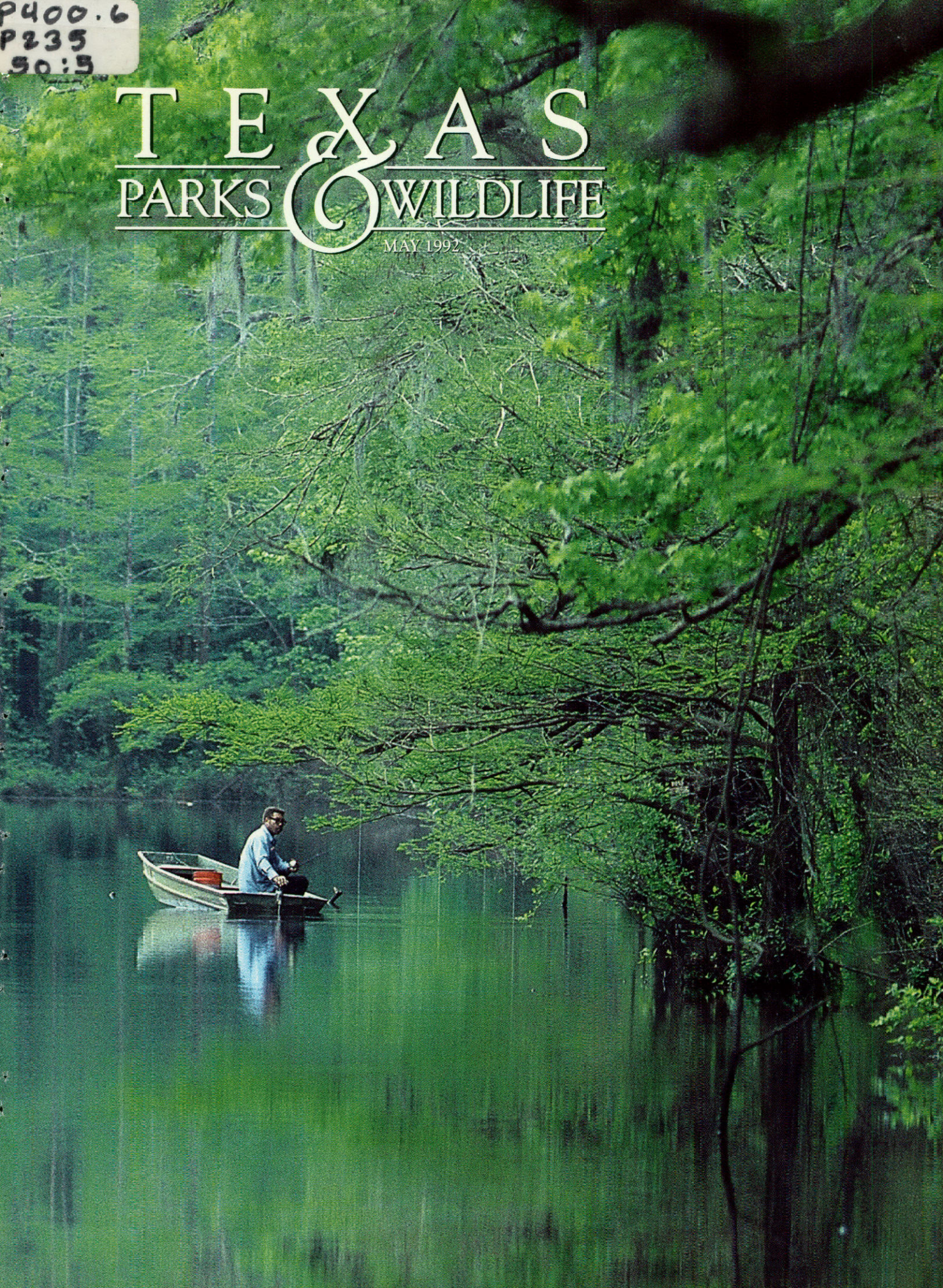


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TEXAS PARKS & WILDLIFE

MAY 1992





TEXAS PARKS & WILDLIFE

May 1992, Vol. 50, No. 5

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

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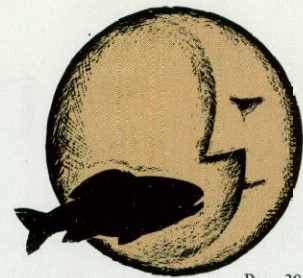
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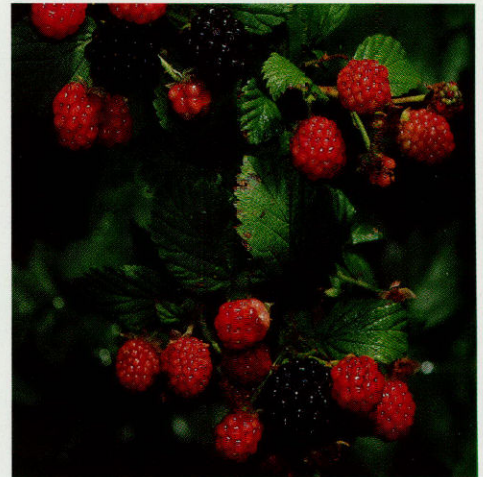
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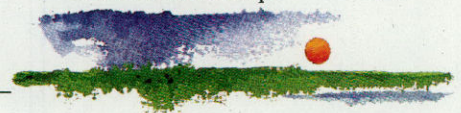
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COVERS—Front and Back: A serene spring day at Bouton Lake in Angelina National Forest. Photo by Laurence Parent Olympus OM-4T, 105mm lens, 1/8 second at f/16, Kodachrome 54 film. **Inside Front:** Smiling faces at Blanco State Park. See page 14. Photo by Stephan Myers. Nikon EL2, 200mm lens, 1/125 second at f/8, Fujichrome 50 film. **Inside Back:** Springtime is blackberry time. See page 28. Photo by Stephan Myers, Nikon EL2, 105mm lens, 1/60 second at f/11.5, Kodachrome 25 film.

At Issue

This spring I lost the best hunting partner I ever had except for my own son.

Although I grew up in the low country on the Texas coast and scheduled my life around duck hunting in the fall, I never truly appreciated the immense values to be derived from the sport until I first shared a blind with Albert Bel Fay. By some wondrous stroke of good fortune, the Ambassador, as we called him, annually would invite me to join a group of waterfowlers, in the marshes of Louisiana, some of whom had been shooting together in that place for more than 50 years.

While the hunting always was satisfying, the lucky participants derived the real meaning at Mr. Fay's old camp from the heavy atmosphere of tradition and the lasting relationships. Each year, every detail of our time together followed comfortable but firm patterns established over many years, including the menus of each familiar meal, procedures for pairing hunters with guides and protocol in the field. In the evenings, the discussions would encompass the wide repertoires of our host and his guests, from national politics to the best of campfire humor and from critical conservation issues along the Gulf of Mexico to the finer points of world-

class sailing competition.

It was this remarkable contrast between the deeply traditional culture and behavior of a southern outdoorsman and the outlook and contributions of a visionary that drew me to love Albert Fay.

When he came to Houston in the 1930s, there were no sailboats on Galveston Bay. Today, there are thousands because of his insight. He ran for governor of Texas in the 1950s on a platform that included the great need for parks as a major plank at a time when the very idea of conservation was considered silly by most. He recognized early the tremendous outdoor recreation potential of the Trans-Pecos and was a leader in efforts to preserve that region of the state.

I was reminded of my old friend once again while reading Sheryl Smith-Rodgers's description of Blanco State Park and the vision and tenacity of Ira Caswell, without whom the park would have disappeared. Such men as these understand that people will appreciate them after they are gone, and we do.

We appreciate all the more the lovely places and times we associate with them and wherein we sense their presence. ★

—Andrew Sansom, Executive Director



In June...

Buffalo hunters roamed the Texas plains in the latter part of the 19th century, using powerful Sharps rifles to kill the huge animals. In the June issue we'll tell you about this unique breed of hunter and the animals that were their quarry.

Spikes and Bass

As an avid hunter and fisherman I would like to get answers once and for all to two questions:

1) Are spike bucks inferior animals that should be eliminated from the herd?

2) Do fish, primarily black bass, die because they are caught and released?

Jerry Ritcheson
Houston

■ Department wildlife biologists say spike bucks usually are inferior because of genetics, nutrition or a combination of the two. It would not be possible to "eliminate" spikes from the herd. However, they should be part of the buck harvest and should not receive special protection. Landowners embarking on a deer management program should contact a department technical guidance biologist in their area for advice on the best harvest plan for their property.

Studies in Texas and across the nation have shown that largemouth bass have excellent survival after release if they are returned to the water properly and promptly. Whatever hooking mortality occurs generally is not severe enough to negate the beneficial effects of regulations such as length limits. For more information on catch-and-release fishing read "Can Small Public Lakes Produce Trophy Bass?" in the February 1992 issue.

Green Jays

The December 1991 and January 1992 issues contained photos of the beautiful green jay. Both captions stated that this bird rarely is seen north of the Lower Rio Grande Valley, but I believe they may be expanding their range north.

I remember seeing several green jays in Kingsville when I was a graduate wildlife student at Texas A&I University in the mid-1980s. This year several jays have visited my parents' feeding station at their home near San Patricio. My husband photographed one when we visited at Christmas.

Janice K. Lautier
Knightdale, North Carolina

LETTERS

Fantastic People

I spent much of the first 16 years of my life in Texas and the next 34 years all over the world. I forgot what I was missing in Texas.

In 1987, my wife was diagnosed with cancer and we made 13 trips to M.D. Anderson Cancer Center in Houston, always taking our R.V. We always took a little extra time to pursue our favorite activities on these trips. My wife is a birder and I love to fish for bass, so we always had our boat and binoculars with us. A few of the state parks we visited are Choke Canyon, Bentsen-Rio Grande, Falcon and Goose Island. We became subscribers to TEXAS PARKS & WILDLIFE magazine and look forward to every issue.

Since 1990 my wife has been treated in another state, but we still make at least two trips a year to Texas and probably will retire there. The people are absolutely fantastic and the same applies to your magazine.

By the way, the new Conservation Passport is great.

Delbert T. Jeter
St. Joseph, Missouri

Early-day Leaday

Regarding "O.H. Ivie Arrives" in the March issue, I am distressed that neither the dam nor the reservoir is named for some of the hardy pioneers who fought the Indians, participated in the huge cattle drives and carved their ranches out of primitive conditions.

I am 87 now. I started school in the little one-room schoolhouse at Leaday in 1911. In 1908 my father bought some acres from the Day ranch and built a house about a mile south of the Day ranch house. Other outstanding ranchers near Leaday were the Coffeys, the Ganns, the Cresswells and Mrs. McClain, who lived a few miles above Stacy on the Colorado River.

The Coffeys and Ganns were

the closest to Leaday and were a part of the activities there. I wish the reservoir or dam could have been named Coffey-Gann or something similar.

I remember, as a child, standing on the high hill near our house and watching the Colorado and the Concho Rivers coming down on a headrise at their confluence. The Concho was dark and the Colorado was red. I heard someone say they were rising about a foot a minute. It was some sight!

Mrs. Florence Powers Allamon
Temple



Leroy Williamson

Put on Your Armor

We enjoyed Suzanne Martin's "Suits of Armor" in the February issue.

The armadillo finally is gaining the respect it deserves. Ten years ago we formed the Texas Armadillo Association to preserve, protect and promote the armadillo. Today, our Put on Your Armor Foundation travels nationwide with a message: "Put on your armor against drugs, crime and violence." Our rescued armadillos are great attention-getters at the state fairs and schools we visit.

If armadillos are a nuisance to some of your readers, the armadillos will be welcome in our organizations. For information, please contact the Texas Armadillo Association or Put on Your Armor Foundation, P.O. Box 311074, New Braunfels, Texas 78131, 512-629-4980.

Jim Schmidt
New Braunfels

Seeking Advice

I have been plagued by dirt daubers for the past several years, resulting in the destruction of electrical hand tools, motors, etc. Manual removal of nests during the inactive period does not seem to be a satisfactory solution to the problem. At this point I would solicit advice regarding this problem, and would be willing to try anything from witchcraft to old wives' tales or even something with a more scientific basis.

Thomas D. Meek, M.D.
Odessa

■ Readers, if you have any suggestions for Dr. Meek we'll pass them along to him.

Wrong Fence

Upon receiving the February issue, I immediately tore off the wrapper and admired the attractive (as usual) front and back covers. When I read that the lark buntings were lined up along a barbed wire fence I thought I needed my glasses changed. A couple of days later I got my magnifying glass and I still couldn't see any barbs. Is it just me? Or was that a tiny mistake?

Alice Powell
Wichita, Kansas

■ We at TEXAS PARKS & WILDLIFE really do know a barbed wire fence from a net wire fence. The only excuse we can offer is that the managing editor just turned 41 and probably needs to be fitted for bifocals.

Bentsen Park and Family

In our January 1992 story on Bentsen-Rio Grande State Park, we said land for the park had been acquired through gifts "...from the Lloyd M. Bentsen family..." True enough, but we left out other Bentsen family members who helped make the park a reality. Elmer Bentsen also played a key role in the park's inception and development. After land was donated, Alton Bentsen donated his time and monthly paycheck as park manager to developing the area.

(Continued on page 53)

Texas Parks & Wildlife

Dedicated

to the conservation

and enjoyment

Magazine

of Texas wildlife,

parks, waters and

all outdoors.

Celebrating Fifty Years



Women should be capable of far more enjoyment from fishing than men because of their sense of appreciation of beauty. A man will make his kill, guzzle a bottle of brew and blindly head homeward; a woman will be satisfied with one small perch and linger to revel in the infinitesimal loveliness of the bloom on Spanish moss or the haunting song of a rain crow at dusk.

"A Woman's Angle on Angling"
JUNE 1943

The claws of America's national emblem, the bald eagle, will no longer bring two dollars a pair to Alaska bounty seekers.

The National Audubon Society stated that a long campaign by Audubon groups and other conservation organizations has culminated in a federal regulation forbidding the killing of Alaskan bald eagles, unless they are found "committing damage" to wildlife or domestic stock.

"Alaskan Eagle Bounty Nullified by Federal Regulation"
JULY 1952

Remember the fellow who caught a 7-pound bass the other day? He wore its tail off dragging it around for his friends to see. Catching a 7-pound bass is something like making a hole in one.

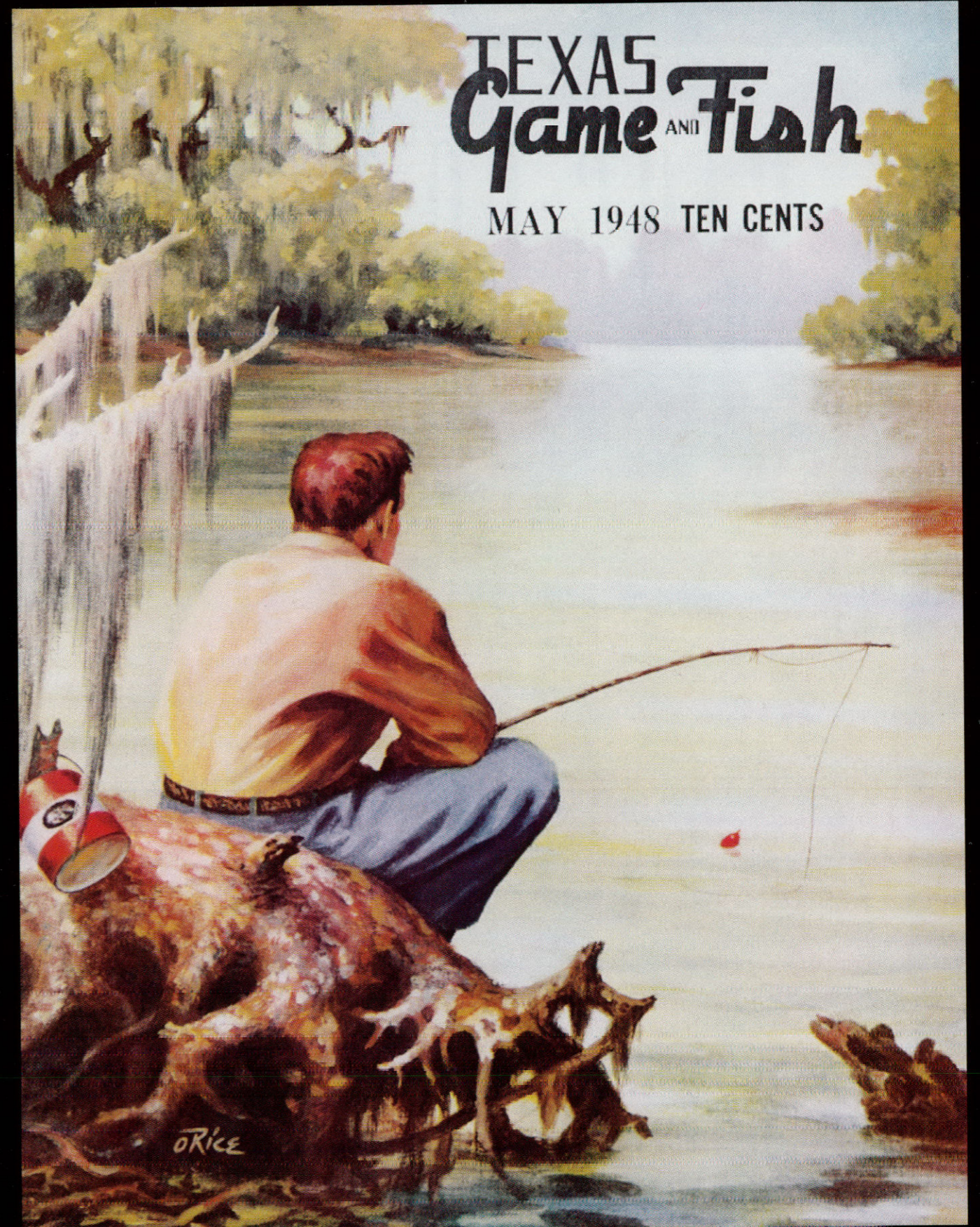
"A Full Stringer"
APRIL 1961

Ever dream of catching a 20-pound bass? Parks and Wildlife biologists are working on it at the Jasper Fish Hatchery in East Texas, quietly laying the groundwork for a potential revolution in the bass fishing records.

