

TEXAS

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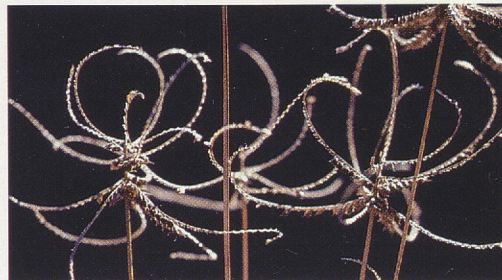
Contents



Page 24



Page 2



Page 34

Dipsy-doodle Doves and Jet-propelled Ducks 2

by Ray Sasser

September is the time to brush up on your wing shooting skills.

Tide of the Red Death by Paul Hammerschmidt 10

The red tide of 1986 killed fish and shut down beaches.

Outdoor Roundup 16

News briefs compiled by the department's news service.

The Park at the End of Hackberry Road 18

by A. Gayland Moore

The new Lake Lewisville State Park near the Dallas-Fort Worth metroplex is a good place for family outings.

Animal Crackers 24

A few good chuckles and the reminder that occasionally our wildlife neighbors can help us take a lighter look at ourselves.

Fishing Lures: Science or Sorcery? by Jim Cox 32

Anglers spend millions on artificial lures, but these colored chunks of plastic don't come with guarantees.

Homegrown Grass by Paul M. Montgomery 34

Some 600 species of grasses grow in Texas, more than any other state.

Click Beetle: A Snappy Little Bug by A. Gayland Moore 40

No other name best suits this insect which complements its ability to click and jump by emitting brilliant flashes of greenish light.

Letters to the Editor 48

Covers

Front Cover: A hard night's hunting seems to have left this barred owl so exhausted that it perched on the first available fence post, peering sleepily toward the photographer. See more unusual wildlife shots on page 24. Photo by Grady Allen. **Inside Front:** A richly colored purple heart, *Setcreasea purpurea*, contrasts with the pale green snowy tree cricket, whose song is a common night sound as the temperatures begin to drop. Photo by Paul Montgomery.

September wing shooting: Dipsy~doooc



doodle doves and jet-propelled ducks



Steve Bertson



Grady Allen

by Ray Sasser

It hardly seems fair, after a long off-season, that Texans are faced with September mourning doves and teal ducks as their first two major hunting seasons, but there you have it. Gunning for the dipsy-doodle doves and the little ducks that seem jet-propelled when they buzz in over the decoys is like a baseball hitter who didn't bother to attend spring training facing Mike Scott on opening day and Roger Clemens the next.

What happens is negative reinforcement of shooting skills. You miss a few seemingly easy shots and lose confidence. Wing shooting is largely cerebral, anyhow. Confidence plays a big role. A poor performance the first day out is the sort of thing that

September wing shooting



Ray Sasser

can stay with you the entire season, not unlike a baseball player who gets into a horrendous batting slump.

Fortunately for enterprising Texas hunters, there is ample opportunity to shake off the slump and get back to the business of efficient wing shooting. Texas hunters take far more mourning doves than any other state, the harvest averaging about five million birds per year.

"Mourning dove hunting is big business in Texas, and for good reason," explains Ron George, who heads up Texas Parks and Wildlife's mourning dove project. "There are about half a billion mourning doves in the entire United States. At some time or another during the season, about 10 percent of all those mourning doves come through Texas. Consequently, Texans harvest about 10 percent of all the doves taken by U.S. hunters. The national harvest is estimated at 50 million."

Texas teal hunting is also excellent during the special September nine-day, teal-only duck season. In 1985, the last season for which figures were available, Texas September teal hunters bagged 61,300 teal, about 88 percent of them bluewings. Louisiana is the only state that harvests more early teal.

So the opportunity for excellent September hunting is available. To improve hunting odds, it's a good idea to try a few practice rounds at a local skeet field, or better yet, shoot a few rounds of Sporting Clays, the new clay-bird game that simulates most hunting situations.

With Sporting Clays (for the location of the field nearest you, call U.S. Sporting Clays Association 713-622-8043), portable and stationary traps are set up to take advantage of natural terrain. The shooter stands at the shooting station and calls for the target with his gun held in the ready position.

There may be a delay of up to three seconds before the target is thrown. Single and double targets fly between trees and from angles that can be made to match virtually any field shot.

Even if you practice shooting on a standard skeet field, be sure to shoot European style with shotgun unmounted as you call for the target. Failure to mount the gun properly is one of the worst habits the average shotgunner falls into, explains Ken Davies, the chief shooting instructor for Holland & Holland, the venerable London firearms company.

Davies has taught shooting to 1,500 to 2,000 shotgunters per year for the last 20 years and has a pretty good handle on the miracle of the dead bird. You know the dead bird in question—the one you shot and then watched fly away.

Since a shotgun has no rear sight, the position of the gun against the shoulder and against the shooter's cheek determines the sight picture. An improperly mounted gun does not shoot where you think it is shooting.

If the gun is bruising your cheek, jaw or upper arm, you are not mounting it properly, Davies says. "Too many people try to drop their head down to the gun stock rather than bringing the stock up to their head," he adds. "The proper way to shoot is to hold your head fairly erect and lift the gun up to the cheek. Don't hold the shotgun at port arms pointing straight up unless it's dangerous to do otherwise.

"When you are preparing to mount the weapon, it's better to hold the gun horizontal to the ground, gun butt held just under the armpit. A quick movement lifts the shotgun to firing position against your shoulder."

Davies recommends standing in front of a mirror with an unloaded shotgun and practicing mounting the gun properly. It's better, he cautions, to practice 10 to 15 minutes each day than to practice 30 minutes to an hour once a week.

Of course, knowing how to shoot the shotgun and hunting teal or doves with efficient guns and loads are two entirely different matters. Many hunters tend to be too extreme in selecting guns and shotshells for teal,



Ray Sasser

September wing shooting

which are tough, despite the fact that they're the smallest of ducks.

Teal cannot be killed efficiently with low velocity dove loads, though many hunters try to shoot them with such shells. High velocity loads are necessary and humane for teal hunting. In steel shot zones, No. 6 and No. 4 shot is the preferred size. For teal hunting outside steel shot boundaries, No. 6 lead is a good choice and No. 7½ high velocity loads work well if you take nothing but decoying shots.

On the other hand, teal hunting in most cases does not require full-choke waterfowl guns. Veteran teal guides like Forrest West of Los Patos Guide Service in Southeast Texas, prefer autoloaders bored improved cylinder or even true cylinder.

"Teal are extremely easy to decoy," says West. "Most of the shots are close—20 to 30 yards. An open choke works better than a tight choke, particularly if you're using steel shot. Steel shot patterns tighter than lead, anyway. Improved cylinder is a good choke choice for decoying teal."

For teal hunting, says West, there's not much to know. Be sure to scout the area you intend to hunt to make sure the birds are there. Put out decoys, the more decoys the better, in a likely spot where teal can see them. Hide as well as you can and wait for the ducks to come in. Duck calls are fun to play around with but not necessary during teal season.

"Sometimes I carry a duck call and sometimes I don't," explains West. "The teal are going to decoy whether you call them or not."

About the only other thing to remember about teal season is that teal ducks only (bluewings, greenwings and cinnamon) are legal game. Look for the distinctive, powder blue wingpatches on blue-winged teal.

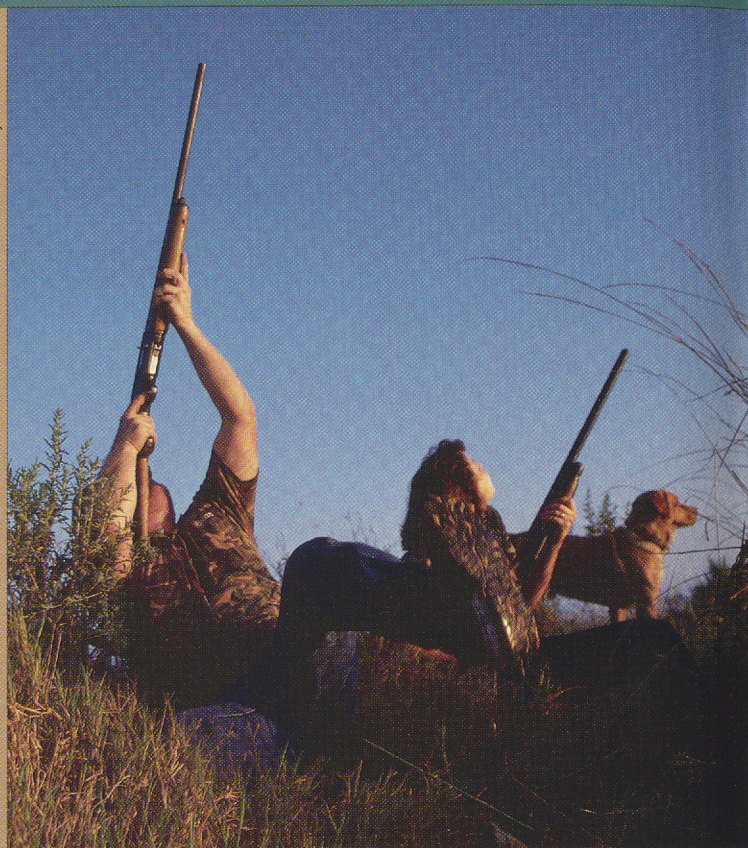
Greenwings, the smallest of all common ducks, have green wing speculums. Cinnamon teal, which are not common in Texas, are virtually indistinguishable from bluewings during the September season.

All teal fly in a characteristic tight flock, wheeling in unison as they shift back and forth across a lake, river or marsh. Their wingbeats appear very fast when compared to larger ducks. If you're not certain of your target, hold your fire. Although bluewings migrate earlier than most waterfowl, there are other ducks present in Texas in September, other early migrants in addition to native birds.

September teal are available throughout the state on inland lakes, small ponds, streams and rivers. The best teal hunting occurs along the Upper Texas Coast, in the rice production belt east and west of Houston.

Texas' top mourning dove hunting occurs within a 100-mile-wide band drawn down the middle of the state from Wichita Falls to Laredo, but there is excellent dove

Grady Allen





Grady Allen



Ray Sasser

hunting outside that band. Even where dove numbers appear to be marginal, the serious hunter like Steve Stidham can find outstanding sport.

Stidham, a Greenville policeman, enjoys numerous limit mourning dove hunts every year, generally within 12 miles of his home, which is not exactly a hotspot for mourning doves. Stidham and a few other serious dove hunting friends do a lot of prehunt scouting.

"Beginning about 10 days before the season, we divide our area into four sections, and we each spend a lot of time driving, looking for birds," he explains. "Some hunters scout by looking for birds perched on highlines but that can be a mistake. I've seen fields where there were 1,000 birds on the ground and none on the highlines."

Stidham stops his vehicle at each likely field and uses binoculars to glass for birds on the ground. In a high wind, doves fly low and may escape notice from the casual observer.

"If we see a few birds or if the field has paid off in the past, I may actually walk out into the field to see what I flush. By walking, we've found a lot of doves we wouldn't otherwise have seen.

"One day, I saw two birds fly into the far corner of a cut maize field. I sat there about five minutes, and no other birds showed. But the field looked too good not to be holding doves. I started out across the field, walked about halfway and didn't flush a thing. About 50 yards farther, 200 birds got up and we were in business."

One mistake Stidham sees most dove hunters make is picking a likely spot for the stand, then refusing to move. Doves, he says, develop certain flight patterns when entering and leaving a field and the savvy hunter moves as often as necessary to intercept them.

In some fields, the hot flight lanes may be readily identifiable structures such as a prominent treeline, or the doves may funnel through a break in a long treeline. In fields where trees are scarce, a large tree, sometimes referred to as a "sentinel tree" often draws doves like a magnet. Those are things to look for while picking a stand before birds start moving. Once the doves are flying, let them tell you where to hunt.

Another mistake Stidham thinks the typical hunter makes, is not adequately hiding from the sharp-eyed game birds.

"Opening day, you can get away with standing around in the open, but doves that are shot at soon learn the game. I wear a camo t-shirt and fatigues and I hide the best way I can in whatever cover is available.

"When possible, I like to get down between rows of maize or other planted grain. You can really hide like that. In a field with round bales of hay, the hay makes a good blind."

In any kind of cover, Stidham believes in keeping a

September wing shooting



Grady Allen

low profile. He doesn't use one of those lightweight stools favored by many hunters for added comfort. Stidham prefers to kneel so doves are less likely to see him. He even shoots from a kneeling position.

"Most people, even those who get down low to hide, usually stand to shoot. When you stand up, the dove is going to see you. That's when he goes into those power swoops and corkscrew maneuvers that make the birds almost impossible to hit. I shoot from my knees about three-fourths of the time, and doves never know I'm there."

Like teal ducks, mourning doves are difficult to shoot. In fact, most hunters agree that doves are the sportiest of all common Texas game birds. Unlike teal, however, doves are fragile birds and are easy to kill, if you can hit them.

