 50 million fingerlings in its six years of operation. The Corpus Christi facility has 39 acres of rearing ponds, and additional ponds have been provided by Dow at Freeport.

Nash praised Dow for the company's commitment and generosity. "Restoring our coastal fisheries is a long-term project," Nash said. "Certain fish populations such as red drum and spotted seatrout have been hurt by overharvest and natural occurrences such as red tide and severe freezes. This commitment from Dow and the GCCA to help restore these populations comes none too soon."

Bill Rutledge, hatchery chief for the TPWD, said the new facility will enable the department to conduct more broad-based programs, and possibly expand production of species that have not been propagated in large numbers before, including spotted seatrout and snook.

Paddlefish Tracking Project Started in Southeast Texas

Fishery biologists have begun tracking the movements of paddlefish stocked in the Neches/Angelina River system above B. A. Steinhagen Reservoir during April.

The Texas Parks and Wildlife Department produced the fish at the San Marcos State Fish Hatchery and equipped 13 of them with radio transmitters to monitor movements of the endangered fish after release.

Biologist Ronnie Pitman of the department's Heart O' the Hills Research Station at Ingram said crews have been able to follow the movements of 12 of the 13 radio tagged fish. Most migrated upstream, five have been found below Sam Rayburn Reservoir dam on the Angelina River and one below Highway 69 on the Neches River. Only two remained near the release site, she said.

Most of the 31,742 paddlefish spawned at the hatchery this spring were released into the same river system as fingerlings, Pitman said.

Once found in most East Texas river systems, paddlefish have declined during the past half-century. Biologists believe alteration of the fish's river habitats by dam construction may have been a major factor in their decline.

INSIDE BACK COVER

A diamondback rattlesnake moves along a dry creekbed in the North Texas badlands as the late afternoon sun casts oblique shadows across the landscape. Wyman Meinzer shot this scene with a Canon F2, 20mm lens at 1/60 second, f/11 on Kodachrome 64 film.


O'BRIEN