"Superbass"
AUGUST 1972

Five Oklahomans and an Odessa man paid \$10,000 in fines after pleading guilty to catching more than 9,000 catfish in illegal hoop nets at Lake Tawakoni during September.

"Illegal Catfish Netters Pay \$10,000 in Fines"
JANUARY 1986



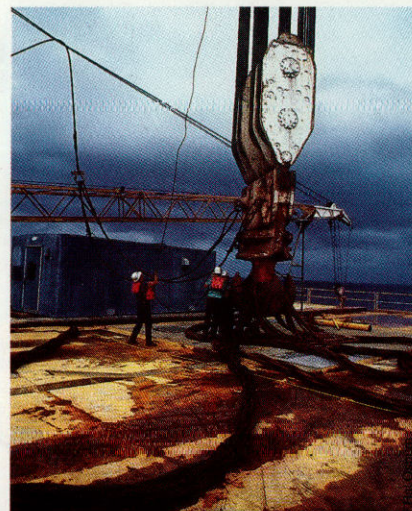
Rigs to Reefs

Turbulent waters heave and swirl around pairs of monstrous metal legs that rise from the Gulf like those of some metagalactic spider. High above the waves, cranes and winches bristle from a multilevel platform, where man's technology and artistry combine to tap the petroleum treasures trapped thousands of feet beneath the ocean floor.

Within its depths, the ocean is a vast and fertile womb, eager to transform the barren steel of an oil rig's massive framework into an extraordinary ecological experiment: a living artificial reef.

"In the Gulf of Mexico, the biggest limiting factor to reef formation is hard substrate," said Hal Osburn, director of the Coastal Fisheries Harvest Program for the Texas Parks and Wildlife Department. "A host of marine invertebrates constantly are looking for a place to attach. Once these organisms find it, they will start their own reef. Because of this, an oil rig can create an oasis in the middle of a relative desert."

As in other marine ecosys-



TOPPLED OIL
PLATFORMS
CREATE MARINE
HABITAT

by Janet R. Edwards

tems, life on an artificial reef develops in distinct layers or zones according to depth. Species requiring lots of light, high levels of oxygen and having the ability to tolerate abrasive wave action grow well near the surface of the rig jacket. Species that prefer lower light, calmer waters and can make do with less oxygen thrive at greater depths.

Within a few weeks after an oil rig is set in place, colonies of microscopic red and green algae attach to naked surfaces on the legs and crossbars near the surface, weaving an interlacing network among colonies of barnacle larvae. These tiny plants, which advance to depths of 15 feet, will later provide excellent forage for transient and permanent fish species.

Above water, the first tantalizing glimpse of the rich and diverse community established below can be seen in an oil rig's splash zone. Here, restless wind and waves alternately expose then cover masses of razor sharp, encrusting barnacles. Farther down, prolific schools of nomadic fish and solitary



predators, including sharks, hover among the crossbars of the giant jungle gym. The attraction is multifaceted; fish seem to feel more secure when close to a solid object (a behavior known as thigmotaxis) and appear to utilize the gigantic framework as a reference point in an otherwise featureless landscape. The rig's size also weakens or deflects strong currents, making it a welcome rest stop as well as a means to avoid or confuse predators.

Below the splash zone and down to around 60 feet (depending on water turbidity), a complex, heterogeneous mixture of encrusting organisms grows to form a thick, irregular mat. Acorn or Mediterranean barnacles dominate this region of the reef, intermixed with oysters, sea squirts, bryozoans, colorful sponges, sea urchins, delicate sea anemones and a variety of hard corals, including fire coral. Providing an abundant source of food for stone crabs and other foragers, this living, three-dimensional community also creates shelter for smaller fish such as blennies, which set up housekeeping in empty barnacle shells.

Angelfish, sergeant-majors, tangs, wrasses, damselfish, spotfin butterflies and small sea bass dart in and around the legs and crossbars, foraging or defending their territories. Sheepshead and triggerfish graze on barnacles, grinding the shells into sand and leaving tidbits of food for the smaller fish. Barracuda, dolphin, amberjack, king and Spanish mackerel, spadefish, sharks and a variety of other large predator species cruise in and out of the crisscross shadows that fall from the rig's upper levels.

At a depth of around 50 feet, the composition of the reef community begins to change. Barnacles decline in number, while tube worms, hydrozoans, sea anemones, sea whips and sea



Stephen Myers

fans become more predominant. A variety of large groupers, some in excess of 100 pounds, and snapper species dwell near the lower reaches of the rig. These fish often feed at night on shrimp, crabs and juvenile fish that migrate across

semblage, dominated by barnacles encrusted with hydrozoans, bryozoans and sponges, is found on rigs located in waters up to 90 feet deep. Pelecypods (bivalves) replace barnacles in the offshore assemblage that appears on rigs in

waters between 90 to 180 feet deep, often with luxuriant growths of octocorals. The bluewater community appears in waters at depths greater than 180

FISH FEEL MORE SECURE NEAR A SOLID OBJECT

open reaches of nearby sediment flats, returning to the rig for shelter during the day.

The coastal faunal community or as-

semblage, dominated by barnacles encrusted with hydrozoans, bryozoans and sponges, is found on rigs located in waters up to 90 feet deep. Pelecypods (bivalves) replace barnacles in the offshore assemblage that appears on rigs in waters between 90 to 180 feet deep, often with luxuriant growths of octocorals. The bluewater community appears in waters at depths greater than 180 feet, where light is limited, with a much lower concentration of organisms growing in a sparse, encrusting mat made up of stalked barnacles near the surface and



Hal Osburn

Sergeant-majors dart around the encrusted legs and crossbars of a submerged oil rig (left).

A rig is pulled over onto its side before being gently lowered to the sea floor (above).

Blennies find shelter in empty barnacle shells (right).



Stephan Myers

pelecypods farther down.

Texas fishermen regularly visit artificial reefs that unintentionally have been created in the Gulf beneath jetties, piers and petroleum platforms, as well as those areas deliberately seeded with hard-surface materials. Approximately 300,000 to 400,000 anglers, a number that represents 50 to 60 percent of the recreational fishermen in Gulf waters, used artificial reefs, including oil and gas platforms, between 1987 and 1989. Taking the plunge for a first-hand look, thousands of Texas scuba divers also visit the Gulf rigs every year to collect fresh fillets, photos and memories.

Artificial reefs appear to be a blessing we can't afford to ignore. They provide

a potential management tool for increasing biological diversity and productivity among reef species in the Gulf, as well as for preserving fishing and diving opportunities. However, as with any alteration of the natural environment, there is some degree of concern for ecological imbalance and potential harm associated with them.

Artificial reefs remove Gulf habitat

from shrimp and other bottom-dwelling species and, if incorrectly placed, can draw large numbers of juvenile fish species away from nearby, better-established reefs. If unmarked, artificial reefs may pose a hazard to property, including shrimp nets, which are snagged easily and torn by bottom structures. If not protected, artificial reefs can be overfished quickly, leading to a dangerous decline in already compromised reef species populations.

In years past, dumping of materials with low durability or stability such as wrecked car bodies, construction rubble and other junk led to interference with navigation and shrimping, expensive marking and accessibility problems for anglers. More than 20 new sites were created during the 1950s and 1960s from a variety of experimental materials: oyster shell, automobiles, barges, tires and construction rubble. But most of these structures washed away beneath the blasts of hurricanes or prevailing currents, and often were beached, buried in the mud or snagged in shrimpers' nets. A lack of clearly defined goals for those artificial reefs that remained created conflicts among competing interest groups as well as inefficient use of manpower and money.

For these reasons, all geographic, social, economic and environmental concerns must be incorporated into a resource planning framework. Artificial reefs have the potential for a net ecological benefit. However, they should be placed in locations that enhance and conserve fishery resources, minimize conflicts among users and improve fishing opportunities. In addition, risks to environmental, personal and public health and property need to be reduced, obstructions to navigation eliminated and the principles of international and national law adhered to.

During the late 1940s, the Parks and Wildlife Department, among other agencies, perceived the potential value of artificial reefs and began to take an active role in their development, gradually acquiring the knowledge and experience needed to help formulate and carry out such a comprehensive plan.

A variety of corals grows on the toppled rigs from below the splash zone down to 60 feet.

“The notion of haphazardly dumping our unwanted refuse to the bottom of the sea must be forgotten, at least off Texas,” said Osburn. “Instead, we must look to capitalize on those materials and designs that have been proven to withstand the underwater forces of nature.”

In the mid-1970s, 12 Liberty Ships deliberately sunk at five sites off Texas proved to be far more seaworthy substrate. Because of their relative proximity to shore, these sites form the nucleus for stable artificial reef development more convenient to the average Gulf boater.

“Perhaps even better candidates, because of their sheer numbers, are the oil and gas platforms already in place off Texas—already serving as artificial reefs, already serving as fishing and diving sites,” said Osburn.

The fulcrum for lifting the concept of Rigs to Reefs to its current status as the focal point of artificial reef development occurred in 1984 following the establishment, by Tenneco Oil Co., of the first reef created from a retired oil production platform. As a result, the United States Congress passed the National Fishing



Enhancement Act, a law mandating creation of a comprehensive National Artificial Reef Plan. Under this national plan, legislators hoped to provide the long-awaited federal guidance needed to create a cohesive, comprehensive resource planning framework for all maritime states.

Another impetus for the National Reef Plan came from the U. S. Department of Interior's ruling that offshore oil and gas platforms must be completely removed and the sea floor restored to its original condition within a year after production ceases.

By the year 2000, about 40 percent of more than 4,000 existing offshore platforms (95 percent of which are located in the Gulf), will have become unprofitable. The cost of removal can range

from \$500,000 to a staggering sum of \$6 million, depending upon rig location and size.

“Rig removal is very expensive,” said Joey Hall, facilities engineer for Mesa Limited Partnership. “The bulk of the cost is for offshore work, which requires the use of derrick and cargo barges to remove the deck and jacket. Once we beach and offload it, the entire structure must be cut up and disposed of according to government regulations.”

But what if rig jackets could be left in the sea safely at a far more reasonable expenditure of time and money? Would petroleum companies be willing to participate in a Rigs to Reefs program, even if required to donate half of the money they save to a special fund that would make the program self-supporting? The



Stephan Myers

shrimping industry ultimately willing to share the resource; a biological community with the potential to make the most of the opportunity; and a public eager to reap the benefits.

With the passage of the Texas Artificial Reef Act in 1989 and the subsequent development of the Texas Artificial Reef Fishery Management Plan, the picture those puzzle pieces create no longer is a fervent hope, but an inspired reality.

“Louisiana developed the first state plan and Texas was the second Gulf state to follow suit. Although the Texas Artificial Reef Plan involves more than just the Rigs to Reefs program, the oil and gas rigs represent the heart and soul of it,” said Osburn.

Highlights of the plan include siting, funding, construction, permitting and liability considerations, a map of priority areas for artificial reef development and a process for maximizing the participation of various interest groups.

“We have two ‘firsts’ in the program, actually,” said Osburn. “In 1989, the Texas Legislature passed Senate Bill 5, which provided funding and guidelines for managers to use in offshore artificial reef development, and directed the Texas Parks and Wildlife Department to create a Texas Artificial Reef Plan.

“In January 1990, Transco Exploration Company donated the first rig to the department under our long-standing but limited artificial reef authority,” continued Osburn. “On November 8, 1990, the Parks and Wildlife Commission adopted the Texas Artificial Reef Plan, and in July 1991 Phillips Petroleum Company became the first to donate a rig under the new, more comprehensive artificial reef program. Since then, we’ve had five more rig donations, bringing the total in the Artificial Reef Fund to almost \$1 million.”

Preparation of an obsolete rig for

donation to the Rigs to Reefs program begins with removal and barge transport of the platform’s deck and superstructure to land for dismantling. Explosive charges then are placed inside the jacket’s hollow legs at a depth of 16 feet below the mud line. When the charges go off the legs are cut,

severing the jacket from pilings that extend some 300 to 400 feet into the sediment.

If the present location of the rig meets the requirements for artificial reef siting, a barge ties lines to the massive jacket, pulls it over onto its side and gently

lowers it to the sea floor. Otherwise, the jacket is towed to the permitted area and released to settle in its new home, reef community substantially intact.

How do petroleum industry donors to the Rigs to Reefs program perceive their new role in the Texas Artificial Reef Plan?

“As required, we donated half of our savings from the High Island Block A-315 rig—about \$222,000—to the Rigs to Reefs fund in order to help with maintenance of buoys and future reef development,” said Hall. “But even if it turned out to be an equal tradeoff, we’d be more than happy to help out the environment by participating in the program. We recommend that other oil companies think about not only the immediate monetary considerations but also disposal and liability considerations, since the state assumes responsibility for the rig once it’s toppled.”

Considering the potential savings to industry as well as the environment, the role of the Texas Artificial Reef Advisory Committee becomes crucial. The committee is a broad-based citizen group organized to consider and resolve conflicts between groups affected by the Rigs to Reef program.

“It’s absolutely a winning situation,” said Jim Morrison, who chairs the advisory committee. “Here we have repre-

REMOVING RIGS IS EXPENSIVE

answer came when, as a result of the Louisiana Artificial Reef Initiative (LARI), several companies agreed to do just that.

This compelling notice was enhanced by the fact that oil rigs supply almost a third of the solid surface area suitable for reef formation in the Gulf. Could the vibrant microcosms of life these massive structures already host make them worth the necessary trouble and expense of preserving and maintaining?

The pieces began to fall into place like a five-piece jigsaw puzzle: an industry often vilified for exploiting the earth’s natural resources suddenly able to take the lead in environmental conservation; a state and national government ready to provide the guidance and economic incentive; a commercial fishing and

sentatives from the public and private sector—including government agencies, fishing, tourism, diving, shrimping, university and environmental groups—working together to decide how to promote the natural environment and tourism for the benefit of the entire state. It's not always easy, but it works. It's very positive."

But what are these differing viewpoints on artificial reef development and use?

Some are concerned that artificial reefs merely concentrate fish populations in specific areas rather than enhancing populations by creating new habitat. While it is true that artificial reefs attract and concentrate fish, Gulf reef species are habitat limited—they can live and carry out their life cycles only in areas where hard substrate is available.

Providing new habitat reduces that limitation by expanding their range and compensating for natural mortality from disease and predation. Losses from fishing and shrimping also can be offset, as long as ethical fishing practices, including adherence to size regulations, gear restrictions and bag limits, are observed and enforced.

Because artificial reefs represent potential underwater obstacles and displace shrimp habitat, shrimpers generally oppose them. Proponents, however, believe the bottom area sacrificed to artificial reef development is negligible when compared to the millions of acres of suitable shrimp habitat available in the Gulf.

Most user-group conflicts over artificial reefs seem to center around where to put them. The current artificial reef program includes a possible solution: clustering a number of toppled oil rigs together in areas where the presence of sea floor clutter already inhibits trawling. Clustering not only would concentrate reef activity for fishing and diving, it also would keep more space free for trawling and replenish juvenile reef spe-

cies lost in shrimpers' bycatch.

But what about fishermen and divers? Can the Rigs to Reefs program help resolve a consumptive versus nonconsumptive approach to the resource?

"I don't believe it's an obstacle at all," said Jim Morrison. "Since I run both fishing and diving charters, I can assure you that the bigger the area available to fish and dive on, the more basic parking spots there are and the less competition there will be for space. Many fishermen also are divers and vice versa. The two sports are very compatible."

With the Texas Artificial Reef Plan clearly at the helm, what does the future hold?

"Through a required donation of 50 percent of their realized savings to the Artificial Reef Fund, petroleum compa-

nies will finance not only research, administration, maintenance and liability, but also the construction of new artificial reefs to place at the best sites," said Osburn.

"Objectives for optimum use will emphasize the construction or placement of artificial reefs closer to major urban centers, as well as the use of reef designs most conducive to overfished Gulf species. Perhaps some of the artificial reefs will need to be designated as marine sanctuaries or marine parks, with obvious benefits for nonconsumptive divers but also providing healthy reservoirs of brood fish for spawning future generations," said Osburn.

Imagine groups of visitors whisked from land via hovercraft to a new offshore Gulf marine research and public

For further information:

Texas Parks and Wildlife Department
Coastal Fisheries Branch
4200 Smith School Road
Austin, Texas 78744
1-800-792-1112

Publications:

Texas Artificial Reef Fishery Management Plan
Book - 1990 Source Document
Booklet - 1990 Summary Document, Fishery Management
Plan Series Number 3

A Summary of Artificial Reef Construction on the Texas Coast
1986 Management Data Series Number 98

Artificial Reef Donation Status - As of February 1, 1992

Two-page summary indicating:

- name of rig donors and potential donors' location (loran latitude/longitude)
- type/size of structure
- block/tract number
- water depth/distance offshore
- permit number/type of marking
- donation status/fund donation amount

INFO



Stephan Myers

The colorful cocoa damselfish (left) is a common inhabitant of offshore reefs.