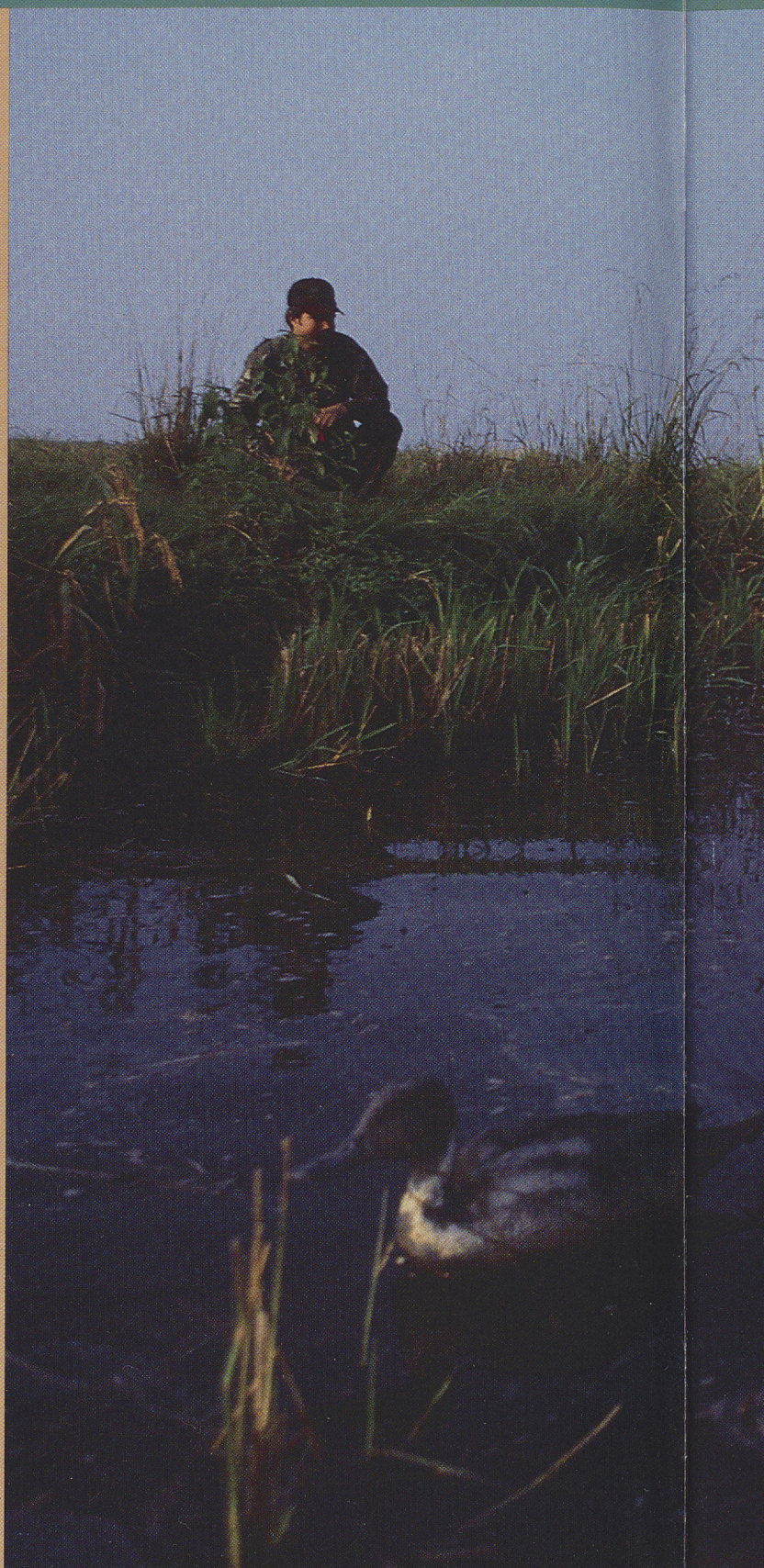
An open-choke shotgun, improved cylinder or even as open as skeet bore, is the best bet for doves in most typical situations. Small shot sizes, like No. 8 or even No. 9, deliver extremely dense patterns, yet enough shock power to bring the birds down cleanly.

Since the Texas mourning dove season overlaps the September teal season, it's possible to hunt both species the same day. In fact, if you're in a good teal spot, a four-duck limit can come all too quickly, leaving plenty of time for other hunting.

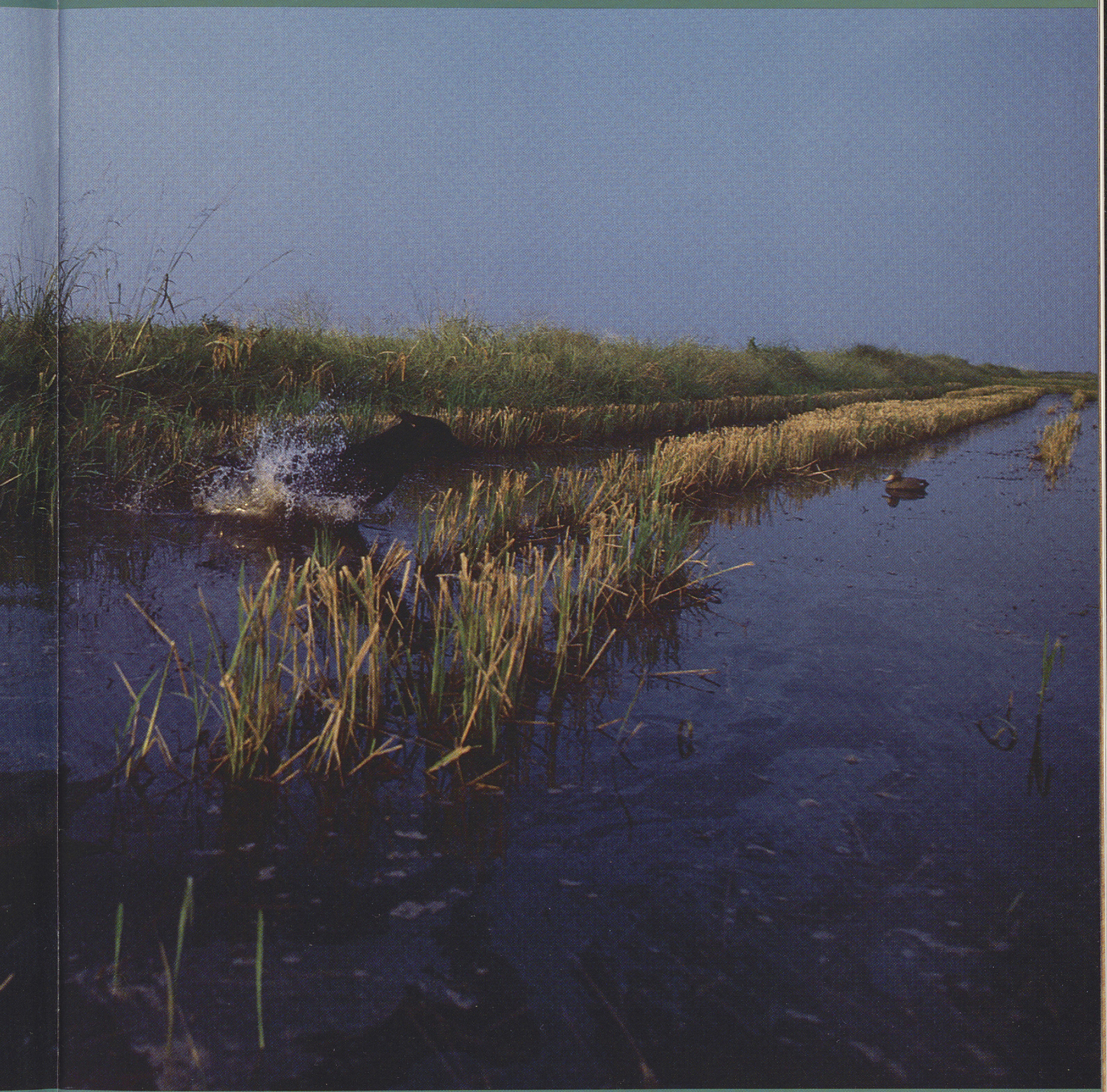
One thing to remember if you hunt both teal and doves inside the nontoxic shot zone for waterfowl is that you're not permitted to possess lead shot while hunting ducks. You may keep lead shotshells in your car and return for them after you've finished with the duck hunt.

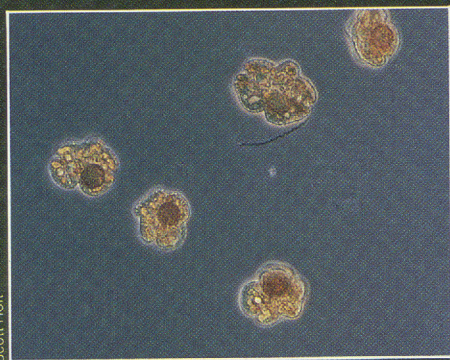
September doves and teal deliver a frenetic one-two punch that promises to challenge any hunter. **

Editor's note: See Outdoor Roundup, page 16, for the 1987-88 dove and teal seasons.



Ray Sasser





Scott Holt

by Paul Hammerschmidt

TIDE OF THE RED DEATH



It had not been reported in Texas waters for more than 30 years. But in August 1986, discolored water, irritating fumes and dead fish were the unmistakable signs of RED TIDE. Three months later, no fewer than 22.2 million marine organisms had been killed. The Texas Health Department closed oyster reefs because of toxic contamination and numerous beaches and waterfronts were shut down to prevent public exposure to dead fish and the airborne toxin.



George Guillien



A. F. Amos

Minute, one-celled organisms (opposite page, top) caused the 1986 red tide invasion. Biologists surveyed fish killed by the phenomenon (center and above) all along the coast. The background photo shows the red tide off Corpus Christi Bay in October.

With the first reports of red tide, the Texas Parks and Wildlife Department, in cooperation with the Texas Water Commission, Texas Department of Health, Texas A&M University, the Texas Sea Grant Program and the University of Texas took action to determine the extent and the effects of the red tide and the reasons for its sudden appearance. The Lower Colorado River Authority, the General Land Office and the Texas Department of Highways and Public Transportation assisted with initial assessments.

In addition to conducting their full-time sampling programs, TPWD personnel were called upon to conduct surveys of the fish kill by land, water and air. These surveys began in late August, continued through the middle of November and covered the Gulf of Mexico and all Texas bays from Galveston Island to the Rio Grande. Re-

ports were received that the red tide extended as far south as Tampico, Mexico and probably beyond.

The massive numbers and great diversity of fish species killed will not soon be forgotten. Initial estimates indicate that the more than 22.2 million fish killed represented more than 106 different species. Among these were some four million striped mullet; three million Gulf menhaden; 242,000 Atlantic croaker; 80,800 spotted seatrout; 42,900 red drum (27,100 were spawning size); 41,000 flounder; and 3,800 black drum. Other fish killed by the red tide include king and Spanish mackerel, red snapper, eels, sharks, sea basses and stingrays.

What is Red Tide?

Red tide is a natural phenomenon that occurs in many places around the world. It is generally caused by dense concentrations of minute, one-celled

organisms called dinoflagellates, an algae measuring about one one-thousandth of an inch in size. When these organisms concentrate, the water may appear reddish in color.

There are approximately 1,200 to 1,500 different species of dinoflagellates worldwide, fewer than 30 of which cause toxic red tides. The 1986 Texas red tide was caused by *Ptychodiscus brevis*.

What Caused the Sudden Bloom?

Studies indicate that *P. brevis* is always present in the Gulf in very low concentrations. However, there is some evidence that large numbers of the organism lie dormant in the sediments of the Gulf as resting cysts. When conditions are right for the development of these cysts, a large bloom can occur.

The precise conditions that cause the organism to bloom are not clearly understood. However, some evidence in-



Discolored water in the Gulf (background photo) shows red tide approaching the coast. Dead fish rose to the water's surface in Port Aransas (right), victims of *Ptychodiscus brevis* (above).

Florida Department of Natural Resources



Scott Holt

dicates that they begin offshore where currents and upwelling stir up the bottom sediments, releasing the cysts from the mud and exposing them to ideal lighting, salinity and temperature conditions. Blooms then are carried shoreward by the prevailing currents. Some researchers believe the 1986 bloom originated in Mexican waters.

Many people are convinced that chemical pollution or some other form of man-made environmental hazard resulted in the 1986 red tide bloom. There is no evidence for this. In fact, the effects of red tides were observed in the Gulf as early as 1844 off Florida.

How Does Red Tide Affect Marine Life?

Red tides can kill marine organisms two ways: by actual poisoning and by oxygen depletion. *P. brevis* causes a condition called Neurotoxic Shellfish Poisoning (NSP). The toxin associated

with NSP is released when the cell walls of the organism break. *P. brevis* is very fragile and its cells can easily be broken by rough seas. Fish swimming through concentrations of *P. brevis* also will release the toxin.

Generally, the toxins associated with *P. brevis* interfere with the transfer of oxygen across the gills by blocking certain nerve impulses. As a result, the fish die from lack of oxygen to their vital organs. Fish are the primary aquatic animals severely affected by *P. brevis* toxins. However, not all fish are equally susceptible. Bottom dwelling fish and those that form large schools seem to be more affected than others. More than 72 percent of the fish killed—primarily mullet and menhaden—were in the Gulf of Mexico.

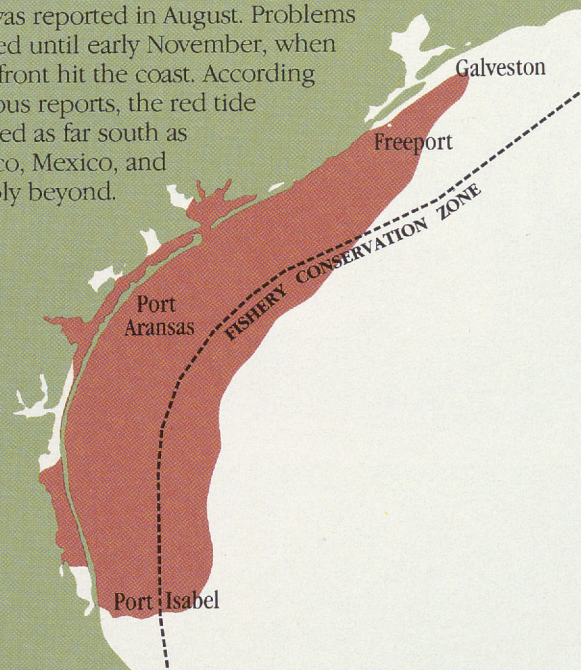
Most invertebrates, such as crabs and shrimp, are relatively immune except when concentrations of *P. brevis* are

extremely high or when oxygen is depleted. Oysters, clams and mussels tend to concentrate the toxins and are dangerous to eat. Some waterfowl in Florida have been killed after eating mollusks during severe red tide outbreaks. There was concern that the endangered whooping cranes which spend the winter in Texas would be seriously affected by poisoned clams; however, the red tide dissipated before the cranes arrived.

When microscopic organisms such as *P. brevis* are highly concentrated, they can use up the available oxygen in a confined area. Even though it is photosynthetic and therefore produces oxygen during the day, *P. brevis* must respire at night. Oxygen depletion occurs most often during late night and early morning hours. All red tides, whether toxic or not, can cause fish kills in this manner.

Waters Affected by the 1986 Red Tide

The first red tide outbreak along the Texas coast was reported in August. Problems persisted until early November, when a cold front hit the coast. According to various reports, the red tide extended as far south as Tampico, Mexico, and probably beyond.



Public Health Concerns

Red tides affect people in a variety of ways. First is the odor caused by dead fish along the beach. Second, the aerosol associated with *P. brevis* blooms can cause respiratory irritation to people on the beach when the toxin and particles of the organism are splashed into the air by wave action and carried onshore by prevailing winds.

Symptoms of exposure to the aerosol include numbness of the lips, burning nasal passages, irritated throat and stinging skin. There also were reports of rashes caused by exposure to the spray. Apparently, there are no lasting effects. People with asthma or other respiratory problems should avoid beach areas when red tide is present.

Since shellfish concentrate the toxins, people can get sick if they eat contaminated oysters, clams or mussels. The toxins cannot be destroyed by

cooking, and it reportedly takes two to six weeks for the shellfish to purge themselves of the toxin. But levels of toxin were found in oysters from lower San Antonio Bay well into January 1987.

Symptoms from eating affected shellfish include numbness in the limbs, dizziness, hot-cold flashes, nausea and respiratory distress. There have been only about 50 cases of NSP in recent history, none fatal.

NSP should not be confused with another form of dinoflagellate poisoning called Paralytic Shellfish Poisoning (PSP). This is a deadly toxin that affects shellfish on the east and west coasts of the United States. It can cause death in less than three hours after eating contaminated shellfish. Organisms that cause PSP are not present in the Gulf.

Economic Concerns

The actual financial impact of the red tide on the Texas economy may

never be fully known. However, some estimates run in the millions of dollars.

Since oysters concentrate red tide toxins, damage to the commercial oyster industry was immediate and far reaching. Before the oyster season opened, the Texas Department of Health closed all oyster reefs south of San Luis Pass because of red tide concentration. Reefs remained closed in lower San Antonio Bay through January 1987. The shutdown of this industry could mean significant financial losses for the Texas economy.

Coastal communities and businesses also suffered setbacks from a dramatic decline in tourism, since concern for public health coupled with media reports of fish-littered beaches and aerosol effects caused many tourists to cancel trips to the Texas coast. This meant losses for motels, hotels, fishing guides, bait and tackle dealers and



Norman Martin



George Guillen

Beaches were shut down to prevent public exposure to dead fish and the airborne toxin of the red tide. This was an economic hardship to tourist-oriented businesses.

many other businesses that rely on the tourist trade.

Tourists often assumed that all areas of the coast, both Gulf beach and back bays, were affected. Actually, the aerosol effects were temporary and localized and fishing was productive in many back bay areas, often in areas where red tide was present.

Control

The red tides may not have had the same emotional impact or shock value if there had been some method of controlling the outbreaks. At this time, there are no safe or economic methods to do this. First, the blooms usually cover vast areas of the ocean and can be found at depths of at least 120 feet. Second, the chemicals available to kill *P. brevis* are expensive and large quantities would be needed to treat affected areas. Most important, these chemicals can do more damage to other marine

organisms than the red tide itself. Without careful consideration of the effects, the consequences of such actions could be disastrous.

The only thing that can be done is to wait for the outbreak to run its course. Normal currents can dilute the bloom or carry it away from the shoreline. Rainfall or freshwater releases from up-river reservoirs can lower salinities in the estuaries to below 25 parts per thousand where the organism cannot survive. Water temperatures below 55 degrees F can slow its growth but not kill it, and nutrient levels eventually can be depleted, making living conditions less tolerable for the organism.

Many fish died in the Gulf and never drifted to shore, so the exact number killed by the red tide is unknown. However, biologists believe that the popular sport species of red drum, spotted seatrout, southern flounder and

black drum comprised less than one percent of the total, so more restrictive harvest regulations were not immediately necessary.

The Parks and Wildlife Department's Coastal Fisheries Branch uses monitoring programs to assess significant changes in fish populations. These programs, which were used to determine damage from the freezes of 1983 and 1984, will indicate how many fish were lost because of the red tide. Although it is suspected that some 20,000 spawning-sized red drum died, this is a loss that will be alleviated by the department's red drum stocking program.

It is impossible to know when another red tide will return. But Texans can rest assured that the Parks and Wildlife Department's monitoring and restocking programs will guard against major losses of fisheries resources in the face of such threats. * *



A.F. Amos

Outdoor Roundup

Dove, Teal Seasons Adopted By TPW Commission

Hunting seasons and bag limits for mourning and white-winged doves for 1987-88 will be virtually the same as last year, but the special teal duck season will be one week later than in 1986.

The Texas Parks and Wildlife Commission adopted the early season migratory bird hunting seasons and bag limits in a public hearing in Austin on July 23.

The commission accepted a recommendation by the department staff to set the nine-day teal duck season for September 19-27. The change was made because department records indicate greater numbers of teal will be present in the state for the later season.

Teal bag limits will remain unchanged from 1986, at four teal in the aggregate per day and eight in possession. Shooting hours are sunrise to sunset.



Glen Mills

No changes were made in season lengths or zone boundaries for mourning and white-winged doves. The North Zone mourning dove season is September 1-November 9, 1987; the Central Zone season is September 1-October 30 and January 2-11; the South Zone mourning dove season is September 20-November 18, except in the Special White-winged Dove Area, where the season is September 20-November 14. The winter season for mourning doves in the South Zone will be January 2-11.

As in the past, the white-winged dove season is on the first two complete weekends in September, which this year is September 5-6 and 12-13. Shooting hours during the four-day whitewing season again are noon to sunset. Shooting hours during the mourning dove season in all zones is one-half hour before sunrise to sunset.

A \$6 White-winged dove stamp is required in addition to a valid hunting license to take whitewings anywhere in the state.

Dove bag limits also are unchanged from last year, at 12 mourning, white-winged and white-tipped doves in the aggregate including no more than two white-winged and two white-tipped doves per day. Possession limits are twice the daily bag limit.

During the whitewing season, the bag limit is 10 white-winged, mourning and white-tipped doves in the aggregate including no more than two mourning doves and two white-tipped doves; possession limits are twice the daily bag limit.

As in the past, one fully-feathered wing is required on all dressed doves at all times in the South Zone and the Special White-winged Dove Area.

The system of whitewing sanctuaries also remains unchanged during the 1987-88 seasons, with Sanctuary "B" closed this year and Sanctuary "A" open.

The season for rails and gallinules is September 1-November 9, and shooting hours are one-half hour before sunrise to sunset. The bag limit for king and clapper rails is 15 daily and 30 in possession; Sora and Virginia rails, 25 per day and 25 in possession. The gallinule bag limit is 15 per day and 30 in possession.

Hunting, Fishing Regulation Changes Adopted

The Texas Parks and Wildlife Commission has adopted regulations expanding special antlerless-only white-tailed deer seasons in two regions of the state.

The changes were additions to 1987-88 hunting regulations adopted by the commission May 7.

One of the changes expands the special early antlerless-only white-tailed deer season in East Texas. The October 24-November 8 season will include all of Polk, Trinity, Houston and Angelina Counties, and the portion of Nacogdoches County south of State Highway 7. During last year's season, only portions of Polk and Trinity Counties had the special season.

A three-county expansion of the special late antlerless-only white-tail season in South Texas also was adopted. Frio, LaSalle and McMullen Counties were added to those having the January 9-24, 1988 season. Counties that already had the late season are Webb, Maverick, Duval, Zapata, Zavala and Dimmit.

Antlerless Deer Permits Unnecessary In 80 Counties

Texas Parks and Wildlife Department officials said many Texas deer hunters apparently are unsure about which counties will be included in the either sex white-tailed deer bag limit for the 1987-88 hunting season.

The either sex system eliminates the requirement for hunters to obtain antlerless deer tags or permits from landowners. In those counties, a hunter who has permission to hunt is required only to attach a tag from his hunting license to the carcass of any antlerless deer taken.

This hunting season, 80 counties will be under the either sex system. The remainder of counties with an open deer season will continue with an antlerless permit system, as will the mule deer season.

Counties under the either-sex system, listed alphabetically, are:

Aransas, Atascosa, Bandera, Bee,

Bell (west of I-35), Bexar, Blanco, Bosque, Brewster, Brooks, Brown, Burnet, Calhoun, Cameron, Coke, Coleman, Comal (west of I-35), Concho, Coryell, Crockett, Culberson, DeWitt, Dimmit, Duval, Edwards, Frio, Gillespie, Goliad, Hamilton, Hays (west of I-35), Hidalgo, Howard (south of I-20), Irion, Jeff Davis, Jim Hogg, Jim Wells, Kendall, Kenedy, Kerr, Kimble, Kinney, Kleberg, Lampasas, LaSalle, Live Oak, Llano, McMulloch, McMullen, Mason, Maverick, Medina, Menard, Mills, Mitchell (south of I-20), Nolan (south of I-20), Nueces, Pecos, Presidio, Real, Reeves, Refugio, Runnels, San Patricio, San Saba, Schleicher, Starr, Sterling, Sutton, Taylor (south of I-20), Terrell, Tom Green, Travis (west of I-35), Uvalde, Val Verde, Victoria, Webb, Willacy, Williamson (west of I-35), Zapata and Zavala.

Sawfish Record Request Surprises Officials

A recent request for a state fish record raised some eyebrows at the Texas Parks and Wildlife Department's fisheries office at Rockport.

A letter sent by Al-Dora Patterson of Garland requested that a state record be awarded for a 17-foot, four-inch sawfish.

That size sawfish is a rarity in itself, but what took officials aback was that the fish was caught in 1930.

Although a picture of the giant fish was available, there was no evidence that the fish was weighed on a certified scale as required by the department. However, department biologists estimate the sawfish weighed around 1,300 pounds. The current state record, which weighed 736 pounds, was caught off Galveston in 1936.

The 1930 catch will not be a state record, but is worthy of one of the department's Awards of Fishing Merit.

Biologist Larry McEachron said sawfish are not usually caught on hook and line. In 11 years of sampling the department has caught only one sawfish; it was taken in 1984 in Aransas Bay, and weighed 21 pounds.

COMPILED BY THE PARKS AND WILDLIFE DEPARTMENT'S NEWS SERVICE

Conservation Reserve Program Brochure Available

A color brochure designed to assist landowners in managing wildlife under the Conservation Reserve Program (CRP) is now available.

The free publication is entitled "Managing For Wildlife With the Conservation Reserve Program." It was published by Texas Tech University in cooperation with the U.S. Soil Conservation Service and the Texas Parks and Wildlife Department (TPWD).

The CRP is a federal farm program designed to reduce soil erosion by converting highly erodible cropland to permanent vegetation. Participating landowners receive annual payments for land taken out of agricultural production and additional payments to cover part of the cost of establishing vegetation.

Most CRP lands are located in the High Plains and Rolling Plains regions of West Texas, according to Ron George, CRP coordinator for the TPWD.

The brochure suggests specific plantings and other habitat manipulations that can benefit the various species of wildlife, George said.

Persons interested in obtaining a copy of the publication should contact the Literature Section, TPWD, 4200 Smith School Road, Austin, Texas 78744.

October In . . .

TEXAS PARKS & WILDLIFE

Get out the shotguns and the deer rifles . . . the long-awaited hunting seasons are almost here. Waterfowl hunters are faced with a larger-than-ever area in which steel shot is required, and the nontoxic loads will be mandatory everywhere in the United States by 1991. Next month we'll examine the importance of nontoxic shot and give some tips for shooting with steel. According to some hunters, everything pales in comparison to deer season, and in the

October issue we'll have the first of a two-part story on deer hunting basics. Also next month are articles on first aid for outdoorsmen, Sabine Lake, the impressive hawk migrations through the state in October and a Young Naturalist feature on owl pellets.

Use of Fishing Yo-Yo's Banned By Commission

A statewide prohibition on the use of fishing yo-yo's was adopted by the Texas Parks and Wildlife Commission in its public hearing July 23.

Yo-yo's are spring-loaded reeling devices used primarily on limblines. They already were prohibited in salt water. The fresh-water ban will go into effect September 1.

New Nonresident Hunting License Fee Set

Effective September 1, nonresident hunters will be able to purchase a five-day license enabling them to hunt all game birds except turkeys. It also is valid for hunting exotic animals, squirrels, javelinas and all nongame animals except alligators and animals classified as furbearers. Certain hunting stamps are required in addition to this license.

The 70th Texas Legislature authorized the Parks and Wildlife Department to issue the new license. The Parks and Wildlife Commission, meeting in Austin July 23, set the license fee at \$25. The annual nonresident special license costs \$75.

The commission set a fee of \$10 for the new nonresident banded bird hunting license, also authorized by legislation. The license is valid only on a shooting resort, private bird shooting area or field trial area. The new license will be required beginning September 1.

Another legislative bill created a "quick title" service allowing applicants for boat registrations to pay an additional sum to expedite processing. The commission voted to charge \$10 for the quick processing.

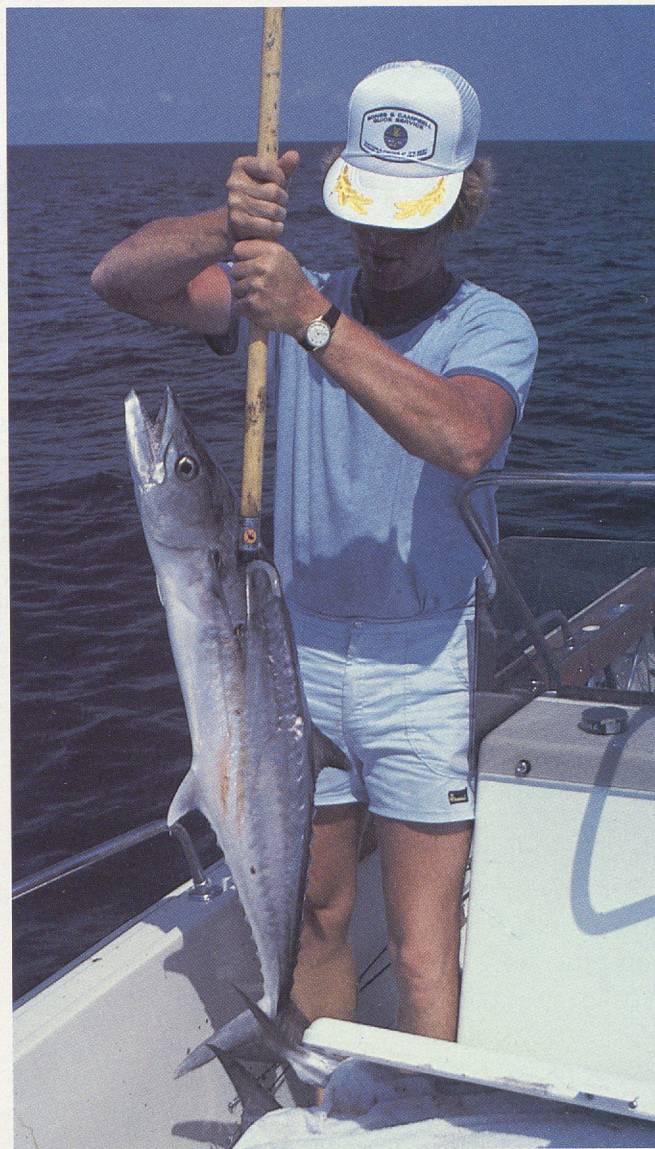
King Mackerel Limits Unchanged In Federal Waters

The Gulf of Mexico Fishery Management Council has announced that the king mackerel bag limit currently in effect for federal waters will remain unchanged through June 30, 1988.

The daily bag limit is the same for state waters out to nine nautical miles from shore, and federal waters, nine to 200 miles from shore. Anglers landing their fish in Texas are allowed to retain two king mackerel per person per trip

for private vessels. On a charter vessel, the limit is two per person or three per angler, excluding the captain and crew, whichever is greater.