Divers (below) enjoy the variety of underwater life found around toppled oil rigs.

education center. Upon arrival, they step aboard a pressurized, transparent bathysphere that descends through the center of the remodeled petroleum platform. Voices gasp in awe as lights reveal the dazzling colors of vibrant, vertical reefs. Teeming schools of barracuda, shark and tarpon circle past and huge groupers lazily nuzzle the sandy bottom. In the distance, wisps of bubbles rise from divers touring interpretive trails across a circular atoll, their boats tied to special moorings that float above the artificial reef.

“The plan is only a lifeless document without people to provide energy and imagination to it,” said Osburn. “It is for future generations of Texans that the artificial reef program now must be directed. The answer to how far we can go with artificial reefs is, indeed, another question—how big can we dream?” ★

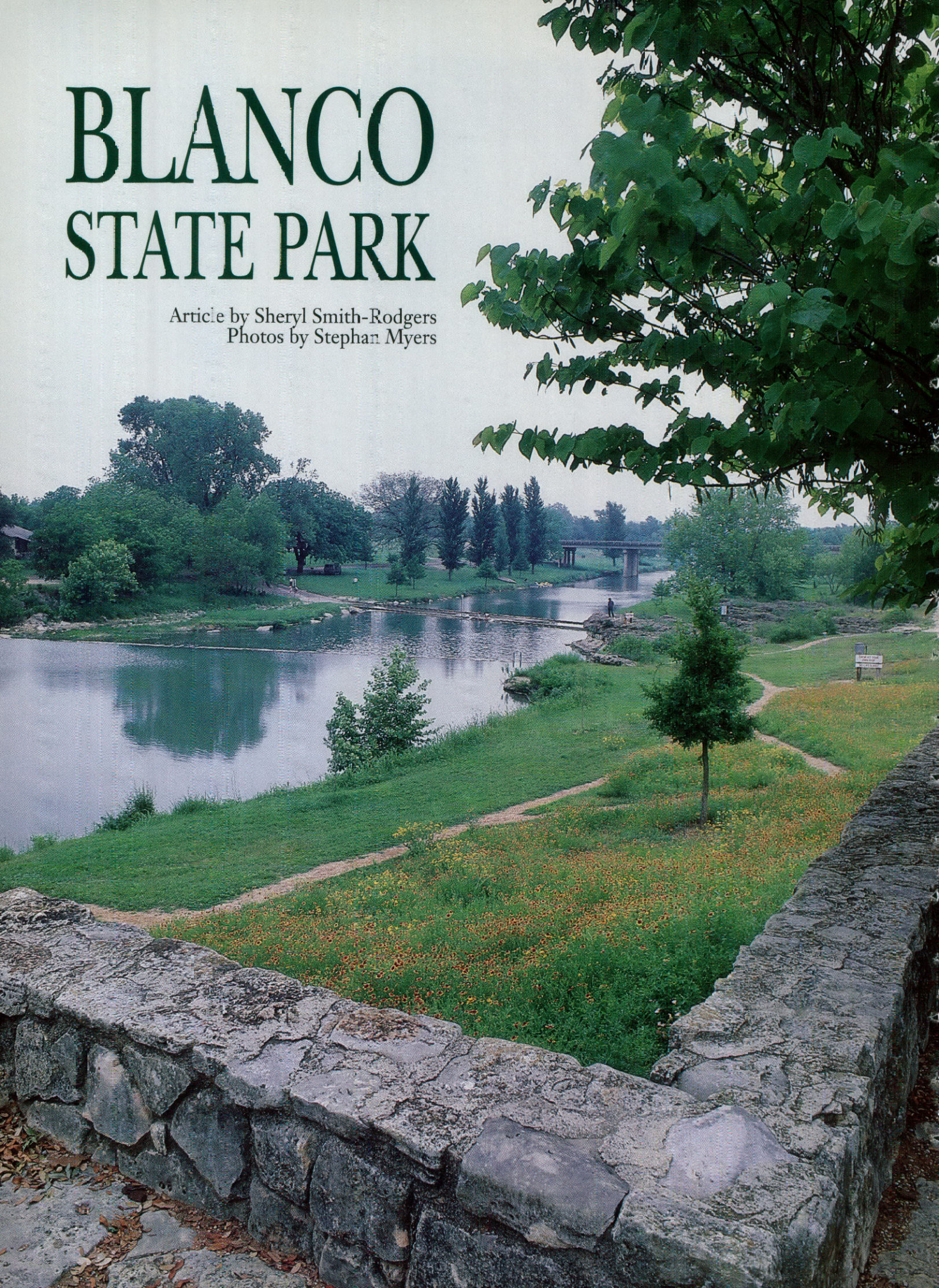
A freelance writer living in Corpus Christi, Janet Edwards is a frequent contributor to the magazine.



Stephan Myers

BLANCO STATE PARK

Article by Sheryl Smith-Rodgers
Photos by Stephan Myers





Natural beauty at the city's doorstep.

Like most city folks, Tom and Goldena Cooper work a full schedule, fight the rush-hour traffic and collapse at home after a hectic day. Just as the last of their energy dwindles away on Friday and the freeway congestion peaks at 5 p.m., another weekend arrives in the nick of time.

That means the San Antonio couple can escape to their favorite getaway—Blanco State Park.

“We like to relax and get away from the San Antonio noise,” says Goldena while sipping a cup of coffee under the awning of their travel trailer. “It’s a beautiful park.”

“Park facilities are very handy, and town is right there if you need anything,” adds an equally comfortable Tom seated in a vinyl lawn chair. “Of all the parks we’ve seen, this is the prettiest.”

The Coopers, like many other visitors, have established Blanco State Park as a family tradition and visit there as many as eight times a year. In fact, half of the park’s annual 216,000 guests hail from San Antonio and Austin, both less than an hour away.

“People like to come here because of the restful atmosphere of the Hill Country,” said Park Superintendent

Terry Rodgers. “Plus, we’re close to the LBJ parks and the horse races in Bandera and Fredericksburg. This is the heart of the Hill Country.”

Long ago, the area’s visitors were prehistoric Indians who camped and hunted along the riverbanks. The first Europeans to arrive were Spanish explorers. One of them, the Marquis de Aguayo, in 1721 christened the river with the Spanish name of “blanco,” which means white and refers to the river’s white limestone bed.

Two centuries later, in June 1933, a crew of 177 Civilian Conservation Corps workers set up camp after a group of Blanco residents donated 105 acres for the future park. Local resident Bill Smith, 82, remembers driving a dump truck filled with quarried limestone,

which the workers used to build two dams across the river. Native stones from old abandoned stone fences built by pioneers of the community were used to construct the pavilion, picnic tables, retaining walls and an arched bridge. After completing the park, the camp moved to Longhorn Cavern.

In the early 1960s, Blanco State Park narrowly escaped abandonment by the state. Low visitation and poorly maintained facilities at the park led Governor John Connally to announce that the area would revert to its original owners due to a lack of funding. The late Ira Caswell, then a member of the Blanco Chamber of Commerce, was one of many local residents who opposed the closing and initiated a write-in campaign to the governor.



The scenic Blanco River winds through the park, giving youngsters a good place in which to splash around on a warm summer day.

The campaign convinced the governor to change his mind, and Caswell agreed to manage the park for a salary of \$210 a month. "It was still a pretty place, and we felt it had a lot of potential," recalled Caswell, before his death in 1991 at age 90. "It was a big job (managing the park), but we would have lost the park if it hadn't been for that."

Caswell later hired an employee, pay-

ing him the \$210. The employee also was supposed to assist Caswell on his ranch, but that rarely happened because of the tremendous work needing to be done within the park. Immediately, the two men went into motion, repairing rusty pipes, replacing screens on the shelters, mowing the grass and patrolling the premises at night. They also planted sycamore and redbud trees

throughout the park.

At night, Caswell and his wife, Vivian, printed and mailed out letters, touting the facility as a "quiet, family park." The letters, sent to groups in Austin and San Antonio, were well received. Soon visitation ballooned to 2,000 people a week, a hefty number for a small, forgotten park.

"Within two years, the state had given



In the 1930s, Civilian Conservation Corps workers used quarried limestone to build two dams across the river. CCC workers also built the park's picnic tables and an arched bridge.

up all thought of abandoning the park," wrote Caswell in his memoirs. Instead, "officials were thinking of spending more money on it." Caswell resigned in 1965, and the park was turned over to a full-time, salaried manager.

"I just wouldn't quit," Caswell said. "I just kept on until the park developed into something."

Today the park sometimes bursts at the seams with visitors, especially on Easter and summer holidays. This month, more than 3,000 people are expected to roll into the park for the fourth annual Blanco Classic Car Show, sponsored by the Blanco Chamber of Commerce. The event includes a morning parade of show entries and more than 100 classic cars on display.

Even on a normal day in Blanco, there's plenty to do both in the park and in town. Visitors may splash in the river, tube, canoe or fish. A concessionaire offers a variety of water toys to rent, including tubes and paddle boats. Water lovers flock to a favorite swimming spot located downhill from the pavilion and just above the central dam. In the summer, local folks mingle with park visitors as they enjoy the river's refreshing water and grassy banks. Kids can take their pick of two playgrounds in the camping area and one in the day-use. Within the state park, volunteers currently are working on a nature trail.

Downtown Blanco, a short walk from



Concessionaire Kay Lucas rents paddle boats, canoes and water toys to visitors who come to the park to enjoy the Blanco River (above).

the day-use area, blends charm and history with friendly townsfolk. Visitors may browse through a variety of shops, pause for a bakery sweet or sit down for a meal at Hunter's Inn and get a first-hand look at the old Blanco County courthouse built in 1886.

Jean Evans, a dedicated birder who recently moved to the area from San Antonio, hikes through the park once a week, armed with binoculars and a well-worn reference guide. Every Monday,

bright and early, Evans walks from one end of the park to the other, pausing occasionally to jot down her sightings in a little spiral-bound notebook. From her observations, begun in 1988, she has compiled an extensive bird list for the Blanco park area.

On a good day, she spots 30 species and has counted more than 130 species in her two years of work, including canyon wrens, ladderback woodpeckers, eastern phoebes, blue grosbeaks, green-backed herons and white-eyed vireos. Her prize sighting in the area several years ago was an American swallow-tailed kite.

In December and January, the Parks and Wildlife Department stocks the river with rainbow trout. The fish are released twice each month, and the dates are announced beforehand. Fishermen must have a valid Texas fishing license and a freshwater trout stamp. The daily limit is five fish per person. During the popular fishing period, Rodgers—also a park peace officer—keeps a close eye on the catch.

Concerned with the environment and impending closure of the county landfill, the city of Blanco initiated a curbside recycling program in April 1989. The following year Rodgers joined the effort by agreeing to place collection bins in the park. The barrels, located in front of the pavilion, hold glass, tin and aluminum cans. On a regular basis the city's waste-hauler, J&L Disposal Inc., picks up recyclable materials left in front



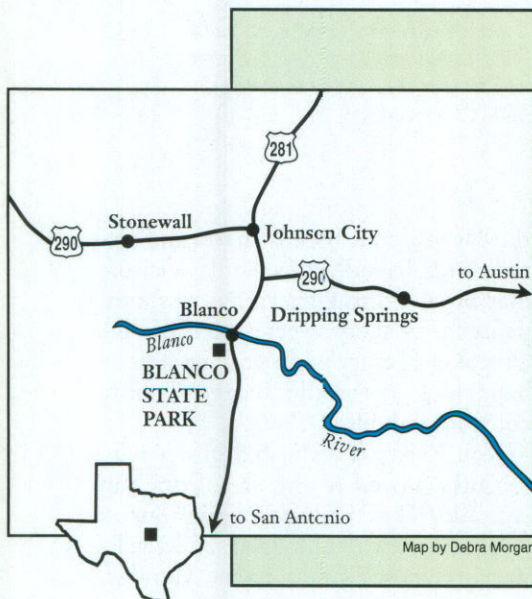
Sharen and Curtis Hart of Austin use a field guide to identify wildflowers growing near the pavilion, which CCC workers built from stones of old, abandoned fences in the area

of homes, businesses and in the park.

So when visiting Blanco State Park, don't throw away those soda and bean cans. Just rinse out all containers, and if possible, trim off the other end of tin cans and flatten. Then drop them in the

collection bins located not far from the campgrounds.

Blanco State Park's location in the city is unique among state parks with camping facilities. Other parks, such as McKinney Falls, Kerrville-Schreiner,



Blanco State Park is located on the south side of the town of Blanco just off U.S. 281, 50 miles north of San Antonio or 50 miles southwest of Austin via U.S. 290 and U.S. 281.

Facilities include 31 campsites in one campground—10 with full water, electricity and sewer hookups, \$11 per night weekdays and \$14 weekends (Friday, Saturday and Sunday); and 21 with shade shelters, water and electricity, \$10 per night weekdays and \$12 weekends. Seven screened shelters with water and electricity rent for \$15 per night weekdays and \$18 weekends. There is a \$3

entry fee per vehicle weekdays and \$5 on weekends.

A picnic shelter with kitchen facilities accommodates up to 75 persons. A group picnic area seats up to 50 persons. Fees are based on number of persons. Reservations for each are chosen in a drawing held each year in January. Reservations must arrive before January 11 at 10 a.m. when the drawing is held to choose reservations for the entire year. After that, they may be reserved subject to availability through January 31. Call the park office for additional information at 512-833-4333.



The rare stream orchid (above) grows from a spring seep in the park. David and Robert Abt of Crestview play outside the pavilion (below).

Goliad and Bastrop State Parks, lie on the outskirts of towns or within city limits. The city of Blanco, however, almost completely encircles Blanco State Park, and downtown is a mere two blocks away. In fact, most local folks fondly regard the facility as a city park, and many walk or picnic there on a regular basis.

So whether you're home-grown from Blanco or a visitor like the Coopers, you'll enjoy discovering the charm of Blanco State Park for an afternoon or an entire week. Just remember: one visit, and you're sure to be hooked! ★

Freelance writer Sheryl Smith-Rodgers lives with her family in Blanco State Park. Photographer Stephan Myers of Houston is a regular contributor to the magazine.



*Big bass respond to
solunar dinner bell.*



Lunar Lunkers

by Jim Cox

Bass anglers who consider the solunar tables hogwash may be missing the boat to hog heaven.

A study of 87 trophy-sized largemouth bass caught in Texas showed a statistically significant number were caught during times listed by commercial solunar tables as "major feeding periods." A second portion of the study, involving catch dates of 347 bass, revealed that most catches occurred between January and April.

Solunar tables, published in a wide array of outdoor publications and newspapers, are based primarily on the movements of the moon and the tidal movements caused by its gravitational pull. The two daily major feeding periods occur when the moon is positioned directly overhead, and 12 hours later when it is on the opposite side of the earth.

Most solunar experts agree that each major period lasts about two hours. Two "minor feeding periods," about an hour in length, are said to occur when the moon is on the horizon.

Solunar tables are not a new concept, as the late John Alden Knight published what is believed to be the first version in the 1930s. Popularized in publications such as the *Farmer's Almanac*, the tables have been used by the faithful as a guide for everything from planting tomatoes to the proper time for childbirth.

Certainly saltwater fishing is directly affected by tidal movement, especially in bays and passes where fish activity often peaks at the turn of the tide. Many freshwater fishermen, however, are unconvinced that the movements of the

moon have any effect on their fishing success on rivers or lakes where tidal movement is absent or imperceptible.

The tables therefore represent little more than folklore to most freshwater anglers, since no scientific studies have evaluated the relationship between solunar theory and angling success. The opportunity for such an investigation, however, materialized when the Parks and Wildlife Department established its innovative "Operation Share a Lone Star Lunker" program in 1987.

The lunker program borrows 13-pound-plus bass from anglers, uses them for hatchery production and research, then normally releases them back into their home lake. The donating angler gets a fiberglass replica of his catch.

David Campbell, biologist at the department's Tyler Fish Hatchery and foreman of the OSLSL program, records the date and time of day each lunker fish was caught. This information was matched against commercial solunar tables for the same time periods from 1987 to 1991. Catches of these trophy-sized bass during major feeding periods seemed too consistent to be written off as mere coincidence.