The Gulf Council also has established a three-fish bag limit for recreational fishermen for Spanish mackerel caught in federal waters. The minimum size limit for Spanish mackerel is 14 inches total length. Dr. Gary Saul, director of fisheries harvest programs for the Texas Parks and Wildlife Department, said there is no bag limit for Spanish mackerel caught in state waters, but the 14-inch minimum length limit applies.



Ray Sasser



LAKE LEWISVILLE

The park at the end of Hackberry Road

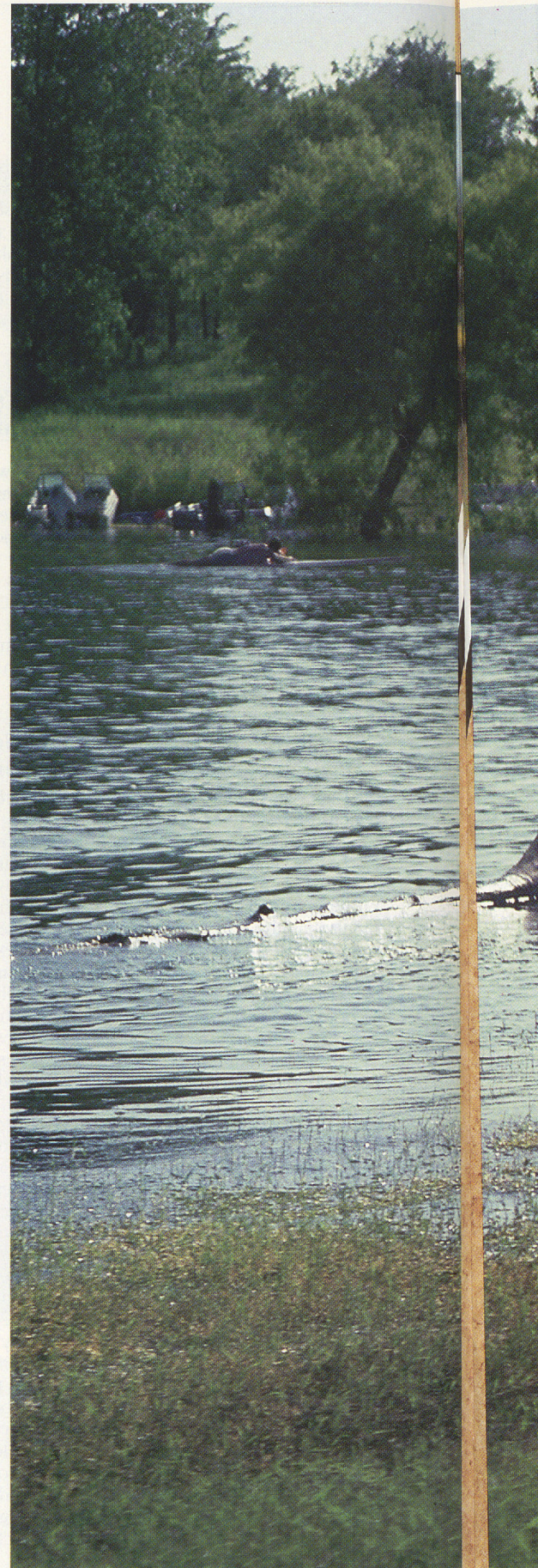
Article by A. Gayland Moore and Photos by Leroy Williamson

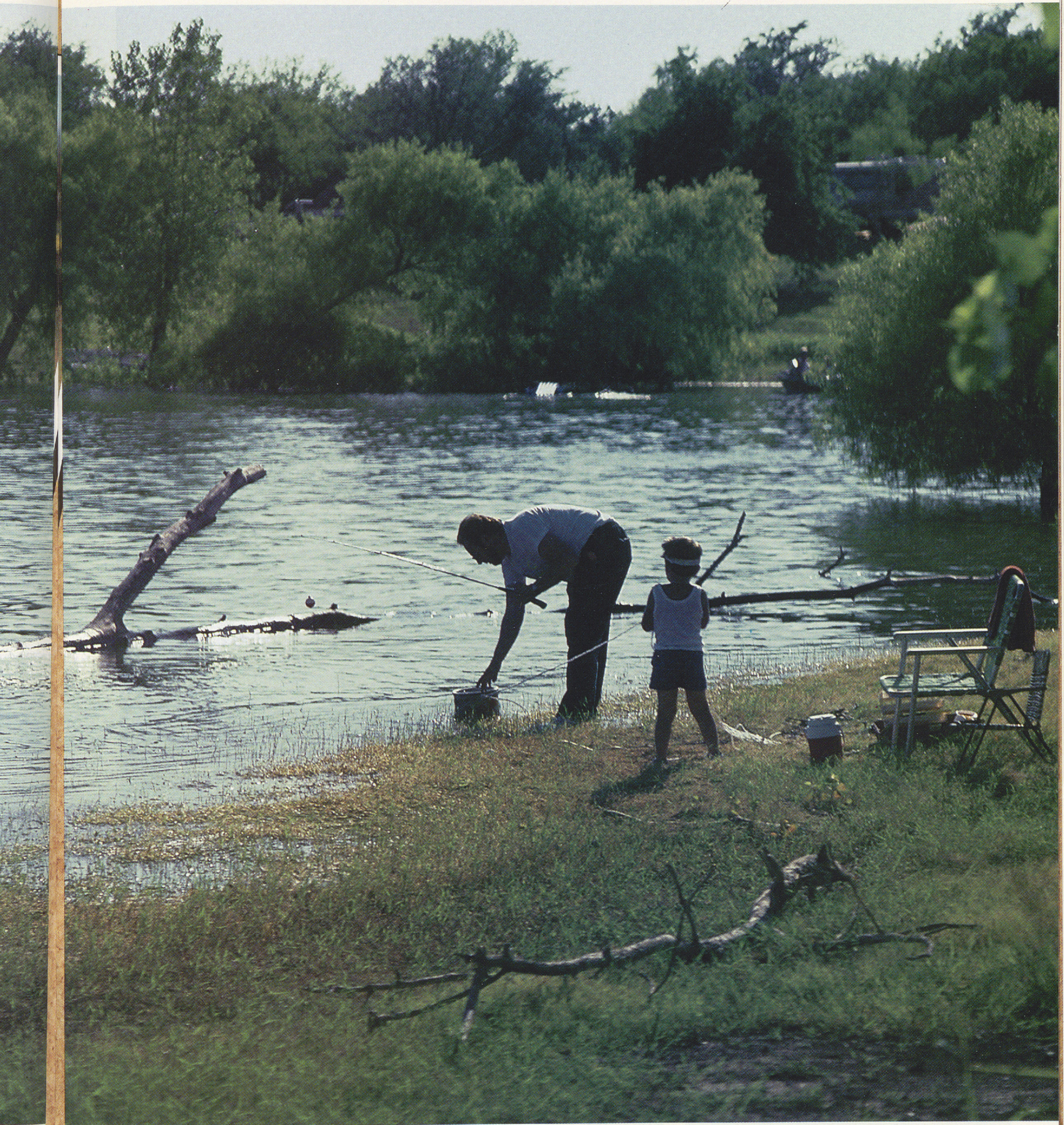
Quietly situated amidst large Texas ranches with acres of white-fenced pastures and stables of beautiful horses lies one of Texas' newest state parks.

After driving past estates that could pass for South Fork 22 miles northwest of Dallas, you will find Lake Lewisville State Park. But for those Metroplex citizens who have found these 720 acres on Lewisville Lake, the drive down winding Hackberry Road is well worth the effort.

The park offers visitors a variety of facilities that are in mint condition because they are only one year old. There are picnic sites, shade shelters and a pavilion for day use, a park store and concession. For overnight campers, Lake Lewisville has sites with water and electricity, screened shelters and a dining hall in the group camping area.

With its pavilion and dining hall, playgrounds and a softball field with ample parking, Lake Lewisville is a great place for family reunions. Water sports enthusiasts also are accommodated as sailing, swimming, water skiing and fishing are available at Lake Lewisville. Special features at the park include waterfront campsites,









covered picnic areas and a four-lane boat ramp with parking which provides convenient access to the lake for boaters and fishermen.

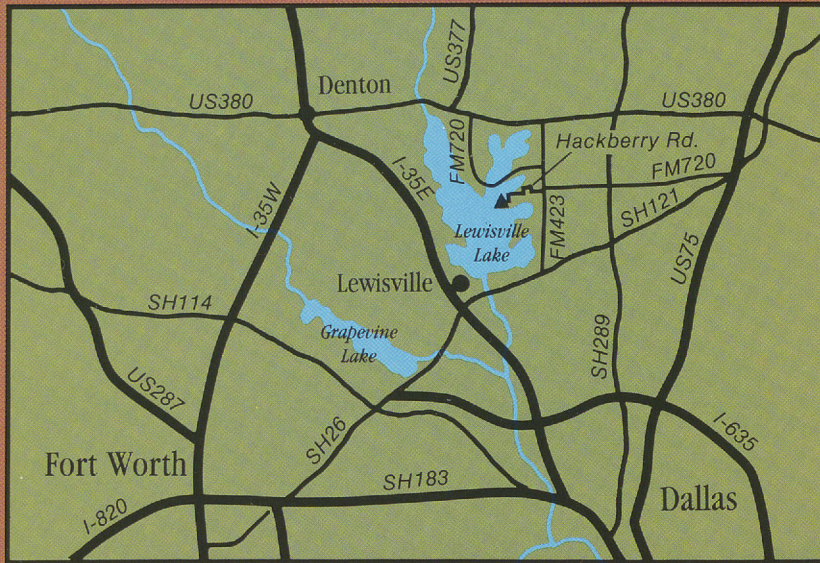
A number of bird species migrate, including the white pelican, through Lake Lewisville. Waterfowl in the fall and winter are generally scarce due to poor quality habitat and the high level of boat traffic.

Most of the natural vegetation within the park has been altered by past ranching and agricultural practices. Under natural conditions this area would have been classified as Fort Worth Prairie, an aspect of the Blackland Prairie. Now, nonnative species, as well as plants from both Blackland Prairies and Eastern Crosstimbers can be found in the park.

The trees found at the park occur along old fencerows, in woodlands, on some slopes, and along the reservoir's shoreline. Species in these old fields include hackberry, cedar elm, bois d'arc, pecan, red cedar, western soapberry, mesquite, honey locust and eastern persimmon together with a variety of native and introduced grasses and wild flowers. Along the reservoir's shoreline, black willow and cottonwood recently have become established.

Although Lake Lewisville State Park is just concluding its second





Lake Lewisville State Park

Location: Denton County, 22 miles northwest of Dallas and 25 miles east of Denton. From Dallas, take I-35E to Lewisville, then east on State Highway 121 to FM 423, then north to Hackberry Road. From Denton, travel east on US 380 to FM 423, then south to Hackberry Road which leads to the park entrance.

Fees: \$2 entrance fee; \$6 tent site fee; \$12 for screened shelter and \$10 for trailer-camper site with complete sewage hookup.

For information and reservations: Call 214-292-1750 or write Park Superintendent, Lake Lewisville State Park, Route 2, Box 353H, Frisco, Texas 75034.



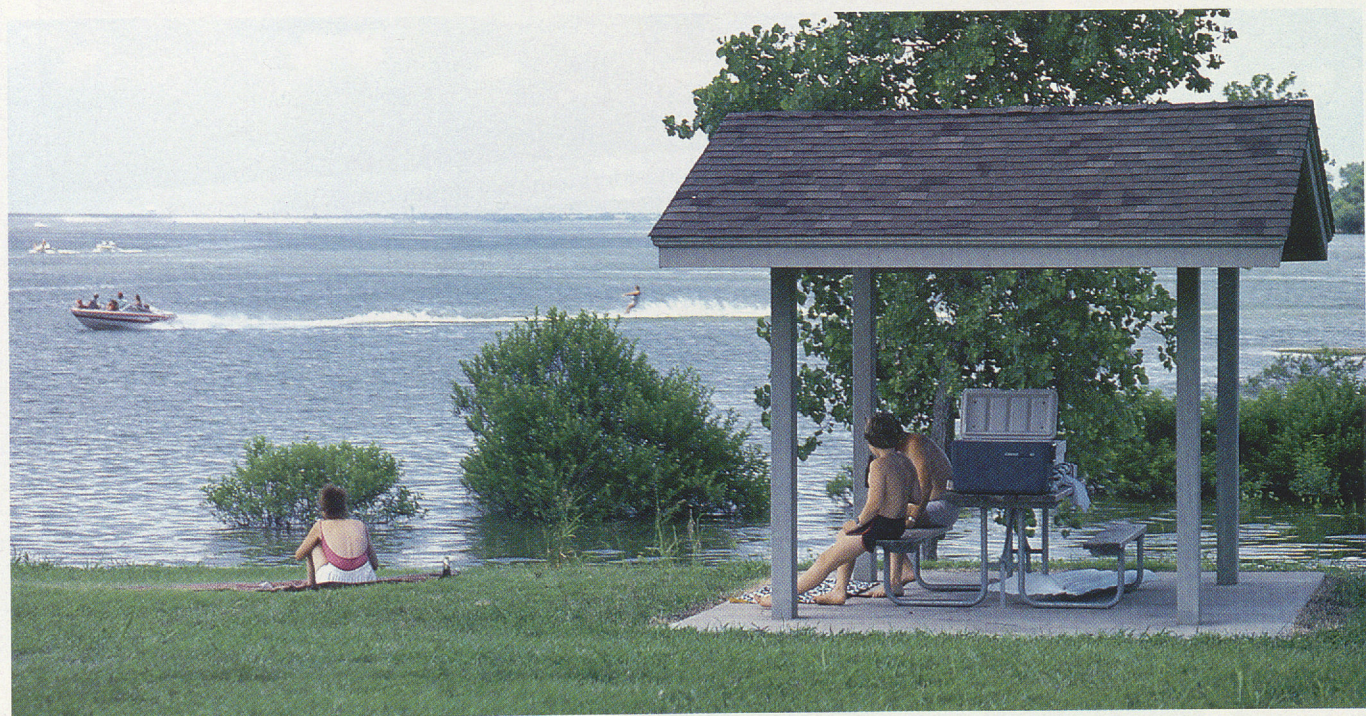
full-summer season, the lake was completed in 1955. Formed on the Elm Fork of the Trinity River, Lewisville Lake formerly was known as Garza Little Elm Reservoir. Today, the Lewisville Lake Reservoir also incorporates a small lake built in the 1920s called Lake Dallas.

In addition to Lake Lewisville State Park, there are 17 other developed parks and four access areas available for public use along Lewisville Lake's 183-mile shoreline. Most of the parks are operated by the Corps of Engineers or local city park systems. There are also three public marinas and two fishing barges on the reservoir.

Other nearby attractions include Eisenhower State Recreation Area on Lake Texoma, located 80 miles north of Dallas near Denison; Former President Dwight Eisenhower's birthplace in Denison, open for tours seven days a week; the Sam Rayburn Library and the late congressman's home, operated by the Texas Historical Commission in Bonham, 28 miles east of Denison.