Dr. Barbara Gregg, a research associate for the department's Fisheries and Wildlife Division, devised a statistical way to test this observation. She assigned a numerical value to each catch, based on how close the catch time was to a major feeding period. A zero indicated the lunker was caught during one of the two major feeding periods in a 24-hour period. Negative or positive values were used to indicate how long



Leroy Williamson

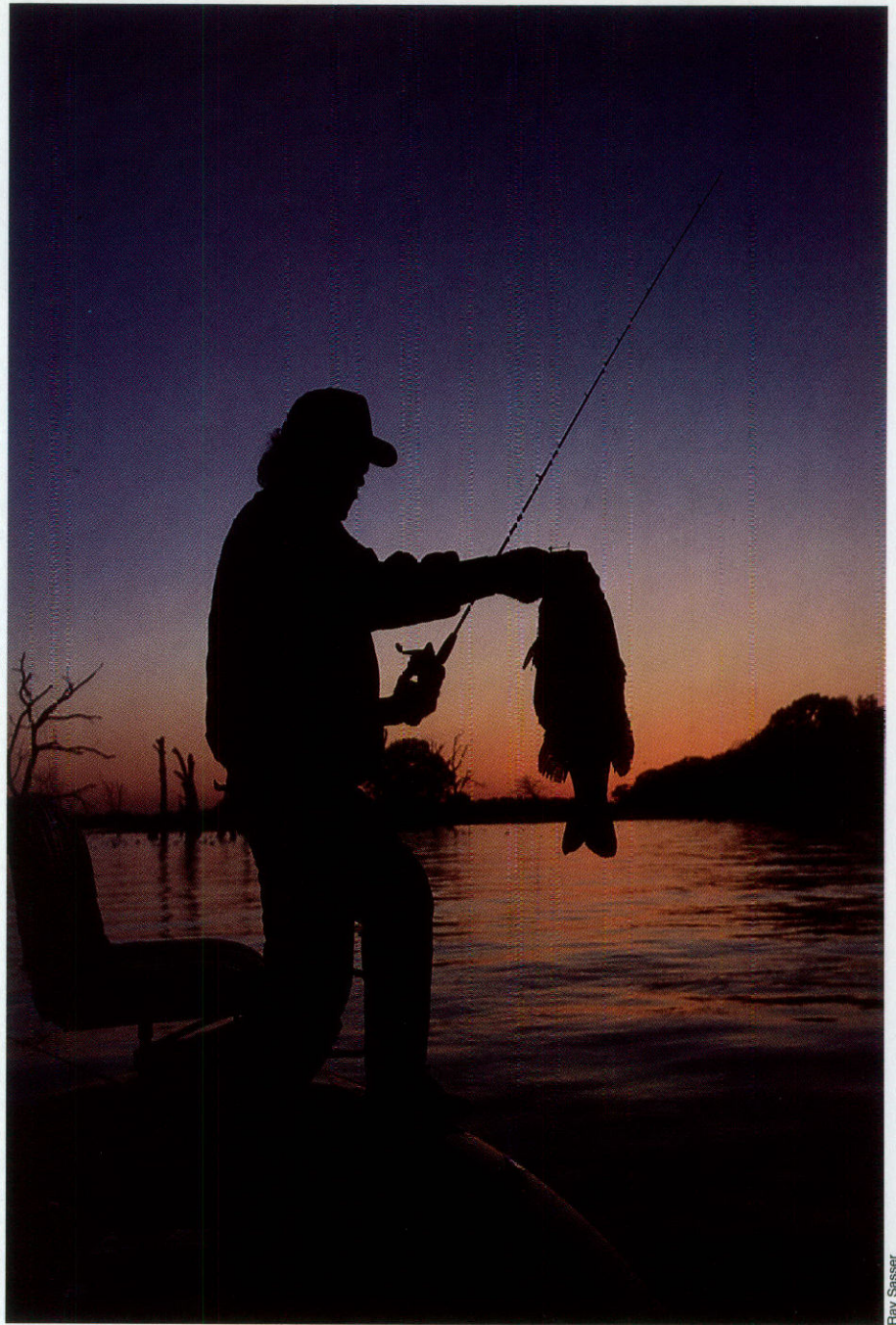
before or after the feeding period the fish was caught. For example, a fish caught two hours after the major period was given a score of +2; one caught two hours before the period began was assigned a -2. A statistic called a chi-square was computed to evaluate whether there was a reliable deviation from the expected pattern in the 87 catches recorded from 1987 to 1991.

"The chi-square test was used to determine whether these lunkers were being caught at random times," Gregg explained. "If you assume the catches are occurring by chance—without any relationship to the feeding periods—then only about 17 percent to 20 per-

"The solunar feeding periods have a primal effect on fish we can't ignore...."

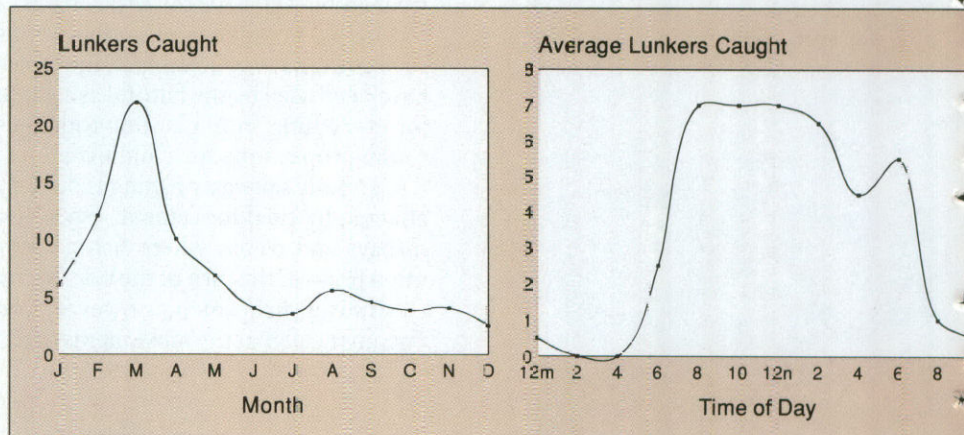
cent would have occurred during a major feeding period. If substantially more fish were caught during those times, then something more than just chance may be working." Based on this sort of logic, only 17 of the 87 lunkers should have been caught during major feeding periods, but 26 actually were taken during those times. "This is enough to be statistically significant," she said.

Another interesting aspect of the pattern of catches turned up when Gregg evaluated the hours before and after the



Ray Saeser

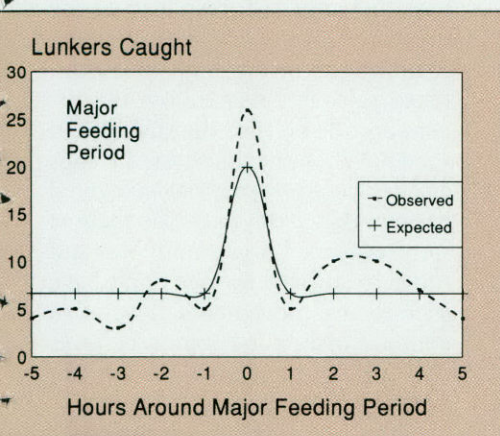
Your chances of catching a lunker largemouth like this Lake Fork 12-pounder are better if you fish during March, during the middle of the day and during a "major feeding period" as predicted in the solunar tables. The table at the far right shows that a statistically significant number of lunker bass bit lures during solunar feeding periods.



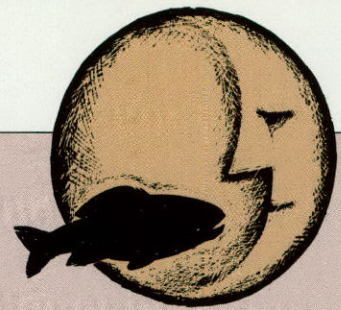
feeding period. The chart below shows the number of catches expected during that period, compared to the number actually recorded. "The most interesting aspect is that four to five hours before the major period begins, catches are below what would be expected," Gregg said. "The number of catches increased during the major period, then decreased in the hours following. However, the number caught during the hours just after the major period remained higher than before the major period began." She pointed out, in fact, that there appears to be a small increase associated with the time a minor feeding period followed the major period.

The credibility of these data showing a significant number of catches during the solunar table feeding periods is probably not related to the time of day the feeding periods occur, Gregg continued. "The feeding periods are just as likely to occur in the middle of a day as they are at some very early or late time, because data from the two daily major periods, separated by about 12 hours, are combined." These periods occur at a different time each day. The discovery of higher catch rates during major periods gains more credence because during considerable portions of each month one of the major periods falls within night-time hours when fishing activity is nil. There are, however, more fish being caught during daylight hours than at night. Most likely this difference results from the preference of anglers for daytime fishing, rather than a lack of fish feeding activity at night.

(Continued on page 25)



SOLUNAR TABLES WHAT THE EXPERTS SAY



Do solunar tables help fishermen catch fish, or are they just cosmic nonsense?

The accompanying article suggests there is scientific evidence that commercial solunar tables published in the popular press can tell anglers when their chances are best for catching big bass. Bass fishermen may not agree that the tables work, but most will confirm that for some reason largemouth bass often "turn on" simultaneously at widely separated lakes, responding as one to some unseen force. Likewise, most anglers can recall launch ramp conversations about how everyone got strikes at about the same time that day on different areas of the lake.

If these phenomena are noticed by casual fishermen, how are they perceived by professionals?

Interviews with fishing guides and tournament anglers—expert fishermen who spend vast amounts of time on the water—indicate some of them believe that in spite of environmental variables that can affect day-to-day fishing success, the major feeding periods listed in the tables are a generally accurate method for predicting when fish will bite.

Rick Clunn of Montgomery, four-time winner of the BASS Masters Classic and a top national bass tournament money winner, said he believes the tables are a valuable piece of information for the angler. "The solunar feeding periods have a primal effect on fish we can't ignore, because bass and other animals all attempt to achieve a natural rhythm," Clunn said. "In a natural environment, these periods are valid."

Clunn, known by his peers as one of the most cerebral on the tourna-

ment circuit, adds a few caveats to the solunar gospel. "There are many variables involved with the moon's effect on fish, because most bass live in reservoirs, which are manmade environments. Because of this they reflect differing degrees of domestication," he said.

Environmental factors well known to bass fishermen include the flow of water through dams, cold fronts with their associated barometric pressure changes, and rainstorms, to name a few. "When you are fishing for bass in the back of a creek, for instance, the fish are in a microcosm. But when rain causes the creek to get muddy, the fish respond to the macrocosm by not feeding or by leaving the creek," said Clunn.

But in spite of these outside influences, and viewing the solunar tables in a "big picture relationship," Clunn says, the solunar theory can help an angler to be successful. "You can't concentrate your efforts entirely on the tables because of the variables involved," he continued. "I've seen some very accurate responses by bass to the major periods, and at other times I've seen just the opposite. But from a physical standpoint the tables can be a valuable piece of information. I often try to be fishing during the major period in an area I think holds the kind of fish I suspect would be responsive."

Clunn stresses that he believes the major periods affect not only predator fish such as bass, but also prey species such as shad. "In an ecosystem where this predator-prey relationship is balanced, I think you would see a consistent relationship between the major periods and bass feeding," he said, "but if the system is out of balance because of a lack of forage or some other factor, you

(Continued on page 24)

(Continued from page 23)

might see less of a pattern.”

Two prominent Austin area fishing guides tend to agree with Clunn, asserting that the average size of bass in a lake and the movements and availability of forage fish have much to do with bass response to the major feeding periods. “I do 90 percent of my guiding on Lake Travis, a lake that unfortunately is dominated by smaller-sized bass,” said Allen Christenson of Austin. “With the large population of smaller fish having to work harder for food, it tends to spread out the feeding patterns. On the average, though, the major periods are basically correct.”

Christenson said he believes the larger the bass, the more likely its feeding patterns will conform to major and minor solunar periods. “I’ve spent a lot of time on Fayette County Lake, which has a much higher percentage of big bass than Travis, and the major feeding periods are definitely the time to fish on that lake,” he said.

Guide Jody Jackson, also of Austin, agrees totally with the big-fish solunar theory. “I know that about 90 percent of the really large bass I have caught were hooked during a major feeding period,” he said. “On the other hand, I don’t think the tables have that much effect on small bass, at least on a lake like Travis. I know for sure that when I’m fishing a tournament I always plan to hit my

favorite spots during the majors.”

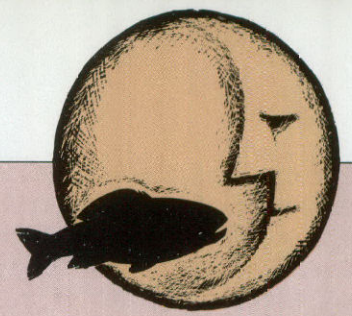
A respected voice in East Texas bass fishing is veteran guide Hollice Joiner of Winnsboro. Joiner, who has fished and guided on Pineywoods reservoirs for more than 30 years, now concentrates his efforts on Lake Fork, possibly the top trophy bass lake in the nation. Does he believe in the solunar tables? “They do work. I believe in them,” he said. “Of course, you’re going to have days when fishing is tough all day long because of cold fronts or whatever. But I spend 200-plus days a year fishing, out on the water literally from daylight to dark most of the time, and I have seen the tables predict bass feeding too many times to be accidental.”

People who produce the solunar tables for publication perhaps have a vested interest in selling their effectiveness, but they also have some insights as to why they think fish respond to the moon’s forces.

One of these is Frank Noble of Angleton, who produces a monthly tide table publication called “Noble’s Prime Time.” Noble, an independent businessman, said his tables have never been a money-making enterprise. They are published in a few Texas newspapers and regional fishing-oriented magazines. He said he first noticed the effect of moon phases and movements on fishing success while he was working at a bait shop on Galveston Bay as a youngster. “I got to where I could predict when we would sell more bait just by looking at the moon phases on the calendar,” he said. “Later on when I got interested in flounder fishing I learned that flounder activity was directly affected by the moon.”

Noble times his fishing trips to coincide with major feeding periods, even if it means fishing on a dark bay at 3 a.m. “My observations are not very scientific, but I have seen the tables pay off too many times to have any doubt,” he said.

Noble’s tables combine the standard major and minor periods with a bar chart showing tidal movement



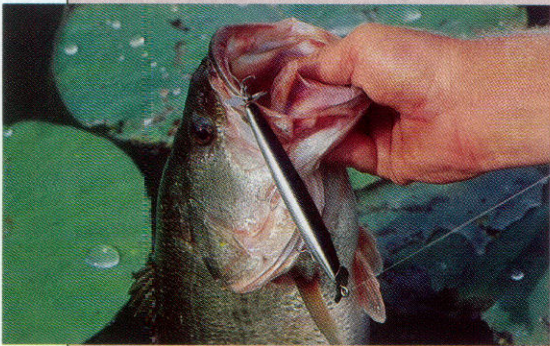
and speed. He also highlights a “prime time” period to get saltwater anglers out on the water for the optimum times when tidal movements are in transition. Noble can be contacted at his place of business in Angleton toll-free 1-800-952-0075.

Another staunch supporter of the solunar phenomenon is Doug Hannon, a longtime Florida bass fishing guide and publisher of the syndicated “Hannon’s Moon Times” tables. Hannon said he has recorded thousands of big bass catches through the years, noting the date, time of day and solunar period. “I found that a fisherman’s chances of catching bass are 500 percent better within a major period than outside the period, and 300 percent better within a minor period compared to outside,” Hannon said.

Hannon theorizes that all fish depend on the moon as their biological clock. “Any organized activity in nature is more productive than an unorganized one,” he said. “Fish have a daily rhythm controlled by the moon, and activities such as feeding and spawning can be predicted by watching the moon.”

Many trophy bass anglers believe big bass are prompted to spawn when the moon is full, a theory Hannon believes is true. “Freshwater fish evolved from the salt water, so they have the same basic responses to the moon as saltwater fish,” he explained. A full moon brings high tides, and many saltwater fish follow the incoming tide far into the shallows to spawn. When the tide ebbs, the eggs and larvae are somewhat protected because they are in water too shallow for predators. Largemouth bass and other freshwater species don’t have such radical movements of water to contend with, but Hannon believes they still respond to the moon in much the same way.

The moon’s influence is so strong,



Grady Allen

Do lunar movements affect bass feeding patterns? Many expert anglers say they do.

(Continued from page 23)

Hannon claims, that a fish placed in a tank in a totally dark room still will feed on schedule because of its inherent sensitivity to the moon's force.

The best period of the month, in Hannon's view, is when the moon is either full or new. "According to my records, 91 percent of 10-pound-plus we have boated were caught within three days either side of the new or full moon," he said.

Hannon also has some other interesting observations about bass behavior, including daytime versus night feeding. "Bass possess full-spectrum color vision, and they can distinguish all the colors a human can see," he said. "This means they had to compromise on low-light sensitivity. They wouldn't have evolved that excellent color vision if they weren't going to be daytime feeders. You can catch bass at night, but if you do it means you were lucky enough or skillful enough to put the bait right in front of its eyes."

Another theory Hannon debunks is the notion that dawn and dusk are the best times to catch bass. "You normally will catch some small fish early and late, because at first light the shallow water near the shoreline is the first area that receives enough light for bass to feed," he explained. "The larger bass, though, occupy a band of water in about eight-foot depths, and these areas don't get enough light penetration until later, perhaps 10 a.m. or so."

The best time to fish for larger bass, then, is from about 10 a.m. to 4 p.m., with peak from noon to 4 p.m., Hannon believes. In Hannon's opinion, larger bass occupy the eight-foot band of water because they find protection from predators in the deeper water, while being able to feed from the bottom to the surface without encountering pressure problems in their air bladder.

Hannon's assertion about midday and afternoon hours appears to be supported by the Lone Star Lunker fish, 60 percent of which were caught in the p.m. hours.

Catches of largemouth bass reported in several angler recognition programs were used to evaluate which month is the best fishing time for the species. The catch dates for about 350 bass that were submitted for awards during 1988-1991 were analyzed, and the results probably will not surprise many bass anglers. More than half the reported catches of bass, ranging in size from two pounds to over 17 pounds, occurred during February, March and April.

Gregg said she has confidence in her findings, even when variables and possible biases are considered. "We are working with numbers (catches) that are not very precise because they were collected for reasons other than this study," she said.

"Some other factors also must be considered as biases for the lunker portion of the study," Gregg pointed out. For example, (1) only largemouth bass were studied, so the findings cannot necessarily be expanded to include other species, (2) only trophy-sized bass were considered, so the data are not necessarily valid for smaller bass, (3) the largest number of the lunker fish, 66, were caught from Lake Fork in East Texas, so there may be unusual influence from that area, and (4) almost all the fish were caught from January through April. A large majority of the catches also were made on either Saturday or Sunday, but that relates to angler pressure.

Another important consideration involves assessing the popularity of the solunar tables themselves, and how many anglers plan their outings around major periods. This information, of course, is not available. "Creel (angler interview) surveys on popular bass lakes, and especially on Lake Fork, appear to indicate that fishing pressure is fairly constant during daylight hours and on weekends, with most parties launching early in the morning and fishing most of the day," said Gregg. She said intense daytime fishing activity might be considered a bias factor for a single feeding period, but that is offset by the fact that the other major period, 12 hours distant, often occurs at night when fishing pressure is insignificant.

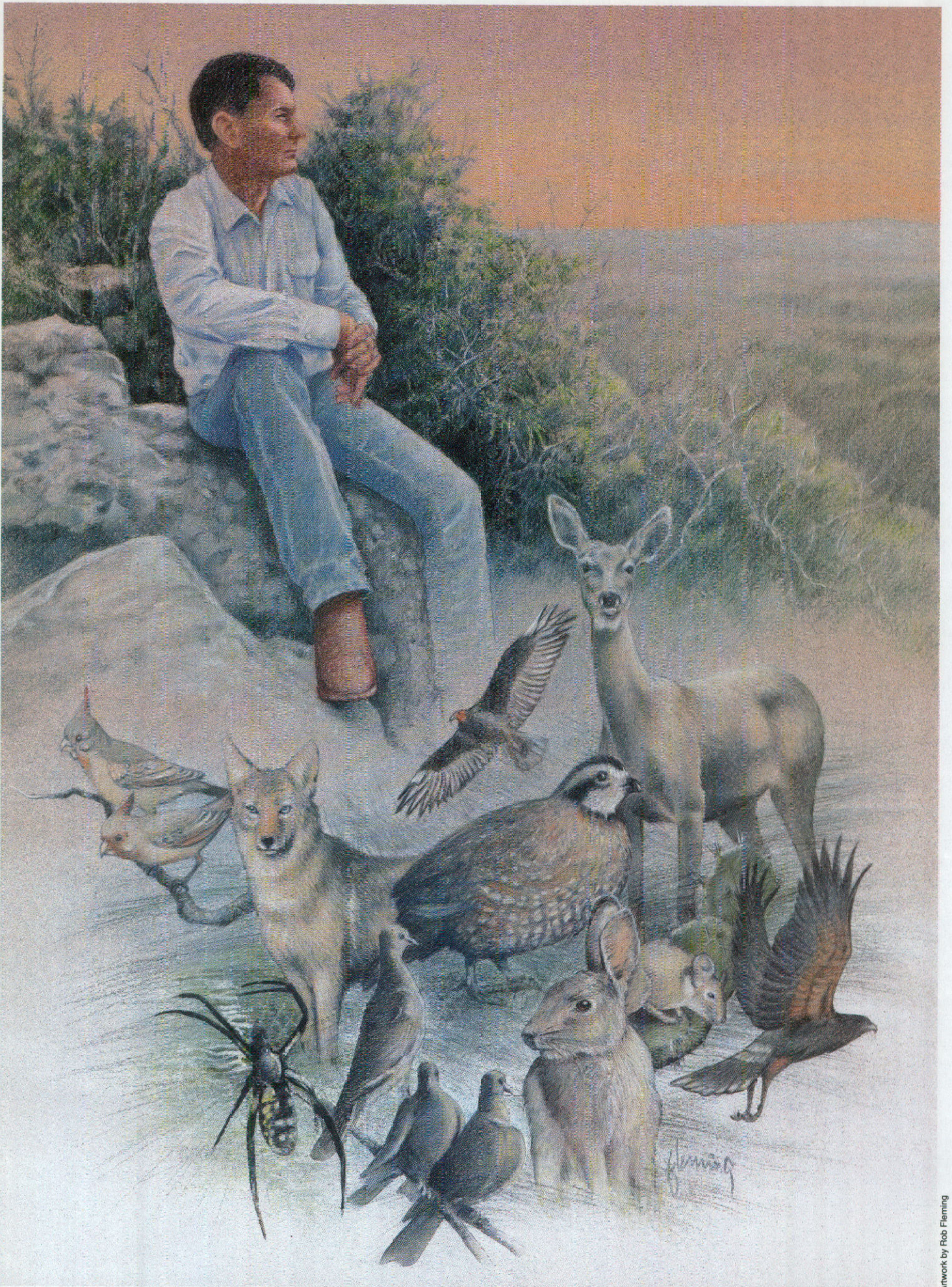
TPWD fishery management biologist Barry Lyons of Tyler said creel surveys on Lake Fork show that bass fishermen tend to come mainly from the Dallas-Fort Worth area, fish mainly on weekends and tend to stay out on the lake all day. "As part of our creel survey we always ask the anglers how long they have been out on the lake that day," Lyons said. "The average response for Lake Fork was 5.4 hours, which is well over the statewide average of 4.5 hours." This would indicate that fishing pressure is spread pretty evenly throughout the daytime hours, especially in the late winter and spring and on weekends, Lyons said. He pointed out that the fishermen are interviewed out on the water rather than at boat ramps, so it can be assumed that most of them actually fished longer than the time recorded by the survey. In Gregg's opinion, the "all day" fishing pattern followed by most anglers outweighs bias created by anglers who might fish only during major solunar periods.

"I'm surprised," said Campbell, who has handled more 13-plus largemouths than anyone in the world. "From what I had heard and read before, there was no proven connection between big bass catches and the solunar tables."

Campbell admits he's no expert on catching big bass, but as head of the lunker program he has observed or handled all the lunker entries, plus 20 or more 13-pound-plus bass that for various reasons were not accepted into the program.

Based on the two investigations, Gregg said she has no doubt about when she would go after a big bass. "I would go fishing during one of the daily major feeding periods in February or March," she said. "Granted, there are many variables in fishing that can have an effect, such as the weather and other environmental conditions. But in the long run, if you concentrate your fishing efforts based on this kind of information you probably stand a much better chance of catching a big bass."

Incidentally, the newest state record bass, a 18.18-pounder caught at Lake Fork by Barry St. Clair of Klondike, struck a minnow at 4:45 p.m. on Friday, January 24, precisely in the middle of a solunar major feeding period. ★



My Sitting Rock

by William I. Morrill

Each of us has a way to recharge our spirit. The outlets we use to rejuvenate our minds are as varied as our personalities. For some, that revitalization is brought about from the haven of music, and for others, escape to literature provides the catalyst. For me, that healing, psychological sanctuary is produced by the symphony and drama of a special location. This, then, is about my place.

There is a large, flat rock sitting on the edge of a hill rising above the South Texas plains on a ranch where I have temporary stewardship. My father and I used to sit on this same rock while hunting decades ago, and I hope my children also will know a place like this.

The hill, called Santa Rita, rises above this piece of Brush Country I have grown up knowing. In the spring and fall I often travel to that land of heavy clays, mesquites, blackbrush, white-tailed deer and javelina to spend the afternoon and early evening looking east into a broad valley. There are other hills nearby to be sure, but this one, the one the ranch was named for, is my favorite. In fall, I come using the excuse of hunting, but I would not destroy the tranquility with the report of a rifle.

I come to this place about an hour before sunset, to experience the timeless ritual of encroaching darkness. Upon my arrival last spring I watched turkey vultures, the sanitation workers of nature, glide effortlessly in a downward spiral only to compensate for that loss of altitude by riding thermals ever upward. Their methodical searching for some hapless animal whose nutrients already were returning to the soil assists in the recycling process.

My right peripheral vision catches movement in a pile of dead blackbrush branches, remnants of the catastrophic freezes of 1985 and 1989. The wood rat, whose movement I first noticed, is sitting at the entrance of its house of sticks, cow patties and prickly pear about to move out and search for food to cache in its castle of dirt and decaying wood. It

calmly surveys its surroundings, and I wonder if any other person tonight ponders the beauty of a rat near its den.

Suspended above my fellow "hill siter" is the home of another brushland resident, the long-legged black and yellow argiope. Proximity to spiders, even beneficial ones, causes irrational fear in me. However, from a distance I can observe this one spinning its silky trap for mosquitos and other susceptible flying insects. The spider and I share this time; we are engaged in activities we must do, waiting for the things that nurture us—it for prey, and me for spiritual replenishment.

The sun is waning now; quail and cottontail rabbits move cautiously into the open areas 80 yards below my perch. The quail move as the ocean to the shore, with each scurrying bird a wave, replacing previous ones in a seemingly eternal movement forward. The rabbits are solitary, moving with hesitant semi-hops in search of succulent vegetation.

As I look up, the sky now is clear of vultures, gone to their roosts along a creek. Their soaring is replaced by the lower, more deliberate flight of a Harris hawk skimming over brush in search of prey. This was the first hawk I learned

to identify; its dark color and white tail patch below the rump make identification by the beginner simple. I hear its harsh *karr* during infrequent rests in the mesquite trees that are beginning to obtain their summer foliage. Joining with the hawk are the calls of cactus wrens, pyrrhuloxias, bobwhite and scaled quail and 20 other birds giving volume to a late-afternoon operetta.

From the distance comes the yipping, howling call of the coyote. The "song-dog" of Indian legend lends its voice to this backcountry chorus that is repeated every evening. There was a time, not long ago, when I could look in all directions from this hill and not see a light. Darkness is replaced by distant lights but the "brush wolf" is here as it was then, and it is my hope it always will be, for it is a part of this place, its essence.

My human, worldly troubles begin to soften and disappear from my body and mind like the sunlight that slowly edges behind the mesquites. As the sharpness of sunlight disappears from the landscape, the north hill takes on a purple hue. It is light, but not for much longer.

As I glance down, I am startled to

(Continued on page 53)



William I. Morrill

Afternoon shadows creep over the South Texas plains around Bill Morrill's sitting rock.



A Berry Good Spring

Article by Elaine Acker Albright, Photos by Stephan Myers

Springtime in Texas means wildflowers. The hills and pastures come alive with colors that brighten winter's gray mood and welcome warmer days ahead. While many Texans content themselves with bluebonnets and Indian paintbrushes, devoted berry fans scan the landscape for a different wildflower. Commonly found along railroad tracks and fencerows, one-inch white blooms adorn the southern blackberry's trailing vines and promise a season of good flavors to come.

Experienced scouts map their locations as prospectors map their claims, and in May shiny, black nuggets replace the delicate white blooms. The thrill of striking it rich inspires berry fever—the compulsive urge to pick berries until every cup, bucket and washtub is full.

Houstonians Hugh and Rosemary Berry (their real name!) are experienced berry pickers and annual participants in this rite of spring. Hugh fondly remembers last year's berry season as a rare season of luxury. "There were so many berries you could pick the big ones and leave the little ones," he says. "I've been picking berries my whole life, and I've never seen anything like it."

Both retired, Hugh and Rosemary assume the springtime role of berry tour-leaders, taking other couples on their roadside excursions and sharing their berry expertise. Although many of their friends have had enough after only one outing,

Hugh returns day after day during the short season. "It's a lot of hard work and you've got to love berries to do it," he says. "My favorite part is the cobbler that come later!"

The taste of blackberry cobbler is to spring what pecan pie is to fall. The tiny wisps of steam escape the latticework of brown, flaky crust, filling the kitchen with an irresistible aroma. Berry pickers with an insatiable appetite and a large freezer can have this special gift of spring all year.

When the kitchen finally is stacked with hoards of berries, a thorough wash-

ing is in order. The tiny insects that also appreciate the berry's sweet taste are almost invisible until they are bobbing in the kitchen sink. After washing, the clean berries can be bagged and frozen for use throughout the year.

While blackberry cobbler is the most popular feast, there are appetizing recipes for any taste. Fresh berries can add excitement to breakfast cereals or vanilla ice cream. More imaginative creations include blackberry pies, jams, jellies, muffins or a heartwarming homemade wine.

The thought of Grandma's homemade blackberry wine revives fading memories. When the naturally fermenting berries were mixed with sugar, the result was a sweet-tasting wine and an even sweeter sense of creative accomplishment. Alfred J. Flies carries on Grandma's tradition at his Piney Woods Country Wines winery located in Orange, Texas.

Flies offers a variety of fruit wines, selling to retail stores and shipping his special flavors to wine enthusiasts statewide. One of his most popular flavors is blackberry wine. He notes that historically "homemade blackberry wine was almost as popular as homemade grape wine. During Prohibition, people made wine out of everything they could get a hold of." Often, wine was made from the plums, peaches and muscadine grapes remaining after the family's supply of preserves was complete.

Flies specializes in



country wines, a broad term describing those wines made from any fruit in abundance during the year. "People's memories of homemade wine are so good because when they were kids everything that was sweet tasted good," he says. "They remember that sweet wine, and that's a pleasant memory."

Despite the charm and nostalgia, there are differing opinions among berry pickers. One hot topic is the blackberry vs. dewberry debate. For years, Texas's most active berry aficionados have stubbornly defended their own terminology. "They're different species in the same family," explains Harris County Extension Agent Tom LeRoy. "Basically, it's like the difference between a peach and a nectarine—it's a different fruit."

Dewberries mature about a month earlier than blackberries, and account for the majority of the berries rambling along East Texas roadsides. Blackberries also grow in the wild, but are more suited to controlled cultivation at home



Blackberries (above) grow vertically, may reach a height of six feet and most often are cultivated. Dewberries are low and sprawling and are what most people encounter in the wild. Children enjoy the thrill of berry picking, but rarely collect more than a handful, giving way to the temptation of eating what they've picked.



because they grow upright and do not require trellising. The Brazos blackberry is one common variety, although Texas A&M's newer varieties such as the Brison, Womack and Rosborough have higher yields, larger fruit and better quality.

LeRoy also notes that there is room

for commercial production for someone with an entrepreneurial yen. In the past, such an operation has required intensive manual labor, but pick-your-own operations are enjoying renewed popularity as people look to more natural, organic food sources.

The blackberry vs. dewberry debate

is followed closely by the issue of territory. Claim-jumping is frowned upon and proper etiquette, although unwritten, suggests that only one group be allowed in a patch at any one time. Berry scouts who have spent two long months in eager anticipation are vexed by any intrusion into their berry patch. Their usual affable personalities take on the wry demeanor of a prison warden for the duration of the harvest.

Finally, there is disagreement regarding proper attire. If the lure of the berry makes you forget your feet, fire ant stings can be a harsh reminder. Pros suggest wearing shorts so that repellent can be applied directly to the legs and ants easily can be knocked off. Some prefer pants for protection from thorns; however, there are unconfirmed reports of roadside streakers who wore pants into an antbed.

Ants, chiggers, ticks, bees and snakes all reside in the most appealing berry

No berry picker, young or old, can resist sampling some of their efforts (below). Some pickers prefer to wear long pants (right) to protect their legs from scratches. Others think long pants are a liability in fire ant-infested areas.



patches, so a berry picker's survival pack should include a large stick to probe the briars before reaching with the hands. Insect repellent, sunscreen and a hat are indispensable. Gloves, with the fingertips cut out of the thumb and first two fingers, can protect the hands while maintaining the delicate touch necessary to pick a berry without crushing it.

Purple fingers and purple smiles celebrate spring. They are the trademarks of men, women and children of all ages who take to the roadsides and railways in search of Texas's wildest berry. ★

Elaine Acker Albright grew up in Northeast Texas, and contracted berry fever at an early age. Photographer Stephan Myers lives in Houston.



Gloves with the fingertips removed protect a picker's hands and still maintain the delicate touch needed for picking a berry without crushing it. Stains will come out by washing with a mild bleach solution. In March, vines have a profusion of one-inch white blooms (next page), making this the best time to spot prime berry-picking areas. The larger, cultivated blackberry (right) is more tart than the smaller dewberry next to it.



Mama's Home-style Cobbler

Filling ingredients:

2 cups of berries
 $\frac{2}{3}$ cup sugar
 1 tbsp. flour
 $\frac{1}{2}$ cup water
 1 tbsp. butter

Sift the sugar and flour together and put in a pot with the berries. Sprinkle with cinnamon. Add water.

Bring to a boil on medium heat. Add butter. Berries will turn red as they cook. Stir occasionally and cook to a pie-filling consistency—about 15 minutes.

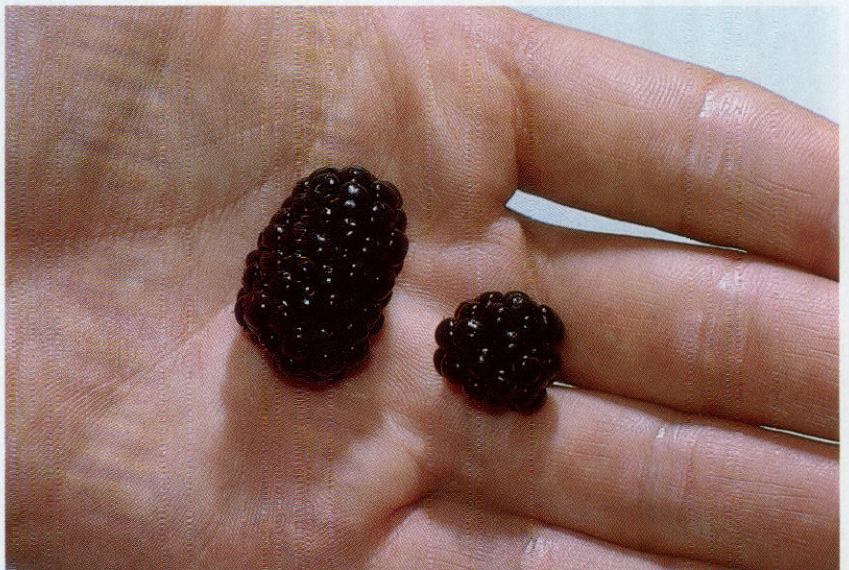
Dough ingredients:

2 cups flour
 $\frac{1}{2}$ cup shortening
 $\frac{1}{8}$ tsp. salt
 $\frac{1}{2}$ cup water

Mix ingredients together and knead together. Roll out dough and cut into strips.