If you want a clean, new state park with quality facilities, a trip to Lake Lewisville State Park should be in your travel plans. Just be sure you have a map with you, as the 90-degree angle turns on Hackberry Road off FM 423 can get you lost in a hurry.

**

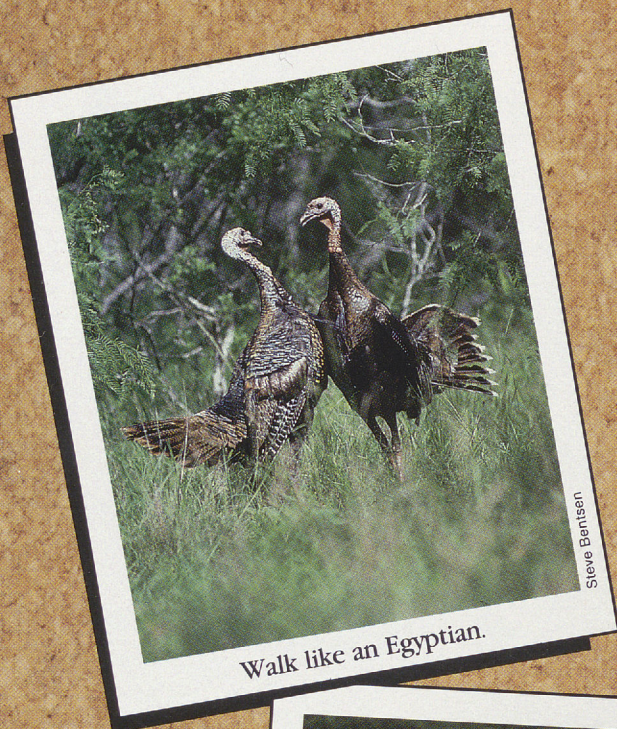


Animal @

"Is it just me or are they law

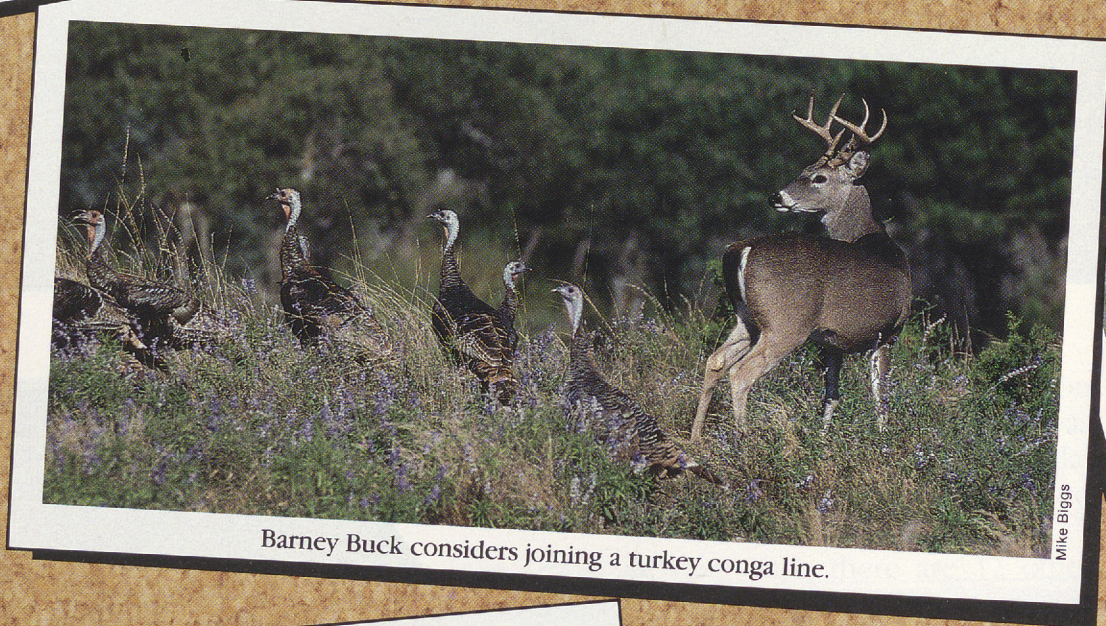
Occasionally, I come across a wildlife subject that begs to be heard from in its own unique way. Giving it voice is the hardest part . . . everybody and his blue-tick has his favorite knee-slapper. Contributions pour in from the most unexpected sources, and quicker than the bat of a bullfrog's eye, I find myself awash in a sea of irreverent

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Steve Bentzen

Walk like an Egyptian.



Mike Biggs

Barney Buck considers joining a turkey conga line.



Grady Allen

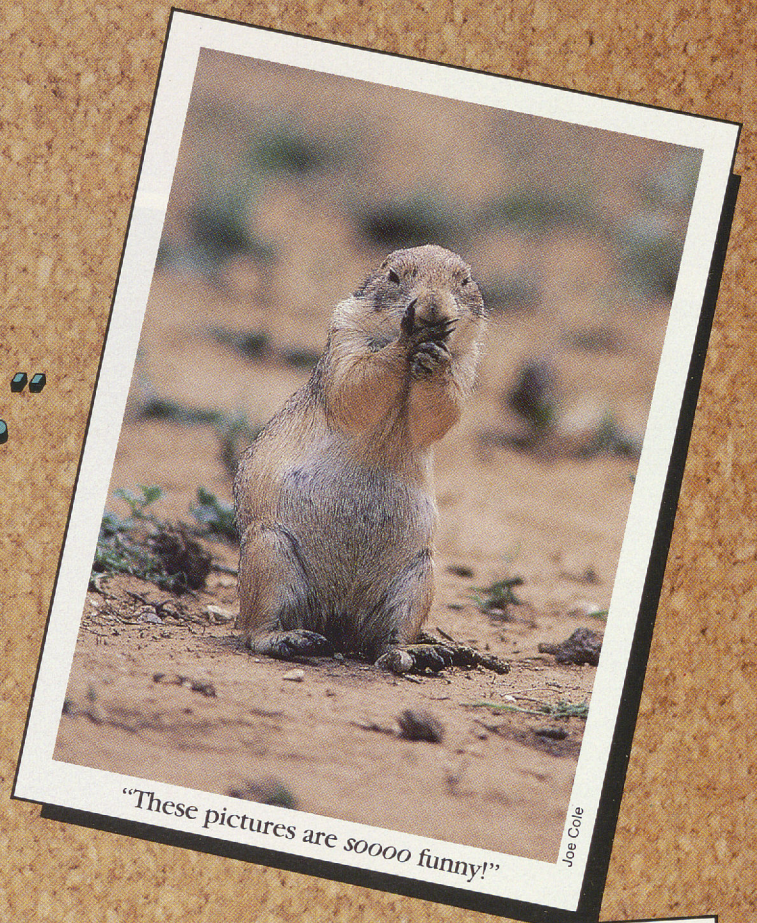
"Here, Fifi . . ."

Wisecracks

They laughing at us? no, really..."

wisecracks and truly inspired one-liners. These have given life to this issue's whacked-out version of *Wild Kingdom*. The result of this momentary insanity? Perhaps a few good chuckles and the reminder that occasionally our neighbors in nature help us take a lighter look at ourselves.

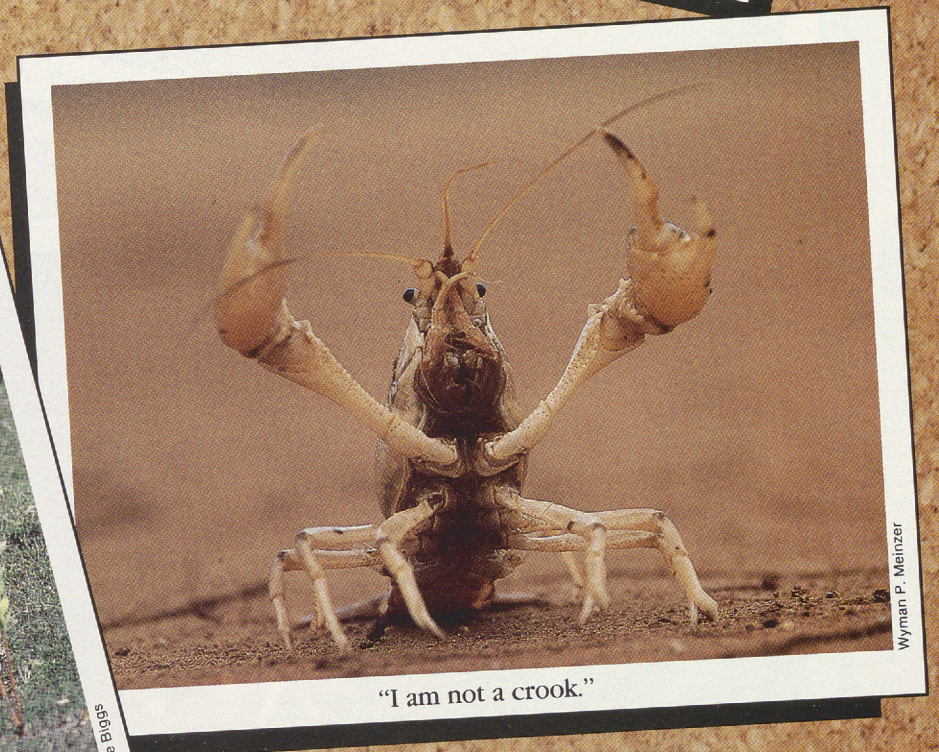
—Barbara Karwhite, *Art Director*



"These pictures are sooooo funny!"



African sable antelope digging for home.



"I am not a crook."



"Mom's gonna be mad when she finds out we lost Bambi . . . I thought he was with you!"



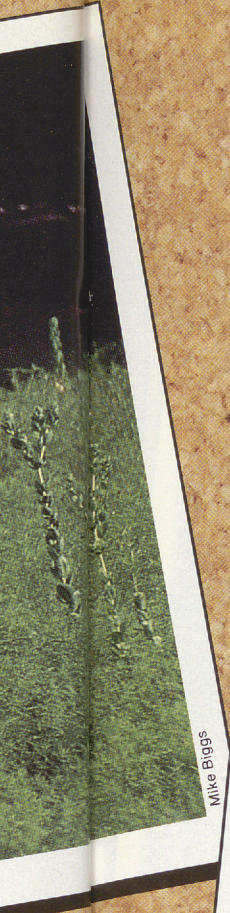
"On three, let's give this hayseed terminal warts."

Leroy Williamson



"What a party!"

Mike Biggs



Mike Biggs

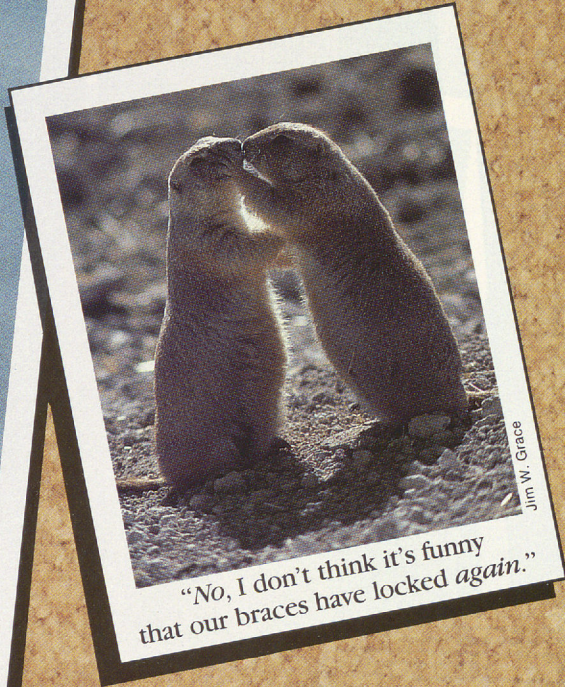


Mike Biggs



Leroy Williamson

Tall and tan and young and lovely the girl from Ipanema goes walking . . .



Jim W. Grace

"No, I don't think it's funny that our braces have locked *again*."



Jim W. Grace

"Those mosquito larvae always give me gas."



Mike Biggs

Earl the elk coolly calculates how to go about getting peanut butter off the roof of his mouth.



Mike Biggs

"I'll take it with all the options, but the gun rack's gotta go."



Bill Reaves

"I'll jog this off tomorrow."



Mike Biggs

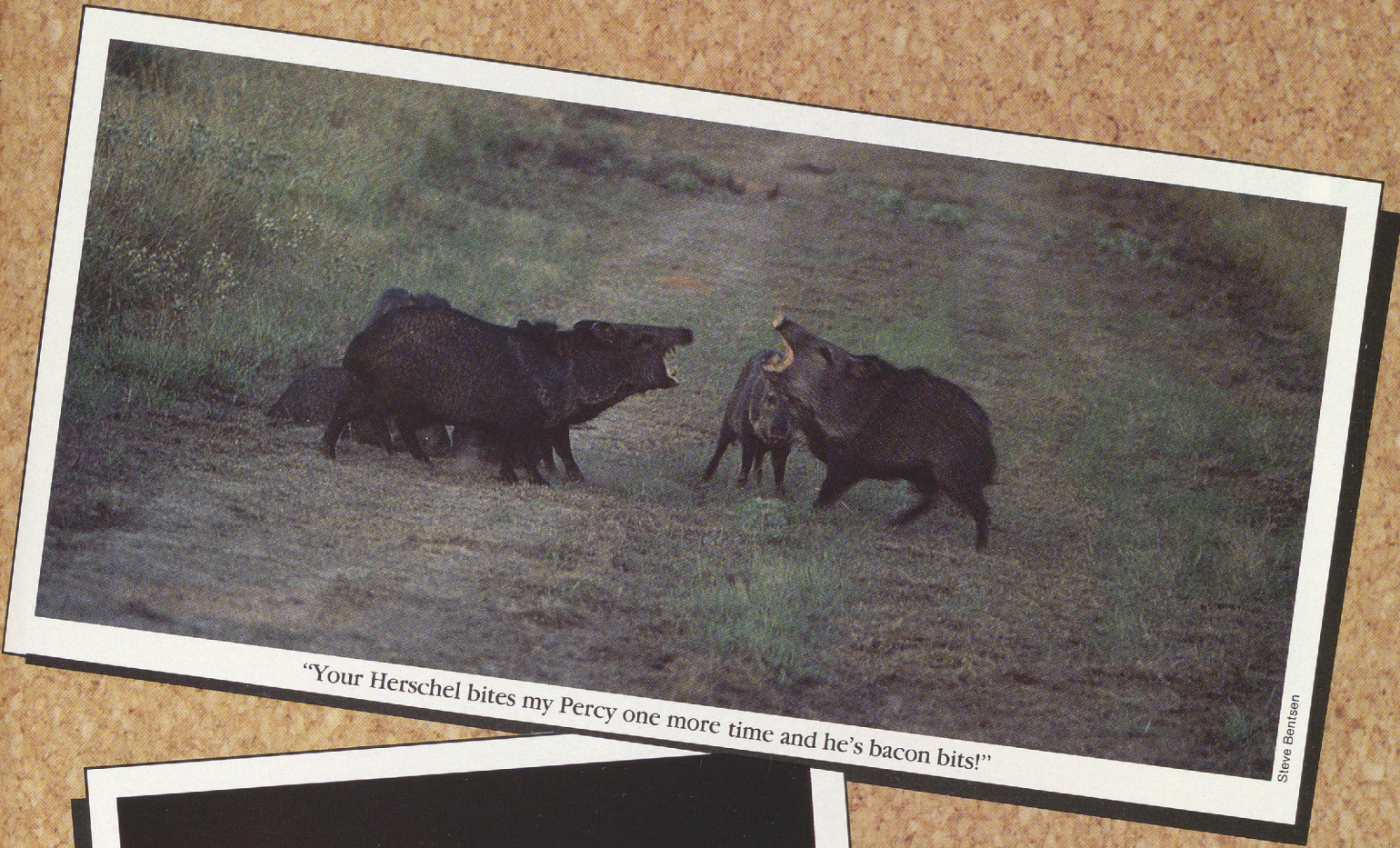
Farmer Mike sticks one in the fence as a warning to other jackrabbits.