Pour cobbler filling into a 10-inch pie plate and arrange dough strips in a checker-board pattern across top. Bake at 350 degrees until crust is light brown.

Serve with milk, or topped with ice cream.



My favorite part is the cobbles that come later!



BUFF-BELLIED HUMMINGBIRDS

Article and Photos by Steve Bentsen

"Hi, Steve!" The familiar, cheerful voice on the line was Richard Moore. Richard always is disgustingly happy. No matter how early, how late, how tired or how anything, he always is in a good mood. When Richard calls I know that one of two things is in the wind—either he has found something to photograph or he is looking for something to photograph. In this case it was the former.

In the nature photography business it is essential to have a network of reliable eyes and ears constantly on the alert for new subjects. Richard and I are part of each others' network. He works for Channel 4, the local CBS affiliate TV station in the Rio Grande Valley. He shoots and produces nature specials both for the local station and for CBS. We live in opposite ends of the Valley and keep in touch about what's going on in our respective areas.

"I have a great buff-belly nest! Eye level and the eggs just hatched yesterday." Richard said his friend Daniel Zuniga was clearing some underbrush when he discovered the nest in the fork of a small hackberry tree. He stopped his clearing and called Richard to see if he was interested in photographing the nest. After a preliminary scouting venture Richard called me with the good report. I was on the scene by the next afternoon.

To non-Valleyites this might have sounded Greek, but we natives know the buff-bellied hummingbird well. It is one of our specialties and it breeds nowhere in the United States except the extreme southern tip of Texas. It is one of the largest of our native hummers and distinctive in that the male and female are identically marked. This little guy measures a good 4 1/2 inches in length and is found from the Valley

southward throughout Mexico, Guatemala and Belize. They like thickets, citrus and thorn scrub.

Hummingbirds are some of our most fascinating animals. They are the smallest of the birds, ranging in size from the 2 1/4-inch-long bee hummingbird of Cuba to the 8 1/2-inch-long Patagonia gigas found in the Andes. Hummers are the second largest family of birds (second only to the flycatchers) comprising 338 species worldwide. Of these, 18 species are found in North America and nine species are regular Texans. Many of these birds weigh less than a penny. Typically the males are brightly colored with iridescent feathers and bright, jewel-like throat patches called gorgets. The females usually are a more subdued green above and whitish below. Identification of females often is difficult, even for experienced birders.

Hummingbirds are fascinating for many reasons. They are spectacular

and stop suddenly because their light bodies create little momentum. The larger species have wingbeats in the range of eight to 10 times per second and the smaller varieties beat their wings from 38 up to 200 times per second. Their legs are weak, used only for perching and nest building. In fact, they cannot spring from a perch as most birds do, but rather have to lift themselves straight up into flight with their wings.

Hummingbirds have an anatomy as unique as their behavior. Their long, thin bills are used to penetrate flowers to collect nectar as the bird hovers. They do not suck the nectar but instead lick it with their long, forked tongue that they flick in and out up to 13 times per second. They also eat insects and spiders to balance the diet, but the bulk of their energy comes from the rich sugar nectars found in the many plants that have evolved to encourage hummingbirds by the structure and color of their flowers. The hummers in turn pollenate the plants.

The tiny hummingbird's heart beats 500 times per minute at rest and up to 1,200 times per minute when the bird is excited. The body temperature ranges from 104 to 110 degrees, the small intestine measures a mere two inches and food often passes completely through the bird in 10 minutes. Their basal metabolism rate is 1,400 calories per kilogram. If a man had this makeup his body temperature would exceed 750 degrees Fahrenheit and he would need to eat 155,000 calories daily. To support this dynamic body and lifestyle the hummingbird eats constantly, consuming up to 50 percent of its body weight in sugar daily.

Hummingbirds often have spectacular courtships, with the males perform-

The Rio Grande Valley is its northernmost nesting area.

fliers, have a unique anatomy, an incredible metabolism, specialized feeding habits and are extremely adaptable. They are our only birds that truly can hover. They also can fly backwards and upside down. In fact, the only flying feat they cannot handle with ease is soaring.

This flying ability is due to a remarkably flexible shoulder joint that permits a large range of motion. Unlike other birds, which create power mainly on the downstroke of the wing, hummingbirds develop power on both the upstroke and the downstroke. They can attain top speed (about 30 m.p.h.) almost in-



ing characteristic diving flights, called nuptial dives or displays, and the females perched below. Usually males stake out a territory, which they defend vigorously against all other hummers and most other creatures. The male's role in reproduction is limited to mating, and the female rears the young alone. The typical clutch size is two small, whitish eggs that hatch in 15 to 22 days. The babies will spend about three weeks in the nest before fledging, but the female will continue to care for them for a period until they are completely self-supporting. The nest is built of lichen, moss, spider webs, lint, down, feathers and whatever else the female can find. The desirable characteristic is that the nest is expandable and stretches as the babies grow. The female aggressively defends her nest and nestlings.

This female buff-belly was unruffled at having a couple of photographers visit her nest, especially since they provided her with a convenient feeder to ease her feeding requirements. Over the next weeks Richard and I photographed her frequently as she went about the daily business of raising her brood. The babies grew until it appeared the nest would burst, and by day 16 they were trying their wings while clutching the edge of the nest. And sure enough, on the 21st morning Richard reported an empty nest, but he did locate the newly fledged buff-bellies on a nearby limb with mom dutifully feeding them.

Hummingbirds digest almost 100 percent of the sugar consumed. In contrast, some other birds such as seed and meat-eaters may utilize only 49 to 89 percent of their consumed food. Hummers can store food in the crop and fat in the liver. Prior to migration some species accumulate huge stores of fat to be drawn upon during the flight.

During times of stress hummingbirds become torpid, allowing them to lower their metabolism rate and body temperature to reduce caloric requirements. Body temperature can drop as low as 68 degrees and heart rate to as low as 48 beats per minute. The caloric requirement drops to one-fifth of a sleeping hummer and 1/50 that of an awake hummer at rest. This allows the bird to conserve stores through a stress period



The anatomy of buff-bellies and other hummingbirds is as unique as their behavior. They use long, thin bills to penetrate flowers or feeders and lick out nectar with their tongue. Baby buff-bellies (previous page) spend about three weeks in the nest before they fledge.

such as cold weather. But torpor is a last-resort survival mechanism. There is the inherent danger of being defenseless against enemies and also the possibility of not waking up again.

For further interesting reading consult the following books that were the primary references for this article:

"Hummingbirds—Their Life and Behavior," by Esther and Robert Tyrrell, Crown Publishers, New York.

"The Audubon Society Master Guide to Birding," Alfred A. Knopf, New York.

"A Field Guide to the Birds of Texas," by Roger Tory Peterson, Houghton, Mifflin, Co., Boston.

"The Birder's Handbook," by Paul R. Ehrlich, David S. Dobkin and Darryl Wheye, Simon and Schuster, Inc., New York. ★

Steve Bentsen is a part-time freelance photographer and part-time veterinarian. He maintains residences in McAllen and Austin, pursuing his photography from both locations.

How to Photograph Hummingbirds

by Leroy Williamson

Although hummingbirds are among the smallest and fastest birds on earth, they are relatively easy to photograph because they have little fear of people.

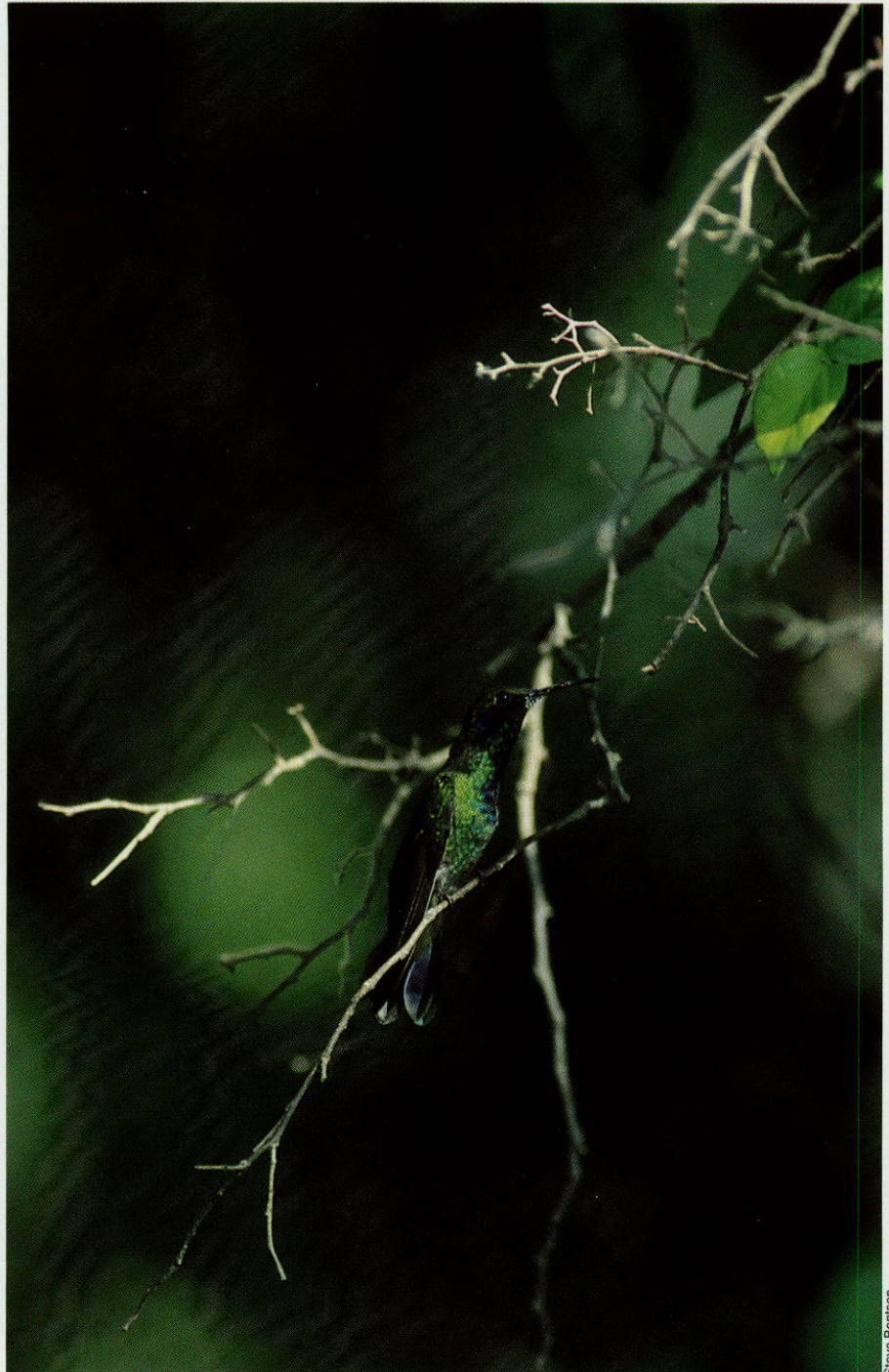
Feeders will attract a plentiful supply of photographic subjects. Hang the feeder at a good observation and picture-taking level. About shoulder high is fine. You then can stand comfortably, without having to stoop or tippy-toe, to photograph these flying wizards.

I like to use a 100mm macro lens with a dedicated flash on my 35mm single lens reflex and get close to the birds. A 50mm macro lens will work fine also, as will many other lenses of longer focal length. However, using a telephoto lens in the 300mm range means you will be farther away from the birds and the feeder. If you use a flash, the flash distance will be greater and wider apertures will be required to obtain proper exposure.

Using my favorite 100mm macro lens stopped down to an aperture of f/16 or f/22 for maximum depth of field, I move to within inches of the feeder. Simply stand still and in a moment or two there will be a flurry of activity around you.

You'll be amazed at how close the birds come to you. If there are many birds, you'll hear the soft humming sound and feel the breeze created by their fast-moving wings. Some of the more curious birds may check you out by hovering in front of your face or circling your head.

A very lucky hummingbird photographer might come across the rare green violet ear hummer. Usually found in the highlands of central and southern Mexico, few documented sightings have been made in Texas. The bird at right was photographed at San Benito, Texas.



Steve Bentsen

Even with a flash popping in their faces, they eagerly go about their dining routine. Using a dedicated flash makes getting the correct exposure simple. Just set the aperture you want and let your automatic camera control the exposure.

If you are using a non-dedicated system, simply compute your flash exposure according to the instructions for your equipment. Don't forget to compensate for any light loss caused by focusing close with a macro lens.

Point-and-shoot enthusiasts also can capture some marvelous hummingbird pictures, especially if their cameras have a zoom lens and macro or close focusing modes.

The major problem in photographing hummingbirds is focus. The birds move so fast that they may be somewhere else by the time you press the shutter release. Working at close dis-

tances, even with your lens stopped down to f/16 or f/22 for maximum depth, the depth of field is rather shallow, and the bird doesn't have to move far to be out of focus.

To compensate for the rapid flight and fast movements, watch the birds for a few moments and you will notice there is a pattern. The birds will have favorite drinking spots at the feeder. Some of the birds will hover while feeding, while others may light on the feeder rail. In any case, select a spot where the feeding activity is most constant and prefocus on that spot. Some minor focus refinement may be necessary as the bird enters the frame, but you will be close.

A second focusing option is to prefocus, then let the bird or birds fly into the zone of focus and take the picture.

Using an auto-focus camera? It should work fine. You may miss a few shots but

no more than the person using a manual focus lens.

Some interesting hummingbird facts:

—All of the hummingbirds in the world live in the Western Hemisphere.

—Of more than 300 species, only 18 varieties are found in North America.

—The greatest number of species is found in the tropical and subtropical regions of the northern Andes of South America. Ecuador has 163 species.

—By far, hummingbirds are the smallest birds in the world. The smallest hummingbird is the Cuban bee, measuring 2 1/4 inches from tip of bill to tail, and weighing 1/4 ounce. The largest bird in the family is the giant hummingbird of the Andes. It is 8 1/2 inches long and weighs 3/4 ounce.

—Only the ruby-throated hummingbird breeds in eastern North America, while 12 species breed in the western



Prefocusing on a feeder will help you keep the fast-moving hummers in focus.

United States, mainly near the Mexican border. One hummingbird, the rufous, breeds as far north as southern Alaska.

—Despite the enormous energy required, the ruby-throated hummingbird is able to migrate about 500 miles across the Gulf of Mexico.

—Hummingbirds can fly forward, backward, up, down or sideways due to ball and socket wing joints. Proportionately, hummingbirds are the strongest birds in the world.

—A hovering hummingbird burns energy about 10 times faster than a running man.

—In addition to flower nectar, insects are an important part of the hummingbird's diet.

—Food coloring should not be added to sugar water in feeders. The coloring is toxic to some birds and can cause death. ★

GRAND PRIZE

PENTAX PZ-10 with 28-80mm intelligent power zoom lens.



Steve Bertisen

The female ruby-throat (above) lacks the namesake ruby throat of the male. It's rare to find the usually active hummingbird at rest on a limb.

Texas Parks & Wildlife Photo Contest Rules

- 1) A maximum of three slides, 35mm or larger, may be entered by one contestant. This entry coupon or facsimile thereof must accompany your slides. Mail to: Wildlife Photo Contest, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744.
- 2) Entries must be color slides, made by the contestant, of genuine Texas wildlife. Slides may be any format, 35mm or larger.
- 3) Entries will be judged for content and photographic quality by a panel of judges whose decisions are final.
- 4) Submissions must be accompanied by a stamped, self-addressed return mailer. While every effort will be made to return submissions after judging is complete, we accept no responsibility for damaged or lost submissions.
- 5) Freelance photographers whose photos have appeared in any issue of *Texas Parks & Wildlife* magazine are ineligible to enter. Previously published photos are not acceptable.
- 6) Employees of Texas Parks and Wildlife Department and their families are ineligible to enter.

WINNERS WILL BE ANNOUNCED IN THE DECEMBER 1992 ISSUE OF TEXAS PARKS & WILDLIFE MAGAZINE. ALL ENTRIES MUST BE RECEIVED NO LATER THAN 8-15-92.

NAME _____ PHONE _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

NUMBER OF SLIDES SUBMITTED: _____

Technical Information:

Subject ID	Location	Film	Shutter Speed	Aperture
1) _____	_____	_____	_____	_____
2) _____	_____	_____	_____	_____
3) _____	_____	_____	_____	_____

I enclose my entry for the Wildlife Photo Contest. The slides submitted by me are my own and I hereby give permission for *Texas Parks & Wildlife* magazine to reproduce them.

SIGNATURE _____



Catfishing Frontier

Article and Photos by Bud McDonald

BLACK GAP WILDLIFE MANAGEMENT AREA

Some of Texas's most spectacular scenery is combined with the roughest conditions imaginable to make fishing for catfish both a joy and a chore on a portion of the Rio Grande known as the "Wild and Scenic River." The Texas Parks and Wildlife Department's Black Gap Wildlife Management Area just northeast of Big Bend National Park is the jumping off point, although "stepping off the edge of the world" might better describe the desolation of the area.

The 100,000 acres of the state-owned and managed Black Gap WMA formerly was open for public fishing only between March 15 and June 15. However, the area once again is open year around for adventurous fishermen seeking solitude and big catfish.

The first thing that comes to mind after turning off FM 2627 at the WMA headquarters road is that you'd better not have forgotten anything. Fort Stockton, the nearest town carrying complete supplies, is nearly 100 miles north, while Marathon, the nearest civilization, is about half that distance from your tail lights. The only comforting sign of human presence is Stillwell's Store and RV Park, about 15 miles from the WMA headquarters. Although non-agenarian Hallie Stillwell doesn't stock many frills, she can be counted on at least for gasoline, beans, onions, jalapenos, hot showers and some of the coldest beer in this part of the desert.

The huge area of the Black Gap traditionally is looked after by only three men. The area manager, Mike Pittman, is a TPWD wildlife biologist assisted by wildlife technician Billy Pat McKinney and maintenance man Don Martin. With such a thin contingent it's imme-

diately apparent that the three men in charge have enough to do without having to rescue visitors who become stuck or who didn't bring enough gas to make it back to Stillwell's.

On a recent trip to the area with San Angeloans Wayne Baze and Bill Wilson, the need for thorough planning became obvious. Before leaving San Angelo we packed Wayne's 4WD pickup and 16-foot flatbottom boat with every kind of gear imaginable for comfort and survival. Along with 15 gallons of drinking water, plenty of canned drinks and enough food to last three hungry men a week, we went the distance and packed enough extra for emergencies. Along with shovels, an axe and a ranch jack, the list included extra tires, engine belts, enough tools and spare parts to perform nearly any kind of repair, an electric winch, a case of two-stroke oil, more than 200 gallons of gasoline and 150 pounds of block ice.

After signing in and leaving the WMA headquarters we started down the dirt

road leading through Maravillas Canyon and toward the Rio Grande. The narrow, winding road is both steep and rocky, in places passable only with a four-wheel-drive vehicle, mules or horses. From past experience Wayne signed us into camping area 5, which he said was one of the better ones of the 25 along the river. Besides, it was only 15 miles down the nameless track instead of 40 miles or more to the farthest camp. The danger with distance in this country is that one of the infrequent but extremely violent gully-washers can render roads impassable in a matter of minutes. While a tenderfoot might have a minimum amount of trouble hiking out 15 miles, 40 miles in the rough terrain is only for those conditioned to the task.

A jaw-jarring ride finally ended as Wayne pulled the battle-weary Dodge pickup into a rocky clearing with a concrete block shelter. It took several minutes of limping around to shake loose muscles made tense by hairpin curves



Bill Wilson of San Angelo fishes from a shoal in the Rio Grande (left). The narrow road from the wildlife management area headquarters through Maravillas Canyon (right) winds through some beautiful scenery.

and hillside roads just wide enough for the pickup. A short investigation revealed a road leading to the Rio Grande and even a semblance of a ramp where we could get the boat into the water.

The craft of necessity for the shallow, sometimes swift river at this point is an aluminum jonboat with a jet drive outboard. Shoals are impossible to spot in the muddy water, while huge boulders that have fallen from the sheer canyon walls quickly would make mincemeat out of any type of traditional boat prop.

After hurriedly stashing the gear into the shelter we decided to get on the river and set some lines for morning. We had brought live goldfish along for throwline bait and frozen shad for jug fishing during the day. Even with the primitive beauty of the canyon acting as a constant distraction we managed to get a half-dozen lines in place by about 8 p.m. and returned to camp.

Bill and I set to the task of clearing a place for a ground fire and some grilled steaks, while Wayne found the coffee pot and the camp stove. All of us were engrossed in our tasks when two Mexican caballeros sporting holstered pistols and saddle guns rode their horses into our camp. Although we were somewhat concerned by the presence of the heavily armed but smiling intruders, Bill spoke enough Spanish to discover



Wayne Baze of San Angelo baits a throwline. The remote Black Gap Wildlife Management Area is open year around to adventurous fishermen seeking solitude and big catfish.

that the pair was searching for some escaped mules. After telling them we had just set up camp but that we would keep our eyes open, the cowboys gratefully accepted some hot coffee before remounting and crossing the river about a quarter-mile downstream. Within an hour we could see the glow of their campfire under a rock ledge on the Mexican side.

We were on the river before dawn the next morning, heading upstream to check the first of the line sets. The first throwline of five hooks revealed only a wornout alligator gar of about three feet, while the rest of the hooks had been stripped of bait. Figuring that we unknowingly had strung the line in a gar motel, Wayne wound it up to reset in a different hole. Our second set was in a deep eddy below and behind a giant boulder where a former fisherman thoughtfully had left a spike driven into a crack in the rock. As Wayne maneuvered the 40hp outboard to keep the boat reasonably steady in the swift current, Bill grabbed the line with a boat hook and pulled it within reach. As soon as he had his hands on the line Bill could feel heavy action somewhere farther down the staging.

After giving Wayne a nod to indicate that we had at least one fish on the line, Bill began a steady hand over hand to work his way down the line without having it pulled from his grip. The first

three hooks had been stripped, but the fourth and fifth held big flathead cats that still were very much alive. Wayne kept just enough revolutions on the motor to hold us in place while Bill and I wrestled the two fish into the boat. We hadn't brought a scale, but estimated each of the two cats between 25 and 30 pounds.

The next four throwlines all held at least a few fish and we ended the first morning with five flatheads from 10 to 30 pounds apiece, several smaller blues and even a few channel cats of filleting size. Since we would not repair the lines until evening, we spent the remainder of the morning baiting juglines and monitoring their progress down the current.

We began the jugs at a point about three miles upstream from camp, and checked them about every half mile while they floated downstream. Although the immediate task was to keep them from hanging up in the thick cane that overhangs the river on the American side, we removed a few small blue cats from the jugs and were nearly to camp when disaster struck.

Since we weren't familiar with the river's course, Wayne tried to keep the boat in approximately the same track downstream as we had taken when going up the river. However, somewhere along the previous trip he had missed a boulder that the swift water barely cov-



Map by Debra Morgan

ered and that was impossible to see while going downstream. The jet drive can be steered only when the boat is moving faster than the water, and we were going at a pretty good clip when the boat hit the boulder and sent Bill and me flying over the bow.

Wayne had a good grip on the tiller and wasn't thrown from the boat. He managed to get the damaged craft turned before crashing into the bank. Luckily Bill and I were wearing our PFDs instead of sitting on them and after rolling over a few rocks in the swift current we found bottom and crawled to shore.

After resting a bit and assuring ourselves that we still were intact, Bill and I walked the short distance down the bank where Wayne already had the motor off and was tipping the boat over

to inspect the damage. There was one large dent and a couple of holes in the bottom where the boulder had hit, and a couple more leaks farther back toward the stern where some rivets had popped loose.

Wayne pounded the dent reasonably flat with a rock, then produced another of his thoughtful supplies—an aluminum patch kit consisting of a propane torch and a type of plastic used in oil fields to make emergency patches on pipes and tanks. The procedure took only a few minutes and then we were back on the river.

As the days passed on the week-long fishing trip we took longer trips up the river and discovered a wealth of fishing holes and towering cliffs. The water also looked good downstream from our

camp, but we reasoned that as long as we stayed upstream it would be possible to float the boat back if we ran out of gas or lost power on the engine.

Depending upon the amount of water flow, which varies several feet during rainy or dry months, we found the river navigable to the international border crossing at La Linda, or a point about seven miles above our camp. By being extremely selective about fishing holes and releasing any healthy fish below about five pounds, the three of us wound up with all the catfish fillets we could load into three large ice chests for five days of fishing.

Those who attempt the Black Gap should undertake the trip with great caution. Any underestimation of the dangers of the Chihuahuan Desert could result in injury or even death. The simple act of not carrying along enough fresh water or gasoline could be lethal.

It also is a good idea to check on the river flow before leaving on the long trip. If the river is too high it becomes extremely dangerous and fishing will not be productive. On the other hand, low water conditions will produce unnavigable water and poor fishing. In most cases fishing from the bank is almost impossible due to the rough terrain and the thick jungles of cane on the banks.

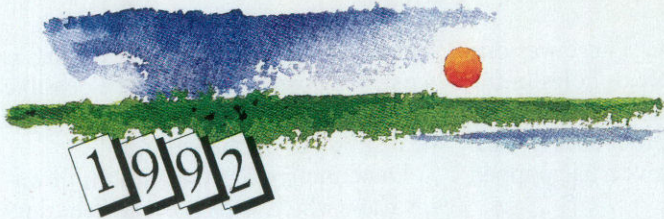
Concerning reports a few years ago of shots fired from the Mexican side at rafters and fishermen, we can only say that the few people we met on both sides of the border were friendly and helpful. However, visitors should remember that primitive conditions have kept this area about 100 years behind modern times. The nearest law enforcement facility or telephone is liable to be so far away as to be inaccessible for those on the river. It also is important to note that firearms are strictly forbidden on the WMA land.

For further information about fishing or hunting on the area, write Black Gap WMA, Star Rt., Box 433, Alpine, Texas 79830 or call the area manager at 915-376-2216. Information also may be obtained by writing the Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744 or call toll-free 1-800-792-1112. ★

Bud McDonald is outdoor editor of the San Angelo Standard-Times.

Baze removes a blue catfish from his throwline. Black Gap fishermen should go prepared: check on the river flow before leaving home, and take plenty of fresh water and gasoline.





OUTDOOR DATEBOOK

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

MAY

- May 2:** * Sphagnum peat bog tour, Gus Engeling WMA, Tennessee Colony, 903-928-2251
- May 1-3:** * Primitive camping and outdoor weekend, James Daughtrey WMA near Three Rivers, 512-786-3868
- May 2:** * Black-capped vireo interpretive program and birding tour, Kerr WMA near Hunt, 512-238-4483
- May 2:** * Tour of bayside marshes and the Gulf Coast, Matagorda Island State Park and WMA, 512-983-2215
- May 2:** * Coastal wetlands management tour, Peach Point WMA in Brazoria County, 512-729-2315
- May 3:** Conservation Fair, Sebastopol House State Historical Park, Seguin, 512-379-4833
- May 9:** * Bird-watching tour focusing on the black-capped vireo and golden-cheeked warbler, Dinosaur Valley State Park near Glen Rose, 817-897-4588
- May 9:** * Reptile identification seminar, Eisenhower State Park at Lake Texoma, 903-465-1956
- May 9:** * Raptor program, Fort Richardson State Historical Park near Jacksboro, 817-567-3506



Birding tours that focus on the black-capped vireo will be conducted at Kerr WMA, Dinosaur Valley and Colorado Bend State Parks.

May 9: * Bird-banding observation and birding tour, Kickapoo Cavern State Park in Kinney County, 512-563-2342

May 9: * Wetland wildlife management & photographic tour, Mad Island WMA in Matagorda County, 512-729-2315

May 9: * Birding and nature tour, Matador WMA near Paducah, 806-492-3405

May 9: Polo for Rhino fundraiser for black rhino survival plan, Glen Rose Polo Field, 817-897-3147

May 10: * Canyonland songbird hike, Hill Country State Natural Area near Bandera, 512-796-4413

May 13: * Guided canyon tour with overnight campout, Caprock Canyons State Park near Quitaque, 806-455-1492

May 15: * Tour of Fulton Mansion and boat ride to Lydia Ann Lighthouse, Fulton Mansion State Historic Park, Fulton, 512-729-0386

May 16: * South Texas wildflower and bird-watching tour, Chaparral WMA in Dimmit and LaSalle Counties, 512-676-3413

May 16: * Wildflower identification tour, Eisenhower State Park, Lake Texoma, 903-465-1956

May 16: * Birding tour (warbler weekend), Gene Howe WMA in Hemphill County, 806-323-8642

May 16: * Birding in the bottom, Keechi Creek WMA in Leon County, 903-566-1626

May 16: * Black-capped vireo interpretive program, Kerr WMA near Hunt, 512-238-4483

May 16: * Cavern tour and bat emergence observation, Kickapoo Cavern State Park in Kinney County, 512-563-2342

May 16: * Wildflower and plant tour, Matagorda Island State Park, 512-983-2215

May 16: * Bat emergence observation, Old Tunnel WMA near Fredericksburg, 512-896-2500

May 17: * Native plants tour, Hill Country State Natural Area near Bandera, 806-323-8642

May 23: * Cavern tour and bat emergence observation, Kickapoo Cavern State Park in Kinney County, 512-563-2342

May 23: * History tour, Matagorda Island State Park, 512-983-2215

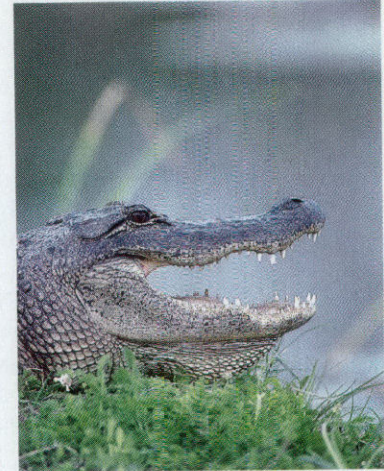
May 23: * Coastal wetlands management tour, Peach Point WMA in Brazoria County, 512-729-2315

May 23-24: Trail ride, Caprock Canyons State Park near Quitaque, 806-655-2286.

May 25: Copper Breaks Appreciation Day, Copper Breaks State Park, 817-839-4331

May 27: * Plant appreciation tour, Kerr WMA near Hunt, 512-238-4483

May 30: * Birding and nature tour, Gene Howe WMA in Hemphill County, 806-323-8642



Alligators are found in many wetland and coastal areas open to Conservation Passport holders.

Grady Allen

- May 30:** * Wildlife observation tour, Lake Tawakoni State Park site, 903-425-2332 (Purtis Creek State Park)
- May 30:** * Bird-watching interpretive tour, Walter Buck WMA near Junction, 915-446-3994
- May 30:** Bay Day at Sylvan Beach, LaPorte, 713-868-3383



Leroy Williamson

Louisiana herons could be some of the wading birds found on the coastal wetland tours of Peach Point WMA in Brazoria County.

JUNE

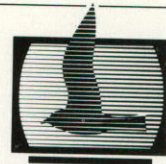
- June 5-7:** Living History Rendezvous, Ft. Richardson State Historical Park near Jacksboro, 817-567-3506
- June 6:** * Reptile identification seminar, Eisenhower State Park, Lake Texoma, 903-465-1956
- June 6:** * Cavern tour and bat emergence observation, Kickapoo Cavern State Park in Kinney County, 512-563-2342
- June 6:** * Summer birds tour, Matagorda Island State Park, 512-983-2215
- June 6:** First of weekly music series, Fulton Mansion State Historic Park at Fulton, 512-729-0386



Steve Bertisen

South Texas and Rio Grande Valley parks and wildlife management areas often will have populations of the brown-crested flycatcher, also known as Wied's crested flycatcher.

TEXAS PARKS & WILDLIFE



TELEVISION SCHEDULE

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

CITY/STATION	DAY	TIME
Amarillo KACV, Ch. 2	Sunday	6:30
Austin KLRU, Ch. 18	Saturday	8:30
Corpus Christi KEDT, Ch. 16	Saturday	9:30
El Paso KCOS, Ch. 13	Sunday	6:00
Harlingen KMBH, Ch. 60	Saturday	6:30
Houston KUHT, Ch. 8	Monday-Thursday	5:30
Killeen KNCT, Ch. 46	Thursday	1:30
Lubbock KTXT, Ch. 5	Thursday	1:00
San Antonio KLRN, Ch. 9	Sunday	7:30 a.m. 7:00 p.m.
Waco KCTF, Ch. 34	Thursday	1:30

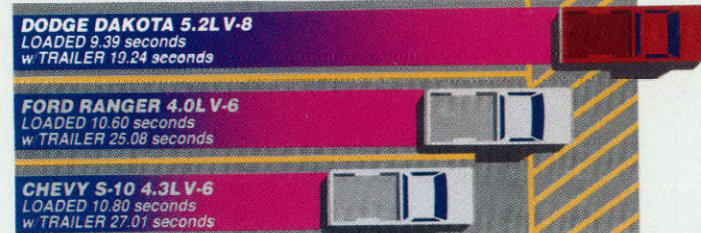
Programming schedules are subject to change, so check your local listings.
In stereo where available

- June 13:** * Walking nature tour, Matador WMA near Paducah, 806-492-3405
- June 14:** * Bird-watching tour focusing on the black-capped vireo and other endangered species, Colorado Bend State Park near Bend, 915-628-3240
- June 14:** * Canyonland songbird hike, Hill Country State Natural Area near Bandera, 512-796-4413
- June 20:** * Walking nature tour, Matador WMA near Paducah, 806-492-3405
- June 20:** * Marine life and marsh tour, Matagorda Island State Park, 512-983-2215
- June 20:** * Bat emergence tour, Old Tunnel WMA near Fredericksburg, 512-896-2500
- June 21:** * Native plants tour, Hill Country State Natural Area near Bandera, 512-796-4413
- June 27:** * Texas tortoise and Texas horned lizard tour, Chaparral WMA, Dimmit and LaSalle Counties, 512-676-3413
- June 27:** * Nature walk, Lake Tawakoni State Park site, 903-425-2332 (Purtis Creek State Park)

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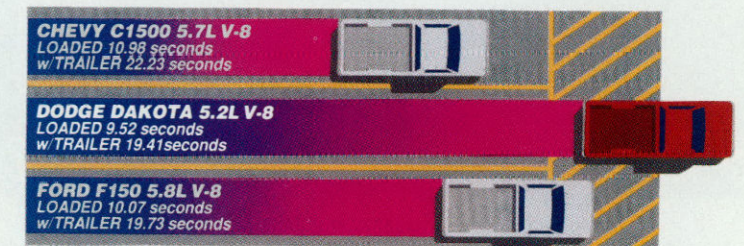
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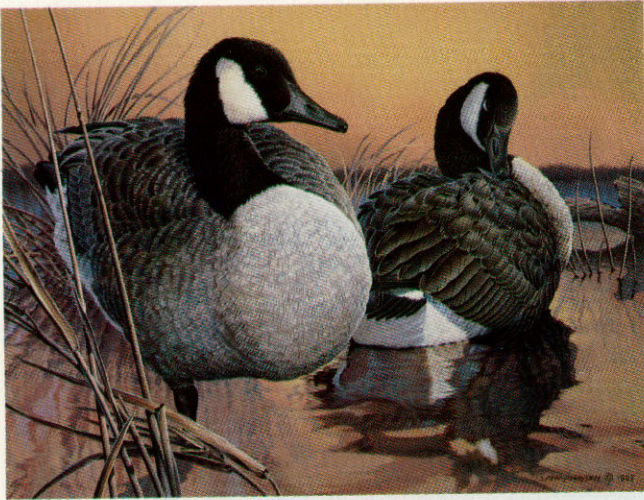


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1992 TEXAS PARKS AND WILDLIFE STAMP PRINTS



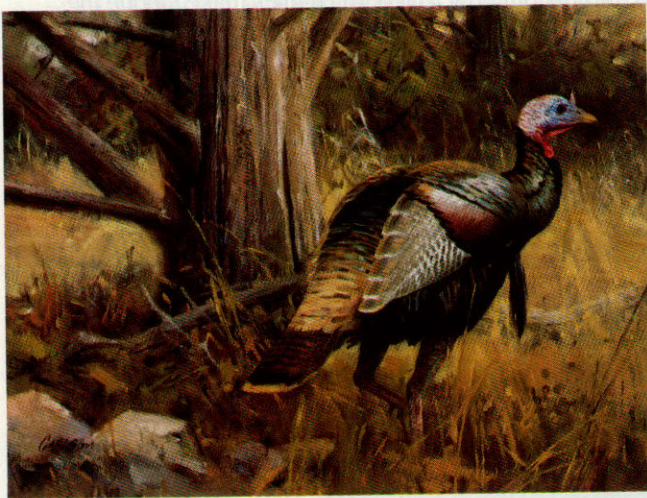
**1992 WATERFOWL
STAMP PRINT** (Canada Geese)
by **LARRY HAYDEN.**

Signed and numbered edition limited to wholesale orders received by June 30, 1992, but in no event will the edition size be less than 5650. Image size 6½" x 9".
Each \$142 with stamp. Delivery fall 1992.