Mike Biggs

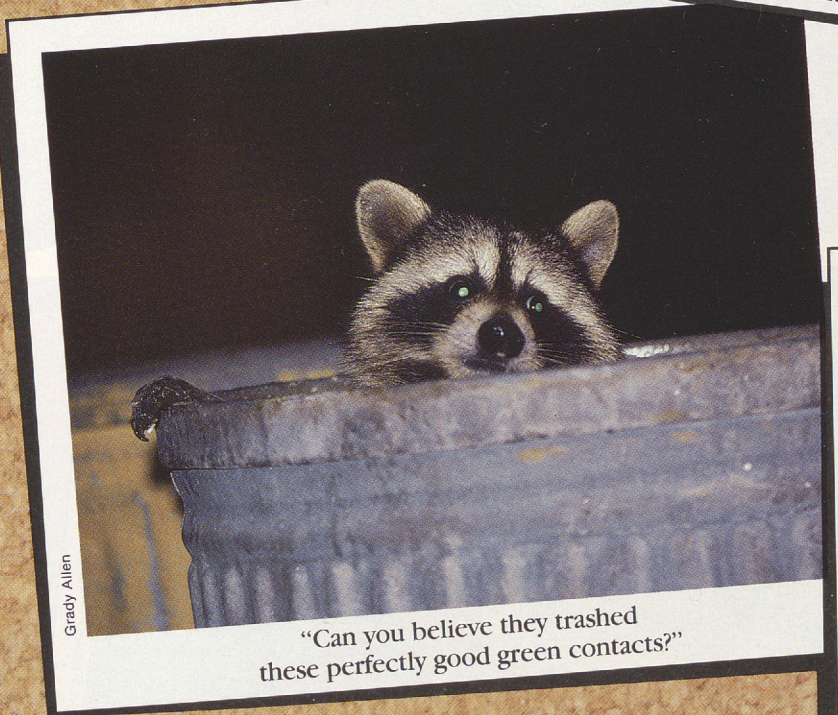


Mike Biggs



"Your Herschel bites my Percy one more time and he's bacon bits!"

Steve Bentsen



Grady Allen

"Can you believe they trashed these perfectly good green contacts?"



Mike Biggs

"Oh no! They *said* if I did this one more time my face would freeze like this."



Bill Draker

Highway Department tests new wildflower-picking deterrent.



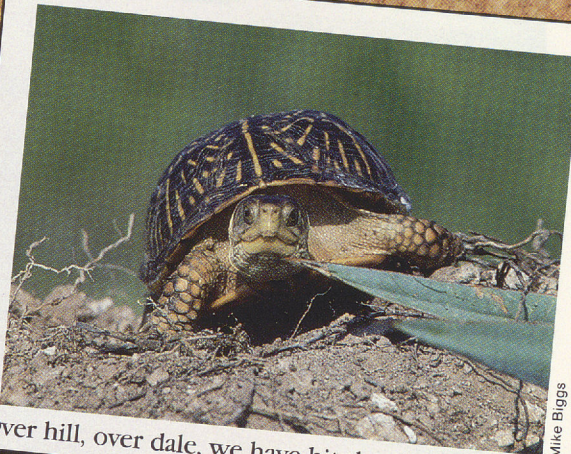
Mike Biggs

"My name isn't Pilgrim, but I'll dance anyway."



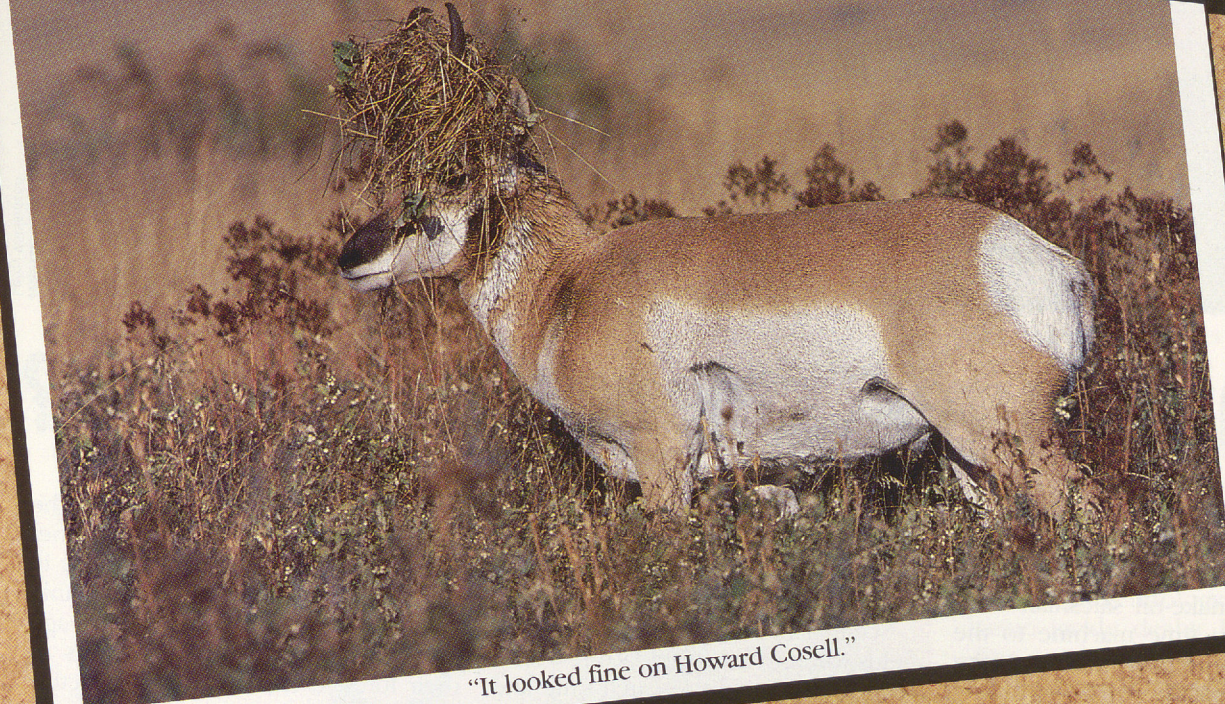
Steve Benteen

"Here comes another Parks and Wildlife biologist—let's engage in a lot of frenetic gobbling, followed by an elaborate feather display."



Mike Biggs

"Over hill, over dale, we have hit the dusty trail . . ."



Tom Ulrich

"It looked fine on Howard Cosell."



Mike Biggs

"I swear there's a sable antelope down there."



Leroy Williamson

Fishing lures: science or sorcery?

by Jim Cox

If a frontier snake-oil salesman were transported via time machine to the present day, he might find a job in the fishing lure industry.

Just as country folk were swayed by patent medicine hawkers' outlandish claims, fishermen nowadays pay millions for colored chunks of wood, plastic or pork skin. They buy largely on faith, since there are no guarantees once the angler leaves the tackle shop.

Bass lure manufacturers produce new innovations at a clip NASA would be proud of, and bass fishermen always seem eager to add the latest gimcrack to their lure collections.

But how many of these are really new? A majority of today's lures appear to be refinements of old designs. Crankbaits today are works of art, but they are basically similar to the Bombers and River Runts of yesteryear; some present-day topwaters resemble the ancient Chugger Spook and Lucky 13; even buzzbaits and spinners look suspiciously like the Hawaiian Wiggler of the 1940s and 1950s.

However, experts say that while recent times may not have produced any breakthroughs, some important trends and techniques are evolving.

Scent, sound and depth are three fields wherein lure manufacturers have spent considerable research time and money. The newest marketing push has been a variety of scent potions you can squirt or daub onto artificial lures, and some new lures have built-in compartments or permeable materials designed specifically for scent solutions. Some plastic worms now are impregnated with actual fish materials during the molding process.

Biologists believe largemouth bass are primarily sight and sound feeders, with the sense of smell being a lesser factor. However, manufacturers claim that studies of bass behavior under controlled conditions indicate their products can trigger a strike on lures that got no response before treatment. Observations of bass in a display tank at an Austin tackle shop tend to support the claim that in certain situations, scents can make a difference.

Another controversial topic is the importance of sound in lure design.

Fishermen have long believed the sonic vibrations given off by a spinner blade help attract strikes, especially in low-visibility water conditions. Crankbait manufacturers several years ago started putting lead shot or BB's in their lures to create noise—a practice that still is gaining momentum.

Another continuing trend is to design lures that will have proper action in deep water. Crankbaits in the past seldom would run deeper than four to eight feet, but manufacturers of some new models now are claiming their divers will go down as deep as 20 feet.

Another type of lure that has enjoyed a renaissance of popularity is the jig. The basic lead-head jig with single hook has taken on a vast number of looks. When equipped with a weed guard, a live rubber skirt and a trailer of pork rind or plastic worm, the jig-and-eel combination has become a mainstay of bass fishing.

Fluorescence and light-gathering finishes are another high-tech trend in lures. You now can buy plastic worms with tails that actually absorb light and glow in the depths. Prismatic designs on crankbait bodies and spinner blades



CRANKBAITS AND SPINNERS—The new generation of diving crankbaits offer added depth, true-to-life finishes and sound. Pictured in the center is one of the new long-lipped divers the manufacturer claims will probe 20-foot depths. Starting at the top and proceeding clockwise are a natural-finish crankbait with rattles inside, a soft-bodied diver with integral tail for swimming action, and a crankbait with fluorescent color. Spinners with new wrinkles are a dual offset hook model designed to catch short-striking bass and one designed with a jiglike head for deeper running. Next is a swimming lure that comes with interchangeable color panels and a new weedless spinner/grub combination.



FISHING SOFTWARE—Soft plastic and fabric materials have made a big impact in recent years. Starting on the left row at the top are three colors of Fat Getzit, a hybrid between a plastic worm and grub style of lure; the bottom two are worms with tails that glow in the dark; on the second row are a worm with a buoyant head for surface fishing; two floating lizards and a plastic grub on a lead-head jig with one of the new felt materials used instead of pork rind, and one of the new realistic crawfish imitations, this one a sinking model equipped with a lip to create diving action.

look better in the display case, but whether they enhance the catch may be debatable.

Technology has made it possible to duplicate a shad or sunfish's color patterns, down to the last scale. Several crawfish imitations now on the shelf are almost indistinguishable from the real thing.

Ever on the alert for new wrinkles, luremakers now are melding different lure styles into one. For instance, a new style of crankbait has a soft body and a long, wiggly tail to combine action of crankbait and worm. Another crankbait model has a spinner blade suspended below the lip, and one model spinner-bait features a small crankbait opposite the blade rather than the traditional lead head and skirt.

Plastic lizards, long a subsurface favorite, now come in an extremely buoyant model that is heavy enough to cast easily without adding weight, but is fished as a topwater. Another versatile new lure is called a "Fat Getzit." This tubelike worm is a variation between a worm and a plastic grub. A lead-head jig can be inserted in the lure's body, and it can be fished by hovering it over the bottom or hopping it along. It also can be rigged with a weedless hook and fished on or just under the surface.

One recent change in lures is not related to technology, according to Austin tackle dealer John Gumfory. "The overall quality of fishing tackle has improved tremendously in the past few years, not just for lures but for rods, reels and everything else," Gumfory said. "We used to have continuous problems with poor hooks, crooked-running crankbaits and the like. Now I think competition among lure manufacturers has forced them to put out better quality products."

Gumfory, like most anglers, views lure manufacturers' brainstorming with equanimity. "It seems that popular lures keep coming back in one form or another," he said. "No doubt some of the new gadgets are designed to catch the fisherman more than the fish, but overall I think a lot of the new lures are more effective than the ones they've replaced." **

Editor's Note: The fishing lures pictured in this article were provided by American Angler Tackle Center, 319 South Lamar, Austin.



Clymer Prairie, Hunt County

HOMEGROWN GRASS

If we had to choose the single most important group of flowering plants found on earth today, plants that contribute more than any others to our health and the overall quality of human life, what would our choice be?

Given the number of plant species worldwide and the fact that mankind uses so many of them in a variety of ways, the answer to this question might seem impossible at first. But think about what we eat for breakfast. Cereal, toast, pancakes and syrup, beef or sausage, eggs, milk and butter are directly or indirectly products of the grass family. Virtually every consumable item on the breakfast table as well as thousands of products used every day come from grasses.

Although wheat, rice and corn are among the best known of our cultivated species, there are many important grasses that provide forage for livestock and many wildlife species. Even the meat of cattle, goats, sheep and horses, as well as their numerous byproducts, have been described as examples of converted grass. Without this valuable family of flowering plants, modern agriculture and the material abundance it affords would be impossible.

Often found in dense colonies where soil and moisture suit them best, most grasses have a spreading, fibrous root system that holds them in place and stabilizes the soil



Windmill grass, *Chloris verticillata*

against the destructive, erosive forces of wind and rain. As with most other plants, grass roots absorb moisture and nutrients, and act as food storage centers for the continued growth of the plant.

The root system also aerates and loosens the soil, making it possible for other species of plants to grow. As grasses die and reform each season, their decaying stems and leaves provide compost that builds topsoil fertility. Grasses have become indispensable in the beautification of our roadsides, recreational areas and homes.

Of the approximately 6,000 species of grass found in the world today, about 1,400 species grow in the United States. In Texas, we have almost 600 species (more than any other state) and there is probably not a county in the state with fewer than 100 kinds of grasses.