**1992 SALTWATER
STAMP PRINT** (Tarpon)
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See accompanying list of print dealers or contact your local print dealer.



**1992 NONGAME
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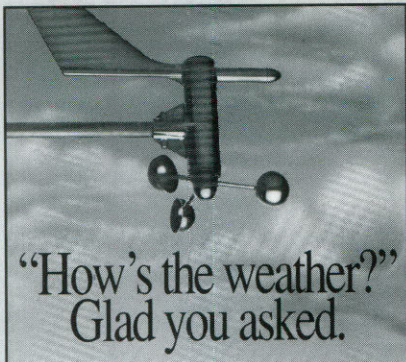
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(Continued from page 3)

Animal Cooperation

Late one afternoon we returned to our ranch in East Texas to find that the sack of alfalfa cubes my husband had left on the porch had been opened. As we were tired, we stepped over the clutter and planned to sweep up the cubes the next day.

In a few hours we heard a noise on the porch. We looked out and saw a large raccoon helping himself to a meal of our cattle cubes. When he finished he left, but soon a large opossum showed up. Then after the 'possum came another raccoon. In all, seven animals alternately dined on our cattle feed. We observed the same ritual for three nights. The animals never ate together, never intruded while the others ate, politely dined in rotation and not once became involved in any kind of altercation.

Is there a protocol among animals? Would that humans could work so well together!

Frances Jean Holsey
San Antonio

Thanks to the Chaparral

I want to thank the Texas Parks and Wildlife Department for the finest hunting experience I've ever had the opportunity to enjoy.

Several companions and I were drawn to deer hunt on the Chaparral Wildlife Management Area. Although we did not harvest any game, it was without a doubt the most enjoyable hunting experience I've had in decades.

Hats off to Mr. David Synatzske and his knowledgeable staff, Bill, Alberto, Jimmy and Melissa. They went out of their way to ensure we had a good time. Their professionalism is a tribute to the entire Parks and Wildlife Department and the whole state of Texas.

Mike Keenom
Lewisville

Washed Out

I was chosen to hunt in the muzzleloader hunt at Lost Maples State Natural Area on December 18, 19 and 20. The hunt was completely washed out by torrential rains. We were even flooded in for two days and could not leave the park. The employees at the park kept us posted on the weather conditions, checked on us to see if they could make our stay more enjoyable and provided us with coffee and homemade cookies.

When we finally were able to leave the park they provided us a hand-drawn map so we could avert some flooded highway crossings. I am looking forward to more of these hunts in the future, and appreciate the Lost Maples employees' efforts to make us comfortable in spite of the conditions.

Robert E. Worsham
Beaumont

I was selected to participate in the public hunt at Colorado Bend State Park on December 18 through 20. Due to heavy rains, I was unable to leave the park as scheduled. Rangers Robert Bosse and Dave Paddie took extra steps to ensure my comfort. Mrs. Carol Bosse cooked a superb meal of feral hog for two other hunters, three other rangers and me while we were stranded. The next day they delivered a hot meal to my campsite.

Rangers Kyle Teston and Phillip Estess of Lake Brownwood State Park also were at Colorado Bend to assist with the hunt. These men went out of their way to see that I had everything I needed.

W.C. Cleere
Odessa

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

MY SITTING ROCK

(Continued from page 27)

notice a doe, heavy with the fawns she soon will bear. She is 20 yards from any brush cover and how she arrived is a mystery. In my youth, I believed the sudden appearance of animals without my observation was magic, and pondered how I might acquire that skill.

I sense that all the participants I observe do not appreciate the tranquility of the situation as I do; that I, as do most humans, tend to put my values on the animals by describing such scenes as placid, or pastoral. But I come here to observe, while the animals come for vegetation to eat or for prey species. Most of these animals would flee upon sensing my presence; I am content merely to watch. They are benefiting me in aesthetic ways, just as their ancestors benefited me in material ways.

It almost is dark now. The quail have gone to their roost in an opening, each facing outward forming a circular pattern to warn the others of approaching predators. The birds have quietened, and the animals are nothing more than indistinguishable dark forms. I often have wished for the animals' vision, which is better suited to this time of day. I straighten on my perch, straining for the last bit of tranquility. As I resign myself to leave, memories of other times drift into my senses.

My father used to take me up and down this hill. He taught me stealth in approach, to sit quietly and still, and to adhere to ethical behavior. These things are best learned from a father or someone you look up to, but he taught me more. He taught me that humans are here for a short while only, to leave a place better than you found it. And possibly most important, he taught me that I, as a human, have my place in the universe also.

I return to this hill to watch the world around me with childlike wonder and amazement and, accordingly, to put my life in perspective. But I also come because when I get off my sitting rock and walk quietly down that hill in the evening's waning light, my dad, who died in 1984, again walks beside me, with his hand on my shoulder. ★

Dr. Bill Morrill is a wildlife biologist whose Boerne, Texas consulting firm works with wildlife management over much of North America.



OUTDOOR ROUNDUP

Long-term Rest Fails To Increase Plant Diversity

Does complete long-term rest from grazing animals, animal impact and fire restore land to its pre-settlement condition? Does it allow maximum plant diversity?

It does not, according to data gathered on the Kerr Wildlife Management Area, a 6,493-acre research and demonstration area near Kerrville.

Before the white man settled the Edwards Plateau region, it was believed to be a myriad of tall, grassland savannah with scattered brush, mostly Ashe juniper (cedar) and oaks. Large numbers of buffalo roamed the area and fire played an important role in maintaining the grassland and holding brush species in check.

In the early 1900s, continuous grazing by livestock and the control of fire allowed the area to grow up in many brush species. White-tailed deer numbers also increased dramatically, said

Donnie Harmel, Texas Parks and Wildlife Department wildlife biologist at the Kerr area. Today, the Edwards Plateau supports one of the largest whitetail herds in the nation. Deer are so numerous that they hedge browse plants and eliminate many preferred species of vegetation, causing periodic die-offs of deer.

The Kerr WMA was purchased in 1950 and, by 1954, a 96-acre deer and livestock grazing enclosure was established, he said. Livestock and deer have been kept out of this enclosure for the past 36 years.

According to data gathered from the enclosure, long-term rest from grazing animals does not allow maximum plant diversity and quantity such as that which may have existed prior to the early 1900s. Initially, Harmel said, there was an increase in the number of grasses and forbs found in the enclosure, finally falling off in the early 1960s.

"The number of grass and forb species encountered on vegetative line transects has since decreased from an

all-time high of 47 species in 1960 to 14 species in 1989," he said. "These same transects have shown that the amount of bare ground also has increased significantly since 1962.

"The vegetative transects showed that the average basal width of grasses on a 50-foot transect in 1962 was 1.56 feet. In 1989, it had decreased to .46 feet, and only one species of forb was encountered. This decrease in plant diversity and quantity can be attributed to the total absence of grazing by livestock and/or deer."

In contrast, the remainder of the area has increased in plant diversity and quantity. Adequate rest and recovery periods following grazing, proper livestock stocking rates and the use of prescribed burning at long-term intervals have been the main tools used to achieve this result, Harmel said.

"The vegetative transects on the rest of the Kerr area have shown that the grass cover has increased dramatically during the last few years, resulting in less bare ground and soil exposure," he said. "These transects indicated an increase in the average grass basal width on a 50-foot line transect from three inches in 1970 to slightly more than three feet in 1988, an all-time high of documented grass cover on the area.

"Forbs and browse species have shown these same upward trends. In fact, nine new species of forbs were found growing and documented on the area in 1990," a welcome addition to the 205 forbs, 79 browse and 73 grass species that already were documented on the area's plant checklist.

Harmel believes that plant diversity, quality and quantity are the measurable indication of a healthy ecosystem and good wildlife habitat. "Long-term rest from grazing animals alone will not accomplish this and, in fact, is detrimental as documented by the findings in the 36-year enclosure."

TPWD To Sue ALCOA For Mercury Contamination

The Texas Parks and Wildlife Department intends to join a lawsuit with the Texas Water Commission and the Texas General Land Office against the Aluminum Company of America for mercury contamination of Lavaca Bay.

During February, the Texas Attorney General notified ALCOA of intent to sue on behalf of the agencies.

TPWD and the other agencies in-



Fire is one of the management tools used on the Kerr Wildlife Management Area in the Hill Country. Long-term rest from fire and grazing does not allow the land to restore itself to pre-settlement condition.

volved were required by the federal Superfund Act to notify ALCOA at least 60 days before filing suit. The lawsuit will be filed in federal court and will seek to force ALCOA to clean up the contaminated bay.

The lawsuit is not an overnight development. The three agencies have been trying since 1990 to reach a cooperative agreement with ALCOA to study the mercury problem.

"After more than a year of negotiation, the three state and two federal agencies involved were faced with the fact that discussions with ALCOA were not moving toward a progressive resolution of the problem," said Dr. David Sager, chief of TPWD's environmental contaminants branch.

ALCOA is well aware of laws and methods of natural resource damage assessment and restoration. They have been involved in a similar case for a facility in upper New York state that discharged PCBs into the Saint Lawrence river basin, department officials said.

The parties involved in Texas have been trying to negotiate payment for studies to determine what it would take to restore Lavaca Bay. ALCOA has discharged mercury into the bay from its Point Comfort plant at levels as high as 67 pounds per day since the late 1960s, according to state officials.

In 1988, the Texas Department of Health closed portions of Lavaca Bay after elevated levels of mercury were found in finfish and shellfish. The department cited potential danger to humans through consumption of mercury-laden seafood.

Lavaca Bay is one of the most productive estuaries on the Texas Gulf Coast. The bay's contamination has caused tremendous losses to the local and state economies.

In addition to the economic impact, the bay provides nesting and feeding areas for several rare and endangered species of waterbirds, which also are at risk because of the contamination.

Wildlife Expo '92 Staged to Recognize Role of Hunters in Conservation

The Texas Parks and Wildlife Department, in concert with a broad coalition of organizations, will celebrate the legacy of hunting and hunters' role in conservation by hosting Texas Wild-



Mike Krzywinski

Land recently donated to the Texas Parks and Wildlife Department will double the size of Port Isabel Lighthouse State Historic Site at the state's southernmost tip.

Port Isabel Donates Land For Historic Lighthouse

The City of Port Isabel has given the Parks and Wildlife Department a half city block adjacent to the Port Isabel Lighthouse State Historic Structure.

Parks Regional Supervisor Dennis DeWitt said the deed transfer will double the site's property and allow construction of an interpretive center and restrooms.

The city, aided by several local orga-

nizations, purchased the tract from a private owner to make it available to the department, DeWitt said.

The deed was presented to P&W Commission Chairman Ygnacio Garza by Port Isabel Mayor Calvin Byrd in a December ceremony.

The lighthouse is located on State Highway 110 just east of downtown Port Isabel at the state's southern tip.

life Expo '92 on October 2-3 at the department's Austin headquarters.

Texas Parks and Wildlife Commission member Chuck Nash of San Marcos said, "We want to honor the men and women who have played such an important role in conservation in the state. Hunters and anglers pay the lion's share of the cost of conserving Texas wildlife through license and other fees. Texas Wildlife Expo '92 is designed to celebrate the great legacy of hunting and hunters."

A celebrity banquet scheduled for October 2 in Austin will honor the winners of the 1992 Big Game Awards.

This new awards program is open to wild native animals legally harvested in Texas during the past hunting season. The program will recognize the quality of the animal, the hunter harvesting the animal and the land manager upon whose property the animal was taken.

The banquet also will honor winners of a statewide poster and essay contest. The contest is open to Texas students from kindergarten through college. Winning entries will be published statewide and students in each grade level will win a lifetime hunting and fishing license.

On October 3, the department's head-

OUTDOOR ROUNDUP

Continued

quarters complex will be transformed into a fairground. Exhibits by major conservation organizations will be featured, including the Gulf Coast Conservation Association, Ducks Unlimited, National Wild Turkey Federation, Texas Wildlife Association and many other hunting organizations in Texas. Hands-on displays will be featured on wildlife and hunting-related topics.

For those who have never hunted or handled a gun, a special safety course will be offered throughout the day, along with the opportunity to practice shooting targets.

One of the highlights of the day will be a celebrity sporting clay shoot-off. Texas Rangers pitcher Nolan Ryan and Rangers owner George W. Bush have confirmed plans to attend.

Texas Wildlife Expo '92, the first-ever statewide celebration of hunting, emphasizes sharing the tradition of hunting with youth through the poster and essay contests. Admission to the October 3 event is free, and families are encouraged to bring their children.

"It's long overdue," Nash said. "Hunters have played the biggest role in conservation and game management in this past century, and this celebration will honor this great tradition."

For more information about Texas Wildlife Expo '92, contact Bill Rutledge, director of Conservation Communications, at 512-389-4992.

Department, Zoo Officials Release Rehabilitated Eagle

A southern bald eagle, found injured last fall, was returned to the wild March 2 by Texas Parks and Wildlife Department biologists and officials of the Houston Zoo.

The eagle was released near Old Ocean in Brazoria County southwest of Houston.

An Old Ocean-area resident alerted Bay City Game Warden Bert Williams about the eagle. Department biologist David Reid found the bird near a rural reservoir October 30 and took it to the Houston Zoo the next day.

Dr. Mark Peckham and Dr. Joe Flanagan, Houston Zoo veterinarians, operated on the injured bird and nursed it back to health.

On February 13, department wildlife biologist Mark Mitchell of Edna flew over the area. He saw a female eagle in a nest near where the injured bird was found. Eagles mate for life, leading Mitchell to believe it may be the rehabilitated bird's mate.

David Mabie, wildlife biologist from Rockport, has been conducting an extensive eagle banding study in Texas since 1985. He said there only are about 60 southern bald eagles statewide. About four active eagle nests are clustered on the oak prairie in Brazoria County.

Mabie and other biologists will try to

follow the progress of the rehabilitated bird as the department continues its efforts to revive the species in Texas.

Hunters For the Hungry Collects Tons of Venison

Texas hunters donated an estimated 75,000 pounds of venison to the hungry during the 1991-92 deer hunting season, eight times the amount donated the previous year.

About 2,500 hunters donated the 37.5 tons of meat to the End Hunger Network through its Hunters for the Hungry program. During the 1990-91 season, 8,000 pounds were collected, said Sister Francis Klinger, president of the End Hunger Network.

About 150 meat processing plants across the state participated in the program. Hunters donated their deer and had them processed for a tax-deductible fee of \$15. The venison was processed, packaged and distributed through Second Harvest Food Banks, providing 225,000 meals.

"We have had a widespread response to this year's program, obviously due to an increased awareness of our needs," said Craig Chambers, chairman of the Hunters for the Hungry committee. "We'd like to thank all of the Texas hunters who donated their deer to feed the thousands of needy Texans. The contributions will go a long way."

Hunters for the Hungry is sponsored by the Texas Parks and Wildlife Department and several other state agencies and private organizations.

Texas Parks and Wildlife biologists and Houston Zoo officials released a rehabilitated bald eagle March 2 in Brazoria County west of Houston. The eagle had been found injured back in October.



Leroy Williamson





NO
SWIMMING