Although many grasses may appear similar, they are as varied in their growing habits as any of the flowering plants found in Texas. Some species can produce large amounts of forage while others produce very little; many are perennials that return each year while others are annuals that must reproduce from seed.

Some grow in winter and early spring while others grow best in summer. Some have deep root systems that (depending on moisture) penetrate deeply into the soil while others grow near the surface; and

Article and Photos by Paul M. Montgomery



Redtop panisum, *Panicum rigidulum*

some are selectively grazed by livestock and wildlife while others are ignored.

In Texas we have many native grasses that produce high quality forage and provide valuable nourishment to the soil. These grasses once were the dominant plants in the open rangeland plant communities of Texas. Nutritious, palatable and easily digested, these grasses are usually grazed in preference to less desirable species.

Among the most important of our native species are big and little bluestem, yellow Indiangrass, switchgrass, sideoats grama, hairy grama, tall dropseed and eastern gamagrass to name but a few. Of these, none can equal big and little bluestem in quality or quantity of forage produced. Both species are relished by livestock and deer.

Eastern gamagrass also is noteworthy, not only as an important forage species but because it represents one of the few native, wild plant groups to which corn belongs. These grasses also were important components of the great Tallgrass Prairies that stretched from Texas to Canada and were ultimately important in the production of the rich soils of our nation's cornbelt. Although very little of the native grasslands exist today, these species can still be found on unbroken, remnant prairies and properly managed rangeland where soil and moisture are best suited for their growth.

Numerous other grasses also grow in Texas but they are non-native or exotic plants whose origins can be traced to Africa, Europe and South America. Many of these species were introduced by the Soil Conservation Service in the United States during the Dust Bowl days to overcome the effects of poor agricultural practices.

As the open, fertile grasslands became overgrazed, many areas were cleared, plowed and reseeded with exotic species. But many of the introduced grasses proved too costly to maintain and control, and often required extensive fertilization and the use of pesticides for optimum growth. As other exotics proved susceptible to disease and drought, the topsoil of the open



Yellow Indiangrass, *Sorghastrum nutans*



King Ranch bluestem, *Bothriochloa ischaemum* var. *songarica*

grasslands was gradually depleted of mineral content and severely eroded.

Many exotic grasses in Texas provide forage for livestock, wildlife and erosion control along ditches, roadsides and on disturbed soils. But none of these grasses has the durability of our native flora and many do not persist out of cultivation. Others, however, do persist and often escape to overgrazed rangeland, thereby preventing the reestablishment of native species.

Today, exotics such as johnsongrass, perennial ryegrass, King Ranch bluestem, bermudagrass, crabgrass, rabbitfoot and canarygrass are among the nonnative grasses growing in Texas. Of these, johnsongrass is the best known, or most notorious.

A native of southern Europe, Africa and India, johnsongrass provides much palatable forage to livestock if properly managed. However, because of its aggressive growth and heavy seed production, johnsongrass often becomes a se-



Little bluestem, *Schizachyrium scoparium* var. *frequens*

rious weed in fields of cultivated crops. During dry summers in Texas, johnsongrass can produce an acid in its stems that can poison grazing livestock.

While the primary role of our grasses is to provide forage for animals and to stabilize and enrich soil, the presence and abundance of different species on a rangeland can indicate the quality and availability of forage and how well this important resource is managed.

Palatable native grasses such as yellow Indiangrass, switchgrass and big bluestem are usually grazed first, but if prolonged grazing continues during the growing season, these species decrease in numbers and coverage. At the same time, less palatable species such as bushy bluestem, broomsedge bluestem, silver bluestem and threeawn often are ignored by livestock and tend to increase under heavy grazing while exotic grasses may begin invading these areas as well.

Under ideal conditions of soil moisture and temperature, the top growth of a palatable native grass

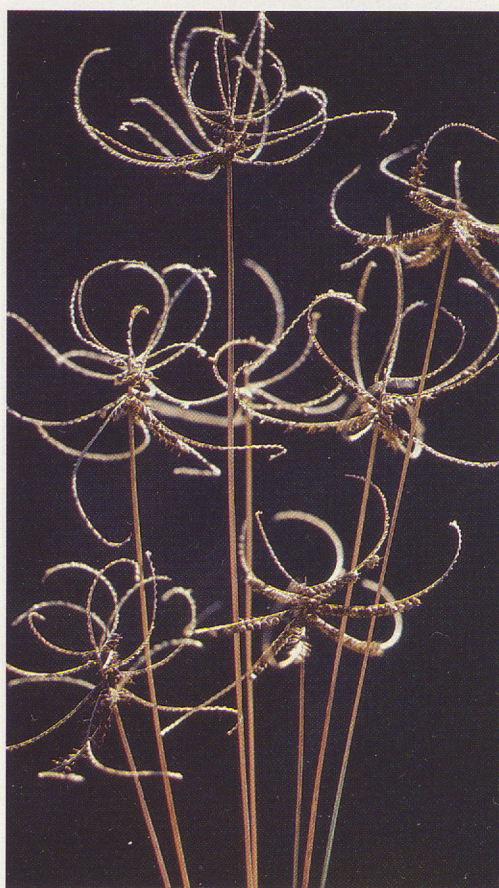


Pink pappusgrass, *Pappophorum bicolor*

relies heavily on a deep, vigorous root system. The leaves and stems likewise supply starches and sugars to enable the root system to grow.

However, if the plant is grazed too closely each year, the root system is gradually weakened and development of leaves and stems is greatly reduced. But if native grasses are properly grazed during their growing season by controlling the numbers and distribution of livestock, farmers and ranchers can ensure that these plants will have enough current growth to replenish themselves. Management of important grasses results in vigorous growth, stronger root development and maximum production of cheap, high quality forage.

Grasses are a basic heritage from the land shared by all of us. By providing nourishment to man and beast from prehistoric times to the present, grasses have been a great motivating force throughout our history. But despite such importance, grasses have been the most abused and neglected of our flowering plants.

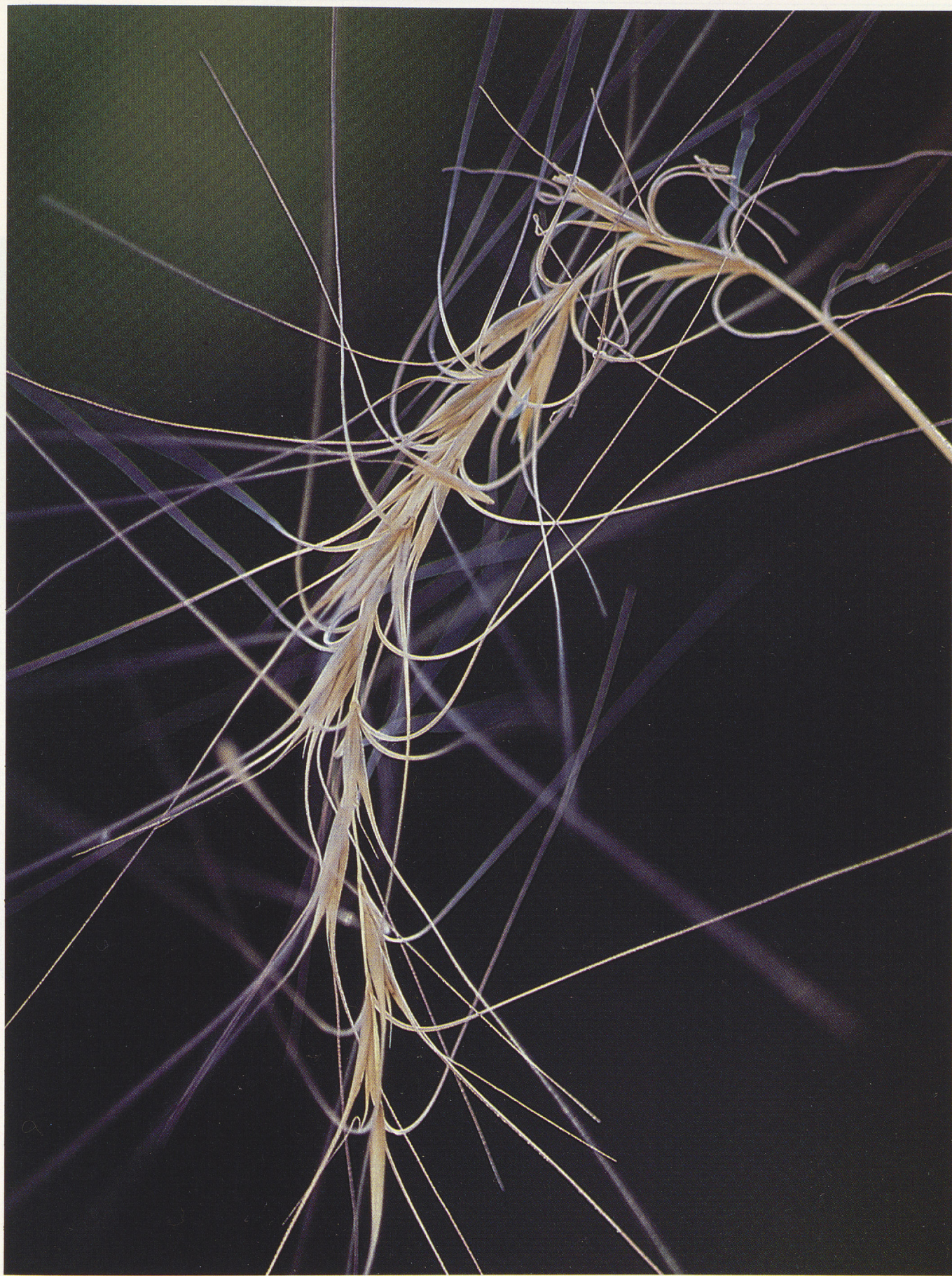


Hooded windmillgrass, *Chloris cucullata*

By the start of the 20th century, the demise of grass communities was largely an accomplished fact as prairies were plowed under for crops or severely overgrazed.

In Texas, Oklahoma and Kansas during the 1930s, human suffering was tied to this loss as drought and duststorms removed thousands of tons of topsoil from barren prairies once covered by native grass. Although nature had been at work for millions of years selecting the species best suited to the soils and climates of our land, we were able to diminish the fruits of her labor within a few decades.

While the future of the grass family is uncertain, there is hope today that these sturdy, beautiful plants can be used to reclaim abused rangeland, control further erosion, and reduce water consumption by using them in urban landscaping. Whatever their future, they remain so critical to our lives that even a slight understanding of their value should make us aware of what is one of our greatest natural resources. **



Wootton threesawn, *Aristida pansa*

CLICK BEETLE

A snappy little bug

by A. Gayland Moore

What is dark brown, 12 to 23 millimeters long, "clicks" as it jumps and has two light spots on its body that produce a continuous luminescence at night? The answer is a pyrophorus click beetle.

No other name best suits this insect which complements its ability to click and jump by emitting brilliant flashes of greenish light on late summer or early fall nights. The species of *Pyrophorus* that occur in the southern states, including Texas, produce their greenish glow from two light spots located at the rear corners of the pronotum, the back plate of an insect's prothorax. It is this first anterior segment of the thorax which bears the insect's first pair of legs.

One of the most interesting and complicated forms of light emitted by insects and other low forms of animal life is known as cold light. Early writers called it phosphorescence, but it is now known that phosphorus is not involved. Luminescence has been suggested for the light emanating from cold bodies in contrast to incandescence, the light produced by substances heated to the glowing point. Photogenic—light generating—actually is a better way to describe the nature of this phenomenon.

Perhaps the insects that produce the most vivid flashes of light are tropical click beetles, often called fire beetles (*Pyrophorus*). The best known species is the *Cucubano-Pyrophorus luminosa* of the West Indies. These beetles, some of which are two inches long, emit brilliant flashes of greenish light and are sometimes used by West Indian ladies as hair ornaments. The light-generating organs on these beetles are located on the top of the prothorax and are in the form of two large spots.

Here in the United States we have a similar click beetle known as the eyed



elator (*Alaus oculatus*) which also is one of the largest, measuring 25 to 45 millimeters in length. The eyed elator click beetle also is easily recognized by its salt-and-pepper color and two eye-like spots. The spots, however, are not luminescent.

"Fireflies" or "lightning bugs" are the most familiar light-producing insects and have been observed by many people throughout the world. However, the common names of these insects are inappropriate for they are

neither flies nor bugs.

Click beetles received their common name from their most distinctive characteristic. An upside-down click beetle rights itself with a self-cocking mechanism which works like a pistol. When on its back, a click beetle bends up its thorax until it succeeds in hooking a sharp spine into a notch on the abdomen. When this is let go, the click beetle is hurled into the air by the sudden release of muscular tension.

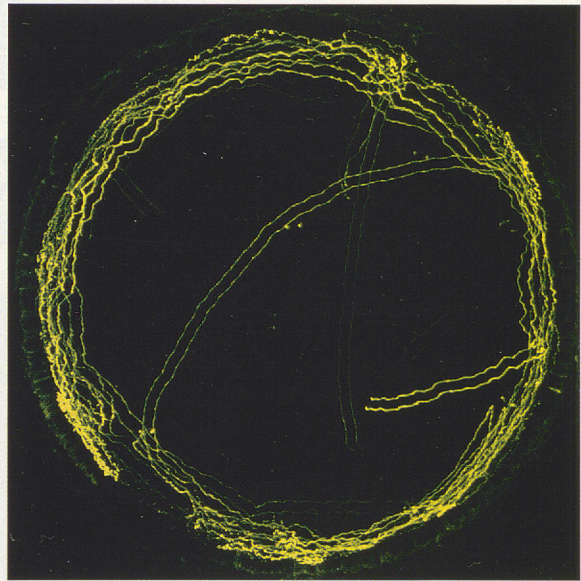
Naturally the beetle cannot be sure



Stephan Myers

These click beetles were caught in Corpus Christi during September. According to photographer Stephan Myers, they are abundant after 9 p.m. and can be seen crawling from the ground into low plants, where they often take flight. The light-colored spot on each side of the head (above) is the area that glows. At left is a magnification of that head area. At right, 10 beetles were placed in a dish for this time-exposed photograph. If caught, click beetles will "click" repeatedly.

Stephan Myers



Stephan Myers

of landing right side up on the first "clicking" jump, and in fact often fails to do so, but by repeated jumps it sooner or later lands on its feet. This jumping method is necessary because the legs of the click beetle are too short to right the inverted beetle.

This clicking performance serves a double purpose. If caught and squeezed, click beetles will "click" repeatedly. This may be no more than a response to being held off balance, but it is more likely to be the beetle's

automatic reaction when seized by a bird, lizard or any other enemy. Click beetles use their clicking ability in the hope of startling the predator into dropping it so the beetle can escape.

The common species of click beetles are usually black or dark brown, but some are red, yellow or green. The antennae may be simple or quite elaborately branched. Larvae of many click beetles live in the soil, feeding on plant roots. These wireworms, as they are called, may severely damage crops.

Most species of adult click beetles fly actively at night and hide away in the daytime. Although they feed mainly on leaves, click beetles also are attracted to sweet liquids which lead many farmers and landowners to trap some of the more harmful species by putting out sweet baits to attract them.

Next time you sit outside on a clear September evening, take notice of our two species of *Pyrophorus* click beetles exhibiting their green lights as they take off for an early fall flight. * *

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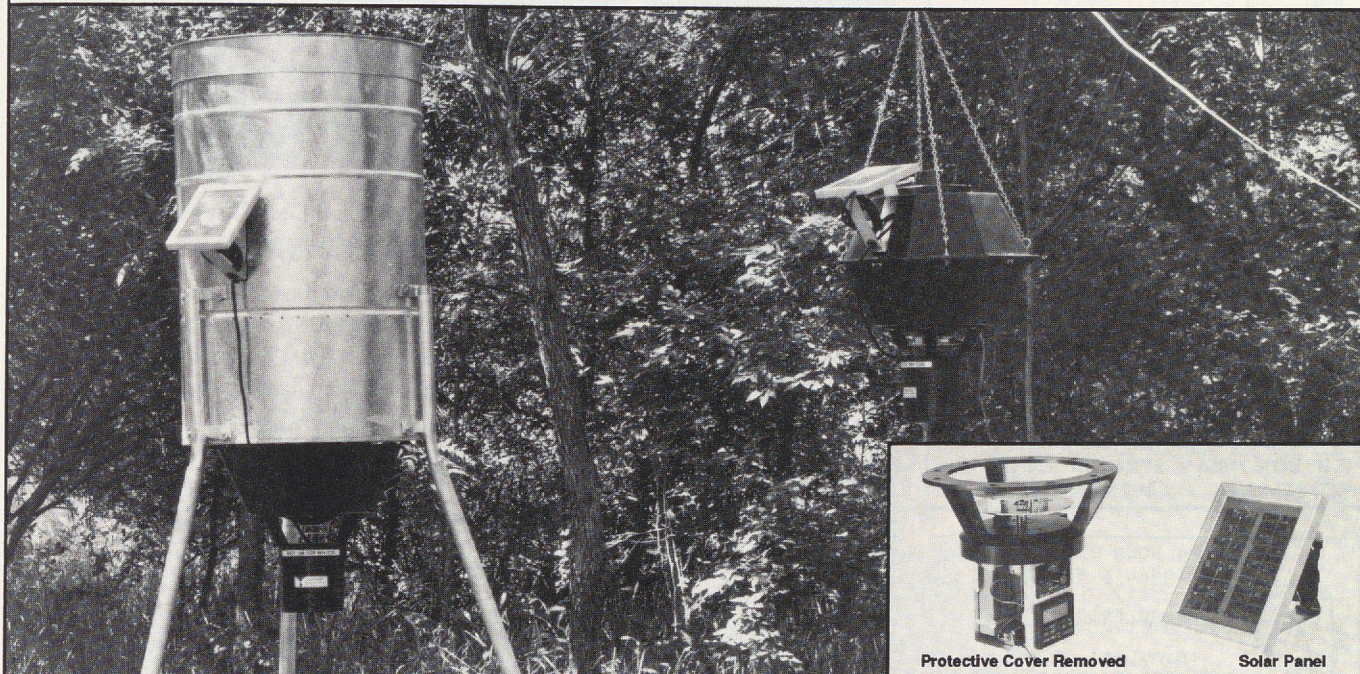
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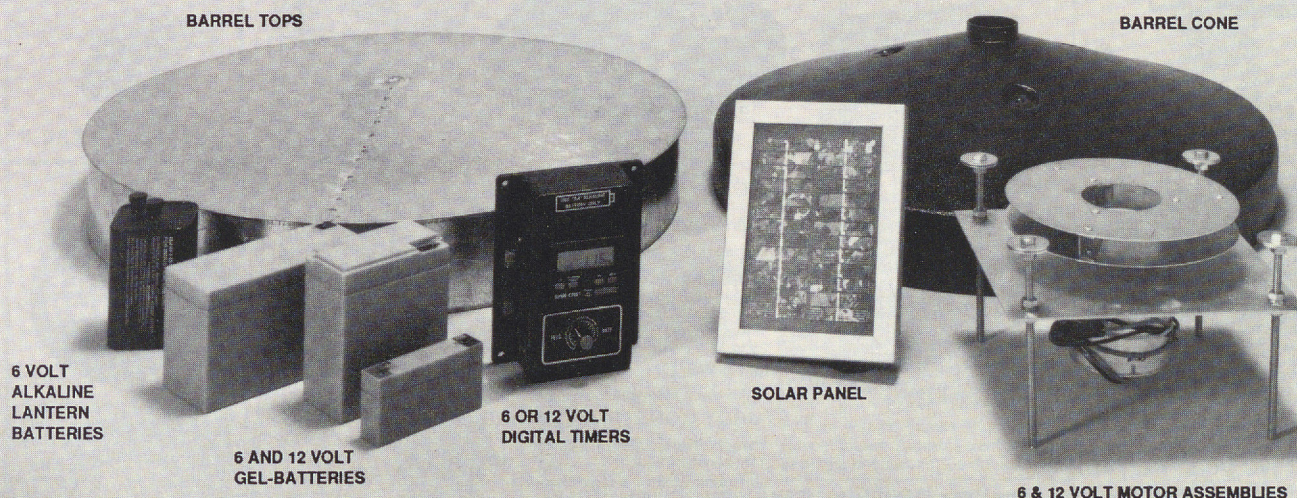
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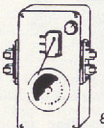
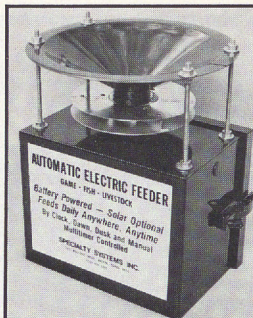


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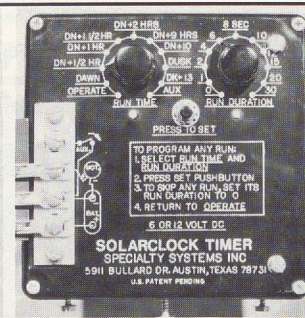
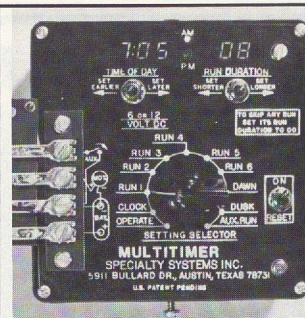
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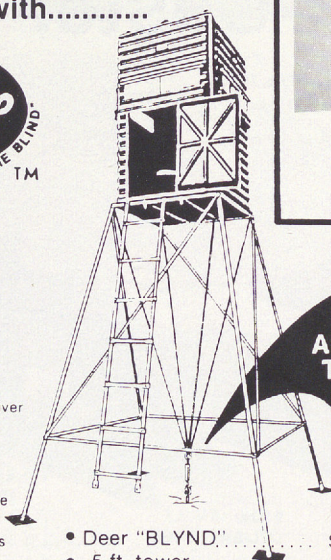
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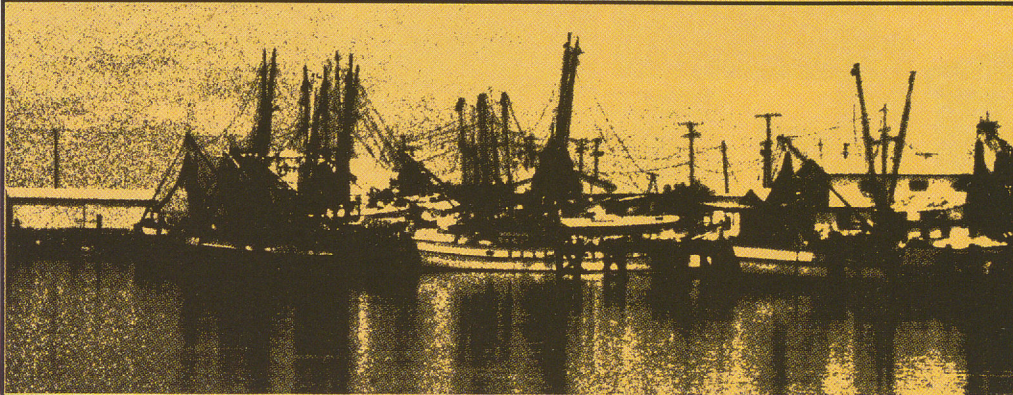
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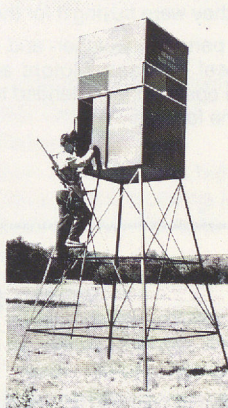


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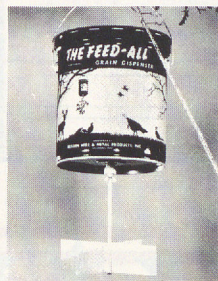
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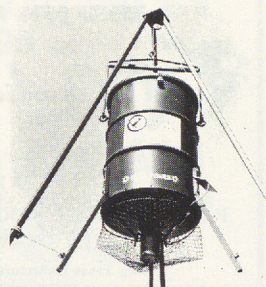


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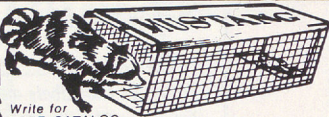
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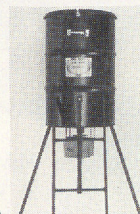
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Letters

British Reader

I felt like I had to write and say how much I enjoy your magazine, *Texas Parks & Wildlife*.

My wife and I hope to visit relatives in San Antonio in the near future. We look forward to seeing at first hand some of the animals, birds and flowers which are so beautifully illustrated—especially in the March 1987 issue.

Texas Parks & Wildlife is a publication which Texas should be proud of.

Ronald Last
Dorset, England

West Texas Javelinas

On page 38 of your May 1987 issue of *Texas Parks & Wildlife*, you show that javelina range east of the Davis Mountains. However, I saw tracks of our local collared peccary while hiking up to the top of North Franklin Mountain after a rain in late March.

About once in every five years peccary are seen or hit by automobiles in the vicinity of Magnetic and Hondo Pass in the city limits of El Paso.

I agree that the wildlife of Franklin Mountains Wilderness Park has thinned to the point where we will spend a lot of work, money and maybe 50 years of time bringing it back—but we have at least made a start.

The rare and sometimes occasional cougar, bobcat, porcupine, golden eagle, Trans-Pecos rat snake and quail are now appreciated for their rarity.

J. H. Marsteller
El Paso

Vanishing Prairies

Thank you for mentioning the Texas Vanishing Prairies Conference held in June.

We are a prairie state and most folks from out of state picture a Texas that looks like vast rangelands, and they are right. We used to be two-thirds to three-fourths grasslands.

A major impetus for this conference was to demonstrate to the Texas Parks and Wildlife Department that there is a large and clamoring constituency for Texas prairies. We had 178 enthusiastic people attend from across the state, including the general public and representatives of numerous organizations and universities, such as Texas Tech, Texas A&M, Texas A&I, Baylor, the Native Plant Society of Texas, the Soil Conservation Service and the nature centers in

Dallas, Fort Worth, Houston, Austin and San Antonio.

We would like to see each type of prairie plant community represented in a Texas Parks and Wildlife Department park or preserve. And we very much want Texans to have a large-acreage prairie state park. These prairies are the roots of Texas and are vitally important to the preservation of our natural and cultural heritage.

Although Commissioners Ed Cox, Jr. and Bob Armstrong were unable to attend as planned, we look forward to working with the Parks and Wildlife Commission to learn more about the department's Six Year Plan and to discuss our priorities for Texas prairie preservation.

S. Lee Stone
Vice President
Native Prairies Association of Texas
Del Valle

Sunglasses

Your article in the June issue about sunglasses was very timely. People should protect their eyes from ultraviolet radiation.

However, tints applied to plastic lenses do not provide UV protection. Plastic lenses must be treated to provide UV protection to the wearer. Color of the lens has little to do with UV absorption.

The article failed to mention that ophthalmic eyewear and expert advice are available from Texas' 2,000 doctors of optometry. Optometrists have been providing eye care to Texans for decades.

Dr. Matthew C. Hudson
Mount Pleasant

To Kill A Hummingbird

I enjoyed Luke Wade's story on the hummingbirds in the May 1987 issue of *Texas Parks & Wildlife*. Having seen several this spring, I found the article very interesting.

However, there is one fact that Mr. Wade failed to elaborate on concerning the use of red coloring in sugar and water solutions used to attract hummers.

Mr. Wade writes, "It is not necessary to add red coloring to the water as long as the feeder itself is red." There's more to it than that. I think the reason *why* you should *not* use red coloring also should be stated.

In the book entitled "Don't You Know That Hummingbirds Don't Perch?" by David Heiston Nunn, the author writes, "Substances introduced into the hummingbirds' diet which are not sought or

which do not exist for them in their natural state—such as honey, artificial sweeteners, or red coloring—not only affect their appearance, but can mortally affect the hummingbirds' lives as proven by recent post-mortem examinations."

Since most people assume that red coloring in a sugar and water solution attracts hummingbirds, I hope by reading this they will understand that this additive could kill the hummingbirds.

Martha Webster
Bellaire

Let's Get Technical

Your beautiful photos deserve every compliment, but they would be appreciated even more by us "ordinary shutter-bugs" if some technical data were included; ("f" stops, speed, camera, film, etc.)

My interest in *Texas Parks & Wildlife* magazine also is stimulated by the delicate balancing act you do between rod-gun aficionados and the many, many other outdoor treats like Laurence Parent's, "The Shifting Sands of West Texas" (May 1987).

That guy "paints" and choreographs the greater outdoors like a maestro!

Cap Carpenter
San Angelo

■ Since we use photos from a number of sources, providing technical information on each photo is virtually impossible.

However, when we spotlight a photographer's work such as Leroy Williamson's 20th anniversary photo essay in the July 1987 issue, we often include technical photo information for our subscribers.

We also welcome letters inquiring about specific photos in any issue, especially when they involve photos taken by one of our staff photographers.

BACK COVER

Inside: A native perennial, eastern gamagrass provides good forage for livestock and wildlife. It occurs throughout Texas, but is most common in the eastern half. Texas has more native grasses than any other state. (See story on page 34.) Photo by Paul Montgomery. **Outside:** A day of sailing on Lewisville Lake is one of many treats awaiting the visitor at the new Lake Lewisville State Park in North Texas. (See story on page 18.) Photo by Leroy Williamson.





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